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THE WEEVIL GENUS *SIBINIA* GERMAR: NATURAL HISTORY, TAXONOMY,
PHYLOGENY, AND ZOOGEOGRAPHY, WITH REVISION OF THE NEW WORLD
SPECIES (COLEOPTERA: CURCULIONIDAE)¹

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The genus *Sibinia* Germar is characterized and illustrated, its relationship to *Tychius* Germar is discussed. The 133 recognized New World species of *Sibinia* are placed in two subgenera, *Microtychius* Casey with 126 species, *Sibinia* with seven species (this subgenus also contains over 100 Old World species). The New World species are described, illustrated, and keyed, their geographic distributions mapped. Lectotypes are designated as appropriate. The following 96 species are new (type-localities parenthetical): *S. amplificata*, (Sete Lagoas, Minas Gerais, Brazil), *S. impensa* (Butatais, São Paulo, Brazil), *S. bufemorata* (Sete Lagoas, Minas Gerais, Brazil), *S. bufemoratooides* (Fazenda Retiro de Telhas, Mato Grosso, Brazil), *S. distorta* (Dianapolis, Goiás, Brazil), *S. griseoides* (Salta, Salta, Argentina), *S. warneri* (Villa Vilela, Ponta Grossa, Paraná, Brazil), *S. alvarengae* (Pedra Azul, Minas Gerais, Brazil), *S. sulcifera* (Mexico), *S. asulcifera* (50 km W Andalgala, Argentina), *S. concava* (11 km W Las Cejas, Tucumán, Argentina), *S. cuauhtemoc* (5.1 mi SW Tehuacan, Puebla, Mexico), *S. triseriata* (1.4 mi S Premont, Jim Wells Co., Texas), *S. ruidula* (4 mi N Delfina, Hidalgo, Co., Texas), *S. schaefferi* (13.3 mi NE Tehuiztzingo, Puebla, Mexico), *S. grandis* (Nova Teutônia, Brazil), *S. glomerata* (Nova Teutônia, Brazil), *S. pullipes* (Corumba de Goiás, Goiás, Brazil), *S. nigripes* (Pedra Azul, Minas Gerais, Brazil), *S. furfurosa* (Booby Cay, Conception Is., Bahama Islands), *S. solaris* (Puerto Morelos, Quintana Roo, Mexico), *S. dorsena* (Santarem, Brazil), *S. santarem* (Santarem, Brazil), *S. tropidorhyncha* (Cerro Campana, Panamá), *S. barberi* (Livingston, Guatemala), *S. calvata* (Cerro Campana, Panamá), *S. altensis* (Trece Aguas, Alta Verapaz, Guatemala), *S. tessellatopsis* (Tamarindo, Veracruz, Mexico), *S. aurifera* (El Cermen, Canal

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Zone, Panamá), *S. stricticomula* (2.5 mi NE Cacahuamilpa, Guerrero, Mexico), *S. albiduloides* (4.3 mi SW Acatepec, Puebla, Mexico), *S. inflata* (6 mi N Cuernavaca, Morelos, Mexico), *S. obrienorum* (6 mi NE El Progreso, Guatemala), *S. criniventer* (6 mi NE El Progreso, Guatemala), *S. tenuicauda* (Seyapa Morazan, Honduras), *S. bothrosterna* (Teopisca, Chiapas, Mexico), *S. aulacis* (39.5 mi S Jaumave, Tamaulipas, Mexico), *S. obscura* (39.5 mi S Jaumave, Tamaulipas, Mexico), *S. guttata* (101 km E Cd. Victoria, Tamaulipas, Mexico), *S. caseyi* (2 mi S Shafter, Presidio Co., Texas), *S. lecontei* (Buchanan Dam, Llano Co., Texas), *S. reburrata* (4.4 mi S Acatepec, Puebla, Mexico), *S. inermoides* (25 mi W Durango, Durango, Mexico), *S. championi* (2.7 mi NW El Cameron, Oaxaca, Mexico), *S. peniculata* (2.7 mi NW El Cameron, Oaxaca, Mexico), *S. foveolata* (2.7 mi NW El Cameron, Oaxaca, Mexico), *S. conferta* (8.3 mi SE El Cameron, Oaxaca, Mexico), *S. acicularis* (Fazenda Pau d'Alho, Itu, São Paulo, Brazil), *S. ferruginosa* (San Salvador, Jujuy, Argentina), *S. nana* (1 mi SE Rio Hondo, Oaxaca, Mexico), *S. mendica* (Ilha dos Buzios, São Paulo, Brazil), *S. zapoteca* (8.3 mi SE El Cameron, Oaxaca, Mexico), *S. robusta* (Summit, Canal Zone, Panama), *S. bellula* (Paraíso, Goiás, Brazil), *S. col-libita* (Dianópolis, Goiás, Brazil), *S. varga* (Paraíso, Goiás, Brazil), *S. caatingensis* (Macaíba, Rio Grande do Norte, Brazil), *S. hirritus* (Encruzilhada, Bahia, Brazil), *S. fastigiata* (Coyame, Veracruz, Mexico), *S. fastidiosa* (Barra de São João, Rio de Janeiro, Brazil), *S. seminicola* (Brownsville, Cameron Co., Texas), *S. vatricosa* (Nova Teutônia, Brazil), *S. prolata* (Rio San Javier, Estancia la Noria, Santa Fe, Argentina), *S. geminata* (Rio San Javier, Estancia la Noria Santa Fe, Argentina), *S. acuminata* (Sapucay, Paraguay), *S. latissima* (Barueri, São Paulo, Brazil), *S. quinquemembrata* (S.L. Puruna, Paraná, Brazil), *S. ignota* (Guajava-Mirim, Território de Rondonia, Brazil), *S. hirticrus* (Natal, Rio Grande do Norte, Brazil), *S. fessa* (Encruzilhada, Bahia, Brazil), *S. hispaniolae* (Port au Prince, Haiti), *S. sparsa* (S. Maria Magdalena, Rio de Janeiro, Brazil), *S. ingenua* (Encruzilhada, Bahia, Brazil), *S. megalops* (Paraíso, Goiás, Brazil), *S. planocula* (Diapoque, Amapá, Brazil), *S. prorsa* (Natal, Rio Grande do Norte, Brazil), *S. muricata* (Corcovado, Guanabara, Brazil), *S. anfracta* (Paraíso, Goiás, Brazil), *S. anfractoides* (Pedra Azul, Minas Gerais, Brazil), *S. viridula* (14 mi W Niltepec, Oaxaca, Mexico), *S. chichimeca* (37 mi S Mexico City, Mexico), *S. tepaneca* (2.8 mi E Matatlan, Oaxaca, Mexico), *S. azteca* (37 mi S Mexico City, Mexico), *S. earina* (Pedra Azul, Minas Gerais, Brazil), *S. laticauda* (Vilela, Chaco, Argentina), *S. aliquantula* (Ponce, Puerto Rico), *S. aculeola* (Salta, Salta, Argentina), *S. aspersoides* (Vila Velha, Ponta Grossa, Paraná, Brazil), *S. glabrirostris* (Repressa Rio Grande, Guanabara, Brazil), *S. longirostris* (Rurrenabaque, Rio Beni, Bolivia), *S. schwarzi* (Porto Bello, Panamá), *S. castoroides* (Corumbá de Goiás, Goiás, Brazil), *S. galbina* (Dianópolis, Goiás, Brazil), *S. inornata* (23.6 mi SW Linares, Nuevo Leon, Mexico), *S. muscula* (Caceres, Mato Grosso, Brazil), and *S. tanneri* (Oasis, Riverside Co., California). *Tychius sororius* (Lourenço, Marques, Mozambique) is also newly described. New synonymies are: *Sibinia* [= *Paragoges* LeConte, *Itychus* Kissinger, *Mecynopyga* Pierce, and *Dichotychius* Bedel]; *S. setosa* (LeConte) [= *S. subfasciata* (Casey), *S. sulcatula* (Casey), *S. albida* (Schaeffer), *S. puella* (Casey), *S. atoma* (Casey), *S. echina* (Casey), *S. hystrix* (Casey), *S. vernillis* (Casey), *S. fatua* (Casey), *S. fratercula* (Casey), and *S. dulcis* (Casey)]; *S. variegata* (Casey) [= *S. rubescens* Champion]; *S. simplex* (Casey) [= *S. imbellis* (Casey), *S. porcata* (Casey), and *S. curtipennis* (Casey)]; *S. grypa* (Casey) [= *S. solariella* Champion]; *S. hispida* (Casey) [= *S. erratica* (Casey)]; *S. vagabunda* Champion [= *S. fuscipes* Champion]; *S. maculata* (LeConte) [= *Tychius maculifer* Hatch].

Subgenus *Microtychius* members have hosts in the genera *Acacia*, *Calliandra*, *Lysiloma*, *Mimosa*, *Pithecellobium*, and *Prosopis* (Leguminosae: Mimosoideae). Some *Microtychius* larvae feed externally on seeds within pods while the latter are on the plant, others consume flower buds; most pupate in the soil, a few within pods or buds. European subgenus *Sibinia* members have hosts in the genera *Alsine*, *Cerastium*, *Dianthus*, *Lychnis*, *Silene*, *Spergula*, and *Spergularia* (Caryophyllaceae), *Polycarpon* (Paronycheaceae), *Armeria*, *Limoniastrum*, and

Statice (Plumbaginaceae), *Thesium* (Santalaceae), and *Daphne* (Thymelaeaceae); New World subgenus *Sibinia* members have been collected on *Coldenia* (Boraginaceae) and “verdolaga” (Portulacaceae). European members of the subgenus reportedly develop in fruit as well as in flower buds; habits of the New World species are unknown.

Structural features of adults, host, life history, and chorological data were used to construct a hypothetical phylogeny of members of the genus. The phylogeny was considered in developing a classification, but the latter is not strictly cladistic, in that some paraphyletic groups within the genus are recognized; the genus *Tychius* is also paraphyletic. Evolution in *Sibinia* has been accompanied by reduction and/or loss of many prominent morphological features inferred in ancestral *Sibinia*. These plesiotypic characters are retained in members of the informally recognized paraphyletic “*Itychus*” stock.

Analysis of phylogeny, geological history, and angiosperm biogeography revealed common distributional patterns and probably routes of dispersal for trychiines. The *Tychius sororius* group of southern Africa is recognized as the probable sister group of *Sibinia*. The *Sibinia* stem ancestor probably lived in the Brazilian Region of South America and probably had a mimosoid host. The following sequence of evolutionary events is indicated.

An early dichotomy produced a lineage associated with the xerophytic flora which developed into the present day flora of the Monte region of Argentina. This lineage, represented by the *sulcifera* and *variegata* groups, dispersed via the Andean Cordillera into North America and is represented in arid regions of both continents. The “*Itychus*” stock radiated from the Brazilian Region into savanna and tropical deciduous forest zones throughout the neotropics. Its members and members of descendant lineages radiated and adapted to several different mimosoid groups; some eventually invaded zeric regions where they became sympatric with *sulcifera* and *variegata* group members. Species derived from these radiations belong to the paraphyletic subgenus *Microtychius*.

The subgenus *Sibinia* also arose in the New World from a lineage derived from the “*Itychus*” stock, but its ancestor became associated with a montane or temperate zone non-legume host. A few members of this subgenus occur today in temperate regions of North and South America, but most of the approximately 120 species occur only in the Palaearctic and Ethiopian Regions. The Old World species probably arose from New World stock which reached the Old World via Beringia. Two North American species, *S. maculata* and *S. mica*, appear to be outliers of Old World groups; they or their relatively recent ancestors apparently dispersed from the Old World to the New.

Se caracteriza e ilustra el género Sibinia Germar, discutiéndose sus afinidades con el género Tychius Germar. Las 133 especies americanas de Sibinia conocidas se colocan en dos subgéneros: Microtychius Casey que contiene 126 especies, y Sibinia que contiene siete especies (este subgénero también contiene más de 100 especies en el Viejo Mundo). Las especies americanas son descritas, ilustradas y codificadas, y su distribución geográfica se traza cartográficamente. Se designan lectotipos cuando es apropiado. Se describen 96 especies nuevas, y cuatro nombres genéricos y 19 específicos se ponen en sinonimia por primera vez (véase el resumen en inglés).

Los géneros Acacia, Calliandra, Lysiloma, Mimosa, Pithecellobium y Prosopis (Leguminosae: Mimosoideae) sirven de hospederos a miembros del subgénero Microtychius. Algunas larvas de Microtychius se alimentan externamente de las semillas dentro de vainas aún ligadas a las plantas, otras consumen yemas florales; la mayoría pupan en el suelo, algunas dentro de las vainas o las yemas. Los géneros Alsine, Cerastium, Dianthus, Lychnis, Silene, Sparganium y Spargularia (Caryophyllaceae), Polycarpon (Paronycheaceae), Armeria, Limoniastrum, y Statice (Plumbaginaceae), Thesium (Santalaceae), y Daphne (Thymelaeaceae) sirven de hospederos a los miembros europeos del subgénero Sibinia. Los miembros americanos del subgénero Sibinia han sido colectados en Coldenia (Boraginaceae) y “verdolaga” (Portulacaceae). Ha sido publicado que los miembros europeos del subgénero se desarrollan dentro de frutos así como dentro de yemas florales; los hábitos de las especies americanas se desconocen.

Para construir una filogenia hipotética de los miembros del género se emplearon la morfología de los adultos, los hospederos, los ciclos de vida, y los datos corológicos. La filogenia fue considerada para crear una clasificación, pero ésta no es estrictamente cladística debido a que se reconocen algunos grupos parafiléticos en el género. El género Tychius también es parafilético. La evolución en Sibinia ha sido caracterizada por la reducción y/o pérdida de muchos rasgos morfológicos inferidos en los

ancestros. Estos rasgos plesiotípicos se retienen en miembros de la informalmente reconocida estirpe parafilética "Itychus".

Un análisis de la filogenia de Tychiinae, de la historia geológica, y de la biogeografía de las angiospermas, indicó vías generalizadas de distribución y rutas probables de dispersión. El grupo *Tychius sororius* de Sud África se reconoce como el probable "sister group" de Sibinia. El ancestro del "Sibinia stem" existió probablemente en la Región Brasileña de Sud América, teniendo quizá un hospedero mimosoídico. Se indica la siguiente secuencia evolutiva:

Una dicotomía temprana produjo un linaje asociado con la flora xerofítica que evolucionó en lo que es la flora contemporánea de la Región de Monte en Argentina. Este linaje, representado por los grupos sulcifera y variegata, se dispersó por la Cordillera de los Andes hasta América del Norte, y se halla representado en las regiones áridas de ambos continentes americanos. La estirpe "Itychus" radió desde la Región Brasileña a las zonas de sabanas y selvas tropicales deciduas de la región neotropical americana. Sus miembros y los miembros de los linajes descendientes radiaron y se adaptaron a varios grupos mimosoídicos; algunos llegaron a las regiones xéricas donde se hicieron simpátricos con miembros de los grupos sulcifera y variegata. Las especies derivadas de estas radiaciones pertenecen al subgénero parafilético *Microtychius*. Todas tienen hospederos mimosoídicos y se limitan, al parecer, a tierras americanas.

El subgénero Sibinia en América también surgió de un linaje derivado de la estirpe "Itychus", pero su antecesor se adaptó a un hospedero no leguminoso de las zonas montañosas o templadas. Algunos miembros de este subgénero existen hoy en día en las zonas templadas americanas, pero la mayoría de las casi 120 especies se encuentran solamente en las Regiones Paleártica y Etiópica. Las especies del Viejo Mundo originaron probablemente de aquellos individuos de la estirpe americana que llegaron a esa región por Beringia. Dos especies norteamericanas, *S. maculata* y *S. mica*, parecen ser miembros lejanos de grupos del Viejo Mundo; al parecer, ellas o sus antecesores relativamente recientes se dispersaron del Viejo Mundo a América.

INTRODUCTION

The question of generic placement of the New World tychiines was raised when Kissinger (1964), in a study of the genera of Curculionidae of the United States, pointed out the need for study to determine the relationships of North American species assigned to *Tychius* and *Sibinia* and other genera which he placed in the subfamily Tychiinae. The initial objective of this study was revision of the members of this group (Tychiini, *sensu* Clark *et al.* 1977) in the United States and Mexico. Discovery of differences in structure of the spiculum gastrale of the male genitalia (see Clark 1977a) revealed two major groups of New World Tychiini—the genus *Tychius*, whose members have papilionoid legume hosts, and the genus *Sibinia*, with mimosoid legume or non-legume hosts. The New World species of *Tychius* were revised, and their relationships to the much larger number of Old World members of the genus were discussed previously (Clark 1971, 1976, 1977b). Here I present taxonomic treatment of 133 New World species of *Sibinia*. In addition, I have used morphological characters of adult weevils in combination with what is known about life histories and host relationships of the species to construct a hypothetical phylogeny. Larvae and pupae of several *Sibinia* have also been collected and will be described in future papers wherein the significance of characters of these stages to phylogeny will be discussed.

The species of *Sibinia* are herein arranged in two approximately equally diverse subgenera. Members of the subgenus *Microtychius*, confined to the New World, have hosts in the legume subfamily Mimosoideae. Some of these weevils are seed predators, others are flower bud predators. A few members of the subgenus *Sibinia* also occur in the New World, but most are restricted to the Old World. Known hosts of Old World species belong to the plant families Caryophyllaceae, Paronycheaceae, Plumbaginaceae, Thymelaeaceae, and Santalaceae. Adults of New World members of the subgenus have been taken on species of Boraginaceae and Portulacaceae.

The only previous comprehensive treatments of New World *Sibinia* were those of Casey (1892, 1897, 1910) who studied species living in the United States, and Champion (1903, 1910) who treated Middle American species. North American species were also described by LeConte (1876) (as *Tychius*, *Sibynes*, and *Paragoges*), Schaeffer (1908) (as *Tychius*), and Pierce (1908) (as *Mecynopyga*). South American *Sibinia* have received less attention. Species

described by Gyllenhal (1836), Boheman (1843), and Blanchard (1851) were assigned to *Tychius*. Faust (1893), Pierce (1915), and Hustache (1928) correctly assigned species to *Sibinia*, but like the previous workers, provided no keys for their identification. More recently in South America Bondar (1949) assigned one species of *Sibinia* to a new genus, *Teratonychus*, and Kuschel (1950, 1955) made changes in generic assignments of some previously described species. In the West Indies a few unnamed species were discussed by Wolcott (1936), and Suffrian (1871) described two species (as *Tychius*) which probably belong to *Sibinia*. Types of the latter two species have not yet been located. The only modern revisionary study of Old World *Sibinia* is that of Hoffmann (1954) who treated the species of France. Smreczynski (1972) presented a key to species of Poland. There are no comprehensive treatments of African and Asian species. In short, the entire Old World fauna requires revision. Hopefully the present work will provide the impetus for such study as well as for further study of the Neotropical species. Needed are data on host relationships and immature stages. These promise to be of great value in combination with morphological characters of adults in making a more complete reconstruction of *Sibinia* phylogeny. The classification and phylogeny presented here will provide a framework for future work on these interesting but long neglected little weevils.

MATERIALS AND METHODS

Approximately 18,600 adult weevils were examined, some 9,000 of which I collected myself in the United States and Mexico. Other specimens were obtained by loans from the collections of the following institutions (abbreviations in parentheses are used to refer to collections in the text and in appendix I):

Akademie der Landwirtschaftswissenschaften der Deutschen Demokratischen Republik (ALDDR), Eberswalde, DDR, L. Dieckmann;
 The American Museum of Natural History (AMNH), New York, L.H. Herman, Jr.;
 The British Museum (Natural History) (BMNH), London, R.T. Thompson;
 Brigham Young University (BYU), Provo, Utah, V.M. Tanner;
 The California Academy of Sciences (CAS), San Francisco, H.B. Leech;
 The California Insect Survey (CIS), University of California, Berkeley, J.A. Chemsak;
 The Canadian National Collection of Insects, Arachnids and Nematodes (CNC), Ottawa, D.E. Bright;
 Colegio de Postgraduados, Escuela Nacional de Agricultura (CPENA), Chapingo, Mexico, M.A. Tidwell;
 Cornell University (CU), Ithaca, New York, L.L. Pechuman;
 The Field Museum of Natural History (FMNH), Chicago, M. Prokop;
 Institut Royal des Sciences Naturelles de Belgique (RISNB), Bruxelles, R. Damoiseau;
 Instituto Nacional de Investigaciones Agrícolas (INIA), Chapingo, Mexico, J.A. Sifuentes A.;
 Los Angeles County Museum of Natural History (LACM), Los Angeles, F.S. Truxal;
 Museu de Zoologica da Universidade de São Paulo, (MZSP), São Paulo, Brazil, H. Reichardt;
 Museum of Comparative Zoology (MCZ), Harvard University, Cambridge, Mass., J.F. Lawrence;
 Museum für Naturkunde der Humboldt-Universität zu Berlin (MNHUB), Berlin, F. Hieke;
 Museum National d'Histoire Naturelle (MNHN), Paris, H. Perrin;
 Naturhistoriska Riksmuseet (NRS), Stockholm, T. Nyholm;
 Northern Arizona University (NAU), Flagstaff, C.D. Johnson;
 Ohio State University (OSU), Columbus, C.A. Triplehorn;
 Staatliches Museum für Tierkunde (SMTD), Dresden, DDR, R. Krause;

Texas A&M University (TAM), College Station, H. R. Burke;
 Texas Tech University (TTU), Lubbock, C.W. O'Brien;
 Termesztudományi Museum (TMB), Budapest, Z. Kaszab;
 The United States National Museum of Natural History (USNM), Washington,
 R.E. Warner;
 Universidad Nacional de La Plata (MZLP), La Plata, Argentina, L. de Santis.
 Universidade Federal do Paraná (MPB), Curitiba, Brazil, G.H. Rosado N;
 University of Arizona (UA), Tucson, F.G. Werner;
 University of Idaho (UI), Moscow, W.F. Barr;
 University of Kansas (KU), Lawrence, G.W. Byers.

The following individuals provided specimens from their private collections:

H. Franz, Institut für Bodenforschung, Vienna, Austria;
 R.W. Hamilton (RWH), Loyola University of Chicago;
 C.W. O'Brien (CWO), Florida A&M University, Tallahassee;
 Joe Schuh (JSC), Klamath Falls, Oregon;
 H. Stockwell (HSC), Ancon, Canal Zone.

Specimens in my personal collection are designated (WEC).

Holotypes of New World species assigned to tychiine genera, except those of *Tychius discoloma* Suffrian, and *T. auricapillus* Suffrian, were examined. Specimens of these Cuban species have not yet been located. They are not in the Suffrian collection at the Martin Luther Universität, Halle, DDR, and may be in Cuba.

Lectotypes were selected and designated where appropriate, as for many species described by T.L. Casey. Although specimens in the Casey collection (USNM) now bear holotype and paratype labels, these were not affixed by Casey himself, but by Buchanan (1935), who labeled the first specimen in each series as holotype according to Casey's previous instructions. As Spilman (1959) pointed out, this amounted to mass selection of lectotypes which is contrary to the *International Code of Zoological Nomenclature* (Article 74c). For Casey's species I have selected the specimen bearing the holotype label as lectotype in all but one instance, when I selected instead one of the "paratypes" as lectotype of *Tychius subfasciatus* Casey (see taxonomic section, discussion of *Sibinia setosa*).

Adult weevils were collected with a sweep net or beating sheet. Full grown larvae of members of subgenus *Microtychius* were obtained from mature but not dry, mimosoid pods and from mimosoid flower buds. Flowers and buds were removed from plants with hand clippers and placed in porcelain pans. This done, larvae soon emerged from infested material and were easily seen in the white pans. Larvae continued to emerge from pods for several weeks after these were removed from plants; emergence from buds generally ceased within a day. Larvae of *Sibinia seminicola* n. sp. did not emerge voluntarily from pods and were collected by dissecting the pods. It was necessary also to dissect pods and flower buds to obtain larvae of other species in early instars. Some larvae were preserved in ethyl alcohol, others were transferred to containers filled with moistened sand and peat moss as discussed by Rogers *et al.* (1975). Larvae placed on this substrate immediately burrowed beneath the surface and eventually formed pupal cells there. They frequently constructed the cells adjacent to the sides of their containers, and development was observed through transparent sides of the containers. A few pupae were placed in alcohol with the previously preserved larvae. When adults emerged a few of these were also placed with the larvae and pupae to facilitate identification of the immatures.

Plants with which weevils were associated were also collected. Some of these were sent to specialists for identification, but I identified many of them with the aid of various floras and by comparison with identified specimens in the Texas A&M University Tracy Herbarium

and in the USNM Herbarium (voucher specimens of many identified species were deposited in the USNM Herbarium).

Measurements were made with the aid of an eyepiece reticule in a dissecting microscope as follows: total length from the anterior margin of the eyes to the elytral apices in dorsal view, total width across the elytra at their widest point, length of the pronotum from the anterior margin to the posterior margin adjacent to the scutellum, length of the rostrum from the anteroventral margin of the eye to the tip in lateral view, width of the frons at its narrowest point between the eyes, and width of the base of the rostrum just distad of the eyes in dorsal view. Where adequate material was available, at least 20 individuals of each sex were measured without regard to locality except where noted for certain species. I tried to visually select and include among the 20 the largest and smallest available specimen of each species. For each structure measured, the range mean (parenthetic) are given in the description of the species.

Genital structures were dissected by inserting a sharpened minuten in the suture between sterna 2 and 3 and prying loose the three posterior sterna intact. Sterna were mounted ventral side up on top of the points bearing the specimens. Genitalia were placed in a warm KOH solution until soft tissue dissintegrated, then rinsed in acidulated distilled water and stored in glycerin in polyethylene vials attached to the pins bearing the specimens. Temporary slide mounts using glycerin and Hoyer's mounting medium were used to prepare specimens for illustrations of genital structures.

Photographs were made with an MP-3 Polaroid Land Camera through a Wild M-5 binocular microscope with a photographic tube and an iris diaphragm, light provided by four or five high intensity lamps. Line drawings were prepared with a microprojector by which the outline was traced, details completed by examination under a compound or binocular microscope.

Supraspecific taxa within the genus are arranged in subgenera, "stocks", species groups, and complexes. The latter two categories are reserved for monophyletic groups; "stocks" and one of the subgenera are paraphyletic.

For each of the previously described New World species, a complete synonymy, including complete bibliography for each name in each combination in which it has appeared is presented. Present location of all type material examined is indicated parenthetically by abbreviation of the collection as listed above. For each species described herein for the first time, label data on the holotype, allotype and paratypes are listed, and deposition of the specimens indicated by the same abbreviations. The synonymy or type material section is followed by a diagnosis, followed by a description. Temporal expressions (eg., usually, often) in the descriptions refer to frequency of occurrence among members of the taxon.

Under the heading "Discussion", I present information on the geographic distributions, host relationships, and natural histories of the species, and discuss congeners with which each has been observed in microsympatry (two or more species on the same host at the same locality, as distinguished from sympatry, or occurrence at the same locality, but on different hosts). When the diagnosis is thought to be insufficient, characters by which the species is distinguished from similar and/or closely related species are also discussed. This is followed where applicable by discussion of intraspecific variation as well as of phylogenetic, chorological, and vicariance relationships. Pertinent notes on nomenclature and type and/or other specimens of special interest are also presented. Full label data on type specimens of new species are listed under the newly proposed names. Locality data for all other specimens are presented in appendix I (p. 360) and plotted on maps. Collection dates of non-type specimens are summarized, the month only listed, followed parenthetically by the percentage of all collection dates within that month, without reference to number of specimens collected on each date.

TAXONOMIC CHARACTERS

This is not a comprehensive treatment of comparative morphology of *Sibinia* but some characters used in the keys and descriptions of species need to be discussed and clarified. The importance of these and other characters to phylogeny is discussed in appendix II. Terms used to describe non-genital characters are defined by Torre-Bueno (1962). Terms for male genital structures are those proposed by Sharp and Muir (1912), and Bruhn (1947); those for the female spermatheca by Gilbert (1964).

Members of the genus vary considerably in size, but this variation is greater between than within species, so size is a useful key character. Subgenus *Microtychius* bud predators are distinguished from their seed predator congeners by smaller size, no doubt reflection of difference in size of mimosoid flower buds and seeds. Differences in size between members of some populations of bud and seed predators with more than one host may also be correlated with differences in size of seeds or buds of the different plants.

The dense vestiture of scales characteristic of all known *Sibinia* adults provides many valuable taxonomic characters. These are size, shape and color of scales, and distribution of different kinds of scales. Adults of all known species have elongate narrow scales which are recumbent or raised. These are described as slightly raised if they are inclined by an angle up to about 20°; suberect scales are raised by 20° to 70°, erect scales from 70° to 100° (angles determined by estimation). Where confusion is thought likely in the use of this character, names of species concerned are entered at more than one point in the keys. In addition to the elongate scales, adults of most species also have a varied number of round to oval, flattened scales.

The frons is described as continuous with the vertex of the head if in lateral view the outline of both together forms an even unbroken curve. If the curve is interrupted by the stronger curvature of the frons, the frons and vertex are described as separately rounded.

A distinctive feature of the eye of *Sibinia* adults is the tendency in many species for the hind margin to be abruptly raised above the surface of the head (Figs. 96-98, 105, 106, 196, 375-377). The distance by which the eye is raised is compared by estimation to the diameter of the ocular facets.

Relative length of the distal portion of the rostrum (the portion between the antennal insertions and the tip) is expressed as a percentage of total rostral length.

Shape of the median lobe of the male genitalia, structure of its apex, distribution of setae, and the degree to which various components are sclerotized, provide useful taxonomic characters. The apex is strongly sclerotized (described as entire) in most tychiines (cf. Figs. 87-95, 437), but in most subgenus *Microtychius* members sclerotization is variously reduced. In many species the apex appears to be open (as in Figs. 287, 288, 293), as though the apical portion had been cut off to reveal the hollow tubular structure of the median lobe. I call this opening the apical orifice; its size and shape are often diagnostic. Size, shape, density, and distribution of spines and other sclerotized components of the internal sac are often of diagnostic value. These are described as viewed through the walls of the median lobe with the sac inverted.

HOST RELATIONSHIPS AND SPECIES CRITERIA

A weevil's host is a plant on which the larva lives. I use the term host to refer to plants from which larvae have been taken, as well as to plants on which adult weevils have been collected and on which I expect to eventually find larvae. Adult tychiines are occasionally found on plants other than their hosts, but no tychiine is known to spend a significant portion of the life cycle on any plant other than the host.

Table 1. The tribes of Mimosoideae (Leguminosae) (from Hutchinson 1964), with a summary of known host plants of species of *Sibinia*, subgenus *Microtychius*.

Tribe	Host Genus and Species	Species of <i>Sibinia</i>
Mimozygantheae		
Parkiaae		
Acaceae	<i>Acacia</i>	
	<i>berlandieri</i> Benth.	<i>transversa</i> (Casey)?
	<i>constricta</i> Benth.	<i>simplex</i> (Casey)*
		<i>variegata</i> (Casey)*
	<i>conzattii</i> Stadnl.	<i>inermis</i> (Casey)
	<i>farnesiana</i> (L.) Willd.	<i>inermis</i> (Casey)*
		<i>ruidula</i> , n. sp.*
		<i>schaefferi</i> , n. sp.
	<i>greggii</i> A. Gray	<i>fulva</i> (LeConte)
		<i>transversa</i> (Casey)*
	<i>micrantha</i> Benth.	<i>inornata</i> , n. sp.
	<i>neovernicosa</i> Isely	<i>simplex</i> (Casey)*
		<i>variegata</i> (Casey)
	<i>paniculata</i> Willd.	<i>grisea</i> (Kissinger)*
		<i>vosei</i> (Kissinger)
	<i>rigidula</i> Benth.	<i>errans</i> (Casey)*
	<i>roemeriana</i> Scheele	<i>fulva</i> (LeConte)
		<i>transversa</i> (Casey)
	<i>schaffneri</i> (Wats.) Herman	<i>inermis</i> (Casey)*
		<i>ruidula</i> , n. sp.*
		<i>schaefferi</i> , n. sp.
		<i>triseriata</i> , n. sp.
	<i>subangulata</i> Rose	<i>cuauhtemoc</i> , n. sp.
	species	<i>aliquantula</i> , n. sp.
Mimoseae	<i>Mimosa</i>	
	<i>albida</i> Humb. & Bonpl.	<i>americana</i> Champion
		<i>aspera</i> Champion
		<i>vagabunda</i> Champion
		<i>zapoteca</i> , n. sp.
	<i>arenosa</i> Poir.	<i>melina</i> Faust?
	<i>benthami</i> Macbride	<i>albiduloides</i> , n. sp. *
		<i>stricticomula</i> , n. sp. *
		<i>suturalis</i> (Schaeffer)
	<i>biuncifera</i> Benth.	<i>caseyi</i> , n. sp.
		<i>hispida</i> (Casey)*
		<i>sibinioides</i> (Casey)
		<i>suturalis</i> (Schaeffer)
	<i>borealis</i> A. Gray	<i>lecontei</i> , n. sp.*

Table 1. continued.

Tribe	Host Genus and Species	Species of <i>Sibinia</i>
Mimoseae	<i>Mimosa</i>	
	<i>eurycarpa</i> Robinson	<i>aulacis</i> , n. sp. <i>nana</i> , n. sp.* <i>obscura</i> , n. sp.
	<i>malacophylla</i> A. Gray	<i>guttata</i> , n. sp.* <i>suturalis</i> (Schaeffer)
	<i>emoryana</i> Benth.	<i>caseyi</i> , n. sp.*
	<i>goldmanii</i> Robinson	<i>americana</i> Champion <i>championi</i> , n. sp. <i>conferta</i> , n. sp. <i>foveolata</i> , n. sp. <i>vagabunda</i> Champion
	<i>lacerata</i> Rose	<i>reburrata</i> , n. sp. <i>suturalis</i> (Schaeffer)
	<i>mixteca</i> T.S. Brandey	<i>americana</i> Champion <i>championi</i> , n. sp. <i>vagabunda</i> Champion
	<i>monancistra</i> Benth.	<i>suturalis</i> (Schaeffer)
	<i>nelsonii</i> Robinson	<i>americana</i> Champion <i>championi</i> , n. sp. <i>vagabunda</i> Champion
	<i>pigra</i> L.	<i>fastigiata</i> , n. sp. <i>ochreosa</i> Casey* <i>peruana</i> Pierce* <i>seminicola</i> , n. sp.*
	<i>platycarpa</i> Benth.	<i>criniventer</i> , n. sp. <i>obrienorum</i> , n. sp.
	<i>quadrivalvis</i> L.	<i>aspera</i> Champion
	<i>stipitata</i> Robinson	<i>sibinioides</i> (Casey) <i>suturalis</i> (Schaeffer)
	<i>xanti</i> A. Gray	<i>americana</i> Champion <i>championi</i> , n. sp. <i>vagabunda</i> Champion
Andenthereae	<i>Prosopis</i>	
	<i>alba</i> Gris.	<i>concava</i> , n. sp.
	<i>glandulosa</i> Torrey	<i>setosa</i> (LeConte)*
	<i>laevigata</i> (Humb. & Bonpl. ex Willdenow) M.C. Johnston	<i>setosa</i> (LeConte)
Ingaeae	<i>Pithecellobium</i>	
	<i>dulce</i> (Roxb.) Benth.	<i>dissipata</i> Champion

Table 1. continued.

Tribe	Host Genus and Species	Species of <i>Sibinia</i>
Ingaeae	<i>Pithecellobium</i>	
	<i>flexicaule</i> (Benth.) Coulter	<i>pallida</i> (Schaeffer)*
	<i>unguis-cati</i> (L.) Mart.	<i>pulcherrima</i> Champion <i>valenciana</i> Faust*
	<i>Lysiloma</i>	
	<i>divaricata</i> (Jacqu.) McBride	<i>candidata</i> Champion <i>albidula</i> Champion <i>grypa</i> (Casey)*
	<i>Calliandra</i>	
	<i>portoricensis</i> (Jacq.) Benth.	<i>tessellata</i> Champion
	<i>rubescens</i> Standl.	<i>tessellata</i> Champion <i>tessellatopsis</i> , n. sp.*

*Host determined by rearing adults from larvae from the plant.

Subgenus *Microtychius* members are apparently restricted to plants in the legume subfamily Mimosoideae (Table 1). Even though only 46 of the 126 known *Microtychius* have known hosts, these represent most major groups within the subgenus and there is no good evidence that any non-leguminous plants serve as host to its members. Subgenus *Microtychius* member hosts are known from five of the seven tribes of Mimosoideae recognized by Hutchinson (1964), but belong to only six of some 55 to 60 mimosoid genera. Two of these genera, *Acacia*, with 700 to 800 species, and *Mimosa*, with 400 to 500 species are, however, among the largest in Mimosoideae. Subgenus *Sibinia* members have non-legume hosts (Table 2); European species are reported from plants in the families Caryophyllaceae, Paronycheaceae, Plumbaginaceae, Santalaceae, and Thymelaeaceae. Label data on specimens of some New World subgenus *Sibinia* specimens indicate that the weevils have been collected on several different plants, but further investigation is needed to determine which if any of them are actual hosts. Two records which may be reliable are *Coldenia* sp. (Boraginaceae) for the North American *S. tanneri*, and "verdolaga" (purslane, Portulacaceae) for the South American *S. sellata*.

Other weevil genera have hosts in two or more plant families. Burke (1976) reported that members of the genus *Anthonomus* have plants in 58 genera in 19 families as hosts. Species of the bruchid genus *Acanthoscelides* also have hosts in several different plant families (Johnson 1970). Members of the tychiine genus *Tychius*, on the other hand, appear to be restricted to the legume subfamily Papilionoideae. The genera *Sibinia*, *Tychius*, *Anthonomus*, and *Acanthoscelides* are all of approximately equivalent size, but since these genera are subjective constructions, comparisons between them may be inconsequential.

Species of *Sibinia* have narrow host ranges. Some appear to be monophagous. Others are known from two or more plant species of a single genus (Tables 1 and 2). These plants usually appear to me to be quite closely related, but information on their phylogenetic relationships is almost completely lacking. Several species of *Tychius* also have more than one host species, some have hosts in different genera (Clark 1971, 1977b, Hoffmann 1954) but in the same tribe. Other weevil species such as some of the genus *Anthonomus* and of other anthonomine genera also have two or more different plant species which belong to different genera as hosts (Burke 1976).

Table 2 Summary of recorded host plants of species of *Sibinia*, subgenus *Sibinia*. *

Host Plant	Species of <i>Sibinia</i>
Caryophyllaceae	
<i>Alsine</i>	
<i>setaceae</i> Mert. & Koch.	<i>guillebeui</i> Desbrochers
<i>Cerastium</i>	
<i>brachypetalum</i> Pers.	<i>phalerata</i> Sterlien
<i>triviale</i> Link	<i>subtriangulifera</i> Desbrochers
<i>Dianthus</i>	
<i>balbisii</i> Ser.	<i>subelliptica</i> Desbrochers
<i>carthusianorum</i> L.	<i>subelliptica</i> Desbrochers
<i>caryophyllus</i> L.	<i>vittata</i> Germar
<i>gallicus</i> Pers.	<i>vittata</i> Germar
<i>monspessulanus</i> L.	<i>vittata</i> Germar
<i>prolifer</i> L.	<i>phalerata</i> Sterlien
<i>sylvestris</i> Wulfen	<i>vittata</i> Germar
<i>Lychnis</i>	
<i>dioica</i> L.	<i>pellucens</i> Scopoli
	<i>viscaria</i> (Linneaus)
<i>viscaria</i> L.	<i>viscaria</i> (Linneaus)
<i>Silene</i>	
<i>hipartita</i> Desb.	<i>attalica</i> Gyllenhal
<i>colorata</i> Poir.	<i>attalica</i> Gyllenhal
<i>conica</i> L.	<i>attalica</i> Gyllenhal
<i>gallica</i> L.	<i>attalica</i> Gyllenhal
<i>inflata</i> Sm.	<i>viscaria</i> (Linneaus)
<i>maritima</i> With.	<i>attalica</i> Gyllenhal
<i>nutans</i> L.	<i>viscaria</i> (Linneaus)
<i>portensis</i>	<i>viscaria</i> (Linneaus)
<i>reflexa</i> (L.) Aiton fil. non Moench	<i>femoralis</i> Germar
<i>thorei</i> Duf.	<i>viscaria</i> (Linneaus)
<i>Spergula</i>	
<i>arvensis</i> L.	<i>potentillae</i> Germar
<i>pentandra</i> L.	
<i>Spergularia</i>	
<i>marginata</i> Kitt.	<i>arenariae</i> Stephens
	<i>primita</i> (Herbst)
<i>rubra</i> (L.) J. & C. Presl.	<i>arenariae</i> Stephens
	<i>primata</i> (Herbst)
	<i>variata</i> Gyllenhal
Paronychiaceae	
<i>Polycarpon</i>	
<i>argentea</i> Lmk.	<i>paronychia</i> Hoffmann
<i>peplodes</i> D.C.	
Plumbaginaceae	
<i>Armeria</i>	
<i>allioides</i> Bois.	<i>sodalis</i> Germar
<i>maritima</i> Willd.	
<i>plantaginea</i> Willd.	
<i>Limoniastrum</i>	
<i>monopetalum</i> (L.) Boiss.	<i>primita</i> (Herbst)
<i>Statice</i>	
<i>bellidifolia</i> Gouan	<i>gallica</i> Pic
<i>cordata</i> L.	<i>meridionalis</i> Brisout
Santalaceae	
<i>Thesium</i>	
<i>intermedium</i> Schrad.	<i>formosa</i> Aube
Thymelaeaceae	
<i>Daphne</i>	
<i>gnidium</i> L.	<i>primita</i> (Herbst)
<i>gnidium</i> L.	<i>picardi</i> Hoffman

*Data from Hoffmann (1954) and Scherf (1964).

These statements bring to mind the question of species recognition. I subscribe to the widely accepted biological species definition propounded by Mayr (1963, 1969), which holds that species are populations or groups of populations through which gene flow actually or potentially occurs, but which are reproductively isolated from all other populations. Since information on reproductive isolation is lacking for *Sibinia* members, isolation is inferred by morphological and geographic criteria. Usually if two morphologically distinguishable forms are sympatric, I consider them to represent different species, regardless of the magnitude of the differences between them. When allopatric populations differ from each other morphologically I look for aggregates of such populations which can be grouped to form a species level taxon distinguishable from other such aggregates. I consider recognition of subspecies impractical at the present level of knowledge of *Sibinia*. Nevertheless, some of my species taxa consist of several more or less distinct allopatric populations, many of which have different hosts (eg. *S. suturalis*, *S. championi*, *S. vagabunda*, *S. americana*, *S. inermis*, *S. sibirinioides*, and *S. ruidula*). A similar situation exists with some North American species of *Tychius* (Clark 1977b). Some of these, including *T. lineellus*, *T. tectus* and *T. soltau*; have several distinct allopatric populations, some of which are known to have different hosts. Among these, however, some of the different forms occur in sympatry or within very close proximity to each other. This is true of two forms assigned to *T. soltau* which are sympatric in western Texas, one on *Astragalus emoryanus* (Rydb.) Cory., the other on *A. mollissimus* Torr. In such cases, the existence of closely related host-specific species has been postulated (Clark 1977b), and the same may be true of certain *Sibinia* such as the variable *S. suturalis*. As Whitehead (1972) pointed out, however, the criterion of reproductive isolation between sympatric populations may be insufficient evidence of the existence of distinct species in instances in which a group of populations exhibits reproductive isolation between some components but free gene exchange between others. Examples of circles of races have been cited as illustrative of this phenomenon (Mayr 1969). The varied *S. setosa* with distinct populations which exhibit what appears to be at least partial isolation along the edge of the Edwards Plateau is another example (see taxonomic section).

As indicated above, two or more different species of Tychiini may occur in sympatry. In North America two or more different sympatric species of *Tychius* have different hosts. I have not found more than one species of *Tychius* on the same plant species at any single locality, although a plant species may be host to different weevil species at different localities (Clark 1971). This is not true of species of *Sibinia*, at least for subgenus *Microtychius* members. It is common to find two or more species of *Microtychius* together on the same plant (microsympatry, Table 3). Two kinds of relationships have been observed between microsympatric species of *Microtychius*. One involves species whose larvae develop on different parts of the host, and the other species whose larvae apparently both attack the same parts of the plant. Some *Microtychius* larvae develop in flower buds (bud predators), others develop in seeds (seed predators). It is common to find a *Microtychius* seed predator in microsympatry with a bud predator. In several places different bud predator species live in microsympatry, both species reared from flower buds taken from the same plant (*S. ochreosa* and *S. peruana* on *Mimosa pigra*, *S. stricticomula* and *S. albiduloides* on *M. benthami*). Different seed predator species have not yet been reared from the same host, but adults of seed predators *S. vagabunda*, *S. championi*, *S. conferta*, and *S. zapoteca* have been taken in microsympatry in various combinations.

The high degree of host specificity of species of *Sibinia* and other Tychiini makes possible the extensive use of host data in constructing and testing hypotheses about phylogenetic relationships among the weevils themselves as discussed in the Phylogeny section (p. 321).

Table 3. Microsympatric species of *Sibinia*, subgenus *Microtychius* (occurring on the same plant at the same time and place): bud predators (b), and seed predators (s).

Observed		Suspected	
Species	Host(s)	Species	Host
<i>S. vosei</i> (s)	<i>Acacia paniculata</i>	<i>S. grandis</i> (s)	?
<i>S. grisea</i> (b)		<i>S. glomerata</i> (b)	
<i>S. fulva</i> (s)	<i>Acacia greggii</i> and	<i>S. furfurosa</i> (s)	?
<i>S. transversa</i> (b)	<i>A. roemeriana</i>	<i>S. solaris</i> (b)	
<i>S. variegata</i> (s)	<i>Acacia constricta</i> and	<i>S. asulcifera</i> (s)	<i>Prosopis alba</i>
<i>S. simplex</i> (b)	<i>A. neovermicos</i>	<i>S. concava</i> (b)	
<i>S. tessellata</i> (s)	<i>Calliandra rubescens</i>	<i>S. tropidorrhyncha</i> (s)	?
<i>S. tessellatopsis</i> (b)		<i>S. calvata</i> (b)	
<i>S. candidata</i> (s)	<i>Lysiloma divaricata</i>	<i>S. altensis</i> (s)	?
<i>S. grypa</i> (b)		<i>S. barberi</i> (b)	
<i>S. albidula</i> (b)			
<i>S. suturalis</i> (s)	<i>Mimosa biuncifera</i>	<i>S. dorsena</i> (s)	?
<i>S. hispida</i> (b)		<i>S. santarem</i> (b)	
<i>S. sibirinoides</i> (b)		<i>S. suturalis</i> (s)	?
		<i>S. bothrosterna</i> (b)	
<i>S. suturalis</i> (s)	<i>Mimosa malacophylla</i>		
<i>S. guttata</i> (b)		<i>S. ferruginosa</i> (s)	?
		<i>S. aspersa</i> (s)	
<i>S. suturalis</i> (s)	<i>Mimosa benthami</i>	<i>S. americana</i> (b)	
<i>S. stricticomula</i> (b)			
<i>S. albiduloides</i> (b)		<i>S. prolata</i> (s)	?
<i>S. suturalis</i> (s)	<i>Mimosa lacerata</i>	<i>S. geminata</i> (b)	
<i>S. reburrata</i> (b)		<i>S. latissima</i> (s)	?
		<i>S. quinquemembrata</i> (b)	
<i>S. championi</i> (s)	<i>Mimosa mixteca</i>		
<i>S. vagabunda</i> (s)	<i>M. goldmanii</i> , <i>M. xanti</i> , and	<i>S. pullipes</i> (s)	?
<i>S. americana</i> (b)	<i>M. nelsonii</i>	<i>S. nigripes</i> (b)	
<i>S. zapoteca</i> (s)	<i>Mimosa albida</i>		
<i>S. conferta</i> (s)			
<i>S. vagabunda</i> (s)			
<i>S. americana</i> (b)			
<i>S. fastigiata</i> (s)	<i>Mimosa pigra</i>		
<i>S. ochreosa</i> (b)			
<i>S. peruana</i> (b)			
<i>S. seminicola</i> (s)	<i>Mimosa pigra</i>		
<i>S. ochreosa</i> (b)			
<i>S. peruana</i> (b)			
<i>S. pulcherrima</i> (s)	<i>Pithecellobium unguis-cati</i>		
<i>S. valenciana</i> (b)			

LIFE HISTORIES AND HABITS

Published information about life histories and habits of species of *Sibinia* is brief and fragmentary, consisting mostly of reports of host associations and sites of larval development and pupation of a few species. Hoffmann (1954) cited observations from earlier literature and added a few original observations on species occurring in France, and Scherf (1964) added

notes on other European species, all members of the subgenus *Sibinia*. Even less is recorded about subgenus *Microtychius* members. Early workers, including Pierce (1907a, 1907b) and authors of faunistic studies such as Horn (1894), Townsend (1895), Wickham (1896-1898) Griffith (1900), Fall (1901), Knaus (1903, 1907), Fall and Cockerell (1907), Mitchell and Pierce (1911), Simonds (1931), and Moore (1937), presented collection records and a few notes on plants on which adults were collected. More recently, the life history of *S. setosa* (as *S. sulcatula*), was studied by Rogers *et al.* (1975), who in five short pages presented the most comprehensive report published to date on any *Sibinia*.

The following is a summary and synthesis of known information on *Sibinia* way of life, including original observations about several species, compared where practical with what is known about members of the tychiine genus *Tychius* whose life histories and habits are reviewed by Clark and Burke (1977). More detailed information is presented in the discussions of each species concerned in the taxonomy section. My observations have been of subgenus *Microtychius* members occurring in the northern temperate zone (southwestern United States, especially Texas) and generalizations about them may not apply to tropical species. Information on New World subgenus *Sibinia* members and South American *Microtychius* members is practically non-existent. Observations on these, especially subgenus *Sibinia* members, promises to be of particular value in answering questions about phylogenetic relationships.

Adult Emergence and Feeding

Adult tychiines are most likely to be encountered on their hosts, especially if the plants are in bloom. Subgenus *Microtychius* members may be abundant even after flowers of their mimosoid legume hosts (Table 1) have fallen, especially if pods are present. In the temperate zone, adults of this subgenus emerge from overwintering sites in spring and apparently fly directly to host plants. Emergence of adults in tropical regions is probably correlated with rainfall which in turn determines flowering time. In southwestern United States, a few *Microtychius* adults are likely to be encountered on their woody perennial hosts throughout the year, but their abundance increases greatly in the spring when the plants begin to bloom. Less is known about periods of adult activity of North American subgenus *Sibinia* members. Adults of two of these, *S. texana* and *S. tanneri*, have been collected only in early spring, whereas adults of the other two, *S. maculata* and *S. mica*, have been collected throughout the spring and summer. Unfortunately, hosts of these weevils are unknown. In France, adults of subgenus *Sibinia* have been taken from March to September, but are more likely to be encountered in May (Hoffmann 1954). These occur on non-leguminous plants (Table 2), and are apparently most abundant when their hosts are in bloom.

Mating and Oviposition

Adult tychiines mate on their hosts when the plants are in bloom. Mating has not been observed or reported at any other time or in any other place. In oviposition a *Tychius* female makes a hole through the calyx and the corolla of a flower bud of its papilionoid legume host and oviposits into the developing ovary, or, later in the season, directly into the maturing pod. Eggs are common on the inner walls of the pods, not on the seeds themselves. Oviposition by seed predator *Microtychius* has not been observed, but eggs have been found on the inner walls of immature as well as nearly mature pods. Females of *S. setosa*, a *Microtychius* bud predator, oviposit into a hole made with the rostrum in the apex of mesquite flower buds (Rogers *et al.* 1975). Eggs of other bud predator *Microtychius*, *S. ochreosa*, *S. inermis*, and *S. lecontei*, have also been observed in mimosoid flower buds. Hoffmann (1954) reported that females of one subgenus *Sibinia* member, *S. pellucens*, oviposit in the ovary of the flower.

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Females of the genus *Tychius* are likely to place several eggs in the same ovary or pod (up to thirteen in one pod have been reported). Several may be laid at the same time, but females will oviposit in pods already containing eggs and/or larvae. Females of the seed predator subgenus *Microtychius*, however, lay eggs singly; I have not observed more than one egg per flower bud. The incubation period of *Sibinia* eggs is unknown, but is probably comparable to that in members of the genus *Tychius*, reported as four to 11 days under laboratory conditions.

Larval Development

Larvae of some subgenus *Microtychius* species are seed predators—they eat seeds of their mimosoid legume hosts while the pods are on the plant. These are similar in habits to larvae of the genus *Tychius*, most of which prey on papilionoid legume seeds. Other species of *Microtychius* develop in mimosoid flower buds. Kissinger's (1964) statement that larvae of this subgenus mine pods of *Acacia greggii* could not be confirmed and appears to be in error, although some *Microtychius* members are associated with *A. greggii*. Larvae of some subgenus *Sibinia* species reportedly develop in fruit capsules, others in flower buds, all of non-legume hosts (Hoffmann 1954).

Seed predator *Microtychius* and *Tychius* larvae observed feed externally on green seeds. *Tychius* larvae move freely within the pod and consume only part of a seed before moving to another, intermittently “grazing” the seeds until all are consumed. In contrast, larvae of seed predator *Microtychius* species confine their activities to a single seed, although several may attack the same seed. As many as 22 *S. fulva* larvae were found per pod of *Acacia greggii*, up to nine in a single seed. On the other hand, I did not observe more than two larvae of *S. seminicola* in a single seed, although up to 21 larvae have been found in a single *Mimosa pigra* pod. If only one larva of this species is present it confines its activity to one end of the seed as if two larvae were present. Cannibalism among larvae within the same pod has been observed in several species of *Tychius* and probably is common in *Microtychius* as well. Only larvae in early instars have been observed in seeds attacked by large numbers of larvae.

Larvae of bud predator *Microtychius* consume the contents of developing buds, leaving only the calyx shell. Some bud predators, including *S. setosa* on *Prosopis* spp. (Rogers *et al.* 1975) and *S. pallida* on *Pithecellobium flexicaule*, complete development in a single bud. The inflorescences of the hosts of these species are elongate spikes; each bud is widely separated from neighboring buds. By contrast, other *Microtychius* hosts, such as *Mimosa pigra*, the host of *S. ochreosa*, have globose capitate inflorescences in which each flower is contiguous with its neighbors. A larva of *S. ochreosa* consumes the contents of a row of four or five adjacent buds. The mature larva is usually found with the anterior portion of the body in one bud, the rest of the body extending through the basal portion of buds whose contents it has consumed. The inflorescence of the hosts of *S. inermis* (*Acacia farnesiana*, *A. schaffneri*), and *S. lecontei* (*Mimosa borealis*) are also globose heads, but larvae of these weevils were not observed to move from flower to flower.

All published reports cite three as the number of instars in Tychiini, a number confirmed by my own observations of several different species.

Prepupal Activity and Pupal Stage

Most tychiine larvae exit from fruit or flower buds in which they develop and enter the soil to pupate. A few exceptions are known in *Tychius* and in both subgenera of *Sibinia*, however. For example, *T. polylineatus* and *T. elegantulus* pupate in galls formed by their larvae on their host's pods (Hoffmann 1954). Some subgenus *Sibinia* members also pupate on the host, *S. vittata* in a cell formed from “cork and detritus” in the flowers (Rabaud 1913),

S. attalica and *S. pellucens* in the fruit in which the larvae developed (Hoffmann 1954).

Larvae of two subgenus *Microtychius* species which have *Mimosa pigra* as host are also known to pupate on the plant rather than in the soil. Pupae of one of these, *S. ochreosa*, were found in flower buds which had their apices sealed by small bits of plant material in a matrix of silk. Pupae of the other, *S. seminicola*, were taken from seeds in which the larvae had been feeding prior to pupation. This apparently atypical behavior in these species is probably the result of adaptation to conditions in the habitat of *M. pigra* itself. This plant, unlike most other mimosoids, occurs in areas where standing water is present during much of the year. If the weevil larvae cannot survive if they fall into water, pupation on the host may be an adaptation to these wet conditions. Evidently, pupation of *S. ochreosa* on the host is facultative, however. Larvae of this species emerge as do other *Microtychius* larvae from flower buds removed from the plants and form pupal cells in a sand-peat moss substrate. Possibly they pupate in soil under dry conditions.

Hosts of all other *Microtychius* members observed as well as hosts of genus *Tychius* members occur in mesic or xeric situations. Presumably in nature, tychiine larvae associated with these plants emerge from pods or buds as soon as their development is complete. Larvae of the bud predator *S. setosa* emerged voluntarily from caged mesquite flowers through holes which they apparently chewed in the sides of the buds (Rogers *et al.* 1975). *Tychius* larvae exit from pods through a hole which one larva chews in the side of the pod; other larvae in the pod apparently use the same exit hole. Larvae of seed predator *Microtychius* also make exit holes in pods but a pod is likely to have several exit holes, each adjacent to a formerly infested seed. Larvae which exit from pods or buds are active upon emergence, and if placed on a suitable substrate immediately tunnel in head first until completely buried. In jars or cups filled with a sand-peat moss mixture, larvae tunnel around for a short time then construct a pupal cell by grasping particles in the mandibles and moving them away from themselves. Yunus and Johansen (1967) reported that a *T. picirostris* larva does not use a secretion in construction of the pupal cell, but this was not true of larvae of species of *Tychius* and *Sibinia* which I observed. Larvae of *T. sordidus* and of *S. transversa* apply a viscid fluid obtained by stroking the anal lobes with the mandibles to the walls of the cells. This material dries to a hard shell to which adjacent soil particles adhere. According to Muka (1954) the pupal cell of *T. stephensi* is formed from silken strands to which soil particles are attached. The only other tychiine larvae observed to use a silken cocoon were those of *S. ochreosa* as noted above. Silk cocoons in pods of *Astragalus utahensis* (Torr.) T.&G. attributed to the work of *T. prolixus* (Clark 1971) were later found to be those of a bruchid, *Acanthoscelides fraterculus* (Horn).

In most *Tychius* and in subgenus *Microtychius* members observed, duration of the prepupal period, the period between the time the larva exits from the host and pupation, ranges from seven to fifteen days under laboratory conditions. Exceptions were observed in two seed predator *Microtychius*, *S. fulva* and *S. variegata*. Under laboratory conditions larvae of these remained in their cells 183–215 days and 150 days respectively before pupating. Apparently these weevils normally spend the latter part of the summer and most of the winter as larvae in the soil.

Duration of the pupal stadium in observed *Tychius* and *Microtychius* ranged from as few as eight days in *S. hispida* to 30 days in *S. transversa*, but usually lasted about two weeks in these and in other species observed. These figures are roughly comparable to those reported for species of *Tychius*. No data on duration of the pupal stadium is available for subgenus *Sibinia* members.

Adult Emergence and Overwintering

Within a few days after emerging from the pupal skin tychiine adults may also leave the

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pupal cell and seek a host or an overwintering site, or they may remain in the cell until the next season. Adults of many European and American *Tychius* overwinter in the pupal cell (Hoffmann 1954, Clark 1971), in herbaceous perennial papilionoid legume hosts; adult emergence from pupal cells is closely correlated with spring appearance of the plants. These weevils have only one generation per year. In some other *Tychius* and in bud predator *Microtychius*, however, adults remain in the pupal cell for only a few days. All known *Microtychius* hosts are perennial mimosoid legumes. In Texas most of these, including all of the species of *Acacia* and most of the species of *Mimosa* known to be hosts, bloom primarily in the spring. There may be more than a single generation each spring in bud predators associated with these plants, but although the host may bloom sporadically throughout the summer, weevils probably do not normally have opportunity to complete a later generation. Other Texas mimosoids, including species of *Prosopis*, *Pithecellobium*, and *Mimosa pigra*, bloom intermittently in spring and summer in response to rainfall. Species of *Microtychius* associated with these have two or more generations per year.

Overwintering may occur as an unemerged adult within the pupal cell or as an emergent adult on the host or in ground cover. Adults of *S. inermis*, *S. errans*, *S. ochreosa*, and *S. pallida*, all bud predator *Microtychius*, have been collected on their hosts during the winter months in southern Texas, and adults of *S. setosa* have been found in winter on their host plants in northern Texas (Rogers *et al.* 1975). One *S. inermis* adult was recovered from an epiphyte growing in oak trees in southern Texas in December, and one *S. pallida* adult was found in ground cover beneath its host in February. Overwintering in *S. seminicola* in southern Texas may be as an emergent adult or in pods of its host. The seed predators *S. fulva* and *S. variegata* apparently overwinter as larvae in the pupal cell as discussed above. Adults of some species of *Tychius* overwinter in pupal cells in the soil, others (including *T. stephensi* and *T. picirostris*) overwinter in ground cover after emerging from the pupal cells.

Parasites

Larvae of species of *Sibinia* are frequently parasitized by hymenopterous insects (Table 4). Adults of most of these parasites emerge after weevil larvae have formed pupal cells. Parasites of *S. seminicola* which pupate on the host rather than in the soil attack a weevil larva and emerge as adults before the larva pupates.

Table 4. Names of known hymenopterous parasites and of *Sibinia* hosts.

<i>Sibinia</i> spp.	Parasites
<i>S. inermis</i>	<i>Eutrichosoma mirabile</i> Ashmead (Eutrichosomatidae)
<i>S. pallida</i>	<i>Zatropis</i> sp. (Pteromalidae)
<i>S. seminicola</i>	<i>Horismenus</i> sp. (Eulophidae)
	<i>Eupelmus</i> sp. (Eupelmidae)
	Pteromalini (Pteromalidae)
<i>S. setosa</i>	* <i>Zatropis perdubius</i> (Girault) (Pteromalidae)
	* <i>Z. captitus</i> Burks (Pteromalidae)
	<i>Eutrichosoma mirabile</i> Ashmead (Eutrichosomatidae)
<i>S. simplex</i>	<i>Eutrichosoma mirabile</i> Ashmead (Eutrichosomatidae)
	<i>Tetrastichus</i> sp. (Eulophidae)
<i>S. variegata</i>	<i>Urosigalphus breviovipositorus</i> Gibson (Braconidae)

*records from Rogers *et al.* (1975)

TAXONOMY

Tribe Tychiini

Clark *et al.* (1977) recognized four tribes of Tychiinae: Elleschini, Endaeini, Lignyodini, and Tychiini. The genera *Tychius* and *Sibinia* were assigned to Tychiini whose adults were characterized as follows: sides of abdominal sternum 2 markedly angled posteriorly, covering sides of sternum 3 completely and sternum 4 in part, and, spiculum gastrale Y-shaped, spiculum rod short, apex not reaching apex of tegminal strut (Fig. 437, *Tychius*) or reduced to three plates and spiculum rod absent (Fig. 46, *Sibinia*). In addition, *Sibinia* adults are distinguished from those of *Tychius* and related genera by the exposed pygidium in the female as well as the male. *Tychius* members are associated with plants in the legume subfamily Papilionoideae. They occur throughout the Palearctic Region; a few species occur in sub-Saharan Africa and a few in North America, but none is known from the Oriental or Australian Regions or from South America. Relationships within the genus *Tychius* and synonymy of genus-group names within the genus were presented by Clark (1976), and relationships of North American species of *Tychius* to those in the Old World were discussed by Clark (1977b).

Genus *Sibinia* Germar

Sibinia Germar 1817: 340. (type-species *Rhynchaenus viscariae* Gyllenhal, by subsequent designation (Schönherr 1825)).

Casey 1897; Champion 1903, 1910; Schaeffer 1908; Hustache 1928; Kissinger 1962, 1964; Clark *et al.* 1977.

Diagnosis. Elytral apices separately rounded, pygidium more or less broadly visible beyond apices in male and female (Figs. 77, 321); spiculum gastrale of three sclerotized plates, without spiculum rod (Fig. 46); antenna with five or six funicular articles.

Description. — Minute to moderately large Tychiini, ca. 1.25–3.90 mm in length. **Integument:** testaceous or rufous to black, usually darkest on venter, pronotum and mediobasal portion of elytra. **Head:** globose; with minute to large, dense punctures; interspaces usually smooth, densely punctulate posteriorly. Scales on vertex usually longer than wide, apices directed downward; scales on sides and ventral portion round or oblong, flat to concave, usually lighter than scales on vertex. **Rostrum:** slightly shorter to distinctly longer than pronotum. In dorsal profile feebly to strongly rounded at base, usually straight or nearly straight to just basad of antennal insertions, curved over insertions. Scrobes obliquely directed ventrally, convergent ventrally at rostral base; dorsal margin of scrobe usually carinate. Usually with lateral, dorsolateral and dorsomedian carinae; dorsomedian carina often obsolete. Lateral and dorsolateral carinae well developed over and just basad of antennal insertions, usually obsolete basally and distally; basal portion usually with large deep punctures between carinae. Scales on sides of rostrum usually broader, more rounded and lighter than scales on dorsum; apices of scales on sides directed dorsad, scales on dorsum directed basad, in contact with ventrally directed scales on head between dorsal margin of eyes. **Antennae:** scape clavate, apex almost extended to base of rostrum, usually with lateral apical row or scales. Funicular article I distinctly wider and usually longer than remaining articles, bearing subapical rosette of broad scales; each remaining funicular article with apical median row of elongate, narrow, suberect scales, shorter, finer setae interspersed between longer scales. Club ovate, densely clothed with fine setae. **Pronotum:** slightly to much longer than wide, subapically constricted, constriction often obsolete on dorsum; usually deeply densely punctate, punctures usually somewhat hexagonal, interspaces usually smooth, shining. Scales on lower portion of pleuron round to oblong, usually lighter than scales on upper portion and on pronotum; scales on pronotum either identical in size and shape or narrower and more elongate than scales on lower portion of pleuron, sometimes round and elongate scales intermixed. **Scutellum:** covered with small round scales and usually concealed beneath elongate scales which extend posteriorly from base of pronotum. **Elytra:** elongate and flattened to robust and convex. Humeri feebly to distinctly prominent. Stria 10 obsolete toward apex. Interspaces with scales usually similar in size, shape and color to scales on pronotum. **Abdomen:** scales round to oblong or oblong-ovate, white or a pale shade of prominent color of scales on pronotum and elytra, sometimes setose-margined or reduced to fine setae, usually recumbent, often broadly imbricated.

Discussion. — As here interpreted, the genus *Sibinia* includes some 254 described species assigned to two subgenera: *Microtychius* Casey and *Sibinia* (*sensu stricto*). These subgenera coincide with grades rather than clades (cf. Mayr 1974) and *Microtychius* is paraphyletic (see phylogeny section, p. 321). *Microtychius* is apparently restricted to the New World. It includes

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126 described species whose hosts are known or suspected to belong to the legume subfamily Mimosoideae. Females have a rigid cup-shaped structure on the spermatheca at the point of origin of the spermathecal gland (Figs. 26–45, 121–140, 225–244, 297–316, 402–408). *Microtychius* represents the initial major *Sibinia* radiation which was apparently limited to the New World and involved adaptation to numerous species in different genera of Mimosoideae (Table 1). The subgenus *Sibinia*, on the other hand, is probably monophyletic. It represents a second major radiation which involved adaptation to plants in several unrelated families, Caryophyllaceae, Paronychiaceae, Plumbaginaceae, Santalaceae, Thymelaeaceae, and possibly Boraginaceae and Portulacaceae (Table 2). Its females lack the cup-shaped structure on the spermatheca (Figs. 409–415). Most of the ca. 130 known species in this subgenus occur in the Palearctic Region: 15 of them are in sub-Saharan Africa, seven in North and South America. The Old World species are not treated in the present study. They require revision. Recent keys to European species are those of Hoffmann (1954) for species occurring in France, and Smreczynski (1972) for Polish species.

Classification of the New World *Sibinia* into subgenera and informal groups is outlined in the check list which follows. The three keys which follow the check list facilitate identification. The key to North and Central American species probably includes most species in the United States and Mexico but the Central American fauna is probably less well represented. There are probably an even greater number of as yet unknown species in South America, and in the West Indies, whose species are not included in the keys.

CHECK LIST OF NEW WORLD *SIBINIA*

GENUS *Sibinia* Germar

Subgenus *Microtychius* Casey

The *sulcifera* group

1. *S. sulcifera* n. sp. 128
2. *S. asulcifera* n. sp. 129
3. *S. concava* n. sp. 135
4. *S. setosa* (LeConte) 135
5. *S. transversa* (Casey) 141
6. *S. cuauhtemoc* n. sp. 142

The *variegata* group

7. *S. variegata* (Casey) 144
8. *S. simplex* (Casey) 146
9. *S. triseriata* n. sp. 147
10. *S. ruidula* n. sp. 148
11. *S. schaefferi* n. sp. 151

The *Itychus* stock

12. *S. amplificata* n. sp. 153
13. *S. impensa* n. sp. 154
14. *S. bufemorata* n. sp. 156
15. *S. bufemoratoides* n. sp. 156
16. *S. distorta* n. sp. 157
17. *S. longirostris* n. sp. 157
18. *S. schwarzi* n. sp. 158
19. *S. castoroides* n. sp. 159
20. *S. galbina* n. sp. 159
21. *S. grisea* (Kissinger) 162
22. *S. griseoides* n. sp. 164
23. *S. warneri* n. sp. 165
24. *S. alvarengae* n. sp. 166
25. *S. vosei* (Kissinger) 166
26. *S. fulva* (LeConte) 168

The *grandis* group

27. *S. grandis* n. sp. 170
28. *S. glomerata* n. sp. 174
29. *S. mundururu* (Bondar) 175
30. *S. pullipes* n. sp. 176
31. *S. nigripes* n. sp. 177
32. *S. furfurosa* n. sp. 177
33. *S. solaris* n. sp. 179

The *rotundata-suturalis* stock

34. *S. dorsena* n. sp. 180
35. *S. santarem* n. sp. 181
36. *S. rotundata* Champion 181
37. *S. tropidorhyncha* n. sp. 184
38. *S. barberi* n. sp. 185
39. *S. calvata* n. sp. 186
40. *S. altensis* n. sp. 186
41. *S. tessellata* Champion 190
42. *S. tessellatopsis* n. sp. 191
43. *S. aurifera* n. sp. 193
44. *S. candidata* Champion 193
45. *S. grypa* (Casey) 195
46. *S. albidula* Champion 196
47. *S. suturalis* (Schaeffer) 198

The *hispida* stock

48. *S. stricticomula* n. sp. 201
49. *S. albiduloides* n. sp. 203
50. *S. inflata* n. sp. 204
51. *S. obrienorum* n. sp. 205
52. *S. criniventer* n. sp. 205

53. <i>S. tenuicauda</i> n. sp.	206	The <i>peruana</i> group	
54. <i>S. bothrosterna</i> n. sp.	207	96. <i>S. peruana</i> Pierce	268
55. <i>S. aulacis</i> n. sp.	210	97. <i>S. ignota</i> n. sp.	269
56. <i>S. hispida</i> (Casey)	210	98. <i>S. hirticrus</i> n. sp.	269
The <i>sibinioides</i> complex		The <i>pulcherrima</i> group	
57. <i>S. sibinioides</i> (Casey)	213	99. <i>S. pulcherrima</i> Champion	270
58. <i>S. obscura</i> n. sp.	214	100. <i>S. fessa</i> n. sp.	271
59. <i>S. guttata</i> n. sp.	214	101. <i>S. hispaniolae</i> n. sp.	274
60. <i>S. caseyi</i> n. sp.	215	102. <i>S. sparsa</i> n. sp.	278
61. <i>S. lecontei</i> n. sp.	217	103. <i>S. ingenua</i> n. sp.	279
62. <i>S. reburrata</i> n. sp.	220	104. <i>S. megalops</i> n. sp.	279
63. <i>S. inermis</i> (Casey)	220	105. <i>S. pallida</i> (Schaeffer)	280
64. <i>S. errans</i> (Casey)	222	106. <i>S. planocula</i> n. sp.	281
65. <i>S. inermoides</i> n. sp.	222	107. <i>S. prorsa</i> n. sp.	284
The <i>championi</i> group		108. <i>S. muricata</i> n. sp.	285
66. <i>S. championi</i> n. sp.	223	109. <i>S. valenciana</i> Faust	285
67. <i>S. peniculaia</i> n. sp.	225	110. <i>S. dissipata</i> Champion	286
68. <i>S. foveolata</i> n. sp.	228	111. <i>S. anfracta</i> n. sp.	288
69. <i>S. conferta</i> n. sp.	228	112. <i>S. anfractoides</i> n. sp.	288
The <i>aspersa</i> group		113. <i>S. viridula</i> n. sp.	291
70. <i>S. aspersa</i> Champion	232	The <i>chichimeca</i> group	
71. <i>S. acicularis</i> n. sp.	234	114. <i>S. chichimeca</i> n. sp.	292
72. <i>S. ferruginosa</i> n. sp.	234	115. <i>S. tepaneca</i> n. sp.	293
73. <i>S. picturata</i> Champion	235	116. <i>S. azteca</i> n. sp.	293
The <i>americana</i> group		117. <i>S. earina</i> n. sp.	297
74. <i>S. americana</i> Champion	236	118. <i>S. laticauda</i> n. sp.	297
75. <i>S. nana</i> n. sp.	237	The <i>melina</i> group	
76. <i>S. mendica</i> n. sp.	238	119. <i>S. melina</i> Faust	298
The <i>zapoteca</i> group		120. <i>S. aliquantula</i> n. sp.	300
77. <i>S. zapoteca</i> n. sp.	240	121. <i>S. aculeola</i> n. sp.	301
78. <i>S. robusta</i> n. sp.	241	Species <i>incertae sedis</i>	
79. <i>S. bellula</i> n. sp.	242	122. <i>S. asperoides</i> n. sp.	302
80. <i>S. collibita</i> n. sp.	242	123. <i>S. glabirostris</i> n. sp.	302
The <i>vagabunda</i> group		124. <i>S. inornata</i> n. sp.	303
81. <i>S. vagabunda</i> Champion	243	125. <i>S. muscula</i> n. sp.	304
82. <i>S. varga</i> n. sp.	246	126. <i>S. pilosella</i> Hustache	305
The <i>seminicola</i> group		Subgenus <i>Sibinia</i>	
83. <i>S. caatingensis</i> n. sp.	247	The <i>tanneri</i> group	
84. <i>S. hirritus</i> n. sp.	248	127. <i>S. tanneri</i> n. sp.	306
85. <i>S. fastigiata</i> n. sp.	248	The <i>texana</i> group	
86. <i>S. fastidiosa</i> n. sp.	250	128. <i>S. texana</i> (Pierce)	307
87. <i>S. seminicola</i> n. sp.	251	The <i>sellata</i> group	
88. <i>S. ochreosa</i> Casey	257	129. <i>S. sellata</i> (Boheman)	311
89. <i>S. subulirostris</i> Hustache	258	130. <i>S. argentinensis</i> Hustache	313
90. <i>S. vatricosa</i> n. sp.	259	131. <i>S. albovittata</i> (Blanchard)	315
91. <i>S. prolata</i> n. sp.	259	The <i>viscaria</i> group	
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The <i>latissima</i> group		133. <i>S. maculata</i> (LeConte)	319
93. <i>S. acuminata</i> n. sp.	264		
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KEY TO NORTH AND CENTRAL AMERICAN SPECIES OF *SIBINIA*¹

- 1 Antennal funicle of five articles; punctation obsolete, integument finely punctate; mandible sickle shaped, with acute external cusp (subgenus *Sibinia*). 127. *S. tanneri* n. sp., p. 306

1. The sexes are distinguished as follows: rostrum somewhat longer, antennal insertion more proximal and distal portion of rostrum longer, more slender and more finely punctate in female than in male; abdominal sterna 1 and 2 usually somewhat convex in female, flat or broadly impressed in male; tibial mucrones smaller in female.

1'	Antennal funicle of six articles; punctation distinct; mandible without external cusp	2
2 (1')	Elytra with prominent mediobasal macula of fuscous to ferruginous scales (Figs. 418, 427, 428, 430, 431) (subgenus <i>Sibinia</i>)	3
2'	Elytra with scales various, not in form of mediobasal macula (subgenus <i>Microtychius</i>)	5
3 (2)	Pygidium with large median prominence; pronotum with broad median vitta of ferruginous to fuscous scales (Fig. 418)	128. <i>S. texana</i> (Pierce), p. 307
3'	Pygidium flat; pronotum with mediobasal patch or fascia of light scales ..	4
4 (3')	Pronotum with dorsolateral vittae of fuscous scales; dorsal elytral macula broader posteriorly than anteriorly; elytra without lateromedian maculae (Fig. 431)	133. <i>S. maculata</i> (LeConte), p. 319
4'	Pronotum with fuscous scales extended over most of dorsum except extreme laterobasal portions and small mediobasal spot; dorsal elytral macula broad anteriorly, narrowed medially, widened posteriorly; elytra with large lateromedian maculae of fuscous scales (Fig. 430) .. ,	132. <i>S. mica</i> (Casey), p. 316
5 (2')	Thorax ventrally with deep sternal channel from anterior margin of prosternum to middle of mesosternum; procoxae not contiguous	1. <i>S. sulcifera</i> n. sp., p. 128
5'	Thorax without sternal channel; procoxae contiguous	6
6 (5')	Head constricted behind eyes, frons abruptly separated from vertex of head (Fig. 96, 98, 105, 106); mucro of protibia minute or absent, mucrones of meso- and metatibiae longer.	7
6'	Head not constricted behind eyes, frons not abruptly separated from vertex of head; pro- and mesotibial mucrones subequal, or tibiae unarmed	9
7 (6)	Hind margin of eye abruptly raised from general surface of head by distance ca. equal of 0.33 width of eye; femora channeled beneath (Fig. 99); scales on pronotum and elytra gray or grayish brown; vertex of head with fine setae (Fig. 98) .. .	8
7'	Hind margin of eye abruptly raised from surface of head by much less than 0.33 width of eye; femora not channeled beneath; scales on pronotum and elytra fulvous or orange; vertex of head with broad scales	26. <i>S. fulva</i> (LeConte), p. 168
8 (7)	Rostrum swollen at base (Fig. 96); scales on pronotum and elytra ovate, acuminate (Fig. 103); sterna 1-3 of male flat, sterna 4 and 5 concave (Fig. 100-101)	21. <i>S. grisea</i> (Kissinger), p. 162
8'	Rostrum not swollen at base; scales on pronotum and elytra linear, apically truncate; sterna 1-5 of male broadly, deeply concave	25. <i>S. vosei</i> (Kissinger), p. 166
9 (6')	Femora with elongate scales and rounded, lighter colored scales intermixed, at least from basal 0.25 to apex	10
9'	Femora with elongate scales and rounded, lighter scales not intermixed, or rounded scales absent	26
10 (9)	Elytral interspaces with elongate scales and rounded scales intermixed ..	11
10'	Elytral interspaces with scales more or less uniform in width, not strongly differentiated into elongate and rounded types	15

- 11 (10) Scales on vertex of head round, concave; rostrum and pronotum with broad rounded scales and elongate narrow, usually darker scales intermixed (Figs. 59, 60, 61, 62, 332) 12
- 11' Scales on vertex of head subparallel sided; scales on rostrum similar to scales on vertex of head; rounded scales on prothorax limited to pleuron and dorso-lateral portion and in some species to mediobasal spot or median vitta on pronotum 19
- 12 (11) Frons distinctly wider than rostrum at base; elytral interspaces 2 and 4 distinctly narrower than 1 and 3; round concave scales in double rows on interspaces 1 and 3, in single row on most portions of interspaces 2 and 4 13
- 12' Frons slightly narrower than, or subequal in width to, rostrum at base; elytral interspaces 2 and 4 not narrower than interspaces 1 and 3; rounded concave scales densely imbricated, in double rows on each interspace 105. *S. pallida* (Schaeffer), p. 280
- 13 (12) Pronotum and rostrum without, elytral interspaces with or without, erect scales; round scales on pronotum not or slightly imbricated, integument visible between scales; rostrum, distad of antennal insertions, distinctly rugose-punctate in male and female, not abruptly narrowed distad of insertions in female; metatibia in male mucronate; sternum 5 in male foveate 4. *S. setosa* (LeConte), p. 135
- 13' Pronotum, rostrum, and elytral interspaces with stout, erect, acuminate bristles (Figs. 61, 62, 68); round scales on pronotum dense, imbricated, concealing integument; rostrum distad of antennal insertions shallowly punctate, in male, impunctate, shining, and abruptly narrowed distad of insertions in female (Fig. 69); metatibia in male unarmed; sternum 5 not foveate 14
- 14 (13') Pronotum and elytra with white, pale to dark ferruginous, and piceous to black scales; length 1.23–1.82 mm 5. *S. transversa* (Casey), p. 141
- 14' Pronotum and elytra with pale brownish white, fulvous, and darker golden brown scales; length 1.61–2.12 mm 6. *S. cuauhtemoc* n. sp., p. 142
- 15 (10') Scales on venter variegated white and pale ferruginous; length 2.07–2.74 mm 7. *S. variegata* (Casey), p. 144
- 15' Scales on venter white or with few ferruginous scales laterally but not variegated white and ferruginous; length 1.47–1.92 mm 16
- 16 (15') Scales in uniform single rows on elytral interspaces 2–10 8. *S. simplex* (Casey), p. 146
- 16' Scales in uniform single rows on even elytral interspaces, in double or triple rows on odd interspaces (Fig. 75) 17
- 17 (16') Prothorax with round white scales on upper portion of pleuron, dorso-lateral portions and dorsomedian vitta on pronotum (Fig. 74); sternum 5 in male foveate 11. *S. schaefferi* n. sp., p. 151
- 17' Prothorax with round white scales limited to lower portion of pleuron, pronotum at most with mediobasal patch of white scales (Fig. 72, 73); sternum 5 in male foveate or not 18
- 18 (17') Sternum 5 in male not foveate; elytra flattened dorsally, apices of interspaces 4–5 prominent (Fig. 73) 10. *S. ruidula* n. sp., p. 148
- 18' Sternum 5 in male foveate; elytra more rounded (Fig. 72) 9. *S. triseriata* n. sp., p. 147
- 19 (11') Scales on pronotum and elytra gray or fulvous, elongate scales only slightly darker than broader rounded scales; pronotum with elongate, sub-

- erect to erect scales, and ovate recumbent scales intermixed (Fig. 281); scales in median rows on elytral interspaces suberect to fully erect, virtually all scales on lateral rows of each interspace of broad rounded type; inside surface of article II of male protarsus concave (Fig. 259, 260)..... 81. *S. vagabunda* Champion, p. 243
- 19' Scales on pronotum and elytra olivaceous to ferruginous, elongate scales usually distinctly darker than rounded ones; rounded scales on prothorax limited to pleuron and lateral and medial or mediobasal portions of pronotum, elongate scales recumbent to feebly raised; elytral interspaces with rounded scales sparse to dense; inside surface of article II of male protarsus concave or not 20
- 20 (19') Elongate scales in median rows on elytral interspaces recumbent; sternum 5 of male with prominent crescent shaped brush of dense erect scales; mucro of metatibia large, blunt, displaced proximad ca. 0.25 of distance from apex 33. *S. solaris* n. sp., p. 179
- 20' Elongate scales in median rows on elytral interspaces raised or at least distinct from scales in lateral rows; sternum 5 of male without crescent shaped brush or erect scales; mucro of metatibia normal 21
- 21 (20') Scales ferruginous; internal sac extending almost to apices of median struts in repose (Fig. 215) 22
- 21' Scales olivaceous to greenish or fuscous; internal sac shorter, extended barely beyond base of median lobe in repose (Fig. 263, 264) 24
- 22 (21) Sternum 5 of male feebly concave medially, scales unmodified, scales on sternum 5 of female unmodified 66. *S. championi* n. sp., p. 223
- 22' Sternum 5 of male distinctly foveate or concave medially, scales in fovea or on concave portion erect, scales on sternum 5 of female suberect or unmodified 23
- 23 (22') Sternum 5 of male with median and posteromedian portions covered by dense brush of elongate erect scales (Fig. 257); sternum 5 of female with similar brush of slightly raised, elongate scales; round to oval scales usually dense on elytra; length 2.18–2.36 mm 67. *S. peniculata* n. sp., p. 225
- 23' Sternum 5 of male foveate medially, fovea with erect, acuminate scales (Fig. 258); scales on sternum 5 of female unmodified; round to oval scales limited mainly to humeral area and broad, subapical chevron shaped band on elytra length 1.97–2.31 mm 68. *S. foveolata* n. sp., p. 228
- 24 (21') Elongate scales fuscous, round to oval scales pale ochreous, dense on basal 0.25 of elytral interspaces 1, 2, 4, and 7, and in broad transverse posteromedian band and around apices of elytra 73. *S. picturata* Champion, p. 235
- 24' Elongate scales olivaceous to greenish, distribution of round to oval scales various 25
- 25 (24') Elongate scales greenish, oval scales sparsely interspersed throughout on elytra; inner surface of article II of male protarsus concave (cf. Fig. 259, 260) 70. *S. aspersa* Champion, p. 232
- 25' Elongate scales olivaceous, oval scales dense, imbricated, absent from broad interrupted anteromedian band; inner surface of article II of male protarsus unmodified 69. *S. conferta* n. sp., p. 228

26	(9')	Scales in median rows on elytral interspaces suberect to erect, raised at least 45°	27
26'		Scales in median rows on elytral interspaces recumbent to feebly raised somewhat less than 45°	43
27	(26)	Pygidium not visible from above; posterior margin of sternum 5 broadly emarginate, apex of pygidium distinctly anterior to posterolateral margins of segment and broadly visible in ventral view (Fig. 374); pro- and mesotibiae unarmed	110. <i>S. dissipata</i> Champion, p. 286
27'		Pygidium visible from above; posterior margin of sternum 5 nearly straight or produced posteriorly, apical portion of pygidium not broadly visible in ventral view; pro- and metatibiae unarmed or mucronate, sometimes minutely	28
28	(27')	Abdominal sterna 3–5 of male deeply channeled medially, scales on channeled portion short, with finely dissected margins or reduced to fine setae	29
28'		Abdominal sterna 3–5 of male not channeled medially, usually shallowly broadly concave, scales on median portion unmodified (<i>S. hispida</i> has a few fine erect setae)	30
29	(28)	Extreme anteromedian portion of abdominal sternum 4 and posteromedian portion of sternum 5 not channeled; erect scales on elytra slightly widened from base to bluntly rounded apices.	55. <i>S. aulacis</i> n. sp., p. 210
29'		Extreme anteromedian portion of abdominal sternum 4 and posteromedian portion of sternum 5 channeled; erect scales on elytra ovate, decreased in width to blunt to truncate apices.	54. <i>S. bothrosteria</i> n. sp., p. 207
30	(28')	Elytra and pronotum with white to pale fulvous scales and darker ferruginous scales, light scales not limited to extreme base of pronotum and sutural elytral interspaces	31
30'		Elytra and pronotum with all scales of more or less uniform color and shade, lighter scales when present limited to extreme posterior margin of pronotum and sutural interspaces	38
31	(30)	Abdominal sterna in male without fine erect setae; female rostrum slightly rounded at base, frons continuous with vertex of head; internal sac usually with dense fine spines in distal 0.50, proximal portion with a few large spines or unarmed	32
31'		Abdominal sterna in male with fine erect setae interspersed among recumbent oval to oblong scales; base of female rostrum and frons strongly rounded (Fig. 219); internal sac with large spines in distal 0.50, unarmed proximally (Fig. 212).	56. <i>S. hispida</i> (Casey), p. 210
32	(31)	Metatibia mucronate; size and rostrum various	33
32'		Metatibia unarmed; rostrum in female more or less abruptly narrowed distad of antennal insertions, smooth and shining distally; length 1.44–1.88 mm	36
33	(32)	Metatibial mucro large, blunt (Fig. 197), metafemur much larger than profemur; length 1.62 mm.	50. <i>S. inflata</i> n. sp., p. 204
33'		Metatibial mucro much smaller; metafemur smaller than profemur; length 2.16–2.53 mm.	34
34	(33')	Protibia of male with inner surface of article II not concave; rostrum markedly rounded at base, broadly curved from base to tip (Fig. 193); eye convex; rounded white or pale fulvous scales limited to lower portion of pleuron	47. <i>S. suturalis</i> (Schaeffer), p. 198

- 34 Protibia of male with inner surface of article II concave (cf. Fig. 259, 260); rostrum slightly rounded at base, straight to just distad of antennal insertions then curved over insertions (Fig. 280); eye nearly flat; upper portion of pleuron and sides of pronotum with rounded scales and elongate scales intermixed 35
- 35 (34') Pronotum with large mediobasal patch of round white scales, sutural elytral interspaces with alternate patches of white and ferruginous scales 78. *S. robusta* n. sp., p. 241
- 35' Pronotum without mediobasal patch of round white scales, scales on sutural interspaces uniform, similar to scales on other interspaces 77. *S. zapoteca* n. sp., p. 240
- 36 (32') Elytra with intermixed white to pale fulvous scales and darker ferruginous scales 37
- 36' Elytra with ferruginous scales limited to median row on each interspace; scales in lateral rows on each interspace and striae scales white. 62. *S. reburrata* n. sp., p. 220
- 37 (36) Form robust, length ca. 1.9x width (Fig. 222); scales on pronotum and elytra moderately broad, more or less ovate, integument narrowly exposed between scales; on *Mimosa emoryana* and *M. biuncifera* 60. *S. caseyi* n. sp., p. 215
- 37' Form more elongate, length ca. 2.0x width; scales on pronotum and elytra narrow, subparallel sided; integument broadly exposed between scales; on *Mimosa eurycarpa*. 58. *S. obscura* n. sp., p. 214
- 38 (30') Scales in median rows of elytral interspaces raised ca. 45°, strongly decurved, ovate, feebly to strongly attenuate; scales on pronotum and elytra dark to pale ochreous or grayish ochreous 39
- 38' Scales in median rows of each elytral interspace raised distinctly more than 45°, nearly completely erect on declivities, straight, attenuate, not decurved; scales on pronotum and elytra gray to pale fulvous 41
- 39 (38) Metafemur much larger than profemur; in male, metatibia slightly expanded at apex, ventral apical angle extended into slender, conical, finely acute spine; protibia unarmed 51. *S. obrienorum* n. sp., p. 205
- 39' Metafemur subequal to profemur; pro- and metatibiae with small oblique mucrones 40
- 40 (39') Hind margin of eye distinctly raised by distance ca. equal to combined diameters of two ocular facets, eye flat in dorsal view (Fig. 196); scales on elytra and pronotum attenuate (Fig. 194, 195); rostrum in female not abruptly narrowed distad of antennal insertions, distal portion stout, 39 to 45% of total rostral length, sulcate and punctate nearly to tip; metatibia in male mucronate 45. *S. grypa* (Casey), p. 195
- 40' Hind margin of eye feebly raised by distance somewhat less than diameter of one ocular facet, eye convex in dorsal view; scales on elytra and pronotum elongate, bluntly rounded apically; rostrum in female abruptly narrowed distad of antennal insertions, distal portion 52 to 65% of total rostral length, smooth and polished; metatibia in male unarmed 57. *S. sibirinioides* (Casey), p. 213
- 41 (38') Metatibia in male distinctly mucronate; scales on pronotum and elytra pale fulvous to grayish fulvous; internal sac with large spines throughout (Fig. 154); length 1.75–2.02 mm. 48. *S. stricticomula* n. sp., p. 201

- 41' Metatibia of male unarmed or minutely mucronate; scales uniformly gray or pale yellowish gray; internal sac unarmed in proximal 0.50, densely armed with small spines distally (Fig. 152, 155); length 1.40–1.61 mm. 42
- 42 (41') Scales on elytra and pronotum gray; scales in median rows on elytral interspaces suberect, decurved; median lobe with long apical setae (Fig. 152) 46. *S. albidula* Champion, p. 196
- 42' Scales on elytra and pronotum yellowish gray; scales in median rows on elytral interspaces erect, straight; median lobe with single pair of minute apical setae (Fig. 155) 49. *S. albiduloides* n. sp., p. 203
- 43 (26') Abdominal sternum 5 of male strongly, evenly rounded apically, not constricted subapically, posterior margin of segment concave, apex of pygidium broadly visible from beneath (cf. Fig. 374); hind margin of eye strongly raised by distance distinctly greater than combined diameters of two ocular facets; pygidium not visible from above, at least in male. 44
- 43' Abdominal sternum 5 of male more or less distinctly constricted subapically; posterior margin of segment not concave, apex of pygidium less broadly visible from beneath; hind margin of eye usually less strongly raised; pygidium visible from above in male and female 45
- 44 (43) Pronotum and elytra with elongate oval acuminate aeneous scales which form single median rows on large portions of elytral interspace; length 1.34–1.58 mm 109. *S. valenciana* Faust, p. 285
- 44' Pronotum and elytra with linear, apically blunt to truncate, white, fulvous, and pale to very dark ferruginous scales arranged in triple rows on each elytral interspace; length 2.02–2.19 mm 99. *S. pulcherrima* Champion, p. 270
- 45 (43') Pronotum with scales of uniform color, or dorsomedian portion with dark scales and variable proportion of posterolateral portion with light scales . . . 46
- 45' Pronotum with light scales forming distinct dorsomedian and dorsolateral vittae or mediobasal patch (as in Fig. 283), or light and dark scales intermixed 67
- 46 (45) Tibiae prominently angulate dorsally at base; rostrum long, ca. 1.30–1.40x pronotum length, glabrous or nearly so well proximad of antennal insertions 18. *S. schwarzi* n. sp., p. 158
- 46' Tibiae nearly straight, not prominent dorsally at base; rostrum various but shorter, scales extending to antennal insertions in most species, at least in male 47
- 47 (46') Anteromedian portion of vertex of head slightly convex, interspaces between punctures on convex portion wider than interspaces on remainder of vertex; scales in three to six confused rows on each elytral interspace; length 2.09–3.97 mm. 48
- 47' Anteromedian portion of vertex of head not convex, interspaces between punctures on vertex narrow, subequal in width throughout; scales in triple rows on each elytral interspace; length 1.30–2.05 mm 50
- 48 (47) Pronotum in lateral view more markedly convex posteriorly than anteriorly; form robust, sides of elytra broadly rounded; rostrum rounded at base (Figs. 192, 193) 49
- 48' Pronotum in lateral view broadly, evenly convex from base to apex; body elongate, sides of elytra subparallel in basal 0.66; rostrum not rounded at base (Fig. 282). 85. *S. fastigiata* n. sp., p. 248

- 49 (48) Pronotum and elytra with uniformly gray or yellowish gray scales; distal portion of rostrum very short, strongly attenuate in male and female, in male 31–44% in female 34–45% of total rostral length; pygidium in female very slightly produced beyond elytral apices; median portion of median lobe nonsclerotized (Fig. 150); length 2.47–3.97 mm. 44. *S. candidata* Champion, p. 193
- 49' Pronotum and elytra with uniformly gray, yellowish gray, ferruginous or yellowish brown scales; distal portion of rostrum slightly to much longer, stronger attenuate or evenly tapered, in male 38–57%, in female 44–64% of total rostral length; pygidium broadly visible beyond elytral apices in female; median portion of median lobe heavily sclerotized dorsally except for small subapical membranous area (Fig. 153); length 2.23–3.12 mm 47. *S. suturalis* (Schaeffer), p. 198
- 50 (47') Protibia of male with dense brush of coarse scales on inner surface of article III (Fig. 325); distal portion of rostrum stout, apex blunt (Fig. 323), only feebly sexually dimorphic; scales lemon yellow 96. *S. peruana* Pierce, p. 268
- 50' Protibia of male without dense brush of coarse scales on inner surface of article III; distal portion of rostrum longer, distinctly attenuate or tapered, strongly sexually dimorphic; scales not lemon yellow 51
- 51 (50') Pronotum and elytra with green or grayish green scales 52
- 51' Pronotum and elytra with yellowish or brownish scales 57
- 52 (51) Abdominal sterna 3–5 of male concave, some scales on concave portion reduced to fine setae or finely dissected (cf. Figs. 100, 101) 53
- 52' Abdominal sterna 3–5 of male flat, scales unmodified 55
- 53 (52) Profemur with complete shallow glabrous ventral channel, meso- and meta-femur more deeply channeled but only in distal 0.33; scales medially on sterna 3–5 in male with finely dissected margins, but none reduced to fine setae. 117. *S. earina* n. sp., p. 297
- 53' Profemur sometimes with glabrous ventral midline but not channeled; meso- and metafemora not channeled ventrally; sterna 3–5 in male with a few to many fine suberect setae 54
- 54 (53') Metatibia unarmed; pro- and mesotibiae with small pale mucrones; rostrum abruptly narrowed distad of antennal insertions in female, distal portion smooth, glabrous 52. *S. criniventer* n. sp., p. 205
- 54' Metatibia mucronate, pro- and mesotibiae with large black mucrones; rostrum in female not abruptly narrowed 113. *S. viridula* n. sp., p. 291
- 55 (52') Eye with hind margin distinctly raised by distance ca. equal to or slightly greater than diameter of one ocular facet; scales often metallic; inner surface of article II of male protarsus feebly concave, scales on inner surface distinctly longer and more nearly erect than scales on external surface 74. *S. americana* Champion, p. 236
- 55' Eye with hind margin not or feebly raised; scales not metallic; article II of male protarsus unmodified 56
- 56 (55') Elytral striae well defined, striae scales distinctly narrower than scales on interspaces, forming distinct rows; rostrum in female abruptly narrowed distad of antennal insertions, distal portion slender, smooth 124. *S. inornata* n. sp., p. 303
- 56' Elytral striae obsolete, striae scales indistinguishable from scales on interspaces; rostrum of female subulate, sulcate and punctate almost to tip 119. *S. melina* Faust, p. 298

57	(51')	Eye about as long as greatest width of profemur; tibial mucrones in male large, darker than apex of tibia	58
57'		Eye distinctly shorter than greatest width of profemur; tibial mucrones small, not darker than apex of tibia	60
58	(57)	Elytra with dark ferruginous scales and with a few interspersed lighter ochreous scales (Fig. 399B); abdominal sterna 4 and 5 in male deeply, broadly concave, scales on concave portion finely setose margined or reduced to fine setae (cf. Figs. 100, 101)	59
58'		Elytra with mostly ochreous scales but with ferruginous scales on extreme apical and lateral portions (Fig. 400B); abdominal sterna 4 and 5 in male not concave; scales on abdominal sterna unmodified	116. <i>S. azteca</i> n. sp., p. 293
59	(58)	Profemur and metafemur subequal in width.	114. <i>S. chichimeca</i> n.sp., p. 292
59'		Metafemur greatly enlarged, about 1.4x width of profemur	115. <i>S. tepaneca</i> n. sp., p. 293
60	(57')	Pronotum and elytra uniformly covered with pale ochreous scales; distal portion of rostrum in female slender, smooth, shining; pygidium markedly extended beyond elytral apices (Figs. 321, 322)	88. <i>S. ochreosa</i> Casey, p. 257
60'		Pronotum and elytra with ferruginous, fulvo-aeneous, fuscous, olivaceous, or gray scales; rostrum in female stout, sulcate or punctate distad of antennal insertions (except in <i>S. errans</i>); pygidium not strongly extended	61
61	(60')	Elytra with fulvous and bright ferruginous scales in variegated pattern; distal portion of rostrum in female slender, smooth, shining	64. <i>S. errans</i> (Casey), p. 222
61'		Elytral scales not ferruginous and fulvous in variegated pattern; distal portion of female rostrum stout, sulcate or punctate	62
62	(61')	Pronotum and elytra with scales unicolorous; sutural interspaces with white scales on extreme basal portion only	63
62'		Pronotum and elytra with light and dark scales, and/or sutural interspaces with row of white oval scales from base to apices	64
63	(62)	Scales fulvo-aeneous, slender and finely acuminate, scales in median rows on elytral interspaces not raised.	53. <i>S. tenuicauda</i> n. sp., p. 206
63'		Scales gray to pale olivaceous, ovate with pointed apices, broad, scales in median rows on elytral interspaces distinctly raised above those in lateral rows	75. <i>S. nana</i> n. sp., p. 237
64		Elytra with oval white scales limited to sutural interspaces	65
64	(62')	Elytra with narrow incomplete posteromedian band of oval white scales (Fig. 143).	42. <i>S. tessellatopsis</i> n. sp., p. 191
65	(64')	Elytra and sometimes pronotum with broad irregular fascia of fuscous scales on lighter fulvoaeneous background; scales on pronotum attenuate.	66
65'		Elytra and pronotum with unicolorous pale fulvoaeneous scales; scales on pronotum apically truncate	43. <i>S. aurifera</i> n. sp., p. 193
66	(65)	Sterna 3–5 of male with scales on median portions greatly reduced, finely attenuate, suberect	39. <i>S. calvata</i> n. sp., p. 186
66'		Sterna 3–5 of male with scales on median portions unmodified, indistinguishable from scales on lateral portions	38. <i>S. barberi</i> n. sp., p. 185
67	(45')	Pronotum more markedly convex posteriorly than anteriorly; sides of elytra broadly curved in dorsal view (Figs. 141A, 142A, 193A); robust, length greater than 2.10 mm	68

- 67' Pronotum evenly, broadly convex from base to apex; sides of elytra more nearly parallel in dorsal view; size various 72
- 68 (67) Pronotum with tessellate clusters of white scales, fulvous or ferruginous scales, and darker fuscous scales (Fig. 141B, 142B) 69
- 68' Pronotum and elytra with white or pale fulvous and darker ferruginous scales, darker scales in some specimens sparsely interspersed throughout or cover major portion of pronotum and elytra but not in tessellate pattern (Fig. 193A) 47. *S. suturalis* (Schaeffer), p. 198
- 69 (68) Eye with hind margin prominently raised; sutural elytral interspaces prominent, with suberect fuscous to black scales 70
- 69' Eye with hind margin not raised; sutural interspaces not prominent, without suberect scales 41. *S. tessellata* Champion, p. 190
- 70 (69) Anterodorsal margin of pronotum broadly concave; pronotum in anterior view evenly convex 71
- 70' Anterodorsal margin of pronotum straight; pronotum in anterior view more prominently convex medially 40. *S. altensis* n. sp., p. 186
- 71 (70) Scales intermixed ferruginous and fuscous to black; elytra and pronotum with similar scale patterns. 37. *S. tropidorhyncha* n. sp., p. 184
- 71' Scales fulvous and fuscous to black; elytra with sutural vitta and subapical transverse fascia of fuscous to black scales, other scales mostly fulvous ... 36. *S. rotundata* Champion, p. 181
- 72 (67') Metatibia unarmed; in lateral view rostrum flat or distinctly rounded at base; rostrum in female long, slender, abruptly narrowed distad of antennal insertions, smooth and shining; length 1.40–2.05 mm 74
- 72' Metatibia mucronate (minutely so in female); rostrum and size various ... 73
- 73 (72') Pronotum and elytra with pattern of pale and darker ferruginous scales (Fig. 283); in lateral view rostrum broadly concave from base to antennal insertions (Fig. 318); length ca. 2.20–280 mm 87. *S. seminicola* n. sp., p. 251
- 73 Pronotum and elytra with uniformly pale ochreous scales, slightly darker scales arranged in lateromedian vittae on pronotum and small lateromedian patches on elytra in some specimens; in lateral view rostrum not concave from base to antennal insertions; length ca. 1.60–2.00 mm 88. *S. ochreosa* Casey, p. 257
- 74 (72) Lighter scales on pronotum and elytra fulvous to ochreous 75
- 74' Lighter scales on pronotum and elytra white to pale brownish white 76
- 75 (74) Pronotum and elytra with irregular patches of dark yellowish brown scales among fulvous scales (Fig. 221) 59. *S. guttata* n. sp., p. 214
- 75' Pronotum and elytra without dark yellowish brown scales 57. *S. sibirinioides* n. sp., p. 213
- 76 (74') Metafemur with large obtuse proximally directed tooth on ventral 0.25; metatibia with large subapical ventral channel 65. *S. inermoides* n. sp., p. 222
- 76' Metafemur unarmed; metatibia normal 77
- 77 (76') Pronotum and elytra with pale brownish white scales, fulvous scales and darker, lustrous, reddish ferruginous scales; elytra elongate, somewhat flattened (Fig. 252); on *Acacia farnesiana* and *A. schaffneri* 63. *S. inermis* (Casey), p. 220

- 77' Pronotum and elytra with white or pale brownish white scales and ferruginous scales only; elytra more robust (Figs. 222, 223) 78
- 78 (77') Scales on elytra and pronotum white and ferruginous; on *Mimosa borealis* 61. *S. lecontei* n. sp., p. 217
- 78' Scales on elytra and pronotum pale brownish white and darker lustrous reddish ferruginous; on *Mimosa emoryana* 60. *S. caseyi* n. sp., p. 215

KEY TO SPECIES OF *SIBINIA* OCCURRING IN THE WEST INDIES¹

- 1 Vertex of head and pronotum with concave white scales; Jamaica, Netherlands Antilles 4. *S. setosa* (LeConte), p. 135
- 1' Vertex of head with elongate scales; white scales on pronotum if present not concave 2
- 2 (1') Elytral interspaces with round to oval white scales, and narrow ferruginous scales intermixed 3
- 2' Elytral interspaces without round white scales, or white scales limited to sutural interspaces 4
- 3 (2) Sternum 5 of male with crescent shaped brush of dense, erect scales; Jamaica 33. *S. solaris* n. sp., p. 179
- 3' Sternum 5 of male with unmodified scales; Bahamas 32. *S. furfuriosa* n. sp., p. 177
- 4 (2') Length less than 1.60 mm; scales on pronotum and elytra uniformly green to greenish gray; Puerto Rico. 120. *S. aliquantula* n. sp., p. 300
- 4' Length greater than 2.00 mm; pronotum and elytra with white and ferruginous scales 5
- 5 (4') Elytra with white scales on sutural interspaces and interspaces 9–10, other interspaces with light and slightly darker ferruginous scales; Haiti 101. *S. hispaniolae* n. sp., p. 274
- 5' Elytra with white, fulvous, and darker ferruginous scales intermixed on all interspaces; Puerto Rico 99. *S. pulcherrima* n. sp., p. 270

KEY TO SOUTH AMERICAN SPECIES OF *SIBINIA*¹

- 1 Elytra with large dorsal macula of dark scales (Figs. 427B, 428B) (subgenus *Sibinia*) 2
- 1' Elytral scales not arranged as large dark macula (subgenus *Microtychius*) 4
- 2 (1) Tarsal claw with basal process; Chile. . . 131. *S. albovittata* (Blanchard), p. 315
- 2' Tarsal claw without basal process; Argentina, Uruguay 3
- 3 (2') Elytral striae white, in sharp contrast with darker scales on elytral interspaces; length ca. 2.10–2.65 mm 129. *S. sellata* (Boheman), p. 311
- 3' Elytral striae mostly same color as scales on interspaces; length ca. 1.80–2.20 mm. 130. *S. argentinensis* Hustache, p. 313
- 4 (1') Antennal funicle with five articles. 95. *S. quinquemembrata*, n. sp., p. 267
- 4' Antennal funicle with six articles 5
- 5 (4') Head constricted behind eyes, frons abruptly separated from vertex of head (cf. Figs. 96, 97, 98); pronotum with distinct postocular lobes (cf. Fig. 96) 6

1. The sexes are distinguished as follows: rostrum somewhat longer, antennal insertion more proximal and distal portion of rostrum longer, more slender and more finely punctate in female than in male; abdominal sterna 1 and 2 usually somewhat convex in female, flat or broadly impressed in male; tibial mucrones smaller in female.

5'	Head not constricted behind eyes, frons not abruptly separated from vertex of head; pronotum without postocular lobes	15
6 (5)	Profemur with large obtuse ventral process in basal 0.33; protibia expanded at apex, with large groove on internal surface which receives femoral process; length ca. 1.50 mm (male only known).	16. <i>S. distorta</i> , n. sp., p. 157
6'	Profemur without ventral process; protibia not expanded at apex, without groove on internal surface; length ca. 1.60–4.10 mm	7
7 (6')	Femur with deep ventral channel for reception of tibia	9
7'	Femur not channeled ventrally	8
8 (7')	Length ca. 3.20–4.10 mm; elytra with prominent diagonal vittae of bright ferruginous scales	27. <i>S. grandis</i> n. sp., p. 170
8'	Length ca. 1.60–1.90 mm; elytra with variegated white, fulvous and darker brownish scales.	22. <i>S. griseoides</i> n. sp., p. 164
9 (7)	Protibial mucro smaller than metatibial mucro	10
9'	Protibial mucro larger than metatibial mucro	12
10 (9)	Length ca. 1.60–1.90 mm; scales uniformly gray, or gray and brown scales intermixed.	21. <i>S. grisea</i> (Kissinger), p. 162
10'	Length ca. 2.50–2.90 mm; scales fulvous, fuscous or ferruginous but not gray	11
11 (10')	Abdominal sterna 1–5 of male concave, scales on concave portion finely setose margined; eye nearly flat; pronotum and elytra with tessellate pattern of white, fulvous to ferruginous and fuscous to black scales	24. <i>S. alvarengae</i> n. sp., p. 166
11'	Abdominal sterna 1–5 of male concave but scales on concave portion normal; eye strongly convex; pronotum and elytra with light and dark scales in more distinct pattern	23. <i>S. warneri</i> n. sp., p. 165
12 (9')	Abdominal sterna 3–5 of male deeply concave, some scales on concave portion reduced to fine setae, or finely setose margined; sides of pronotum evenly rounded in dorsal view; femoral channel nearly glabrous, internal sac unarmed	13
12'	Abdominal sterna 3–5 of male shallowly concave, scales unmodified; pronotum subquadrate in dorsal view; femoral channel densely scaley; internal sac with dense asperities in proximal portion	14
13 (12)	Abdominal sternum 5 of male with recumbent scales on median portion, scales in apical 0.25 finely setose margined; pronotum and elytra with variegated clusters of fulvous and fuscous scales	14. <i>S. bufemorata</i> n. sp., p. 156
13'	Abdominal sternum 5 of male with scales on concave portion erect, finely setose; pronotum and elytra with variegated clusters of pale and darker, lustrous ferruginous scales	15. <i>S. bufemoratoides</i> n. sp., p. 156
14 (12')	Pronotum and elytra with tessellate clusters of pale fulvous, darker lustrous golden brown, and fuscous scales; median lobe strongly constricted in distal 0.50 (Fig. 54).	13. <i>S. impensa</i> n. sp., p. 154
14'	Pronotum and elytra with tessellate clusters of pale and darker ferruginous scales; median lobe not constricted distally (Fig. 53)	12. <i>S. amplificata</i> n. sp., p. 153
15 (5')	Scales in median rows on elytral interspaces slightly to strongly raised above recumbent scales in lateral rows (slight, limited to declivities in some species)	16

- 15' Scales in median rows on elytral interspaces not raised, although sometimes distinct from scales in lateral rows 26
- 16 (15) Protarsus of male with inner surface of article II concave or drawn out into short acute tooth 17
- 16' Protarsus of male with inner surface of article II unmodified 57
- 17 (16) Male protarsus with acute cusp on inner surface of articles II and III; femora broad at base, scarcely widened distally; distal portion of female rostrum short, subulate 83. *S. caatingensis*, n. sp., p. 247
- 17' Male protarsus with inner surface of article II and in some species article III concave; femora narrow at base, distinctly inflated distally; distal portion of female rostrum various. 18
- 18 (17') Eye nearly round, strongly, evenly convex; white scales on elytra limited to sutural and interspaces 9 and 10 19
- 18' Eye oblong, flat or convex; white scales, if present on elytra, interspersed over all interspaces 20
- 19 (18) Abdominal sternum 5 of male with shallow median concavity bearing finely setose margined scales; rostrum nearly straight; internal sac densely armed with fine spines distally (Fig. 394) 122. *S. aspersoides* n. sp., p. 302
- 19' Abdominal sternum 5 of male not concave medially, scales unmodified; rostrum rounded at base and over antennal insertions; internal sac unarmed except for asperities on extreme proximal portion (Fig. 363) 104. *S. megalops*, n. sp., p. 279
- 20 (18') Scales on pronotum and elytra uniformly pale fulvous; nearly all scales in lateral rows on interspaces of broad oval type, scales in median rows narrow, suberect. 81. *S. vagabunda* Champion, p. 243
- 20' Scales on pronotum and elytra fulvous and ferruginous or yellowish green to green, usually light and dark scales intermixed or sutural interspaces at least with lighter scales; scales in median rows on interspaces less strongly differentiated, recumbent to suberect 21
- 21 (20') Scales on pronotum and elytra predominantly ferruginous, or fulvous and ferruginous 23
- 21' Scales on pronotum and elytra predominantly green or yellowish green ... 22
- 22 (21') Scales on elytra uniformly green, elytra devoid of white scales; distal portion of rostrum of female slender, smooth, cylindrical 112. *S. anfractoides* n. sp., p. 288
- 22' Scales on elytra yellowish green, elytra with oval white scales interspersed throughout; distal portion of female rostrum stout, sulcate 70. *S. aspersa* Champion, p. 232
- 23 (21) Scales in lateral rows on elytral interspaces uniformly broad, apically subtruncate, variegated pale and dark fulvous and ferruginous; scales in median rows on interspaces short, narrow, erect 79. *S. bellula* n. sp., p. 242
- 23' Scales in lateral rows on elytral interspaces either uniformly elongate and ferruginous, or elongate and broader rounded scales intermixed, scales white or pale fulvous and ferruginous but the different colors not variegated; scales in median rows feebly raised to fully erect 24
- 24 (23') Scales in median rows on elytral interspaces suberect to erect 25
- 24' Scales in median rows on elytral interspaces feebly raised, scarcely distinguishable from elongate scales in lateral rows 71. *S. acicularis* n. sp., p. 234

- 25 (24) Protarsus of male with dense patch of coarse setae on inner surface of article III and on concave inner surface of article II (cf. Figs. 259, 260); scales in lateral rows on interspaces 2–8 uniformly elongate, ferruginous (some specimens have a few oval scales toward apices) 72. *S. ferruginosa* n. sp., p. 234
- 25' Protarsus of male with article III unmodified; most scales in lateral rows on interspaces of broad rounded type *S. zapoteca* n. sp., p. 240
- 26 (15') Pronotum and elytra with gray, grayish green, or green scales; length less than 1.75 mm 27
- 26' Pronotum and elytra with ochreous, fulvous, ferruginous, fulvoaeneous, or fuscous scales; size various 34
- 27 (26) Elytra with broad, linear, apically bluntly rounded gray scales in single, or in some places double rows on interspaces 2–10; antennal insertions well proximal of middle of rostrum, especially in female; distal portion of rostrum in female slender, cylindrical, smooth and glabrous 28. *S. glomerata* n. sp., p. 174
- 27' Elytra with slender, apically attenuate scales in single to triple rows on each interspace; antennal insertions at or distad of middle of rostrum; distal portion of rostrum of female tapered, sulcate, at least near antennal insertions 28
- 28 (27') Abdominal sternum 5 of male shallowly but distinctly concave medially, scales on concavity reduced, finely setose margined; femora shallowly channeled ventrally, at least in distal 0.33, channel glabrous 117. *S. earina* n. sp., p. 297
- 28' Abdominal sternum 5 of male flat or broadly, feebly concave medially, scales unmodified; femora not or feebly channeled ventrally, at least partially scale covered 29
- 29 (28') Distal portion of rostrum stout to about midway to tip, abruptly narrowed, and subulate from there to tip 121. *S. aculeola* n. sp., p. 301
- 29' Distal portion of rostrum evenly tapered to tip 30
- 30 (29') Elytra with oval white scales limited to extreme basal portion of sutural interspaces; median lobe with long apicodorsal setae (Fig. 391) 119. *S. melina* Faust, p. 298
- 30' Elytra with oval white scales generally distributed from base to apex of sutural interspaces although usually not arranged in complete sutural vittae; median lobe without long setae 31
- 31 (30') Profemur distinctly larger than metafemur; elytral interspaces with narrow aeneous scales and somewhat broader pale whitish scales. 74. *S. americana* Champion, p. 236
- 31' Profemur and metafemur subequal; scales on elytral interspaces of uniform width and color 32
- 32 (31') Eye nearly flat, hind margin strongly raised by distance somewhat greater than combined diameters of two ocular facets, flat portion directed nearly straight forward (cf. Fig. 196); scales on elytral interspaces in single rows in many places 33
- 32' Eye convex, hind margin less strongly raised, flat portion not directed forward; scales in triple rows on each elytral interspace ... 76. *S. mendica* n. sp., p. 238
- 33 (32) Median lobe with large apical orifice (Fig. 368); internal sac with large spines in distal 0.75. 109. *S. valenciana* Faust, p. 285

33'	Median lobe with apex entire, large spines limited to extreme proximal portion of internal sac (Fig. 365)	106. <i>S. planocula</i> n. sp., p. 281
34 (26')	Profemur of male enlarged, deeply, broadly concave ventrally	97. <i>S. ignota</i> n. sp., p. 269
34'	Profemur of male not enlarged, not concave ventrally	35
35 (34')	Protarsus of male with article (s) II and/or III with inner surface concave, with scales or dense setae differentiated from vestiture on external surface .	36
35'	Protarsus of male with articles II and III unmodified, vestiture on inner and outer surfaces not differentiated	43
36 (35)	Protarsus of male with article II prominently expanded dorsally, inner surface of expanded area concave, elytral interspaces with linear and oblong scales intermixed	90. <i>S. vatricosa</i> n. sp., p. 259
36'	Protarsus of male with article II not expanded; elytral interspaces with uniformly linear or sublinear scales (<i>S. sparsa</i> has a few oval white scales) . . .	37
37 (36')	Pronotum and elytra with ochreous or fulvous to lemon yellow scales . . .	38
37'	Pronotum and elytra with ferruginous scales	41
38 (37)	Length greater than 2.60 mm; scales on elytral interspaces dense, in multiple rows, at least on odd interspaces	39
38'	Length less than 2.00 mm; scales in triple rows on all elytral interspaces . . .	40
39 (38)	Elytra with scales on interspaces 3 and 7 dark, arranged as more or less distinct longitudinal vittae, each interspace with distinct median row or elongate scales	93. <i>S. acuminata</i> n. sp., p. 264
39'	Elytra with scales on interspaces of uniform size shape and color	94. <i>S. latissima</i> n. sp., p. 265
40 (38')	Femora and tibiae with finely acuminate scales	98. <i>S. hirticrus</i> n.sp., p. 269
40'	Femora and tibiae with linear, apically truncate to bluntly rounded scales	96. <i>S. peruana</i> Pierce, p. 268
41 (37')	Pronotum and elytra with more or less uniformly ferruginous scales throughout	86. <i>S. fastidiosa</i> n. sp., p. 250
41'	Pronotum and elytra with variegated pale fulvoferruginous and darker ferruginous scales	42
42 (41')	Elytra with oval white scales sparsely interspersed among elongate scales; distal portion of female rostrum stout, abruptly narrowed at about middle, subulate distally; eye large, nearly round, strongly convex, especially posteriorly	102. <i>S. sparsa</i> n. sp., p. 278
42'	Elytra with oval white scales limited to sutural interspaces; distal portion of female rostrum strongly, evenly tapered to finely acute tip; eye small, nearly flat	80. <i>S. collibita</i> n. sp., p. 242
43 (35')	Pronotum with round concave imbricated scales only	2. <i>S. asulcifera</i> n. sp., p. 129
43'	Pronotum with elongate narrow scales	44
44 (43')	Length greater than 2.30 mm	45
44'	Length 2.00 mm or less	51
45 (44)	Pronotum and elytra with scales of uniform color	46
45'	Pronotum and elytra with light and dark scales in discrete or variegate pattern	47
46 (45)	Robust, convex; female rostrum long, slender, cylindrical, smooth and glabrous from just distad of base to tip; female pygidium vertical, apically truncate	17. <i>S. longirostris</i> n. sp., p. 157

- 46' Elongate; female rostrum short, stout, sulcate to tip, scales dense to antennal insertions; female pygidium slender, oblique, produced beyond elytral apices by distance ca. equal to length of femur 19. *S. castoroides* n. sp., p. 159
- 47 (45') Elytra with prominent mediobasal fascia of bright ferruginous scales covering interspaces 2–4, and with oblique transverse band of oval white scales from interspaces 1–4 immediately posterior to fascia of ferruginous scales, white scales sparse, interspersed on other interspaces 29. *S. mundururu* (Bondar), p. 175
- 47' Elytra without prominent fascia of ferruginous and white scales, white scales limited to sutural interspaces in most species 48
- 48 (47') Robust, strongly convex; pronotum and elytra evenly, continuously convex; female rostrum slender, subcylindrical, glabrous in distal 0.75, prominent at base 34. *S. dorsena* n. sp., p. 180
- 48' Elongate; distal portion of female rostrum acuminate to subulate 49
- 49 (48') Elytra with variegate clusters of pale and darker ferruginous scales; apices of interspaces 4–6 not prominent 103. *S. ingenua* n. sp., p. 279
- 49' Elytra with fulvous and ferruginous scales in more or less discrete fascia; apices of interspaces 4–6 prominent 50
- 50 (49') Proximal portion of rostrum normal, scales discrete to antennal insertions; distal portion of female rostrum short, 33–44% of total rostral length, acuminate; hind margin of eye distinctly raised 91. *S. prolata* n. sp., p. 259
- 50' Proximal portion of rostrum somewhat constricted between base and antennal insertions (cf. Fig. 319); scales absent or greatly reduced; distal portion of female rostrum long, 56% of total rostral length, finely subulate; hind margin of eye not raised 89. *S. subulirostris* Hustache, p. 258
- 51 (44') Rostrum in female abruptly narrowed distad of antennal insertions, distal portion straight, long, slender, cylindrical, smooth, shining; scales on pronotum and elytra narrow, attenuate, uniformly fulvoaeneous 123. *S. glabrirostris* n. sp., p. 302
- 51' Rostrum in female not abruptly narrowed distad of antennal insertions or, if so, then distal portion shorter, curved, shallowly sulcate; scales on pronotum and elytra various 52
- 52 (51') Pronotum and elytra with ferruginous scales 53
- 52' Pronotum and elytra with ochreous, fulvoaeneous, or pale brownish gray scales 54
- 53 (52) Pronotum with uniformly dark ferruginous scales; female rostrum stout, deeply sulcate to tip. 108. *S. muricata* n. sp., p. 285
- 53' Pronotum with fulvous scales, and with lateromedian vittae of darker ferruginous scales; female rostrum slender, smooth or shallowly sulcate 92. *S. geminata* n. sp., p. 263
- 54 (52') Elytra with pale fulvous or ochreous scales (pronotum may have fulvoaeneous scales) 55
- 54' Pronotum and elytra with fulvoaeneous or pale brownish gray scales 56
- 55 (54) Distal portion of female rostrum stout, deeply sulcate to tip 20. *S. galbina* n. sp. p. 159
- 55' Distal portion of female rostrum elongate, slender, sulci shallow, obsolete well proximad of tip. 88. *S. ochreosa* (Casey), p. 257

- 56 (54') Length 1.90–2.00 mm; median lobe without medioventral subapical setae (Fig. 118); scales pale brownish gray 35. *S. santarem* n. sp., p. 181
- 56' Length ca. 1.30–1.75 mm; median lobe with numerous ventral subapical setae (Fig. 390) 118. *S. laticauda* n. sp., p. 297
- 57 (16') Eye oblong, flat, hind margin strongly raised by distance ca. equal to combined diameters of two ocular facets, flat portion directed forward; elytra with single median row of scales on each interspace 107. *S. prorsa* n. sp., p. 284
- 57' Eye round, flat to strongly convex, hind margin not or feebly raised; scales in triple to multiple rows on each elytral interspace 58
- 58 (57') Head and prothorax with large, round, strongly concave, slightly imbricated scales; pronotum and elytra with white and pale fuscous scales 3. *S. concava* n.sp., p. 135
- 58' Head and prothorax with scales not concave; pronotum and elytra with scales not white and fuscous 59
- 59 (58') Pronotum and elytra with gray, greenish gray, or green scales 111. *S. anfracta* n. sp., p. 288
- 59' Pronotum and elytra with fulvous and/or ferruginous scales 60
- 60 (59') Protarsus and in some specimens mesotarsus of male much darker than metatarsus; elytra with fine erect straight setae 61
- 60' Protarsus and mesotarsus not darker than metatarsus; elytral scales variable 62
- 61 (60) Metafemur of male much larger than profemur; length less than 1.85 mm 31. *S. nigripes* n. sp., p. 177
- 61' Metafemur of male not much larger than profemur; length greater than 1.90 mm 30. *S. pullipes* n. sp., p. 176
- 62 (60') Elytral interspaces 3, 5, and 7 with scales distinctly darker than scales on other interspaces; scales in median rows on interspaces slender, straight, attenuate to minutely truncate apices, distinctly longer than width of interspaces 77. *S. zapoteca* n. sp., p. 240
- 62' Elytral interspaces with scales on interspaces 3, 5, and 7 of same color as scales on other interspaces, or darker scales forming transverse bands; scales in median rows on interspaces broader and only slightly raised, or distinctly shorter than width of interspaces 63
- 63 (62') Elytra with broad median band and posteromedian fascia of bright ferruginous scales; distal portion of female rostrum short, finely tapered 84. *S. hirritus* n. sp., p. 248
- 63' Elytra with broad median band and posteromedian fascia of ferruginous scales, distal portion of female rostrum various 64
- 64 (63') Length greater than 2.60 mm; pronotum and elytra with scales strongly differentiated into elongate narrow, and broad rounded types. 82. *S. varga* n. sp., p. 246
- 64' Length less than 2.00 mm; scales on pronotum and elytra not strongly differentiated 65
- 65 (64') Elytra with short, fully erect narrow scales; eye strongly convex 66
- 65' Elytra with feebly raised scales barely distinguished from recumbent scales; eye broadly, feebly convex 125. *S. muscula* n. sp., p. 304
- 66 (65) Elytra with scales in lateral rows on interspaces ferruginous, scales in median rows white; distal portion of female rostrum short, stout, sulcate almost to tip 126. *S. pilosella* Hustache, p. 305

- 66' Elytra with scales in lateral rows on interspaces fulvous, scales in medium rows white, seta-like; distal portion of female rostrum elongate, slender, not sulcate 100. *S. fessa* n. sp., p. 271

Subgenus *Microtychius* Casey

Microtychius Casey 1910: 136 (erected as subgenus of *Tychius* Germar, type-species *T. setosus* LeConte, by original designation). Champion 1910; Kissinger 1962, 1964.

Teratonychus Bondar 1949: 185. (type species *Teratonychus mundururu* Bondar, by original designation). Kuschel 1950 (= *Sibinia* Germar).

Itychus Kissinger 1962: 8. (type-species *Itychus vosei* Kissinger, by original designation). Kissinger 1964. NEW SYNONYMY.

Diagnosis. — Spermatheca with cup-shaped structure at point of origin of spermathecal gland; hosts in legume subfamily Mimosoideae (Table 1).

Discussion. — This subgenus contains 126 species which occur throughout warm-temperate and tropical portions of the New World. All known hosts of members of the subgenus are members of the legume subfamily Mimosoideae. Some species of *Microtychius* are seed predators, larvae of others develop in flower buds (bud predators). As indicated in the discussion of phylogeny (p. 321), the subgenus is paraphyletic. The species are assigned to monophyletic species groups and "complexes", or to paraphyletic "stocks".

The *sulcifera* Group

Diagnosis. — Eyes small, flattened, unraised; frons distinctly wider than base of rostrum; vertex of head, rostrum, pronotum, and elytra with large round imbricated concave scales, and with elongate, narrow, sometimes erect scales or acuminate bristles.

Discussion. — Two members of the *sulcifera* group, *S. transversa* and *S. cuauahatemoc*, of the North American Sonoran, Mohavean, and Chihuahuan desert regions, and arid Valley of Tehuacan of Mexico, respectively, have hosts in the plant genus *Acacia*. A third species, *S. setosa*, which occurs throughout the southwestern U.S. and Mexico, as well as in the West Indies, is associated with mesquite (*Prosopis*). This species is apparently sister to the *Prosopis*-associated *S. asulcifera* and *S. concava* of the Monte region of Argentina. The sixth *sulcifera* group member, *S. sulcifera*, apparently occurs in Mexico; its host is not known. The *sulcifera* group is sister to the *variegata* group whose members occur in southwestern U.S. and in Mexico.

1—*Sibinia* (*Microtychius*) *sulcifera*, new species

(Figs. 1, 26)

Holotype. Female, MEXICO: December 29, 1964, J. Kaiser, cacti, lot 65-4356 (USNM #75391).

Paratype. — Same data as holotype (WEC, 1 female).

Diagnosis. — Elongate; pronotum broad, subapical constriction well developed; thoracic sterna deeply, broadly channeled for reception of rostrum, front coxae widely separated; pronotum with dense, round, concave scales, scales on elytral interspaces round, closely adpressed, odd interspaces also with median row of narrower, recumbent scales, white and pale ferruginous scales intermixed; femora shallowly channeled ventrally in distal 0.25.

Description. — *Length:* 2.62–2.95 mm. *Width:* 1.39–1.58 mm. *Integument:* black; rufopiceous on legs and distal portion of rostrum, antennae ferruginotestaceous. *Head:* scales on vertex round, concave, dense, integument not visible, white and pale ferruginous scales intermixed. *Eye:* height ca. 1.3 x length; in dorsal view evenly, feebly convex; hind margin feebly raised by distance ca. equal to diameter of one ocular facet. *Frons:* slightly widened posteriorly; in lateral view rounded separately from vertex of head. *Rostrum:* 0.97–0.99x pronotum length. In dorsal view tapered from base to antennal insertions, sides subparallel distally; in dorsal profile strongly rounded continuously with frons at extreme base, nearly straight from just distad of base to tip. Distal portion long, 52–56% of total rostral length, slender, in lateral view feebly tapered, lateral

sulcus distinct in basal 0.50. Rostral sulci obsolete proximad of antennal insertions. Scales on ventrolateral portion nearly round, concave, white, narrower slightly raised scales intermixed on dorsolateral portion, scales becoming suberect laterally on frons, forming distinct tuft over eye. *Prothorax*: In dorsal view pronotum broad, sides subparallel in basal 0.66, strongly rounded apically to subapical constriction; in lateral view broadly, evenly convex from base to subapical constriction. Scales on pronotum round, concave, recumbent, imbricated white and pale ferruginous, narrower, apically rounded, recumbent, convex scales interspersed among round scales, ferruginous scales forming irregular interconnected patches throughout among white scales; scales on pleuron indistinguishable from concave scales on pronotum. *Elytra*: in dorsal view sides subparallel in basal 0.66, broadly rounded to apices; in lateral view flat in basal 0.50. Interspaces flat, widely separated by striae which are ca. 1/2 width of interspaces, odd interspaces slightly wider than even interspaces, distinctly raised, especially on declivities, apices of interspaces 4–6 prominent, interspaces 3 and 9 also strongly raised posteriorly. Scales on interspaces, including sutural interspaces, large, round, broadly imbricated, convex to feebly concave, closely adpressed, white and pale ferruginous, extending laterally to cover most of adjacent striae, odd interspaces also bearing median row of elongate, parallel sided, apically blunt, recumbent scales. Strial scales very narrow, inconspicuous. *Pygidium*: large, broadly exposed, nearly vertical, slightly narrowed to broadly rounded apex, flat, basal 0.75 of exposed portion with recumbent round, concave scales and slightly raised, elongate scales, apical portion with dense, oblong concave erect dark fulvous scales. *Abdomen*: sternum 5 broadly, shallowly concave medially, strongly constricted subapically, posteromedian portion of segment prominent but not produced posteriorly, posterior margin truncate medially. *Tibiae*: pro- and mesotibiae each with long curved horizontal mucro, metatibial mucro shorter, oblique. *Spiculum ventrale*: (Fig. 1). *Spermatheca*: (Fig. 26).

Discussion. A relatively large *Microtychius*, probably a seed predator; host unknown; known only from the type-series intercepted at Nogales, Arizona, among cactus imported from Arizona.

The deep sternal channel distinguishes *S. sulcifera* from all known New World Tychiinae, including the Argentine *S. asulcifera* which it otherwise closely resembles. Circumstantial evidence indicates that the latter species is associated with mesquite (*Prosopis*), and *S. sulcifera* may likewise be associated with mesquite.

2—*Sibinia (Microtychius) asulcifera*, new species
(Figs. 2, 46, 58)

Holotype. Male, ARGENTINA: Andalgala, 50 km W, 31 October, 1972, G.E. Bohart, *Cassia* (USNM).

Allotype. — Female, same data as holotype (USNM #75709).

Paratypes. Same data as holotype (11); ARGENTINA: Catamarca, Colpes, 29 October, 1972, G.E. Bohart, *Zuccagnia* (1): total 12, distributed to various collections.

Diagnosis.—Thoracic sterna not channeled, front coxae contiguous; elytral interspaces subequal in width, scales in uniform double rows on each interspace, round to subquadrate, recumbent, broadly imbricated; pronotum and elytra with white as well as pale and ferruginous scales in distinct pattern.

Description. — *Length*: 1.95–2.44 (2.07) mm. *Width*: 2.05–2.33 (2.25) mm. *Eye*: height ca. 1.6x length; hind margin not raised. *Frons*: strongly widened posteriorly. *Rostrum*: male 0.90–1.02 (0.96)x, female 1.00–1.35 (1.06)x rostrum length. In dorsal view tapered to antennal insertions in male, abruptly narrowed just distad of base in female, feebly tapered to antennal insertions, subparallel sided distally; in dorsal profile base strongly rounded with frons but not continuous with rostrum, broadly curved from just distad of base to tip. Distal portion of male moderately long, 44–57 (51%) of total rostral length, moderately slender in lateral view cylindrical, lateral sulcus shallow in extreme proximal portion, obsolete distally; in female, distal portion not longer, 41–57 (51%) of total rostral length, completely smooth from just distad of antennal insertions. Scales uniformly round, concave, imbricated, recumbent on rostrum, suberect and forming distinct tuft over eyes. *Prothorax*: pronotum with round concave imbricated scales only, elongate recumbent scales limited to upper portion of pleuron except on extreme anterolateral portion of pronotum, white and pale ferruginous scales forming large mediobasal patch and lateral vittae, darker ferruginous scales in broad lateromedian vittae. *Elytra*: Interspaces feebly convex, subequal in width, odd interspaces not raised except feebly on declivities, apices of interspaces 4–6 not prominent. Scales on interspaces in uniform double rows, round to subquadrate, concave, broadly imbricated, completely concealing interspaces, a few short narrow recumbent scales form incomplete median row on each interspace; scales white, pale and darker ferruginous, white scales forming prominent transverse diamond shaped dorsal anteromedian macula and nearly complete sutural vitta, darker ferruginous scales forming broad transverse posteromedian vitta. *Pygidium*: of male moderately large, evenly, broadly convex strongly evenly rounded apically, with concave, oblong recumbent white and dark ferruginous scales and elongate raised dark ferruginous scales; pygidium of female slightly larger but otherwise as in male. *Abdomen*: in male sterna 1–4 shallowly, broadly concave medially, sternum 5 broadly, shallowly foveate medially, scales unmodified. *Male genitalia*: (Fig. 46) median lobe non-sclerotized medially, dorsally and ventrally. *Spiculum ventrale*: (Fig. 2).

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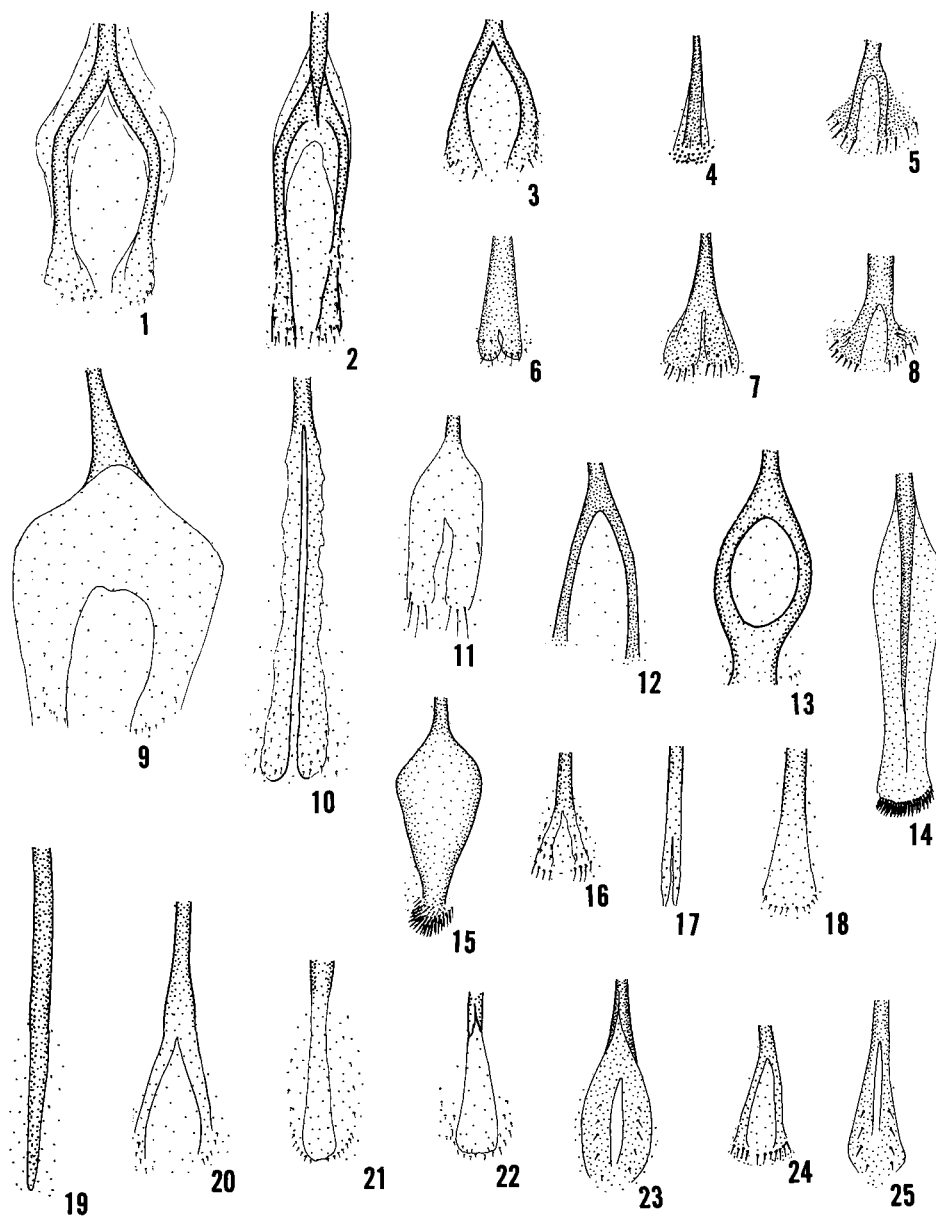


Fig. 1–25, *Sibinia* spp., spiculi ventrali of female genitalia: 1, *S. sulcifera*; 2, *S. asulfifera*; 3, *S. concava*; 4, *S. transversa*; 5, *S. simplex*; 6, *S. setosa*; 7, *S. variegata*; 8, *S. ruidula*; 9, *S. longirostris*; 10, *S. schwarzi*; 11, *S. galbina*; 12, *S. grisea*; 13, *S. griseoides*; 14, *S. vosei*; 15, *S. fulva*; 16, *S. glomerata*; 17, *S. mundururu*; 18, *S. furfurosa*; 19, *S. dorsena*; 20, *S. santarem*; 21, *S. rotundata*; 22, *S. tropidorhyncha*; 23, *S. tessellata*; 24, *S. tessellatopsis*; 25, *S. candidata* (not to scale).

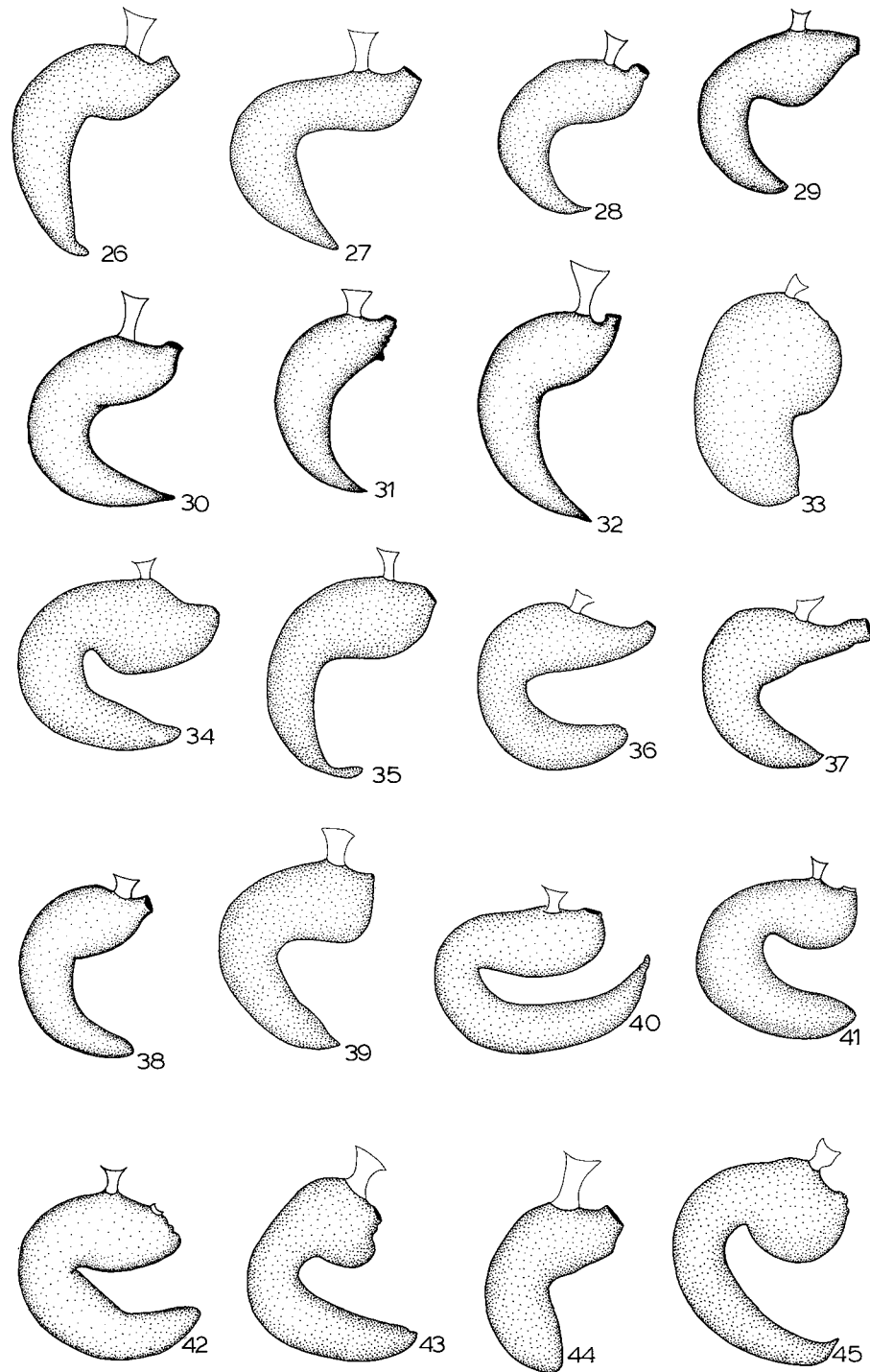


Fig. 26-45, *Sibinia* spp., spermathecae: 26, *S. sulcifera*; 27, *S. concava*; 28, *S. setosa*; 29, *S. transversa*; 30, *S. variegata*; 31, *S. simplex*; 32, *S. ruidula*; 33, *S. amplificata*; 34, *S. longirostris*; 35, *S. schwarzi*; 36, *S. castoroides*; 37, *S. galbina*; 38, *S. grisea*; 39, *S. griseoides*; 40, *S. alvarengae*; 41, *S. vosei*; 42, *S. fulva*; 43, *S. grandis*; 44, *S. glomerata*; 45, *S. mundururu* (not to scale).

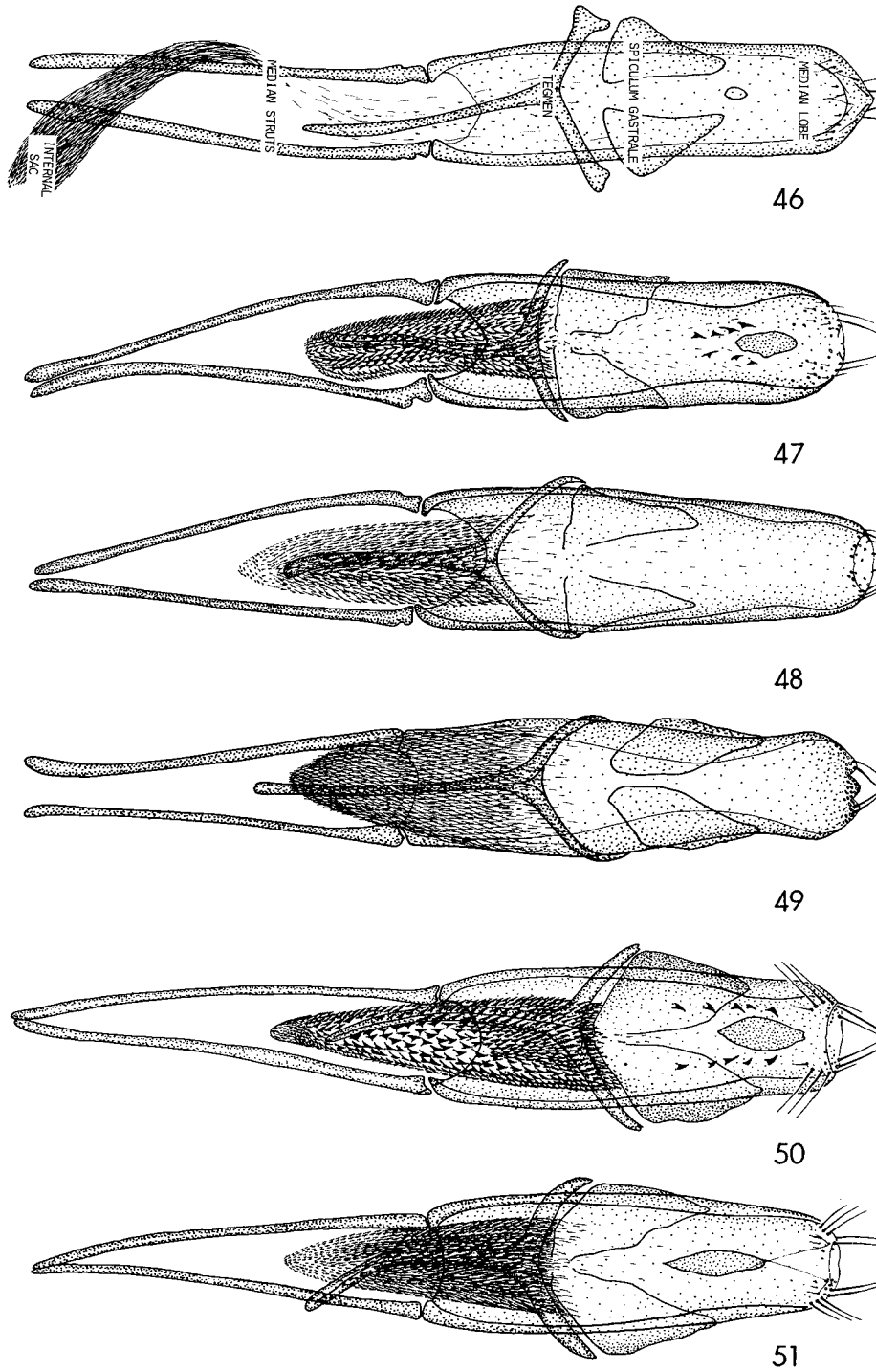


Fig. 46–51, *Sibinia* spp., male external genitalia: 46, *S. asulcifer*; 47, *S. setosa*; 48, *S. transversa*; 49, *S. cuauhtemoc*; 50, *S. variegata*; 51, *S. ruidula*; (not to scale, all ventral views).

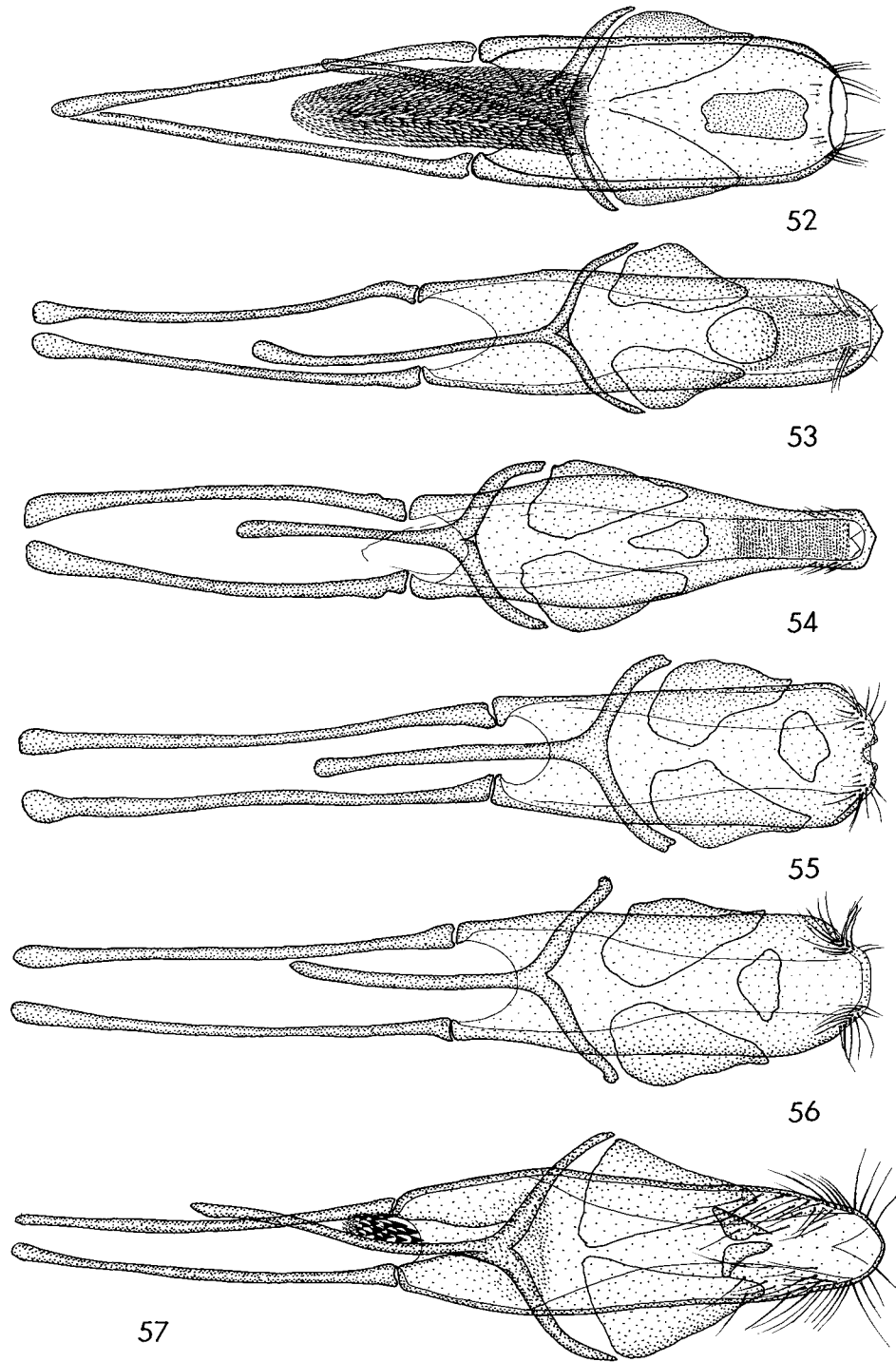
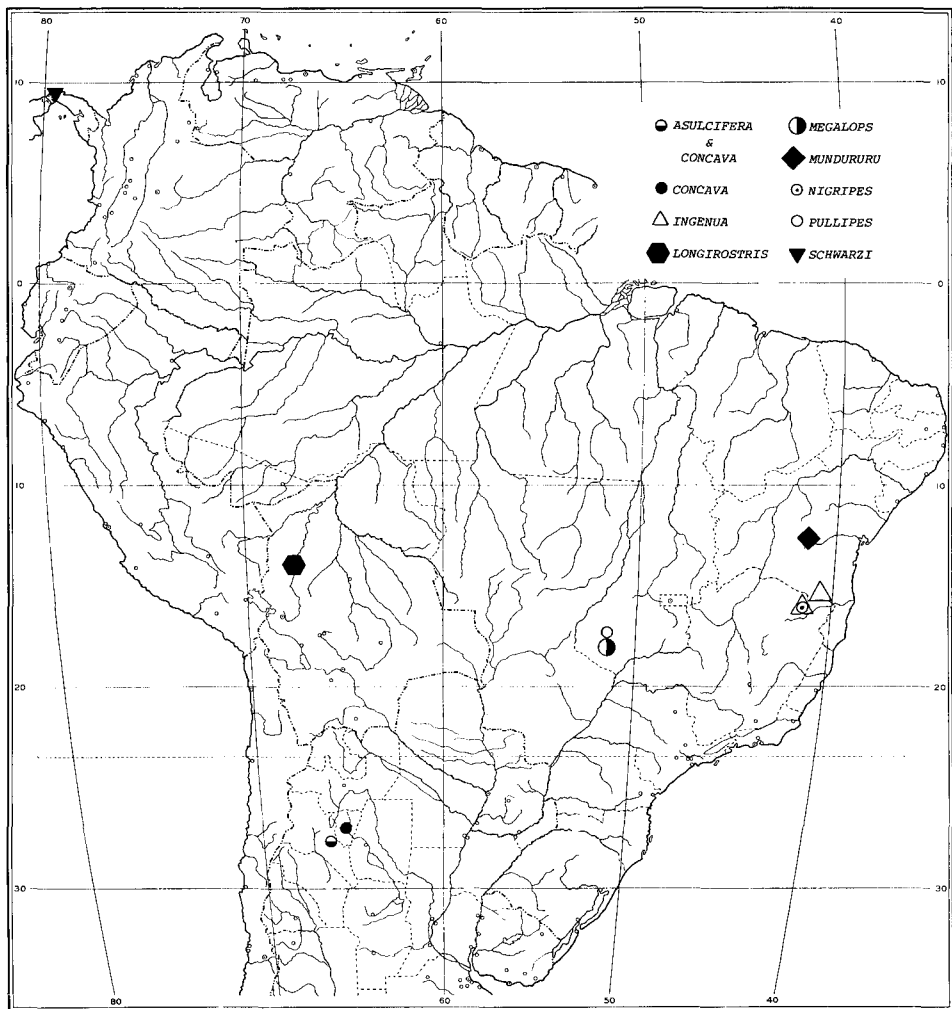


Fig. 52–57, *Sibinia* spp., male external genitalia: 52, *S. schaefferi*; 53, *S. amplificata*; 54, *S. impensa*; 55, *S. bufemorata*; 56, *S. bufemoratoidea*; 57, *S. distorta* (not to scale, all ventral views).

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Fig. 58, *Sibinia* spp., distribution records: some members of the "Itychus" stock, and some members of the *sulcifera*, *grandis*, and *pulcherrima* groups.

Discussion.—A relatively large *Microtychius*, probably a seed predator; collected, according to label data, on *Cassia* and *Zuccagnia* (Leguminosae, Caesalpinoideae), but host most likely mimosoid, possibly of genus *Prosopis*; known only from the type-series from northern Argentina (Fig. 58).

S. asulcifera closely resembles *S. sulcifera* of Mexico (?), a seed predator. It also resembles *S. concava*, a bud predator also known from northern Argentina, and these two may be a bud-seed predator microsympatric pair; the latter species is reported from *Prosopis*.

3—*Sibinia (Microtychius) concava*, new species

(Figs. 3, 27, 58)

Holotype. Female, ARGENTINA: Tucuman, 11 km W Las Cejas, 17 October, 1968, L. and C.W. O'Brien (CWO).

Paratypes. ARGENTINA: Catamarca, Andalgalá, 25 October, 1972, G.E. Bohart, *Prosopis alba* (1 female); the same, except—4 November, 1972 (3 females); ARGENTINA: Santiago del Estero, Las Termas, *Prosopis alba* (1 female); total five, distributed to various collections.

Diagnosis.—Rostrum glabrous from well proximad of antennal insertions to tip; vertex of head and pronotum densely clothed with large round concave striate scales; elytral interspaces with similar recumbent scales which are closely adpressed to surface; rostrum, pronotum, elytral interspaces, femora, and tibiae with short stout erect white bristles.

Description.—As described for *S. sulcifera*, except—*Length*: 1.41–1.74 (1.65) mm. *Width*: 0.79–0.88 (0.84) mm. *Integument*: black, rufopiceous laterally on elytra and on femora, tibiae; tarsi, antennae and distal portion of rostrum testaceous. *Head*: scales on vertex oblong, concave, white, a few pale ferruginous scales intermixed. *Eye*: height ca. 1.5x length; in dorsal view distinctly, evenly convex; hind margin feebly raised by distance less than diameter of one ocular facet. *Frons*: rounded separately from vertex of head. *Rostrum*: in dorsal view tapered from base to sides, subparallel distad of antennal insertions, in dorsal profile feebly rounded at extreme base, 0.82–1.06 (0.94)x pronotum length, broadly evenly curved from just distad of base to tip. Distal portion long, 59–64(62)% of total rostral length, subcylindrical, smooth from basad of antennal insertions to tip. Rostral carinae obsolete. Scales on sides round, concave, white, with oblong imbricated suberect white scales on dorsum, scales on dorsolateral portion of rostrum and lateral portion of frons erect, forming distinct crest over eyes. *Prothorax*: in dorsal view sides subparallel in basal 0.50, strongly rounded in apical 0.50 to strongly developed subapical constriction; in lateral view distinctly convex from base to deep subapical constriction. Scales on pronotum large, round, concave, striate, recumbent, imbricated, white and pale fuscous, pronotum also with short stout erect attenuate white bristles interspersed among recumbent scales on median and lateral portions, fuscous scales forming broad lateral vitta on each side of dorsum; scales on pleuron indistinguishable from white recumbent scales on dorsum. *Elytra*: in dorsal view humeri prominent, sides feebly convergent posteriorly in basal 0.50; in lateral view flat in basal 0.50, broadly rounded to apices. Interspaces slightly raised, apices of interspaces 4–6 prominent. Scales on interspaces, including sutural interspaces large, broad, subquadrate, convex, closely adpressed, completely concealing integument, in double rows on odd interspaces, in single rows on even interspaces, each odd interspace with median row of short stout attenuate erect bristles, recumbent scales white and pale fuscous, darker scales forming faint maculations on dorsum. *Strial scales* very narrow. *Pygidium*: broadly exposed, not narrowed to broadly, evenly rounded apex, flat, nearly perpendicular. *Abdomen*: sterna 3 and 4 and anterior portion of sternum 5 flat medially, subapical constriction of sternum 5 distinct laterally, posteromedian portion of segment broadly, feebly convex, posterior margin slightly, broadly concave. *Spiculum ventrale*: (Fig. 3). *Spermatheca*: (Fig. 27).

Discussion.—A small *Microtychius*, probably a bud predator; collected on *Prosopis alba*; known only from the type-series from northern Argentina (Fig. 58).

As discussed above, *S. concava* resembles *S. asulcifera*, also of northern Argentina. The fact that *S. concava* is known only from females is intriguing in view of the existence of virtually all female populations of the related *S. setosa* in some parts of the United States.

4—*Sibinia (Microtychius) setosa* (LeConte), new combination

(Figs. 6, 28, 47, 59, 60, 63)

Tychius setosus LeConte 1876: 218. Casey 1892; Horn 1894; Townsend 1895; Wickham 1896–1898; Griffith 1900; Fall 1901; Knaus 1907; Fall and Cockerell 1907; Blackwelder 1947. LECTOTYPE (HERE DESIGNATED), female, first in series of

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- three syntypes, labelled with a golden disc and "Type 5230" "*T. setosus* Lec." (MCZ). Type-locality: Fort Yuma, California.
- Tychius subfasciatus* Casey 1892: 423. Knaus 1903, 1905; Fall and Cockerell 1907. LECTOTYPE (HERE DESIGNATED), female, third in series of four syntypes, labelled "Tex" (with two black dots before "T": Big Spring, Texas), "Casey bequest 1925" and "*subfasciatus*—3 paratype USNM 36771" (USNM). NEW SYNONYMY.
- Tychius sulcatulus* Casey 1897: 664. LECTOTYPE (HERE DESIGNATED), female, first in series of 10 syntypes, labelled "Brownsville Texas Wickham" "Pt. Isabel" "Casey bequest 1925" "Type USNM 36763" and "*sulcatulus*" (USNM). NEW SYNONYMY.
- Tychius albidus* Schaeffer 1908: 219. Tanner and Harris 1969. LECTOTYPE (HERE DESIGNATED), female, labelled "Death Valley April 19 K." "on *Prosopis juliflora*" "Brooklyn Museum Coll 1929" "Type USNM 2478" and "*Tychius albidus* Schaeff." (USNM). NEW SYNONYMY.
- Tychius (Microtychius) subfasciatus*: Casey 1910; Leng 1920; Klima 1934.
- Tychius (Microtychius) setosus*: Casey 1910; Leng 1920; Klima 1934.
- Tychius (Microtychius) sulcatulus*: Casey 1910; Leng 1920; Klima 1934.
- Tychius (Microtychius) albidus*: Casey 1910; Leng 1920; Klima 1934.
- Tychius (Microtychius) puellus* Casey 1910: 137. Leng 1920; Klima 1934. Holotype, male: Alpine, Texas, Type—USNM 36778 (USNM), NEW SYNONYMY.
- Tychius (Microtychius) atomus* Casey 1910: 137. Leng 1920; Klima 1934. Holotype, male: Type—USNM 36773, "Southern California" (USNM), NEW SYNONYMY.
- Tychius (Microtychius) echinus* Casey 1910: 138. Leng 1920; Klima 1934. Holotype, female: Tucson, Arizona, Type—USNM 36776 (USNM), NEW SYNONYMY.
- Tychius (Microtychius) hystrix* Casey 1910: 138. Leng 1920; Klima 1934. Holotype, female: Tucson, Arizona, Type—USNM 36777 (USNM), NEW SYNONYMY.
- Tychius (Microtychius) vernillis* Casey 1910: 138. Leng 1920; Klima 1934. LECTOTYPE (HERE DESIGNATED), female, first in series of four syntypes, labelled "Ari" (with red dot over black dot after "i": Benson, Arizona) "Casey bequest 1925" "Type USNM 36772" and "*Microtychius vernillis* Csy." (USNM). NEW SYNONYMY.
- Tychius (Microtychius) fatuus* Casey 1910: 139. Leng 1920; Klima 1934. Holotype, female: Arizona, Type—USNM 36766 (USNM). NEW SYNONYMY.
- Tychius (Microtychius) fraterculus* Casey 1910: 139. Leng 1920; Klima 1934. Holotype, female: Tucson, Arizona, Type—USNM 36767 (USNM). NEW SYNONYMY.
- Tychius (Microtychius) dulcis* Casey 1910: 140. Leng 1920; Klima 1934. LECTOTYPE (HERE DESIGNATED), male, first in series of three syntypes, labelled "St. George Utah July Wickham" "Casey bequest 1925" "Type USNM 36768" "*dulcis* Csy", (USNM). NEW SYNONYMY.
- Microtychius setosus*: Champion 1910.
- Microtychius sulcatulus*: Champion 1910.
- Sibinia sulcatula*: Rogers *et al.* 1975.

Diagnosis.—(Figs. 59, 60). Distal portion of female rostrum sulcate; round scales on elytra sparse, forming transverse diamond shaped fascia; sternum 5 foveate in male; internal sac with a few large spines in proximal portion.

Description.— *Length*: male 1.30–1.82 mm, female 1.30–1.82 mm. *Width*: male 0.58–0.85 mm, female 0.59–0.89 mm. *Integument*: rufous to piceous on broad dorsomedian transverse band and lateromedian portions of elytra, piceous to black on anterior portion of pronotum, tarsi, and antennae usually piceous to black. *Head*: white and ferruginous scales intermixed on vertex. *Eye*: height ca. 1.6x length; in dorsal view flat to feebly, convex. Hind margin raised by distance ca. equal to diameter of one ocular facet. *Frons*: much wider posteriorly than base of rostrum, in lateral view rounded separately from vertex of head. *Rostrum*: male 0.89–1.35x, female 0.94–1.55x pronotum length. In dorsal view strongly, evenly tapered from base to tip in male, in female more slender, less strongly tapered, sides of distal portion subparallel; in dorsal profile feebly to strongly rounded at extreme base, broadly curved over antennal insertions. Distal portion of male short, 35–51% of total rostral length, feebly tapered; in female distal portion moderately long, 35–40% of total rostral length in populations east of the Pecos River in Texas, longer and more slender, 43–58% of total rostral length in populations west of the Pecos River, punctate and sulcate nearly to tip in male and female. Scales: round to oblong, concave white and pale ferruginous scales, and elongate narrow apically blunt to pointed white and ferruginous scales interspersed on sides and on dorsolateral portions. *Prothorax*: in dorsal view sides subparallel in basal 0.50 rounded to subapical constriction anteriorly; in lateral view broadly convex from base to subapical constriction. Pronotum with round, white, and pale ferruginous scales on all but laterobasal portions and with narrow parallel sided ferruginous feebly raised decurved scales intermixed among round scales; scales on pleuron indistinguishable from round concave scales on pronotum. *Elytra*: interspaces flat, feebly impressed; apices of interspaces 4–6 prominent. Each interspace with round to oblong white to pale ferruginous scales, and narrow, parallel sided apically blunt white to ferruginous scales in triple rows on odd interspaces, in single rows on even interspaces; round scales forming mediobasal circle and covering variable proportions of remainder of elytra except basal 0.33 of interspaces 2 and 3; lateral rows with recumbent elongate scales wherever round scales are absent, elongate slightly raised to fully erect scales also present in median row on each interspace; striae scales white, much narrower than scales on interspaces. *Abdomen*: in male sterna 3–4 flat medially, sternum 5 with deep median fovea, scales arising from fovea erect, apically

pointed, subapical constriction of segment feebly developed laterally, posterior margin broadly, shallowly concave; sternum 5 of female broadly convex anteromedially, broadly constricted subapically, posteromedian portion of segment not narrowed, posterior margin nearly straight. *Femora*: profemur ca. 1.2x width of metafemur; all femora with concave round scales and elongate scales intermixed throughout. *Male genitalia*: (Fig. 47). *Spiculum ventrale*: (Fig. 6). *Spermatheca*: (Fig. 28).

Discussion.—A small bud predator *Microtychius*; hosts in the genus *Prosopis*; known from southern California, southern Nevada, southwestern Utah, northwestern and southern Arizona, southern New Mexico, Texas, Mexico as far south as the state of Oaxaca, and the West Indies (Jamaica and Netherlands Antilles: Aruba, Conaire, and Curaçao (Fig. 63); 3,615 specimens examined. Presence in the Netherlands Antilles implies that the species also occurs in northern South America.

Information on life history and descriptions of the immature stages of *S. setosa* (as *S. sulcatula*) was presented by Rogers *et al.* (1975). Larvae develop in flower buds of mesquite, *Prosopis glandulosa* var. *glandulosa*, and probably other species and varieties of *Prosopis*, section *Algarobia*, in the United States and Mexico. In Mexico adults were collected on *P. laevigata*. Adults are sometimes very abundant on these plants. They have been collected in February (1%), March (6%), April (18%), May (15%), June (29%), July (14%), August (8%), September (3%), October (5%), November (1%) and December (1%) and are most abundant when the mesquite is in bloom or soon after.

Larvae were parasitized by *Eutrichosoma mirabile* Ashmead (Eutrichosomatidae) which emerged after larvae had formed pupal cells.

Several more or less distinct forms are here assigned to *S. setosa*. The complex pattern of variation of the North American mesquites is well documented although there is not a consensus on interpretation of this variation (cf. Benson 1941, Johnston 1962). Although specific host data are available for only a relatively small number of weevil populations, it is apparent that the patterns of variation in the weevils and that in the mesquite hosts are not strictly concordant. Johnston (1962) suggested that increase in the incidence of mesquite in historic times has contributed to blurring of formerly more precise geographic distribution patterns by increasing opportunity for gene flow between formerly isolated populations. If this is true, a similar effect on weevils associated with mesquite might be expected.

The ranges of two distinct forms of *S. setosa* approach each other but apparently do not overlap along the extreme western edge of the Edwards Plateau in Texas. One of these, a western form (Fig. 60), occurs in the Trans-Pecos Region of Texas and in north-central Mexico (Fig. 63). This form is distinguished by the long, slender rostrum of the female (rostrum length/pronotum length = 1.17–1.38). In addition, in this form the elongate scales on the pronotum are relatively narrow and tend to be dark ferruginous, while the scales in the median row on each elytral interspace are narrow, erect and finely acuminate. The round scales on the elytra are very dense and form a complete uninterrupted row on interspaces 4–6. The types of Casey's *T. puella* and *T. echina* are of this form and I refer to it as *puella* in the following discussion. The other form, an eastern form (Fig. 59), occurs throughout Texas east and south of the western edge of the Edwards Plateau and in northeastern Mexico (Fig. 63). In this form the rostrum of the female is distinctly shorter and stouter (rostrum length/pronotum length = 0.95–1.28), the linear scales in the median rows of the elytral interspace are stout, apically blunt, very feebly raised and strongly decurved, the elongate scales on the pronotum tend to be broad and pale ferruginous, while the round white scales on the elytral interspaces tend to be sparse, not forming continuous uninterrupted rows on interspaces 4–6. The lectotypes of both *S. subfasciata* and *S. sulcatula* belong to this form, and I refer to it below as *subfasciata*.

Two additional forms of *S. setosa* occur in sympatry with *puella* or *subfasciata* in western Texas, eastern New Mexico and north-central Mexico at the localities indicated by half blackened dots and squares (Fig. 63). These forms have characteristics in common with *subfasciata* and *puella* in combinations suggesting that they are hybrids or intergrades. One of the intergrade

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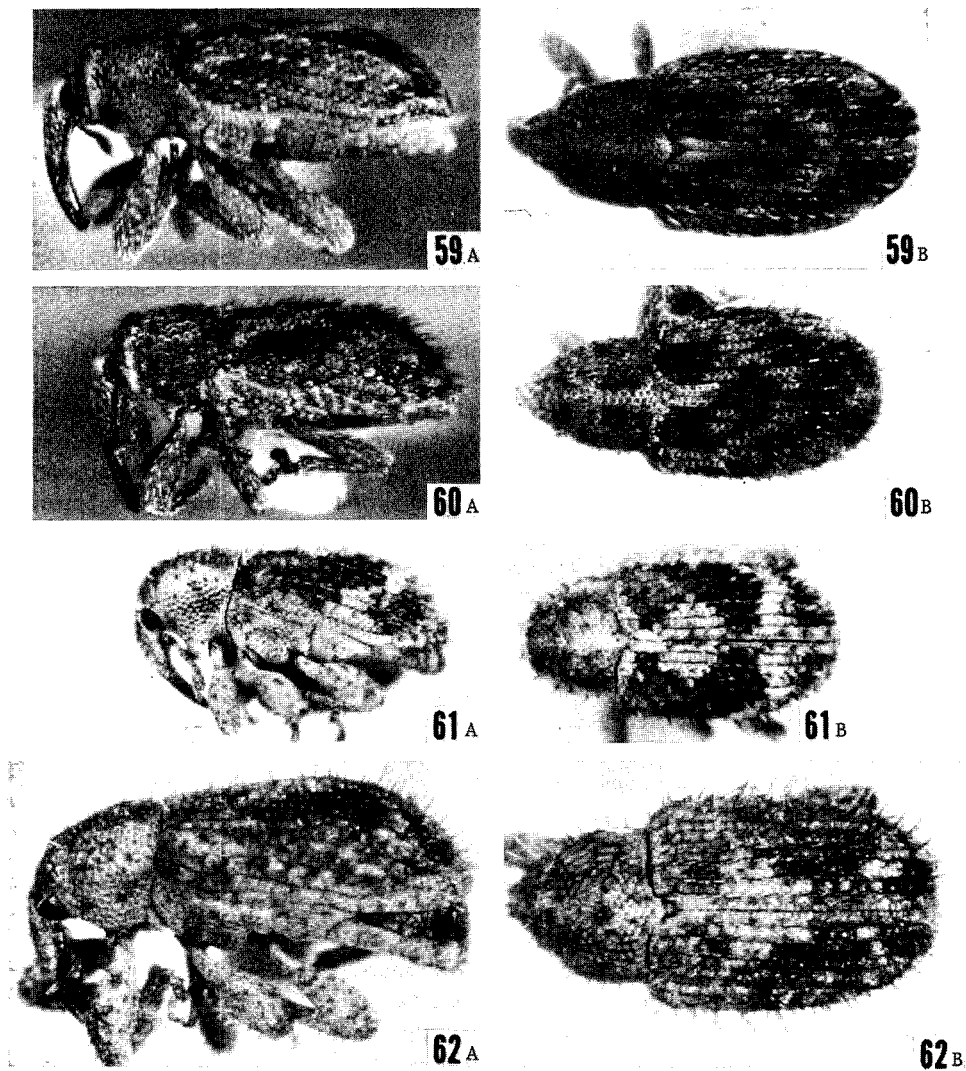


Fig. 59–62, *Sibinia* spp., habitus: 59, *S. setosa*, eastern form (*subfasciata*), female, College Station, Brazos Co., Texas; 60, *S. setosa*, western form (*puella*), female, 3 mi E. Van Horn, Culberson Co., Texas; 61, *S. transversa*, female, 3 mi E Van Horn, Culberson Co., Texas; 62, *S. cuauhtemoc*, male, 4 mi S Acatepec, Puebla, Mexico. (A, lateral view; B, dorsal view).

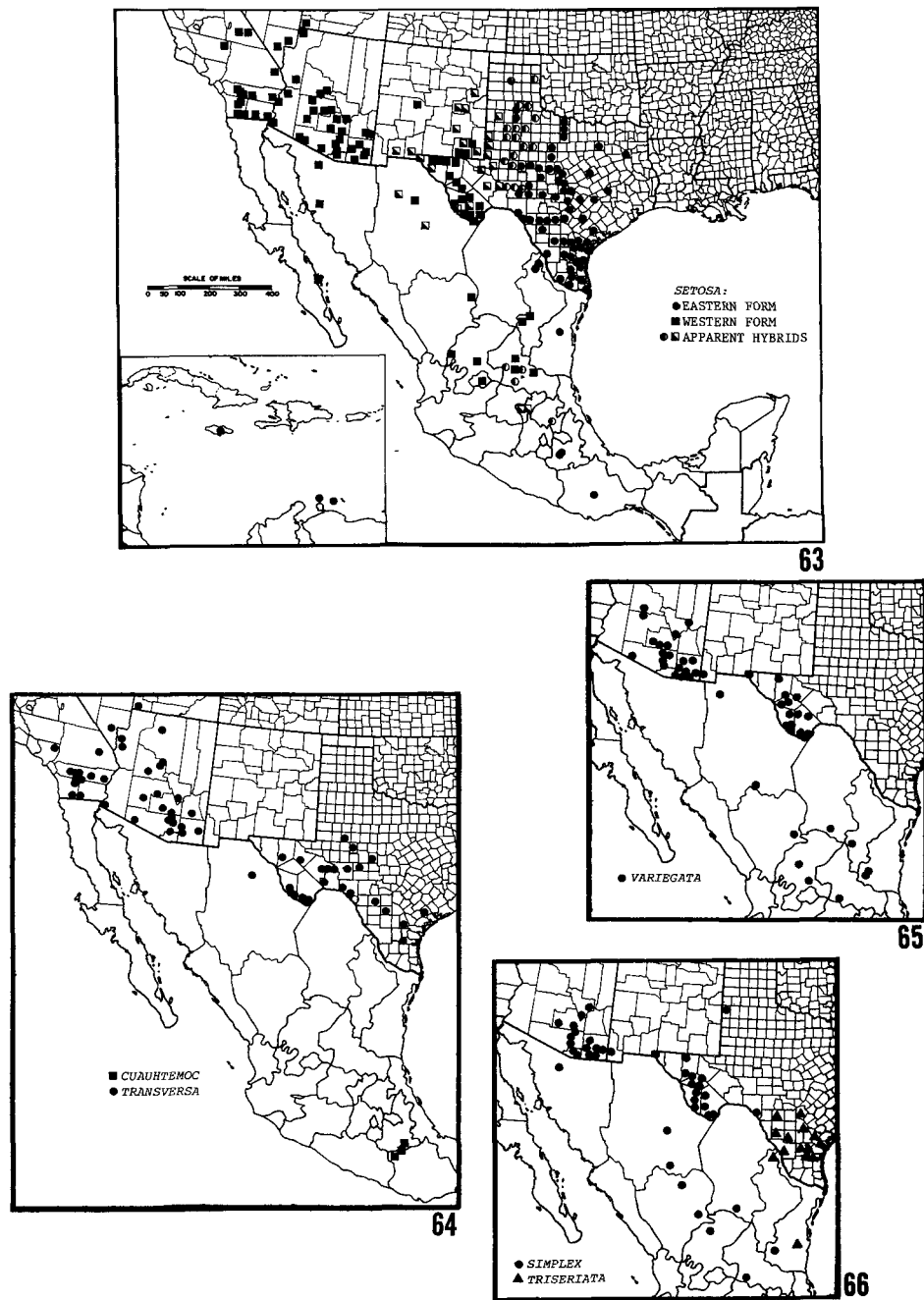


Fig. 63–66, *Sibinia* spp., distribution records: 63, *S. setosa*; 64, *S. cuauhtemoc* and *S. transversa*; 65, *S. variegata*; 66, *S. simplex* and *S. triseriata*.

forms closely resembles *puella*, the other more nearly resembles *subfasciata*. The form resembling *puella*, hereafter referred to as the *puella* intergrade, differs from *puella* in possession of broader, stouter, usually paler elongate scales on the pronotum and elytral interspaces. There is also a tendency in this form for the round scales on interspaces 4–6 to be thick and pale ferruginous and to form continuous uninterrupted rows. The female rostrum length of the *puella* intergrade (rostrum length/pronotum length = 1.19–1.43) is closer to *puella* than to *subfasciata*, but the stout, pale colored elongate scales more nearly resemble the elongate scales of *subfasciata*. The other intermediate form, hereafter referred to as the *subfasciata* intergrade, exhibits almost the entire range of variation in shape and length of the rostrum of the female between the extremes exhibited by *puella* and *subfasciata* (rostrum length/pronotum length = 1.08–1.45). The distribution of round white scales on the elytra and the relative width and color of the elongate scales on the pronotum and elytra are as in *subfasciata*. There are also erect scales on the elytral interspaces as in *puella*, but these are distinctly shorter and stouter than the erect scales in that form.

The *subfasciata* intergrade occurs in the eastern portion of the zone of intergradation in extreme eastern New Mexico, in western Pecos County, Texas, and eastward. It is sympatric with *puella* and the *puella* intergrade in the extreme western portion of its range and with *subfasciata* to the east. The *puella* intergrade occurs in western Texas and throughout New Mexico and Chihuahua, Mexico. It is sympatric with *subfasciata* and the *subfasciata* intergrade in the eastern portion of its range and with *setosa* in the western part.

Females of all four forms were taken in sympatry in Texas in western Pecos County and in eastern Crockett County, but males of *puella* and *subfasciata* were not observed in sympatry nor were males of either taken in sympatry with females of the other.

Of interest is the fact that only three of 418 intergrade specimens examined were males. Two of these males were collected one mile SW Penwell, Ector County, Texas, one beating mesquite, the other reared in the laboratory from mesquite buds. The other male came from an unspecified locality in Pecos County, Texas. At both localities intergrade females as well as males and females of either *puella* or *subfasciata* were sympatric.

In series from Trans-Pecos Texas, New Mexico and Chihuahua containing only *puella* and the intergrade forms, the overall ratio of males to females in the material examined is 1:3. Excluding intergrades and including only males and females of *puella*, the ratio of males to females is still unequal (1:2). In series from east of the Pecos River in Texas containing only *subfasciata* and intergrade individuals, the ratio of males to females is 2:5, but when intergrade individuals are excluded the male/female ratio is roughly 1:1. In considering the significance of these unequal sex ratios and the preponderance of females among the intergrade forms, sex ratios of populations outside the intergrade zone were examined. Unequal sex ratios were also found in populations of *S. setosa* from southeastern Arizona (from eastern Maricopa and Pima counties eastward) where of 185 specimens examined, only three were males. The forms of *S. setosa* from this region are similar to *puella*, but the round white scales in the Arizona specimens are somewhat less dense. There is no evidence, however, that the predominantly female populations of southeastern Arizona are intergrades or are of hybrid origin. Casey's *S. echina* and *S. hystrix* from Tucson and *S. vernillis* from Benson were described from this area. These are not significantly distinct from each other. Casey's *S. fatua* from "Arizona" probably came from this area also.

The presence of mostly female populations in southeastern Arizona and the high percentage of females among the intergrade forms from western Texas and New Mexico suggests the existence of parthenogenetic races or species. In lizards (*Cnemidophorus* spp.) parthenogenetic species of hybrid origin are known from southeastern Arizona (Lowe *et al.* 1970). In these lizards, parthenospecies inhabit ecotonal or disturbed habitats while the parental forms occupy more stable habitats. Both southeastern Arizona and the western Texas areas, where unequal

sex ratios and intergrades or hybrids occur among the weevils, are ecotonal, and the possibility of parthenogenesis in the weevils should be investigated.

The distinction between the eastern and western forms becomes less marked southward in Mexico west of the Sierra Madre Oriental, and the southern half of the state of San Luis Potosi and areas to the south. Specimens from these areas have very sparse round white scales on the elytra. Males closely resemble those of *subfasciata* but have erect scales on the elytral interspaces. These scales are shorter, stouter and somewhat less dense than the erect scales in *puella* from northern San Luis Potosi and northward.

In western Arizona, California, Utah and Nevada occur several more or less morphologically distinct forms, each of which appears to be restricted to a limited geographic area. All of these resemble each other more closely than they resemble the forms discussed above, although they are more similar to *puella* than to *subfasciata*. The form occurring in southwestern Arizona and in the Imperial Valley of California has very pale scales and pale integument. Yuma, Arizona, the type locality of *S. setosa*, is in this region. In eastern San Diego County, California, lives a form with darker elytra and shorter, stouter setae. Specimens from the Palm Springs area of California have pale integument as in the southwestern Arizona and southeastern California form, but also have the white scales on the elytra very sparse and have very short, apically blunt, often recumbent to only slightly raised elongate scales on the elytra. The type of Casey's *S. atoma* is similar to these and may have come from this area. Specimens from the Panamint Valley of California closely resemble *T. atoma* but the erect setae on the elytra are longer and more erect. Schaeffer's *S. albida* occurs just east of the Panamint Valley in Death Valley. This form is similar to the Panamint Valley form but has pale integument and scales and has fine inconspicuous erect setae on the elytra. Specimens from southern Nevada, northeastern Arizona, and southwestern Utah are distinguished by possession of recumbent rather than erect setae on the elytral interspaces. Casey named this form *S. dulcis*.

The West Indian specimens closely resemble California-southeastern Arizona forms in relatively small size and pale coloration. They are distinguished, however, by somewhat more flattened form and possession of relatively broad, slightly raised scales in the median rows on the elytral interspaces.

I recognize a single varied species for this complex of forms, even though the eastern *subfasciata* and western *puella* are readily distinguishable from each other, and the apparent hybridization and introgression along the zone of overlap in the ranges of the two forms indicated at least partial restriction to gene flow. It appears that the "hybrid zone" is a zone of secondary contact. The western *puella*, however, is not easily distinguished from other "western" forms in Mexico, Arizona, California, Nevada, and Utah. Detailed analysis of the variation of the entire complex is needed. The possibility of parthenogenetic race formation in western Texas should also be investigated and the relationship of intergrades there to primarily female populations of southeastern Arizona determined.

5—*Sibinia (Microtychius) transversa* (Casey), new combination

(Figs. 4, 29, 48, 61, 64)

Tychius transversus Casey 1897: 665. LECTOTYPE (HERE DESIGNATED), male, standing first in series of three syntypes, labelled "Tuc. Ari." "Casey bequest 1925" "Type USNM 36774" "*Transversus*" (USNM).

Tychius (Microtychius) transversus: Casey 1910; Leng 1920; Klima 1934.

Diagnosis.—(Fig. 61). Pronotum and elytra with long erect acuminate bristles and pattern of white, ferruginous and fuscopiceous scales; female rostrum abruptly narrowed distad of antennal insertions, distal portion slender, smooth.

Description.— *Length*: male 1.23–1.71 mm, female 1.40–1.82 mm. *Width*: male 0.65–0.83 mm, female 0.65–0.93 mm.

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Integument: rufous to rufopiceous, basal portion of elytra., anterior portion of pronotum, and sterna darker. *Head*: punctures large, interspaces narrow, cariniform. Scales on vertex conforming to contours of punctures, pale whitish and darker ferruginous scales intermixed. *Eye*: small, height ca. 1.7x length; in dorsal view flat; hind margin feebly raised by distance less than diameter of one ocular facet. *Frons*: in lateral view rounded separately from vertex of head. *Rostrum*: male 0.86–1.10x, female 0.91–1.00x pronotum length. In dorsal view strongly, evenly tapered from base to antennal insertions, subparallel sided to tip; in dorsal profile strongly rounded just distad of base. Distal portion in male moderately long, 53–62% of total rostral length, feebly tapered, smooth, lateral sulcus obsolete; in female, distal portion 57–68% of total rostral length, slender, subcylindrical, impunctate. Scales round, concave, whitish and ferruginous scales intermixed among ferruginous bristles. *Prothorax*: in dorsal view sides strongly rounded from base to strongly developed subapical constriction; in lateral view broadly evenly convex, subapical constriction distinct on dorsum. Punctures on pronotum large, roughly hexagonal, interspaces narrow, cariniform. Scales on pronotum round, concave, recumbent, scales on lateromedian portion dark ferruginous, adpressed, fitting contours of deep punctures, not imbricated; scales on pleuron and on dorsolateral and median portion of pronotum white to pale fulvous, imbricated, concave but not fitting contours of punctures, pronotum and upper portion of pleuron with stout erect acuminate ferruginous bristles interspersed among recumbent scales. *Elytra*: in dorsal view sides subparallel in basal 0.50; in lateral view flat on disc. Interspaces flat, feebly impressed, odd interspaces distinctly wider than even ones, apices of interspaces 4–6 prominent. Scales on interspaces broad, rounded, feebly concave, slightly imbricated, recumbent, arranged in double rows on odd, single rows on even interspaces, white, ferruginous, and fuscopiceous, white scales forming dorsomedian macula and complete subapical transverse band, odd interspaces with erect acuminate ferruginous bristles in uniform single median rows, bristles sometimes also present in apical 0.33 on even interspaces. Strial scales narrow, white. *Pygidium*: narrowly exposed, flat, broadly rounded apically in male, slightly smaller and more narrowly rounded in female. *Abdomen*: sternum 5 of male with anteromedian portion broadly, distinctly concave, posteromedian portion of segment prominent, subapical constriction feebly developed laterally, posterior margin of segment broadly, deeply emarginate; in female, sternum 5 prominent, posterior margin of segment slightly concave. *Femora*: narrow at base, profemur stout, slightly wider than metafemur, gradually inflated in distal 0.66. *Tibiae*: pro- and mesotibiae with large oblique strongly curved mucrones, metatibia unarmed. *Male genitalia*: (Fig. 48). *Spiculum ventrale*: (Fig. 4). *Spermatheca*: (Fig. 29).

Discussion.—A small bud predator *Microtychius*; hosts *Acacia greggii* and *A. roemeriana*; known from Texas to California in southwestern United States (Fig. 64). 838 specimens examined.

Adults of *S. transversa* were collected on *A. greggii* at several different localities throughout the range of the species and on fruiting *A. roemeriana* in Brewster County, Texas. A few adults were taken on blooming *A. berlandieri* in Live Oak County, Texas, but occurrence of weevils on that *Acacia* appears to have been accidental. Adults have been collected in March (5%), April (16%), May (18%), June (31%), July (15%), August (8%), September (5%), and October (2%).

Larvae emerged from flower buds of *A. greggii* taken 30 May, 1973, 9 mi N Shafter, Presidio County, Texas and 31 May, 1973, 10 mi E Fort Stockton, Pecos County, Texas. Pupae were observed in both lots 13 days later on 13 June and teneral adults were noted 21 days later on 4 July, 1973, 34 days after larval emergence. These cultures became infested with mites and the pupal cells were broken open in order to isolate uninfested larvae and pupae. This disturbance may have delayed development. None of the adults survived past the teneral stage.

The sister species of *S. transversa* is probably *S. cuauhtemoc* of the Valley of Tehuacan, in the states of Puebla and Oaxaca, Mexico

6—*Sibinia (Microtychius) cuauhtemoc*, new species
(Figs. 49, 62, 64, 67–69)

Holotype.—Male, MEXICO: Puebla, 5.1 mi SW Tehuacan, 27 July, 1974, Clark, Murray, Ashe, Schaffner. (USNM #75392).

Allotype.—Female, same data as holotype (USNM).

Paratypes.—Same data as holotype (238); MEXICO: Oaxaca, 5.5 mi. NE Huajuapán de León, 14 July, 1974, Clark, Murray, Ashe, Schaffner (15); total 253, distributed to various collections.

Diagnosis.—(Fig. 62). Scales on pleuron (Fig. 69), and elytral interspaces (Fig. 67, 68) round to subquadrate, concave, broadly imbricated, fulvous and darker golden brown, dark scales forming distinct macula on elytra; rostrum, femora, tibiae, pronotum, and odd elytral interspaces with stout erect acuminate bristles; in female, rostrum abruptly narrowed distad of antennal insertions, distal portion slender, smooth (Fig. 69).

Description.— *Length:* male 1.75–2.05 mm, female 0.61–2.12 mm. *Width:* male 0.86–1.01 mm, female 0.80–1.09 mm. *Integument:* rufopiceous, piceous or black on pronotum and sterna. *Eye:* (Fig. 69): small, height ca. 1.7x length, in dorsal view nearly flat; hind margin feebly raised by distance ca. equal to diameter of one ocular facet. *Frons:* feebly to distinctly rounded, separated from vertex of head. *Rostrum:* male 0.81–0.92x, female 0.98–1.17x pronotum length. In dorsal view tapered from base to antennal insertions, sides subparallel from there to tip; in dorsal profile feebly to distinctly rounded at base. Rostral carinae obsolete, obscured by scales. Distal portion in male short, 44–51% of total rostral length, in lateral view evenly tapered, smooth, impunctate; in female (Fig. 69), distal portion long, 56–64% of total rostral length, cylindrical, smooth, shining. Scales round, concave, recumbent, broadly imbricated, erect acuminate ferruginous bristles interspersed on dorsolateral portion of rostrum and lateral portion of frons. *Prothorax:* in dorsal view sides rounded at base, broadly rounded in apical 0.50 to strongly developed subapical constriction; in lateral view broadly, evenly convex from base to distinctly developed subapical constriction. Scales on pronotum large, round, concave, striate, pale, brownish white, imbricated, recumbent, pronotum and upper portion of pleuron with broad erect acuminate ferruginous bristles interspersed throughout (Fig. 69) except on posterolateral portions, usually with faint dorsomedian vitta of pale whitish scales, scales on lower portion of pleuron indistinguishable from concave scales on pronotum. *Elytra:* in dorsal view sides subparallel in basal 0.66; in lateral view flat on disc. Interspaces convex, odd interspaces slightly wider than even ones (Fig. 67); apices of interspaces 4–6 slightly prominent. Scales (Fig. 67, 68) in triple rows on odd interspaces, in single rows on most portions of even interspaces, large, convex, closely adpressed to surface but with edges broadly upturned (Fig. 67), pale yellowish white, fulvous and darker brownish ferruginous, different colored scales forming mediobasal macula and broad subapical transverse band, darker scales covering areas between mediobasal macula and transverse band and between mediobasal macula and bases of interspaces 2–4, each odd interspace with median row of erect acuminate bristles, bristles also present on some portions of even interspaces; scales on sutural interspaces indistinguishable from scales on other interspaces; striae scales very narrow (Fig. 67, 68). *Pygidium:* narrowly exposed, in male evenly, broadly rounded at apex, feebly convex, perpendicular; in female, pygidium distinctly narrowed to rounded apex, flat, oblique, extending slightly beyond elytral apices. *Abdomen:* in male sterna 3 and 4 and

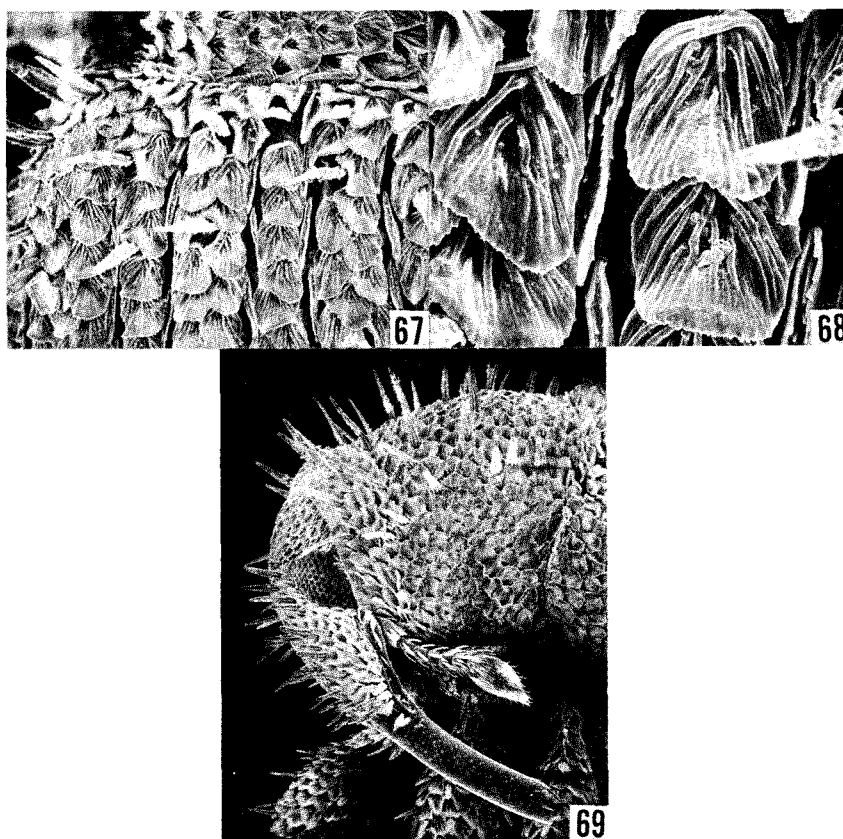


Fig. 67–69, *Sibinia cuauhtemoc*: 67, basal portion of left elytron (142.6x); 68, scales on interspaces 4 and 5 (530.6x); 69, head and pronotum, female, lateral view (66.3x).

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anterior portion of sternum 5 broadly concave medially posteromedian portion of sternum 5 prominent; in female, sternum 3–4 feebly convex medially, anteromedian portion of sternum 5 concave, slightly constricted subapically, posteromedian portion narrowed, slightly prominent but not produced posteriorly. *Tibiae*: bearing erect bristles and recumbent scales; pro- and mesotibiae with stout curved mucrones, metatibia with smaller oblique mucro. *Male genitalia*: (Fig. 49). *Spiculum ventrale*: as in *S. transversa* (cf. Fig. 4). *Spermatheca*: as in *S. transversa* (cf. Fig. 29).

Discussion.—A relatively small *Microtychius*, probably a bud predator; adults collected on *Acacia constricta* and *A. subangulata*; known only from the type-series from the Valley of Tehuacan in the Mexican states of Oaxaca and Puebla (Fig. 64).

Adults of *S. cuauhtemoc* were abundant at the type locality, 27 July, 1974, on fruiting *A. constricta*, but although a large sample of pods was collected at the time, no larvae had emerged after three days and no weevil infestation was evident. Adults were more abundant on the same date at the type locality on *A. subangulata*. These plants were in bloom but no larvae were recovered from the flower buds.

S. cuauhtemoc is named in honor of the Aztec prince who led resistance to the Spanish conquest of Mexico.

The *variegata* Group

Diagnosis.—(Figs. 70–74). Hind margin of eye not, or only feebly raised; frons as wide or wider than rostrum at base, rounded separately from vertex of head; rostrum rounded at extreme base, straight to just basad of antennal insertions; dorsomedian rostral carina obsolete; pronotum strongly rounded from base to distinct subapical constriction; elytra subparallel sided in dorsal view; pronotum and elytral interspaces with elongate, apically blunt, decurved, white and ferruginous scales; pygidium (Fig. 77) narrowly exposed, evenly rounded at apex in male and female, not or very slightly visible beyond elytral apices in dorsal view, nearly vertical in male, slightly oblique in female; femora with round white flat to concave scales, and elongate narrow white to ferruginous scales intermixed from base to apices; pro- and mesotibiae with stout, curved, slightly oblique mucrones, mucro on metatibia slightly more slender, more strongly oblique; spermatheca with distal lobe acute (Figs. 30–32).

Discussion.—The *variegata* group includes five species (*S. variegata*, *S. simplex*, *S. triseriata*, *S. ruidula*, and *S. schaefferi*) of the southwestern United States and Mexico (Figs. 65, 66, 78). The species are associated with members of a complex of apparently related species of *Acacia*, including the familiar *A. farnesiana*, all of which have an inflorescence of yellow flowers in a compact globose head (see Table 1). They bear a general resemblance to some members of the genus *Tychius*, which explains why Casey (1892) and others assigned some of them (*S. variegata* and *S. simplex*, along with many other subgenus *Microtychius* members) to that genus, and also explains Casey's (1892) assertion that the genera *Tychius* and *Sibinia* "are not very well distinguished in the North American fauna". Some of the resemblance is apparently due to convergence, however; the *variegata* group and its sister group, the *sulcifera* group, are derived from an early offshoot from the *Sibinia* stem ancestor which had many characteristics of the "Itychus" stock (see phylogeny section).

7—*Sibinia (Microtychius) variegata* (Casey), new combination (Figs. 7, 30, 50, 65, 70, 435)

Tychius variegatus Casey 1892: 420. Fall and Cockerell 1907. LECTOTYPE (HERE DESIGNATED), female, standing first in series of six syntypes, labelled "Ari." (Benson, Arizona). "Casey bequest 1925" "Type USNM 36761" "*variegatus*" (USNM).

Tychius (Microtychius) variegatus: Casey 1910: 136; Leng 1920; Klima 1934.

Microtychius variegatus: Champion 1910.

Sibinia rubescens Champion 1903: 209. Klima 1934; Blackwelder 1947. Holotype: female, Durango City, Mexico (BMNH).
NEW SYNONYMY.

Diagnosis.—(Fig. 70). Distal portion of rostrum in male short, stout; sternum 5 not foveate; pronotum and elytra with elongate, deeply striate, apically bluntly rounded, white, ferruginous, and sometimes dark fuscopiceous scales in triple rows on odd elytral interspaces, in single median rows on even interspaces.

Description.— *Length:* male 2.16–2.67 mm; female 1.07–2.74 mm. *Width:* male 1.13–1.40 mm; female 1.09–1.74 mm. *Integument:* piceous to black, rufopiceous on posterolateral portions of elytra, legs, antennae, and distal portion of rostrum, tarsi piceous to black. *Head:* scales on vertex broad, parallel sided, bluntly rounded apically, imbricated, white and ferruginous scales intermixed. *Eye:* height ca. 1.4x length; in dorsal view evenly, feebly convex; hind margin feebly raised by distance less than diameter of one ocular facet. *Frons:* slightly wider than base of rostrum, in lateral view rounded separately from vertex of head. *Rostrum:* male 0.66–1.05x, female 0.70–1.05x pronotum length. In dorsal view distinctly tapered from base to antennal insertions, distal portion more strongly tapered; in dorsal profile strongly rounded at base, straight from distad of base to tip in female, slightly curved over antennal insertions in male. Distal portion in male short, 36–46% of total rostral length, stout, strongly tapered in lateral view, lateral sulcus distinct in basal 0.66; in female, distal portion longer, more slender, 37–49% of total rostral length, strongly tapered to acute tip, deeply rugose punctate over antennal insertions. Scales on ventrolateral portion oblong, concave, recumbent, white to pale ferruginous, scales on dorsum and upper portion of sides short, narrow to moderately broad, parallel sided, apically blunt, erect, pale to dark ferruginous. *Prothorax:* pronotum with moderately broad, parallel sided to slightly attenuate, apically blunt, strongly decurved scales, and with round concave white to pale ferruginous scales laterally and in mediobasal patch; pleuron with round, concave, white scales, or white and ferruginous scales intermixed, round scales covering posterolateral portions of pronotum, intermixed among elongate scales on upper portion of pleuron and lateral portions of pronotum. *Elytra:* interspaces slightly convex, odd interspaces broader than even ones, slightly raised, especially on declivities. Striae deep, with deep slightly elongate punctures. Scales in median rows on elytral interspaces slightly raised, strongly decurved; sutural interspaces with dense basal cluster of white to ferruginous flat imbricated round scales; striae scales slightly narrower than scales on interspaces. *Abdomen:* in male sterna 3–4 broadly, feebly concave medially, sternum 5 more strongly concave but not foveate, scales on median portion unmodified; subapical constriction distinct laterally, posterior margin of segment straight; in female, sterna 3–4 and anterior portion of sternum 5 convex medially, sternum 5 feebly constricted subapically, posteromedian portion of segment feebly prominent, posterior margin straight. *Male genitalia:* (Fig. 50). *Spiculum ventrale:* (Fig. 7). *Spermatheca:* (Fig. 30).

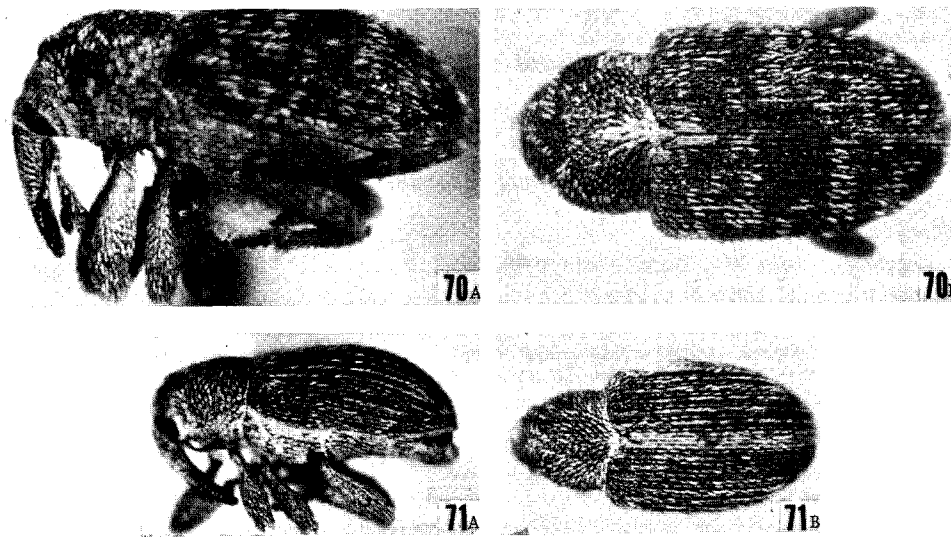


Fig. 70–71, *Sibinia* spp., habitus: 70, *S. variegata*, female, 7 mi S Kent, Culberson Co., Texas; 71, *S. simplex*, male, 5 mi S Alpine, Brewster Co., Texas (A, lateral view, B, dorsal view).

Discussion.— A relatively large seed predator *Microtychius*; hosts *Acacia constricta* and *A. neovernicosa*; known from Chihuahuan Desert region of southwestern Arizona, southern New Mexico, the Trans-Pecos region of Texas and the Mexican states of Chihuahua, Coahuila, Durango, Nuevo Leon, San Luis Potosi, Tamaulipas, and Zacatecas (Fig. 65); 663 specimens examined.

Adults of *S. variegata* have been collected in February (1%), April (1%), May (7%), June (32%), July (37%), August (15%), and September (7%), and are abundant when host plants are in bloom or when pods are present. They were reared from larvae which emerged from pods of *A. constricta*, collected 18 July and 10 October, 1973, 8.3 mi NE Jaumave, Tamaulipas, Mexico. Pupae were noted in each lot at intervals between 183–215 days from the time the pods were collected. One adult was observed emerging from the pupal skin on 22 May, 1974, 231 days after pods were collected. These data indicate that there is one generation per year and that overwintering takes place as larvae in the pupal cell in the ground. New generation adults probably emerge in the spring when the host begins to bloom.

Larvae were parasitized by *Urosigalphus breviovipositorus* Gibson (Braconidae), which emerged after larvae had formed pupal cells.

S. variegata is usually microsympatric on both of its known hosts with another *variegata* group member, the bud predator *S. simplex*, from which adults are easily distinguished by larger size, triple rather than single rows of scales on odd elytral interspaces, and absence from males of a median fovea on sternum 5.

8 — *Sibinia (Microtychius) simplex* (Casey), new combination
(Figs. 5, 31, 66, 71, 435)

Tychius simplex Casey 1892: 421. Champion 1903; Knaus 1903; Fall and Cockerell 1907. LECTOTYPE (HERE DESIGNATED), male, first in series of seven syntypes, labelled "Tex" (black dot before T: El Paso, Texas), "Casey bequest 1925" "Type USNM 36762" and "simplex" (USNM).

Tychius (Microtychius) simplex: Casey 1910; Leng 1920; Klima 1934.

Tychius (Microtychius) imbellis Casey 1910: 140. Leng 1920; Klima 1934. LECTOTYPE (HERE DESIGNATED), female, first in series of two syntypes, labelled "Ari" (red dot over black dot after i: Benson, Arizona), "Casey bequest 1925" "Type USNM 36758" and "imbellis Csy" (USNM). NEW SYNONYMY.

Tychius (Microtychius) porcatus Casey 1910: 141. Leng 1920; Klima 1934. Holotype female: Santa Rita Mountains, Arizona, (USNM). NEW SYNONYMY.

Tychius (Microtychius) curtippennis Casey 1910: 141. Leng 1920; Klima 1934. LECTOTYPE (HERE DESIGNATED), female, first in series of two syntypes, labelled "Del Rio W Tex" "Casey bequest 1925" "Type USNM 36760" and "Curtippennis Csy." (USNM). NEW SYNONYMY.

Microtychius simplex: Champion 1910.

Diagnosis.— (Fig. 71). Round white scales limited to venter and femora; scales in single median row on elytral interspaces 2–10; sternum 5 foveate in male.

Description.— *Length*: male 1.54–1.92 mm, female 1.54–1.92 mm. *Width*: male 0.75–1.01 mm; female 0.73–0.96 mm. *Integument*: rufopiceous, piceous or black on anterior portion of pronotum and venter, tarsi darker than tibiae. *Head*: scales on vertex moderately broad, parallel sided, apically blunt, imbricated, white and pale ferruginous scales intermixed. *Eye*: height ca. 1.8x length; in dorsal view flat; hind margin raised by distance slightly greater than diameter of one ocular facet. *Frons*: ca. as wide as base of rostrum, scales dense, recumbent. *Rostrum*: male 0.91–1.09x, female 1.02–1.33x pronotum length. In dorsal view strongly tapered from base to antennal insertions, sides of distal portion subparallel; in dorsal view strongly tapered from base to antennal insertions; in dorsal profile strongly rounded at extreme base, distinctly curved over antennal insertions in male, more broadly curved in female. Distal portion in male moderately long, 28–40% of total rostral length, slightly tapered, lateral sulcus distinct almost to tip; in female distal portion longer, 39–40% of total rostral length, nearly straight, subcylindrical, shallowly rugose punctate over antennal insertions, lateral sulcus obsolete just distad of insertions. *Prothorax*: scales on pronotum elongate, apically rounded, recumbent, white and slightly narrower ferruginous scales intermixed, usually with round white concave scales on posterolateral portions; scales on pleuron round to oblong, concave, white, limited to lower 0.33 anteriorly, replaced dorsally by elongate scales. *Elytra*: interspaces slightly convex, feebly impressed, odd interspaces not wider than even ones, apices of interspaces 4–6 feebly prominent. Scales on interspaces similar in shape and color but slightly narrower than scales on pronotum, slightly raised, decurved; sutural interspaces with basal cluster of round flat white scales, and with diffuse sutural row of such scales from base to apices; striae scales

narrower than scales on interspaces. *Abdomen*: in male sterna 3–4 flat, sternum 5 foveate, feebly developed subapical constriction obsolete medially, distinct laterally and medially, posteromedian portion of segment feebly, broadly prominent, posterior margin shallowly concave. *Male genitalia*: indistinguishable from *S. ruidula* (cf. Fig. 51). *Spiculum ventrale*: (Fig. 5). *Spermatheca*: (Fig. 31).

Discussion.—A relatively small *Microtychius* bud predator of *Acacia constricta* and *A. neo-vernica*; range (Fig. 66) coextensive with that of *S. variegata* (Fig. 65); 1418 specimens examined.

Adults of *S. simplex* were collected on *A. constricta* and *A. neo-vernica* in Texas, and on *A. constricta* in the states of Tamaulipas and San Luis Potosi, Mexico in February (1%), April (3%), May (7%), June (30%), July (31%), August (17%), September (10%), and October (1%). There is no evidence of preference for one or the other of the two host species which are frequently sympatric in western Texas. Larvae emerged from flower buds taken from both acacias on 30 and 31 May in Brewster, Presidio and Reeves Counties, Texas. In the laboratory pupae were first noted six days from the time buds were collected and after 11 more days pupae and a few teneral adults were recovered. Twenty-nine days after larvae emerged from buds, some adult weevils had emerged from pupal cells. There are probably two or more generations per year as the host's blooming period extends beyond late June or early July when these adults presumably would have been ready to oviposit.

Larvae of *S. simplex* were parasitized by *Eutrichosoma mirabile* Ashmead (Eutrichosomatidae) and *Tetrastichus* sp. (Eulophidae) which emerged after larvae formed pupal cells.

9—*Sibinia (Microtychius) triseriata*, new species
(Figs. 66, 72, 435)

Holotype.—Male, Texas: Jim Wells Co., 1.4 mi S Premont, 10 April, 1973, W.E. Clark USNM #75393).

Allotype.—Female, same data as holotype (USNM).

Paratypes.—Same data as holotype (22); TEXAS: Atascosa Co., 5 mi. S Campbellton, 29 March, 1972, C.W. O'Brien (6); Bexar Co., San Antonio, 10 May, 1907, E.A. Schwarz (1), no locality given, 6 May, 1938, from Peach jarring (1); Dimmit Co., 7 mi N. Carrizo Springs, 27 March, 1972, C.W. O'Brien (3); Duval Co., San Diego, 25 May, Hubbard & Schwarz (1); Jim Wells Co., 1 mi N Premont, 11 April, 1971, W.E. Clark (29), the same, except—8 April, 1971 (8), 1 mi S Premont, 24 April, 1973, W.E. Clark (3), 6 mi S Ben Bolt, 29 March, 1970, W.E. Clark (1), Alice, 8 June, 1912, on *Siderocarpus* (2); Kleberg Co., Riviera, 23 April 1973 (6); Riviera, 27 March, 1973, W.E. Clark (4); LaSalle Co., Cotulla, 27 March, 1908, Jones & Pratt, *Mimosa borealis* (1); Uvalde Co., 5 mi W Uvalde, 25 April, 1970, W.E. Clark (1); Webb Co., 18 mi N Laredo, 18 October, 1970, L.&C.W. O'Brien (1); MEXICO: Tamaulipas, 17 mi S Neuvo Laredo, 30 June, 1965 (2); 8.5 mi S Soto La Marina, 14 July, 1973, G.C. Gaumer and W.E. Clark (1); total 93, distributed to various collections.

Diagnosis.—(Fig. 72). Round white scales absent from upper portion of pleuron, dorso-lateral portions of pronotum, and from elytra; scales in triple rows on odd elytral interspaces, in single row on each even interspace; sternum 5 foveate in male.

Description.—*Length*: male 1.64–1.92 mm, female 1.75–1.92 mm. *Width*: male 0.80–1.01 mm, female 0.85–0.96 mm. *Integument*: rufopiceous, piceous, or black on anterior portion of pronotum and venter, tarsi darker than tibiae. *Head*: scales on vertex broad, parallel sided, apically blunt, imbricated, white scales and narrower pale ferruginous to rufopiceous scales intermixed. *Eye*: height ca. 1.5x length; in dorsal view flat; hind margin raised by distance ca. equal to diameter of one ocular facet. *Frons*: ca. as wide as base of rostrum. *Rostrum*: male 0.91–1.08x, female 1.07–1.23x pronotum length. In dorsal profile feebly curved over antennal insertions in male, nearly straight in female. Distal portion in male short, 33–43% of total rostral length, in lateral view slightly tapered; in female, distal portion longer, 34–52% of total rostral length., in lateral view tapered, deeply rugose punctate over antennal insertions. *Prothorax*: scales on pronotum elongate, bluntly rounded apically, recumbent, white scales, narrower pale ferruginous scales, and still narrower, striate rufopiceous scales intermixed, usually with round white concave scales on extreme posterolateral portion and in small mediobasal patch; scales on pleuron

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round, concave, white, limited to lower 0.33 medially, replaced dorsally by elongate scales. *Elytra*: interspaces flat, odd interspaces wider than even ones, not distinctly raised, apices of interspaces 4–6 slightly prominent. Scales similar to those on pronotum, those in lateral rows recumbent, decurved, those in median rows slightly raised, strongly decurved; sutural interspaces with basal cluster of round flat white scales and usually with complete diffuse sutural row of such scales. Strial scales slightly narrower than scales on interspaces. *Abdomen*: in male sternum 5 with deep median fovea, subapical constriction obsolete, posterior margin of segment broadly, evenly concave; in female, subapical constriction of sternum 5 strongly developed, posteromedian portion of segment broadly prominent. *Male genitalia*: indistinguishable from *S. ruidula* (cf. Fig. 51). *Spiculum ventrale*: as in *S. ruidula* (cf. Fig. 8). *Spermatheca*: as in *S. ruidula* (cf. Fig. 32).

Discussion.—A relatively small *Microtychius*, probably a bud predator; collected on *Acacia schaffneri* and *A. farnesiana*; occurs in the *Acacia* Grassland vegetation zone of southern Texas and Tamaulipas, Mexico (Fig. 66); 92 specimens examined.

S. triseriata is probably a bud predator, but attempts to rear it from larvae were unsuccessful. Adults have been collected in March (28%), April (33%), May (17%), June (11%), July (6%), and October (6%) in Jim Wells and Kleberg Counties, Texas, on *Acacia farnesiana* and on *A. schaffneri*. Both of these acacias may be hosts, but weevils were not collected on *A. farnesiana* in areas where *A. schaffneri* was not also present. The distribution of *A. schaffneri* in Texas is closely coincident with that of *S. triseriata* (see Turner 1959). Near Del Rio, Texas, *A. schaffneri* is replaced by *A. noevernicosa* and *S. triseriata* is replaced by its sister species, *S. simplex*, which develops on *A. noevernicosa*. Adults of *S. triseriata* were abundant on *A. schaffneri* when pods were present but no larvae were found in the pods. Records of *S. triseriata* on *Mimosa borealis* and *Siderocarpus (Pithecellobium)* are probably attributable to chance occurrence of weevils on, or misidentification of the plants.

Adults of *S. triseriata* are distinguished from those of its sister species, *S. simplex*, by triple rows of scales on odd elytral interspaces. In addition, the distal portion of the rostrum is more deeply rugose-punctate, the scales usually brighter rufopiceous in *S. triseriata*. The species is likely to be confused with *S. ruidula* with which it was taken in sympatry at several localities; adults of the two are distinguished by the characters listed in the discussion of *S. ruidula*.

10—*Sibinia (Microtychius) ruidula*, new species
(Figs. 8, 32, 51, 73, 75, 76, 78, 435)

Holotype.—Male, TEXAS: Hidalgo Co., 4 mi N Delfina, 27 March, 1970, W.E. Clark (USNM #75394).

Allotype.—Female, same data as holotype (USNM).

Paratypes.—Same data as holotype (84); distributed to various collections.

Diagnosis.—(Fig. 73). Round white scales absent from upper portion of pleuron and elytral interspaces; sternum 5 of male not foveate; scales in double or triple rows on odd elytral interspaces, single rows on even interspaces (Fig. 75, 76).

Description.—*Length*: male 1.54–1.78 mm, female 1.71–1.85 mm. *Width*: male 0.76–0.86 mm, female, 0.78–0.93 mm. *Integument*: piceous to black, rufoferruginous or rufopiceous on elytral interspaces 3–7, antennae and distal portion of rostrum, tarsi darker than tibiae. *Eye*: height ca. 1.6x length; in dorsal view nearly flat; hind margin raised by distance ca. equal to diameter of one ocular facet. *Frons*: slightly wider than base of rostrum. *Rostrum*: male 0.91–1.16x, female 0.95–1.26x pronotum length. In dorsal profile feebly rounded at base, broadly curved over antennal insertions. Distal portion in male short, 29–39% of total rostral length, tapered, lateral sulcus distinct in basal 0.50; in female, distal portion longer, 39–51% of total rostral length. Scales on sides elongate, apically blunt to truncate, white, narrower pale fulvous and even narrower ferruginous to fusciferruginous intermixed; scales between dorsal margins of eyes short, but fully erect. *Prothorax*: scales on pronotum elongate, apically blunt, feebly striate, recumbent, decurved, ferruginous to fuscopiceous and slightly broader white and pale ferruginous scales intermixed, also with small mediobasal patch of round white scales; scales on lower portion of pleuron round, white, a few broad white to pale ferruginous elongate scales on upper portion of pleuron and on posterolateral portion of pronotum. *Elytra*: interspaces narrow, flat, feebly impressed, odd interspaces wider than even ones (Fig. 75), especially on disc; apices of interspaces 4–6 prominent. Scales on interspaces (Fig. 76) similar to those on pronotum, in double to triple rows on odd interspaces, in single rows on even interspaces, scales in lateral rows recumbent, scales in median rows slightly raised; sutural interspaces with basal patch of oblong white scales; strial scales narrower than scales on interspaces (Fig. 75, 76). *Abdomen*: in male sternum 3–4 flat medially, sternum 5 feebly constricted subapically, posteromedian portion not prominent, posterior margin broadly, shallowly concave; in female, sternum 3–4 and median portion

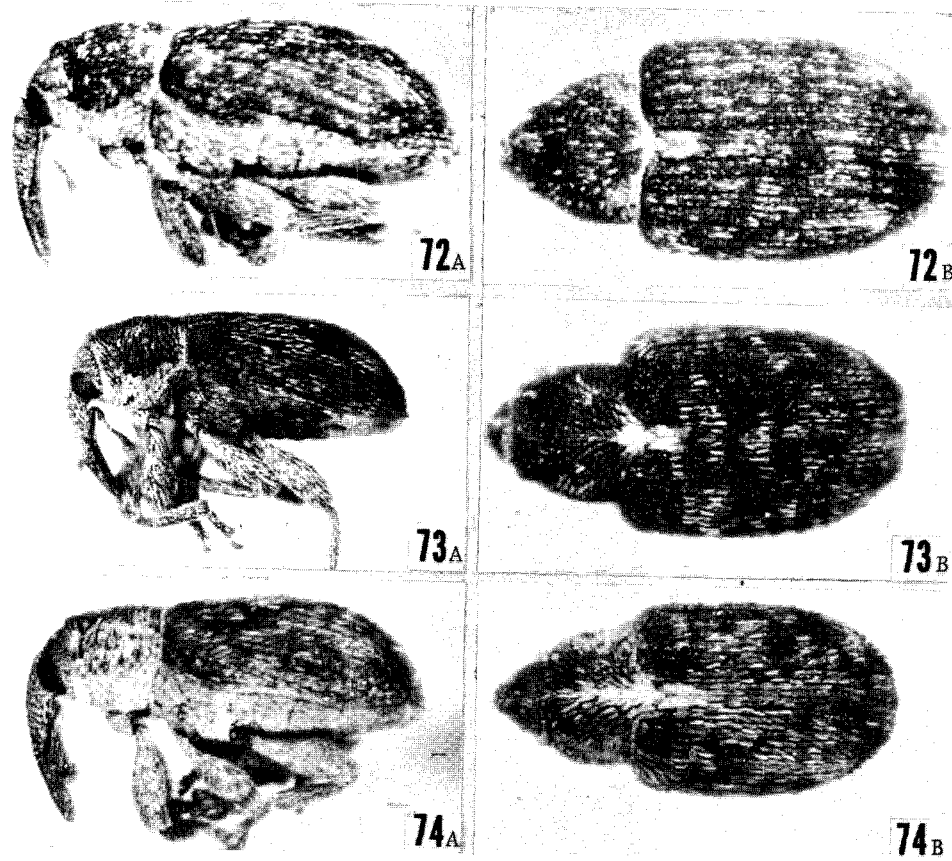


Fig. 72–74, *Sibinia* spp., habitus: 72, *S. triseriata*, female, 1 mi N Premont, Jim Wells Co., Texas; 73, *S. ruidula*, female, Uvalde, Uvalde Co., Texas; 74, *S. schaefferi*, female, 35 mi S Puebla, Puebla, Mexico (A, lateral view; B, dorsal view).

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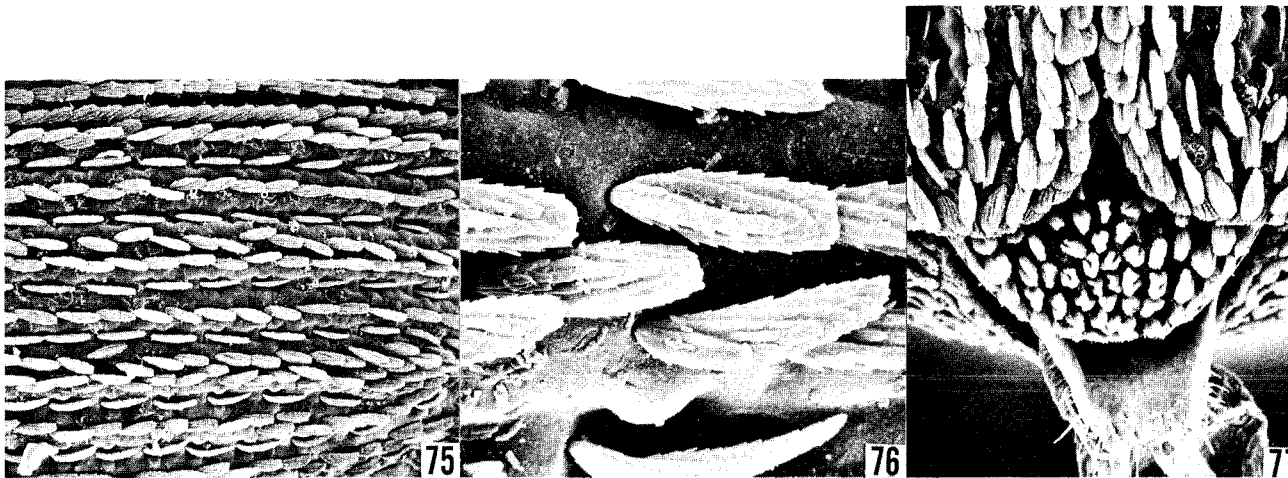


Fig. 75-77, *Sibinia ruidula*, female: 75, left elytron, interspaces 1-7 (127.4x); 76, scales on interspace 5 (636.8x); 77, elytral apices and pygidium (159.2x).

of sternum 5 feebly convex, subapical constriction of sternum 5 distinct, posteromedian portion of segment broadly prominent, posterior margin nearly straight. *Male genitalia*: (Fig. 51). *Spiculum ventrale*: (Fig. 8). *Spermatheca*: (Fig. 32).

Discussion.—A small bud predator *Microtychius*; hosts *Acacia farnesiana* and *A. schaffneri*; occurs in the *Acacia* Grassland vegetation zone of southern Texas and probably in Tamaulipas, Mexico, and in the Mesquite Grassland vegetation zone in the Mexican states of Durango, Hidalgo, Jalisco, Nuevo Leon, and Zacatecas (Fig. 78); 495 specimens examined.

Adults of *S. ruidula* were collected on *A. farnesiana* and *A. schaffneri* var. *schaffneri* in the state of Hidalgo, Mexico, and on *A. farnesiana* and *A. schaffneri* var. *bravoensis* in Texas. They were abundant when their hosts were in bloom, and have been collected in January (2%), February (6%), March (29%), April (37%), May (11%), June, July, August, November and December (3% each).

Adults were reared from larvae which emerged from flower buds of *A. farnesiana* and *A. schaffneri* collected in Jim Wells and Kleberg Counties, Texas. Adults of *Sibinia inermis* were also reared from buds taken from the same trees at each locality. The duration of the prepupal period, 7 to 11 days, and the pupal period, 11 to 14 days, in *S. ruidula*, is about the same as in *S. inermis*. Adults of both weevil species were frequently found together on *A. farnesiana* and *A. schaffneri* which grow side by side throughout much of southern Texas and Mexico. *A. farnesiana* and *A. schaffneri* are closely related species and there is evidence of hybridization between them (see Iseley 1969) so it is not surprising that *S. ruidula* can use both plants as hosts.

Adults of *S. ruidula* closely resemble and are likely to be confused with those of *S. triseriata*; the two species are apparently microsympatric, at least in southern Texas. Males are easily distinguished by absence of a median fovea on sternum 5 in *S. ruidula*. Females of *S. triseriata* are distinguished by the longer distal portion of the rostrum.

Specimens of *S. ruidula* from the Mexican states of Durango, Zacatecas, Jalisco and Hidalgo are distinguished from those from Texas by the longer female rostrum. Specimens from these areas, from the localities listed in appendix I, are excluded from the type series.

11—*Sibinia (Microtychius) schaefferi*, new species (Figs. 52, 74, 78, 435)

Holotype.—Male, MEXICO: Pueblo, 13.3 mi NE Tehuiztzingo, 13–14 July, 1974, Clark, Murray, Ashe, Schaffner (USNM #75395).

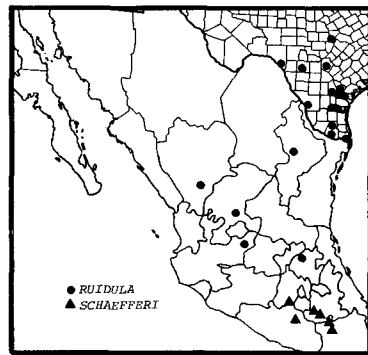
Allotype.—Female, same data as holotype (USNM).

Paratypes.—Same data as holotype (15); MEXICO, Guerrero, Iguala, 8–9 July, 1974, Clark, Murray, Ashe, Schaffner, on *Acacia farnesiana* (3); Mexico, Tonatico, 6 July, 1974, Clark, Murray, Ashe, Schaffner, on *Acacia farnesiana* (1); Oaxaca, Huajuapán de León, 28 June, 1971, G.B. Marshall, on *Acacia* (2), 10 mi N Miltepec, 15–16 July, 1971, Clark, Murray, Hart, Schaffner (3); Puebla, 16 mi NW Acatlán, 14 July, 1974, Clark, Murray, Ashe, Schaffner (2); 11.8 mi NW Izúcar de Matamoros, 13 July, 1974, Clark, Murray, Ashe, Schaffner (1); 35 mi S Puebla. 25 February, 1953, D.G. Kissinger (12); total 34, distributed to various collections.

Diagnosis.—(Fig. 74). Upper portion of pleuron and dorsolateral portions of pronotum with round white scales; white scales on elytra limited to sutural interspaces; sternum 5 foveate in male.

Description.— *Length*: male 1.47–1.61 mm, female 1.47–1.64 mm. *Width*: male 0.74–0.80 mm, female 0.70–0.85 mm. *Integument*: piceous to black on anterior portion of pronotum and sterna, remainder of pronotum and elytra rufo-piceous, legs and antennae rufous to ferruginous, tarsi piceous to black. *Head*: scales on vertex short, linear, apically blunt, imbricated, white scales, pale ferruginous scales and rufo-ferruginous scales intermixed. *Eye*: small, height ca. 1.6x length; in dorsal view nearly flat; hind margin feebly raised by distance somewhat less than diameter of one ocular facet. *Frons*: slightly wider than base of rostrum, in lateral view rounded separately from rostrum. *Rostrum*: male 1.00–1.16x, female 1.14–1.29x pronotum length. Distal portion in male moderately long, 43–47% of total rostral length, feebly tapered in lateral view; in

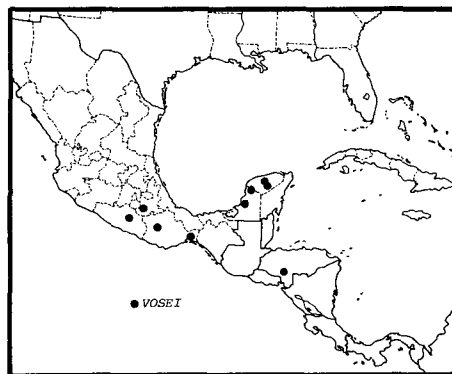
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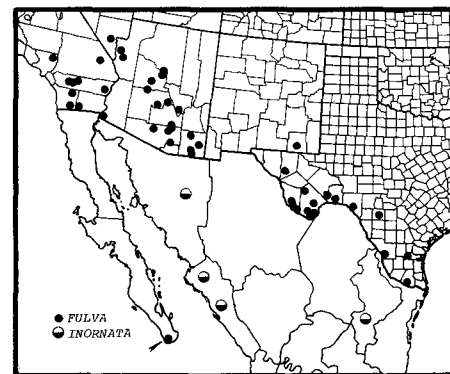
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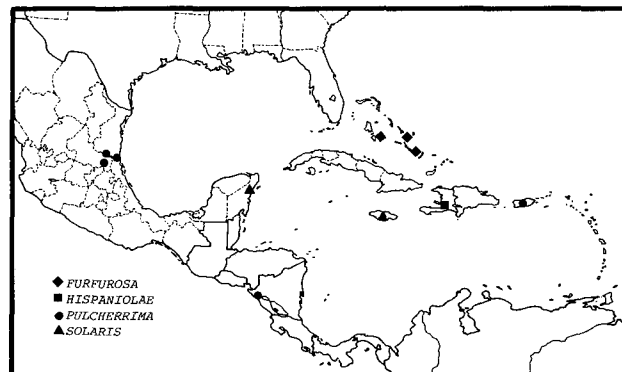
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Fig. 78–82. *Sibinia* spp., distribution records: 78, *S. ruidula* and *S. schaefferi*; 79, *S. grisea*; 80, *S. vosei*; 81, *S. fulva* and *S. inornata*; 82, *S. furfurosa*, *S. hispaniolae*, *S. pulcherrima*, and *S. solaris*.

female, distal portion longer, 48–55% of total rostral length, slender. Scales suberect. *Prothorax*: pronotum with elongate apically blunt recumbent decurved ferruginous and white scales, and with round to oblong, flat to concave recumbent white scales on upper portion of pleuron and on lateral portions and in median vitta on pronotum, ferruginous scales and white scales intermixed on upper portion of pleuron and lateral portions of pronotum. *Elytra*: interspaces flat, feebly impressed. Scales on interspaces elongate, linear to spatulate, apically bluntly rounded, white scales, narrower pale ferruginous scales, and darker ferruginous to rufopiceous scales in single median row on each even interspace, in triple rows on odd interspaces; scales in lateral rows recumbent, scales in median rows feebly raised, decurved, sutural interspaces with basal patch and sutural row of round to oblong, flat, white to pale ferruginous scales. *Abdomen*: sternum 5 of male not constricted subapically, with small shallow median fovea; in female, sternum 5 broadly convex medially, feebly constricted subapically, posteromedian portion of segment feebly prominent, posterior margin straight. *Male genitalia*: (Fig. 52). *Spiculum ventrale*: as in *S. ruidula* (cf. Fig. 8). *Spermatheca*: as in *S. ruidula* (cf. Fig. 32).

Discussion. — A relatively small *Microtychius*, probably a bud predator; hosts in *Acacia schaffneri* and *A. farnesiana*; known from type series from Balsas River Drainage Basin in the Mexican states of Guerrero, Mexico, Oaxaca, and Puebla (Fig. 78).

S. schaefferi adults were collected at the type locality on plants of *A. schaffneri*, and at Tonatico, Mexico, and Iguala, Guerrero, on those of *A. farnesiana*. The species is probably a bud predator, but adults have not been reared from larvae. Adults have been collected in February, June, and July. The specimens collected at Tonatico and at Iguala were microsympatric with adults of another bud predator, *S. inermis*.

The sister species of *S. schaefferi*, *S. ruidula* of the Mesquite and *Acacia* Grassland vegetation zones on the Mexican High Plateau, also has *A. farnesiana* and *A. schaffneri* as hosts. Its range appears to be exclusive of that of *S. schaefferi*.

S. schaefferi is named in honor of the American coleopterist, Charles A. Schaeffer.

The “*Itychus*” Stock

Diagnosis. — Head strongly constricted behind eyes (Figs. 96–98, 105, 106); hind margin of eyes and frons abruptly raised above level of vertex of head (Fig. 96, 98, 106); pronotum deeply constricted subapically, anterodorsal prominently concave (Fig. 98, 105), the anterolateral margins swollen into large postocular lobes (Figs. 96, 106); femur with ventral channel which receives tibia (Fig. 99)

Discussion. — This group includes 15 species (*S. amplificata*, *S. impensa*, *S. bufemorata*, *S. bufemoratoides*, *S. distorta*, *S. longirostris*, *S. schwarzi*, *S. castoroides*, *S. galbina*, *S. grisea*, *S. griseoides*, *S. warneri*, *S. alvarengae*, *S. vosei*, and *S. fulva*) whose composite ranges extend from the southwestern United States to northern Argentina (Figs. 58, 79–81). Known “*Itychus*” stock member hosts belong to the genus *Acacia*, subgenus *Senegalia* (see Table 1). The group is paraphyletic, hence the term “stock”, as opposed to the “species group” designation reserved for monophyletic groups. The character states listed in the diagnosis are inferred in the *Sibinia* stem ancestor (see phylogeny section, p. 321). In a few “*Itychus*” stock members some of these features appear to have been reduced or completely lost (this is especially evident in *S. longirostris*, *S. schwarzi*, *S. castoroides*, and *S. galbina*), and parallel or convergent reduction or loss of these “*Itychus* characters” is assumed in the *sulcifera* and *variegata* groups and in all more highly derived *Sibinia* lineages. The “*Itychus*” stock contains the three species (*S. vosei*, *S. grisea*, and *S. fulva*) originally assigned by Kissinger (1962) to his genus *Itychus*. Although the name *Itychus* is herein formally placed in synonymy with *Sibinia*, I recognize the paraphyletic group because most of its members are easily distinguished, and with the *Senegalia* host association, appear to form what Mayr (1974) would call an “adaptive complex of taxa”.

12—*Sibinia* (*Microtychius*) *amplificata*, new species

(Figs. 33, 53, 83)

Holotype. — Male, BRAZIL: Minas Gerais, Sete Lagoas, March, 1963, F. Werner, Martins, Silva col. (MZSP).

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Allotype.— Female, same data as holotype (USNM).

Paratype.— Same data as holotype (male, WEC).

Diagnosis.— Robust; pronotum and elytra with white and pale and darker ferruginous scales in tessellate pattern; median lobe not narrowed distally (Fig. 53); femora greatly enlarged, tibiae angulate at base and distally.

Description.— *Length*: male 3.15 mm, female 3.49 mm. *Width*: male 1.91–1.96 mm, female 2.11 mm. *Integument*: black; tarsi, antennae, and distal portion of rostrum rufopiceous. *Head*: scales on vertex elongate, moderately broad, ferruginous. *Frons*: narrower than base of rostrum, in lateral view strongly rounded. *Eye*: small, oblong, height ca. 1.9x length. In dorsal view nearly flat, tilted forward, hind margin prominently raised by distance ca. equal to 0.33 eye length. *Rostrum*: male 0.78–0.81x, female 0.82x pronotum length. In dorsal view distinctly tapered from base to antennal insertions, subparallel sided from there to tip in male, more strongly tapered from broad base to antennal insertions then slightly expanded toward tip in female; in dorsal profile somewhat swollen just distad of strongly rounded frons, straight distally to just proximad of antennal insertions, feebly curved over insertions. Dorsomedian carina distinct in male, absent in female. Distal portion of male short, 33–42% of total rostral length, in lateral view feebly tapered, lateral sulcus distinct in proximal 0.66; in female, distal portion more slender, but not longer, 37% of total rostral length, shallowly punctate. Scales elongate, moderately broad, apically truncate, ferruginous, a few white scales intermixed, uniformly recumbent. *Prothorax*: in dorsal view sides in basal 0.50 straight, converging toward base, prominently, subquadrately rounded anteriorly to strongly developed dorsal subapical constriction. Scales on pronotum uniformly elongate, subparallel sided to attenuate, broadly to narrowly truncate, apically recumbent, most scales ferruginous, clusters of darker fuscous scales and a few white scales intermixed, replaced dorsally by apically truncate scales. *Elytra*: in dorsal view humeri prominent, sides subparallel in basal 0.50, broadly rounded to apices; in lateral view prominent in basal 0.25, with another slight convexity just before middle, broadly, evenly convex in apical 0.50. Interspaces flat, subequal in width, apices of interspaces 4–6 prominent. Scales on interspaces indistinguishable from those on pronotum except slightly smaller, in five or six rows on each interspace, uniformly recumbent, pale and darker fulvous scales, clusters of darker fuscous scales, and a few white scales intermixed; scales at base on sutural interspaces small, oval, ferruginous; striae scales narrower than scales on interspaces, mostly white. *Pygidium*: in male moderately large, slightly convex medially in distal 0.50, apex subquadrately rounded; in female as in male but more rounded apically. *Abdomen*: in male sterna 3–4 flat, sternum 5 moderately deeply concave medially, scales on concave portion unmodified, posterior margin of sternum 5 nearly straight; in female, abdomen as in male but median concavity of sternum 5 more posterior and transverse. *Femora*: large, broad at base, in lateral view gradually widened distally, dorsal margin strongly rounded, ventral margin nearly straight, in dorsal view strongly inflated distally. *Tibiae*: prominently angulate dorsally in basal 0.25, each with slender curved acute apical mucro. *Male genitalia*: (Fig. 53). *Spermatheca*: (Fig. 33).

Discussion.— A very large “*Itychus*”, probably a seed predator; host unknown; known only from the type series from the state of Minas Gerais, Brazil (Fig. 83).

This is the largest known member of the subgenus *Microtychius*. The structure of the median lobe of *S. amplificata* resembles that of *Tychius sororius* (cf. Figs. 53 and 437), and is probably plesiotypic in *Sibinia*.

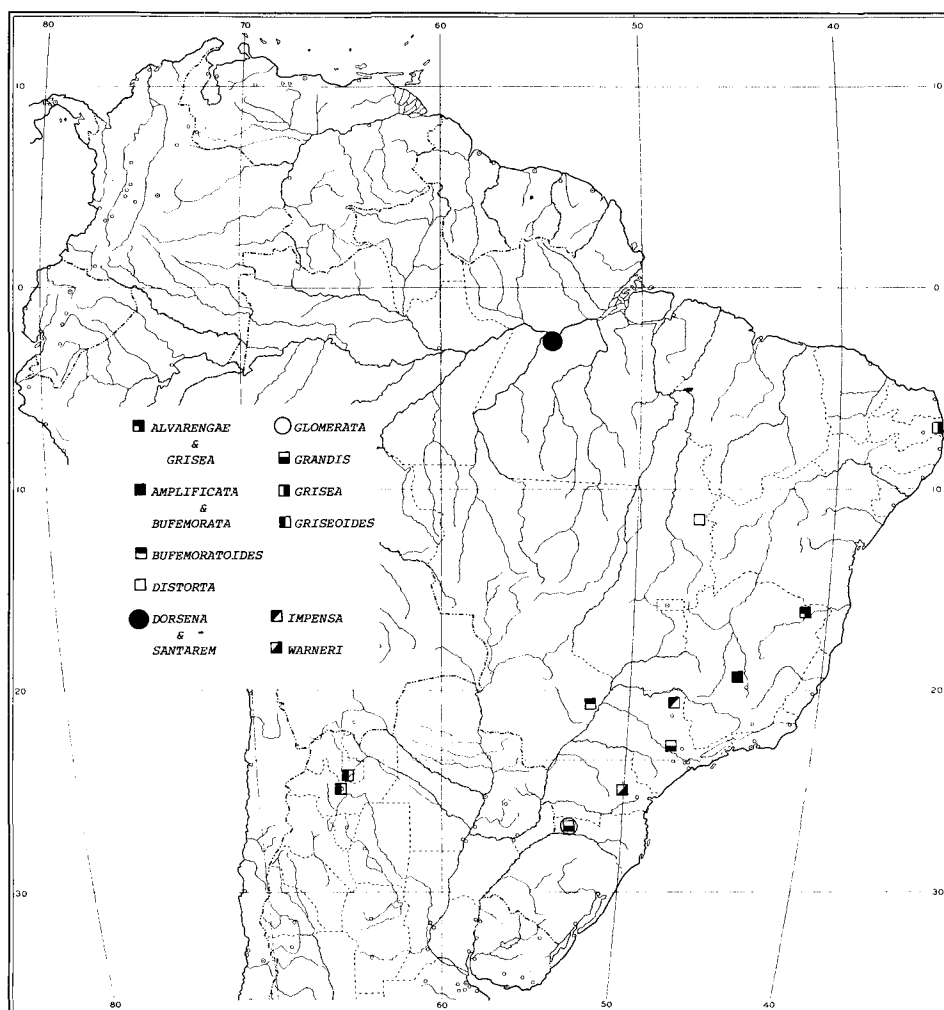
13—*Sibinia (Microtychius) impensa*, new species (Figs. 54, 83)

Holotype.— Male, BRAZIL: São Paulo, Butatais, 2 January, 1968, Pe. J. Moure Leg., Depto. Zool. UF-Paraná (UPB).

Paratype.— Same data as holotype (1, WEC).

Diagnosis.— Robust; pronotum and elytra with white and pale and darker fulvous and dark fuscous scales in diffuse clusters; femora very large; tibiae curved; median lobe strongly narrowed in distal 0.50 (Fig. 54); internal sac unarmed distally.

Description.— As described for *S. amplificata*, except—*Length*: 2.82–3.05 mm. *Width*: 1.74–1.85 mm. *Integument*: piceous, tarsi, antennae and distal portion of rostrum ferruginotestaceous. *Head*: vertex with normal punctation, scales elongate, pale fulvous, apically truncate, replaced medially by narrower striate lustrous fulvous scales. *Frons*: laterally emarginate adjacent to eyes. *Eye*: height ca. 1.6x length. *Rostrum*: 0.88x pronotum length. In dorsal view distinctly expanded distad of eyes, sides tapered from basal 0.25 to antennal insertions, subparallel from there to tip; in dorsal profile strongly rounded at extreme base, separated from frons by distinct impression, straight from just distad of base to tip. Dorsomedian and dorsolateral rostral carinae obsolete just proximad of antennal insertions. Distal portion short, 32% of total rostral length, tapered but not attenuate, lateral sulcus obsolete just distad of antennal insertions. *Prothorax*: in dorsal view sides subparallel in basal 0.33, strongly rounded medially to strongly developed subapical constriction; in lateral view strongly convex from base to subapical constriction. Scales on pronotum elongate, apically truncate, with broad nonstriate pale fulvous scales, narrower, darker fulvous feebly striate scales and irregular clusters of still narrower, striate fuscous scales, very light broad scales predominant on posterolateral and mediobasal portions; scales on pleuron round, becoming more elongate



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Fig. 83, *Sibinia* spp., distribution records: some members of the "Itychus" stock, and some members of the *grandis* group.

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towards dorsum, flat, pale whitish, extending onto extreme anterolateral and posterolateral portions of pronotum. *Elytra*: in dorsal view humeri not prominent; in lateral view broadly, feebly convex in basal 0.75. Scales on interspaces similar to scales on pronotum except slightly shorter, uniformly recumbent except slightly raised on sutural interspaces, arranged in four or five irregular rows on each interspace, white scales sparsely interspersed throughout but more abundant basally on interspaces 3, around humeri, and around apices, fuscous scales forming small scattered clusters; sutural interspaces without basal cluster of white scales. *Abdomen*: sterna 1–4 feebly, broadly concave medially, sternum 5 more deeply concave, scales slightly reduced on sternum 5, sternum 5 without subapical constriction, posterior margin of segment very broadly, feebly concave. *Femora*: moderately broad at base; profemur strongly, rapidly widened in distal 0.75; metafemur similar in shape and subequal in width, but slightly longer than profemur. *Tibiae*: strongly curved; pro- and mesotibiae with long slender curved mucrones, metatibial mucro very short, stout. *Male genitalia*: (Fig. 54).

Discussion.—A relatively large “*Itychus*”, probably a seed predator; host unknown; known only from the type series from the state of São Paulo, Brazil (Fig. 83).

14—*Sibinia (Microtychius) bufemorata*, new species
(Fig. 55, 83)

Holotype.—Male, BRAZIL: Minas Gerais, Sete Lagoas, March, 1963, F. Werner, Martins, Silva col. (MZSP).

Diagnosis.—Robust; sterna 3–5 broadly, continuously concave; scales on sternum 5 recumbent, margins finely dissected; femora greatly enlarged; tibiae angulate at base and distally; internal sac unarmed; pronotum and elytra with variegated clusters of fulvous and fuscous scales.

Description.—As described for *S. amplificata*, except—*Length*: 2.26 mm. *Width*: 1.34 mm. *Head*: scales on vertex apically bluntly rounded. *Eye*: small, height ca. 1.7x length; in dorsal view feebly, broadly convex; hind margin prominently raised by distance ca. 0.50 eye length. *Rostrum*: short, 0.87x pronotum length. Dorsomedian carina obsolete. Distal portion short, 37% of total rostral length. *Prothorax*: in dorsal view sides subparallel at base, strongly rounded apically to strongly developed subapical constriction. Scales on pronotum elongate, subparallel sided, broadly truncate apically, broadly imbricated, uniformly recumbent; pale ferruginous, darker ferruginous and fuscous to black scales intermixed in irregular pattern, fulvous and white scales forming narrow, inconspicuous median vitta; pleuron with short, apically rounded pale ferruginous scales. *Elytra*: in lateral view broadly convex, especially in basal 0.50. Interspaces flat, discretely impressed, odd interspace wider than even ones, apices of interspaces 4–6 slightly prominent. Scales on interspaces indistinguishable from those on pronotum, in four or five irregular rows on each interspace, uniformly recumbent, pale ferruginous and black scales intermixed in irregular mottle, apically rounded white scales sparsely interspersed throughout. *Abdomen*: sterna 3–5 broadly, continuously concave medially, concavity deepest on sternum 5; scales on sterna 3–4 unmodified, scales on sternum 5 with finely setulose margins; posterior margin of sternum 5 shallowly, subquadrately emarginate. *Male genitalia*: (Fig. 55).

Discussion.—A relatively large “*Itychus*”, probably a seed predator; host unknown; known only from the male holotype from the state of Minas Gerais, Brazil (Fig. 83).

15—*Sibinia (Microtychius) bufemoratoides*, new species
(Figs. 56, 83)

Holotype.—Male, (BRAZIL): Mato Grosso, Faz. Retiro de Telhas, Tres Lagoas, 15-3-V-1964, Exp. Depto. Zool. (MZSP).

Diagnosis.—Scales on sternum 5 of male erect; pronotum and elytra with variegated clusters of pale scales, and darker, lustrous ferruginous scales, and even darker rufopiceous scales.

Description.—As described for *S. amplificata*, except—*Length*: 2.72 mm. *Width*: 1.74 mm. *Frons*: feebly rounded in lateral view. *Eye*: hind margin raised by distance ca. equal to 0.50 eye length. *Rostrum*: short, 0.85x pronotum length. In dorsal view broad at base, strongly tapered to antennal insertions, more strongly tapered from there to tip; in dorsal profile swollen at base, straight from there to tip. Dorsomedian carina obsolete. Distal portion short, 37% of total rostral length, in lateral view conical, lateral sulcus distinct in basal 0.50. *Prothorax*: in dorsal view sides subparallel in basal 0.50, strongly rounded anteriorly to strongly developed subapical constriction. *Elytra*: in lateral view strongly convex, especially medially. Interspaces flat, odd interspaces wider than even ones. Scales on interspaces indistinguishable from scales on pronotum, in four or five irregular rows on each interspace; striae narrow, white. *Abdomen*: sterna 3–5 broadly, deeply, continuously concave medially; scales on sterna 3–4 unmodified, scales on concave portion of sternum 5 erect, with long setose marginal projections; posterior margin of sternum 5 shallowly concave. *Male genitalia*: (Fig. 56).

Discussion.—A relatively large “*Itychus*”, probably a seed predator; host unknown; known only from the male holotype from the state of Mato Grosso, Brazil (Fig. 83).

16—*Sibinia (Microtychius) distorta*, new species
(Fig. 57, 83)

Holotype.—Male, BRAZIL, Goias, Dianapolis, 16–22 January, 1962. J. Bechyné col. (MZSP).

Diagnosis.—Flattened; femora not greatly enlarged, shallowly channeled beneath; profemur stout, abruptly widened just distad of base, with large, obtusely rounded anteroventral projection in basal 0.33; protibia broadly spatulate distally, with large, deep fovea on anterior surface which receives femoral projection.

Description.— *Length*: 1.49 mm. *Width*: 0.76 mm. *Integument*: black, legs antennae and distal portion of rostrum rufous. *Head*: scales on vertex very narrow, linear, griseus. *Frons*: strongly narrowed posteriorly, in lateral view broadly curved. *Eye*: moderately large, height ca. 1.5x length; in dorsal view strongly evenly convex; hind margin strongly raised by distance ca. equal to combined diameters of two ocular facets. *Rostrum*: 0.85x pronotum length; in dorsal view sides subparallel from base to antennal insertions, tapered from there to tip; in dorsal profile rounded slightly at base, abruptly bent over antennal insertions. Dorsomedian rostral carina obsolete. Distal portion moderately long, 50% of total rostral length; in lateral view strongly tapered to acute tip; lateral sulcus shallow but distinct almost to tip. Scales uniformly elongate, narrow, recumbent, griseus. *Prothorax*: in dorsal view sides strongly rounded from base to strongly developed subapical constriction; in lateral view flat, subapical constriction feebly developed on dorsum. Pronotum feebly concave medially on disc; scales on pronotum uniformly elongate, narrow, pale grayish brown, recumbent; scales on pleuron oblong, flat, white, limited to lower 0.75, replaced dorsally by elongate scales. *Elytra*: in dorsal view sides subparallel in basal 0.25, broadly curved toward apices; in lateral view broadly, feebly convex in posterior 0.75. Interspaces narrow, flat, feebly impressed, sutural interspaces distinctly wider than others, apices of interspaces 4–6 not prominent. Scales on interspaces similar to those on pronotum in shape and color, in uniform single median rows on all but sutural interspaces and interspaces 7–8, in diffuse triple rows on these, uniformly recumbent; sutural interspaces with small basal cluster of oval white scales; striae scales narrower than scales on interspaces. *Pygidium*: narrowly exposed, feebly convex, apex strongly evenly rounded. *Abdomen*: sterna 3–5 shallowly but distinctly concave medially, scales on concave portions slightly reduced, a few on sternum 5 reduced to fine setae; posterior margin of sternum 5 shallowly, subquadrately emarginate. *Tibiae*: each with stout black apical mucro, mucro on protibia smallest. *Male genitalia*: (Fig. 57).

Discussion.—A small “*Itychus*”, probably a bud predator; host unknown, known only from the male holotype from the state of Goias, Brazil (Fig. 83).

This is the smallest known “*Itychus*”, and several of the “*Itychus* characters” expressed in larger members of the “*Itychus*” stock are not evident in the species. Modifications of the profemur and protibia (see diagnosis) are unique in *S. distorta*.

17—*Sibinia (Microtychius) longirostris*, new species
(Figs. 9, 34, 58)

Holotype.—Female, BOLIVIA: Rio Beni, Rurrenabaque, Nov., W.M. Mann, Mulford Biol. Expl. 1921–1922 (USNM #75396).

Diagnosis.—Robust; scales on pronotum and elytra uniformly elongate, apically truncate, fulvoferruginous; rostrum 1.53x pronotum length, slender, cylindrical, glabrous except at extreme base, rostral carinae absent; bursa copulatrix with pair of large, flattened spines.

Description.— *Length*: 2.85 mm. *Width*: 1.58 mm. *Integument*: pale, rufous, rufotestaceous on tibiae, tarsi distal portion of rostrum and antennae. *Head*: scales on vertex elongate, apically truncate. *Eye*: nearly round, height ca. 1.2x length; in dorsal view strongly convex, especially posteriorly; hind margin not at all raised. *Frons*: not narrowed or widened posteriorly; in lateral view rounded separately from vertex of head. *Rostrum*: in dorsal view slender, sides subparallel from base to apex; in dorsal profile strongly rounded continuously with frons at extreme base, broadly, evenly arcuate from distad of base to tip. Proximal portion with rows of fine, shallow punctures, dorsal margin of scrobe carinate. Distal portion very long, 65% of total rostral length, not tapered to tip in lateral view, finely punctate, not sulcate. Scales limited to extreme base. *Prothorax*: in dorsal view sides subparallel in basal 0.50, strongly rounded in apical 0.50, to distinct subapical constriction; in lateral view moderately convex, more strongly so posteriorly, subapical constriction broadly developed. Scales on pronotum uniformly moderately broad, becoming parallel sided toward truncate apices, fulvoferruginous, uniformly recumbent; scales on pleuron round to oblong, feebly, broadly impressed, pale fulvous, limited to lower 0.66 anteriorly, replaced dorsally by elongate, apically truncate scales. *Elytra*: in dorsal view humeri slightly prominent, sides slightly, broadly curved in basal 0.50; in lateral view broadly, evenly convex in basal 0.66. Interspaces broad, feebly convex; subequal in width, moderately deeply, distinctly punctate, apices of interspaces 4–6 not prominent. Scales on interspaces similar to scales on pronotum in color and shape but slightly smaller, in four or five irregular rows on each interspace, uniformly recumbent; sutural interspaces

with scales identical to those on other interspaces; striae slightly narrower than scales on interspaces. *Pygidium*: broadly exposed, distinctly narrowed to subquadrate apex, exposed portion broadly, evenly convex, vertical. *Abdomen*: sternum 3–4 and anterior portion of sternum 5 flat medially, sternum 5 feebly constricted subapically, posteromedian portion of segment prominent, posterior margin deeply, subquadrately emarginate. *Femora*: narrow at base, strongly, abruptly inflated, dorsally and ventrally strongly rounded; profemur and metafemur subequal in width. *Tibiae*: pro- and mesotibiae with minute, acute mucrones, metatibia unarmed. *Spiculum ventrale*: (Fig. 9). *Spermatheca*: (Fig. 34).

Discussion.—A relatively large *Microtychius*, probably a seed predator; host unknown; known only from the female holotype from Bolivia (Fig. 58).

The placement of *S. longirostris* in the “*Itychus*” stock is questionable since the only “*Itychus* character” the species exhibits is the convex robust body form. The very long, slender rostrum and the large conical spines on the bursa copulatrix of the female genitalia are unique among known *Sibinia*.

18—*Sibinia (Microtychius) schwarzi*, new species
(Figs. 10, 35, 58, 84)

Holotype.—Male, PANAMA: Porto Bello, 11 March, 1911, E.A. Schwarz (USNM #75397).

Allotype.—Female, same data as holotype, except—20 February, 1911 (USNM).

Paratype.—Same data as holotype, except—28 February, 1911, Sibynes sp. (1 male, WEC).

Diagnosis.—Moderately robust; scales on pronotum and elytral interspaces uniformly short, broad, apically truncate, recumbent, pale fulvous; rostrum very long, slender, dorsal margins of tibiae prominent in proximal 0.25 and distally.

Description.—*Length*: male 2.10–2.13 mm, female 2.10 mm. *Width*: male 1.22–1.24 mm, female 1.24 mm. *Integument*: rufopiceous to piceous, venter piceous to black. *Head*: scales on vertex elongate, apically truncate. *Eye*: height ca. 1.5x length; in dorsal view feebly, broadly convex; hind margin feebly raised by distance somewhat greater than diameter of one ocular facet. *Frons*: distinctly narrowed posteriorly, in lateral view rounded, continuous with vertex of head. *Rostrum*: male 1.29–1.37x, female 1.29x pronotum length. In dorsal view tapered from base to proximad of antennal insertions somewhat expanded at insertions, tapered distad of insertions but expanded again distally, wider at tip than at antennal insertions; in dorsal profile not rounded at base, broadly curved over antennal insertions. Distal portion in male long, 53–54% of total rostral length, slender, in lateral view not tapered, lateral sulcus distinct in proximal 0.75, continued to tip as row of punctures; in female, distal portion not much longer, 55% of total rostral length, more slender than in male, lateral sulcus obsolete in proximal 0.25. Scales on sides broad, apically truncate, scales on dorsum narrower, recumbent. *Prothorax*: in dorsal view slightly broader at base than medially, strongly rounded in apical 0.33 to subapical constriction; in lateral view broadly, evenly convex, subapical constriction obsolete on dorsum. Scales on pleuron round, flat, scales on dorsum subrectangular, replaced by darker more elongate scales on dorsal 0.25. *Elytra*: in dorsal view sides feebly rounded in basal 0.50, in lateral view broadly, evenly curved in basal 0.66. Interspaces broad, flat, shallowly impressed, subequal in width, apices of interspaces 4–6 feebly raised. Scales in irregular quadruple rows on each interspace; striae narrower than scales on interspaces. *Pygidium*: moderately broadly exposed, in male exposed portion convex, narrowed to rounded apex, vertical; in female, exposed portion flat, more strongly narrowed to acutely rounded apex, oblique. *Abdomen*: in male sterna 3–4 flat, sternum 5 distinctly concave medially, subapical constriction obsolete laterally, posterior margin of segment deeply, subtruncately emarginate; in female, sterna 3–4 and anterior portion of sternum 5 flat medially, posteromedian portion of sternum 5 distinctly prominent but posterior margin of segment straight, not produced posteriorly. *Femora*: narrow at base, profemur stout, rapidly inflated in distal 0.66, metafemur slightly longer and slightly wider, but about same shape as profemur. *Tibiae*: pro- and mesotibiae with slender, curved horizontal mucrones, metatibia with shorter straight mucro which is almost perpendicular to long axis of tibia. *Male genitalia*: (Fig. 84). *Spiculum ventrale*: (Fig. 10). *Spermatheca*: (Fig. 35).

Discussion.—A relatively large *Microtychius*, probably a seed predator; host unknown; known only from the type-series from Panamá (Fig. 58).

Although most “*Itychus* characters” are not apparent in *S. schwarzi*, the species is assigned to the “*Itychus*” stock because the stout femora and angulate tibiae are similar to those of some South American “*Itychus*” (especially *S. amplificata* and *S. bufemorata*). The species probably represents a lineage in which most “*Itychus* characters” have been reduced or lost.

19—*Sibinia (Microtychius) castoroides*, new species
(Figs. 36, 85, 328)

Holotype.—Male, BRAZIL: Goiás, Corumba de Goiás, 31 January–3 February, 1962, J. Bechyné col. (MZSP).

Allotype.—Female, same data as holotype (MZSP).

Paratypes.—Same data as holotype (18); distributed to various collections.

Diagnosis.—Elongate; scales on pronotum and elytra uniformly elongate, parallel sided, fulvous, recumbent; distal portion of rostrum short, stout in male and in female; eye nearly round, hind margin not raised; in male, pygidium large, prominently convex just distad of elytral apices, subquadrate at apex, in female, pygidium flat, strongly narrowed to rounded apex, producted beyond elytral apices by distance ca. equal to 0.50 width of elytra.

Description.—*Length*: male 2.44–2.95 (2.71) mm, female 2.69–3.03 mm. *Width*: male 1.11–1.45 (1.36) mm, female 1.34–1.54 (1.43) mm. *Integument*: rufopiceous, prothorax and sterna black. *Head*: scales on vertex long, narrow, parallel sided, apically blunt, fulvous. *Frons*: narrowed posteriorly, in lateral view broadly curved, continuous with vertex of head. *Eye*: moderately large, height ca. 1.3x length; in dorsal view broadly, evenly convex; hind margin not raised. *Rostrum*: male 0.84–0.95 (0.91)x, female 0.90–1.07 (0.96)x pronotum length. In dorsal view feebly tapered from base to antennal insertions, subparallel sided from there to tip; in dorsal profile feebly rounded at base, straight to antennal insertions, broadly curved over insertions. Dorsomedian carina distinct. Distal portion in male short, 32–37 (35%) of total length, in lateral view feebly tapered to blunt tip, lateral sulcus distinct to tip; in female, distal portion slightly longer, 35–42 (39)% of total rostral length, otherwise as in male. Scales elongate, narrow, apically blunt, uniformly recumbent. *Prothorax*: in dorsal view sides subparallel in basal 0.50, broadly rounded anteriorly, subapical constriction obsolete; in lateral view feebly, evenly convex from base to apex. Pleuron with oblong flat broadly imbricated pale fulvous scales which extend onto extreme posterolateral portions of pronotum. *Elytra*: in dorsal view sides subparallel in basal 0.66; in lateral view flat in basal 0.66. Interspaces flat, shallowly impressed, odd interspaces slightly wider than even ones, apices of interspaces 4–6 feebly raised. Scales arranged in four or five irregular rows on each interspace; sutural interspaces with basal cluster of oval scales which are the same color as adjacent elongate scales; striae scales slightly narrower than scales on interspaces. *Abdomen*: in male sterna 3–4 flat, sternum 5 feebly concave medially, sternum 5 not constricted subapically, posterior margin of segment deeply, subquadrately emarginate; in female, sterna 3–4 broadly convex medially, sternum 5 drawn out to narrowly rounded apex which is extended beyond elytral apices, sternum 5 almost as long as metafemur. *Femora*: narrow at base, strongly, abruptly inflated distally, profemur subequal in width to metafemur. *Tibiae*: protibia with short acute mucro which is parallel to long axis of tibia, meso- and metatibiae with larger curved horizontal apical mucrones. *Male genitalia*: (Fig. 85). *Spermatheca*: (Fig. 36).

Discussion.—A relatively large *Microtychius*, probably a seed predator; host unknown; known only from the type-series from east-central Brazil (Fig. 328).

The large, strongly convex male pygidium and elongate, strongly producted female pygidium of *S. castoroides* are distinctive, and the species does not seem closely related to any other known *Sibinia*. Since the apex of the median lobe (Fig. 85) is entire, I place it in the “*Itychus*” stock, although the character is probably plesiotypic, and the species does not closely resemble any of the other known “*Itychus*”.

20—*Sibinia (Microtychius) galbina*, new species
(Figs. 11, 37, 86, 328)

Holotype.—Male, BRAZIL: Goiás, Dianapolis, 16–22 January, 1962, J. Bechyné col. (MZSP).

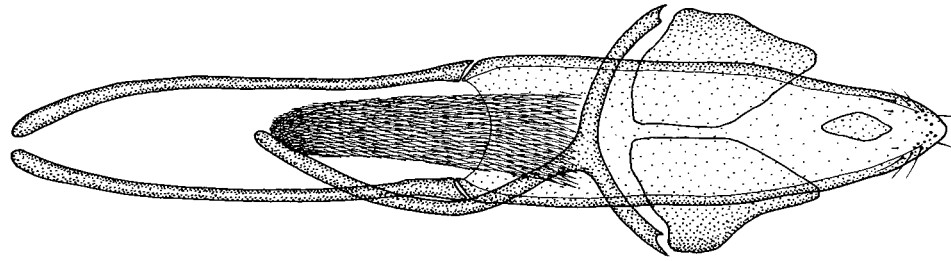
Allotype.—Female, same data as holotype, except—Ribeiro Vaozinho, 12 February, 1962 (MZSP).

Paratype.—Same data as holotype (1, WEC).

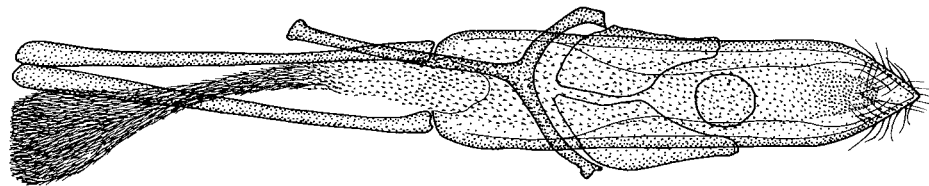
Diagnosis.—Scales on pronotum and elytra uniformly elongate, moderately broad, feebly attenuate, recumbent, ochreous; distal portion of rostrum stout, sulci deep in male and female; tibial mucrones minute.

Description.—*Length*: male, 1.62–1.67 mm, female 1.77 mm. *Width*: male 0.84–0.87 mm, female 0.92 mm. *Integument*: black, rufopiceous on posterolateral portions of elytra, rostrum and legs, tarsi and antennae ferruginotestaceous. *Head*: scales on vertex elongate, narrow, apically attenuate. *Frons*: slightly narrowed posteriorly, in lateral view feebly curved,

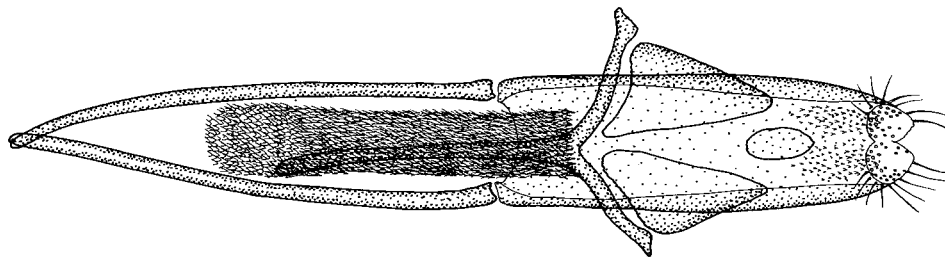
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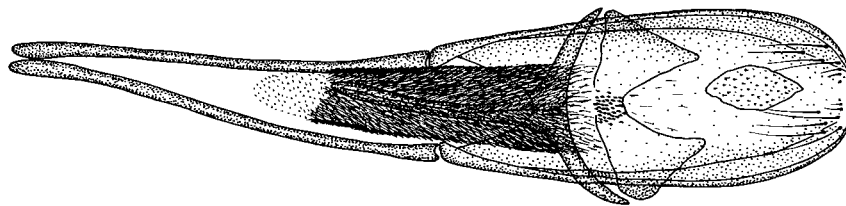
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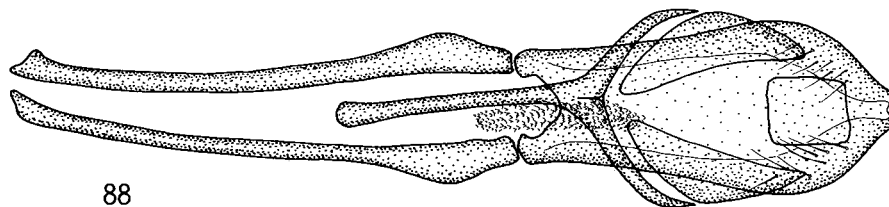
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Fig. 84-88, *Sibiria* spp., male external genitalia: 84, *S. schwarzi*; 85, *S. castoroides*; 86, *S. galbina*; 87, *S. grisea*; 88, *S. griseoides* (not to scale)

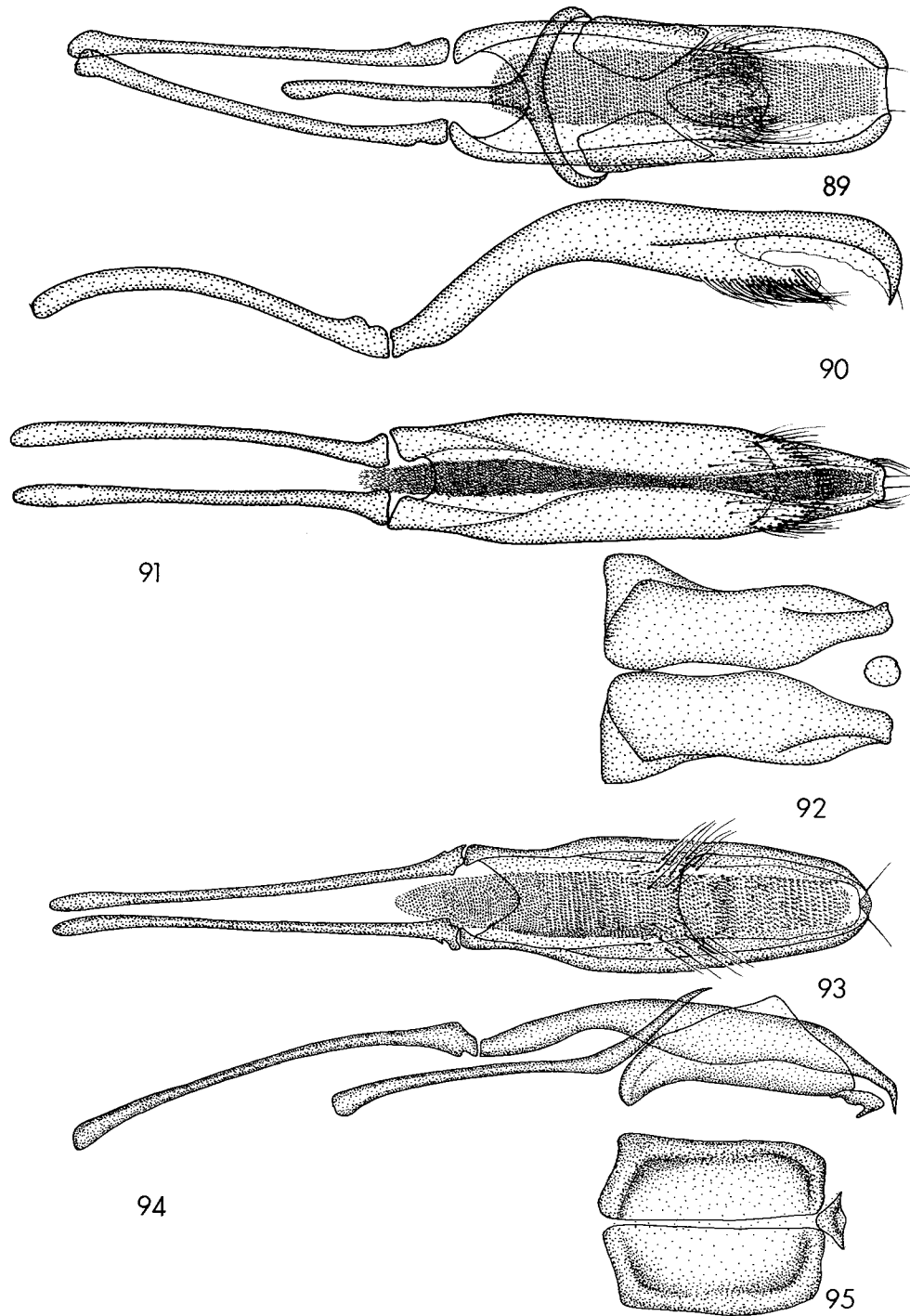


Fig. 89–95, *Sibinia* spp., male external genitalia: 89, *S. warneri*; 90, *S. warneri*; 91, *S. alvarengae* (spiculum gastrale dissociated); 92, *S. alvarengae* spiculum gastrale); 93, *S. vosei*; (spiculum gastrale dissociated); 94, *S. vosei*; 95, *S. vosei* (spiculum gastrale) (not to scale 89, 91–93, and 95 ventral views, 90 and 94 lateral views).

continuous with vertex of head. *Eye*: small, height ca. 1.5x length; in dorsal view very slightly, evenly convex; hind margin distinctly raised by distance somewhat greater than diameter of one ocular facet. *Rostrum*: male 1.08–1.12x, female 1.21x pronotum length. In dorsal view sides feebly tapered to antennal insertions, sides of distal portion subparallel; in dorsal profile not rounded at base, broadly, evenly arcuate from base to tip in male, feebly rounded at base and broadly curved over antennal insertions in female. Dorsomedian carina distinct, especially in male. Distal portion in male short, 40–41% of total rostral length, stout, not tapered, lateral sulcus very deep almost to tip; in female, distal portion about as in male but slightly narrower, 38% of total rostral length. Scales uniformly elongate, narrow, apically truncate, recumbent. *Prothorax*: in dorsal view sides subparallel in basal 0.50, broadly rounded apically to distinct subapical constriction; in lateral view feebly, evenly convex from base to apex. Scales on pleuron oblong, flat, white, replaced by elongate scales on dorsal 0.25. *Elytra*: in dorsal view sides subparallel in basal 0.50; in lateral view flat in basal 0.33. Interspaces flat, subequal in width, feebly impressed, apices of interspaces 4–6 not prominent. Scales arranged in triple rows on each interspace, scales in median rows very slightly raised; sutural interspaces with small basal cluster of oval white scales; striae scales indistinguishable from scales on interspaces. *Pygidium*: moderately broadly exposed, in male flat, narrowly rounded apically, slightly oblique, pygidium in female as in male but somewhat more oblique, visible well beyond elytral apices. *Abdomen*: in male sterna 3–4 flat medially, sternum 5 feebly, broadly constricted medially, posterior margin not emarginate; in female, sterna 3–4 flat, sternum 5 strongly, broadly constricted medially, posteromedian portion of segment broad, prominent, posterior margin broadly rounded. *Femora*: narrow at base, slender, gradually widened distally but not distinctly inflated; profemur and metafemur subequal in width. *Male genitalia*: (Fig. 86). *Spiculum ventrale*: (Fig. 11). *Spermatheca*: (Fig. 37).

Discussion. — A relatively small *Microtychius*, probably a bud predator; host unknown; known only from the type-series from the state of Goiás, Brazil (Fig. 328).

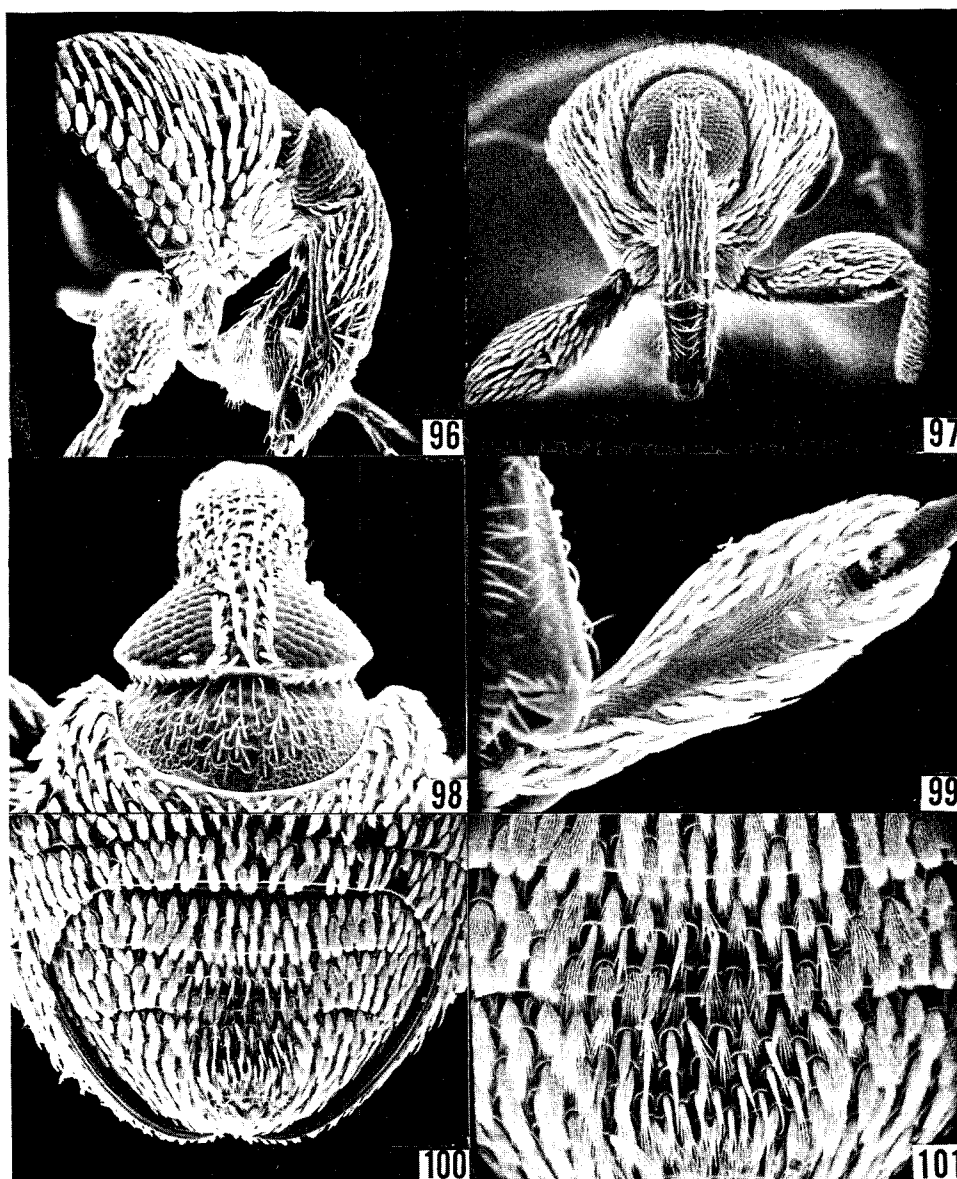
S. galbina resembles the seed predator *S. castoroides* but is smaller and has the female pygidium less strongly produced. The similarity between the two is great enough that they may with some confidence be assumed to be a microsympatric seed-bud predator sister pair. For this reason, and this reason alone, they are considered to be sister species. I found no evidence that *S. galbina* is closely allied to any other *Sibinia*.

21—*Sibinia (Microtychius) grisea* (Kissinger), new combination
(Figs. 12, 38, 79, 83, 87, 96–100, 103)

Itychus griseus Kissinger 1962: 12. Holotype, male: Tixkokob, Yucatan, Mexico (AMNH).

Diagnosis. — (Fig. 103). Basal portion of rostrum swollen (Fig. 96); scales on pronotum and elytra acuminate, uniformly gray or grayish brown scales intermixed; male pygidium narrowed to rounded apex, female pygidium broader, subtruncate at apex; profemur and metafemur subequal in width, not greatly enlarged.

Description. — *Length*: male 1.61–1.85 (1.75) mm, female 1.64–1.88 (1.76) mm. *Width*: male 0.89–1.10 (0.96) mm, female 0.91–1.08 (0.98) mm. *Integument*: black, tip of rostrum piceous, apices of tibiae, tarsi, and antennal club ferruginotestaceous. *Head*: scales on vertex reduced to fine white setae (Fig. 98). *Frons*: much narrower than base of rostrum (Fig. 97, 98), raised portion not emarginate, not prominent over eye (Fig. 96). *Eye*: large, height ca. 1.5x length; in dorsal view feebly convex (Fig. 98); hind margin abruptly raised by distance equal to ca. 0.25 eye length (Fig. 98). *Rostrum*: male 0.95–1.25x, female 0.83–1.15x pronotum length. Deeply constricted just anterior to eye (Fig. 96), sides subparallel in distal 0.33; in dorsal profile strongly rounded in front of eyes, nearly straight to antennal insertions, curved over insertions. Distal portion short, in male 32–48%, in female 40–49% of total rostral length, stout, feebly tapered, deeply sulcate to tip, with numerous long white setae (Fig. 96). Median, dorsolateral and lateral carinae well developed proximally and distally well distad of antennal insertions, becoming obsolete on swollen basal portion (Fig. 96, 97). Scales elongate, parallel sided to attenuate, broadly to narrowly truncate apically, cinereous. *Prothorax*: in dorsal view sides subparallel at extreme base; in lateral view moderately, evenly convex, subapical constriction distinct on dorsum. Scales on pronotum elongate, strongly attenuate, apically pointed, striate, uniformly recumbent, cinereous, or grayish brown and cinereous scales intermixed; scales on lower portion of pleuron round to oval, apically rounded, white, not interspersed among elongate scales (Fig. 96). *Elytra*: in dorsal view sides broadly rounded in basal 0.66; in lateral view broadly convex. Interspaces flat, subequal in width, with large discrete oblong impressions; apices of interspaces 4–6 not prominent. Scales on interspaces similar in shape and color to scales on pronotum, in triple rows on each interspace, uniformly recumbent; sutural interspaces with basal cluster of oval, white, or yellowish white scales; striae scales narrower than scales on interspaces. *Abdomen*: in male median portion of sternum 4 and anteromedian portion of sternum 5 distinctly, shallowly concave, scales on concave portion erect, with long apical setose projections, posteromedian portion of sternum 5 not at all prominent, subapical constriction obsolete, posterior margin of segment not emarginate (Fig. 100); in female, sternum 4 flat medially, anteromedian portion of sternum 5 feebly concave, scales only slightly narrowed, without setose projections, posteromedian portion of segment very slightly prominent, subapical constriction feebly developed laterally. *Femora*: narrow at base, strongly inflated just distad of base (Fig. 97, 99);



Figs. 96–101, *Sibinia grisea*, male: 96, head and pronotum, lateral view (69.8x); 97, head and pronotum, front view (57.6x); 98, head and extreme anterior margin of pronotum, dorsal view (121.3x); 99, profemur, ventral view (139.5x); 100, median portion of abdominal sterna 3–5, ventral view (163.8x); 101, median portion of abdominal sterna 3–5.

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profemur with large posterior prominence at base, subequal in width to metafemur. *Tibiae*: straight; protibia with short conical mucro; meso- and metatibiae with longer, slender, straight, oblique mucrones. *Male genitalia*: (Fig. 87). *Spiculum ventrale*: (Fig. 12). *Spermatheca*: (Fig. 38).

Discussion.—A relatively small bud predator “*Itychus*”; host *Acacia paniculata*; known from the Tropical Deciduous Forest vegetation zone in the Mexican states of Chiapas, Guerrero, Oaxaca, Puebla, Veracruz, and Yucatan, and from Honduras and Nicaragua (Fig. 79), as well as from the Campos Cerrados region of Brazil (Fig. 83); 296 specimens examined.

Larvae of *S. grisea* emerged from flower buds of the host collected 21 July, 1974, 11.3 mi NW Totolopan, Oaxaca, Mexico. Pupae were noted 10 days later on 31 July, and 12 days later, on 9 August, adults were observed in the pupal cells. Adults of *S. grisea* were collected in southern Mexico at several localities in microsympatry with the seed predator “*Itychus*” *S. vosei*.

The types and other specimens of *S. grisea* examined from the states of Yucatan and Veracruz, Mexico, differ from specimens of the species from the states of Oaxaca, Puebla, and Guerrero, in slightly smaller size and in absence of brown scales on the pronotum and elytra. Specimens from Brazil, which resemble the Yucatan-Veracruz specimens, are further distinguished by having the rostrum slightly less strongly swollen at the base, the apex of the median lobe entire and slightly emarginate.

22—Sibinia (Microtychius) griseoides, new species
(Figs. 13, 39, 83, 88)

Holotype.—Male, ARGENTINA: Salta, Salta, 22 October, 1968, L. and C.W. O'Brien, at night (CWO).

Allotype.—Female, same data as holotype (CWO).

Paratypes.—Same data as holotype (42); the same, except—23 October, 1968(2); the same, except—without “at night” designation (1); Jujuy, San Salvador de Jujuy, 21 October, 1968, L. and C.W. O'Brien (1); distributed to various collections.

Diagnosis.—Robust; rostrum not swollen at base; scales on pronotum and elytra elongate, striate, strongly to feebly attenuate, pale fulvous and darker brown scales intermixed; scales in median rows on elytral interspaces slightly raised; metafemur much larger than profemur; male pygidium large, broadly subquadrate apically; femora narrow at base, strongly inflated distally.

Description.— *Length*: male 1.63–1.78 (1.70) mm, female 1.57–1.86 (1.69) mm. *Width*: male 0.84–0.94 (0.88) mm, female 0.80–0.99 (0.91) mm. *Integument*: black, femora rufopiceous, rostrum, antennae, tibiae and tarsi ferruginotestaceous. *Head*: scales on vertex narrow but setiform, cinereous to pale fulvous. *Eye*: large, height ca. 1.5x length; in dorsal view strongly, evenly convex; hind margin abruptly raised by distance equal to ca. 0.33 eye length. *Frons*: narrower than base of rostrum, raised portion not emarginate, not prominent over eye. *Rostrum*: male 0.89–1.13 (0.97)x, female 1.00–1.09 (1.06)x pronotum length. In dorsal view not swollen in basal 0.33, narrow at base, gradually, widened from there to antennal insertions, distal portion feebly tapered to tip; in dorsal profile feebly, broadly rounded continuously with frons at base, nearly straight proximad of antennal insertions, slightly curved over insertions. Distal portion in male short, 35–40 (38)% of total rostral length, in lateral view feebly tapered, bearing long acuminate scales in basal 0.50; in female, distal portion longer 41–46 (43)% of total rostral length, subcylindrical, shallowly punctate, bearing a few short fine setae just distad of antennal insertions. Lateral and dorsolateral carinae distinct over antennal insertions, obsolete distally and proximally in male, obsolete throughout in female. Scales elongate, striate, broadly truncate apically, slightly raised, especially on dorsolateral portions and laterally on frons, pale fulvous. *Prothorax*: in dorsal view sides subparallel at extreme base, rounded apically to distinct subapical constriction; in lateral view broadly, evenly convex, subapical constriction broadly developed on dorsum. Scales on pronotum elongate, subparallel sided to attenuate, broadly to narrowly truncate apically, striate, uniformly recumbent, pale fulvous and darker brown scales intermixed; scales on pleuron round ventrally, oblong dorsally, pale fulvous, replaced by elongate scales on dorsal 0.25. *Elytra*: in dorsal view humeri slightly prominent, sides very slightly convergent in basal 0.50, broadly rounded apically; in lateral view flat in basal 0.50, broadly curved apically. Interspaces flat, subequal in width, apices of interspaces 4–6 not prominent. Scales on interspaces similar in size, shape and color to scales on pronotum, in triple rows on each interspace; sutural interspaces with basal cluster of oblong pale whitish scales; striae slightly narrower than scales on interspaces. *Pygidium*: in male large, broadly exposed, convex, feebly narrowed to broadly

subquadrate apex; in female, pygidium slightly smaller, flat, narrowed to rounded apex, slightly oblique, extended beyond elytral apices. *Abdomen*: in male sternum 4 flat medially, sternum 5 broadly concave, posteromedian portion of segment not prominent; scales on concave portion finely dissected, bearing fine setose projections, not subapically constricted; in female, sternum 4 feebly convex medially, anteromedian portion of sternum 5 feebly concave, scales on concave portion with finely setose margins, posteromedian portion of segment very feebly prominent, subapical constriction obsolete. *Femora*: strongly inflated just distad of base; profemur with large posterior prominence at base, much narrower than large metafemur. *Tibiae*: protibiae unarmed, mesotibia with minute conical mucro, metatibia with slightly longer oblique slender mucro. *Male genitalia*: (Fig. 88). *Spiculum ventrale*: (Fig. 13). *Spermatheca*: (Fig. 39).

Discussion.—A relatively small “*Itychus*”, probably a bud predator; host unknown; known only from the type-series from northern Argentina (Fig. 83).

23—*Sibinia (Microtychius) warneri*, new species
(Figs. 83, 89, 90)

Holotype.—Male, (BRAZIL): (Paraná), Ponta Grossa, V. Vilela, C.G. Chuva. 12–55, 6583, Coleção G. Justus Jor (UPB).

Diagnosis.—Robust; apices of interspaces 4–6 not prominent; scales on pronotum and elytra pale to dark fulvous and fuscous, dark scales forming diffuse lateromedian maculae on pronotum and mediobasal macula on elytra; abdominal sterna only slightly concave, scales unmodified; femora greatly enlarged; median lobe with large, ventromedian plates which bear long posteriorly directed setae (Fig. 89, 90).

Description.—*Length*: 2.62 mm. *Width*: 1.66 mm. *Integument*: piceous, tarsi, antennae and distal portion of rostrum rufopiceous. *Head*: punctures on vertex shallow, scales on vertex reduced to fine setae. *Eye*: height ca. 1.6x length; in dorsal view strongly, evenly convex; hind margin precipitously raised by distance ca. equal to 0.33 eye length. *Frons*: narrowed posteriorly, raised portion with lateral emarginations adjacent to eyes, not prominent over eye, in lateral view strongly rounded. *Rostrum*: 0.95x pronotum length. In dorsal view not expanded distad of eyes, sides tapered to antennal insertions, sides of distal portion subparallel; in dorsal profile strongly rounded at base, feebly rounded over antennal insertions. Distal portion short, 38% of total rostral length, in lateral view tapered but not attenuate, lateral sulcus distinct almost to tip. Dorsomedian and dorsolateral carinae obsolete proximad of antennal insertions. Scales on sides elongate, subparallel sided, apically truncate, replaced by narrower, darker fulvous, uniformly recumbent scales on dorsum; distal portion with long white setae. *Prothorax*: in dorsal view broader at base than at middle, broadly curved from base to strongly developed subapical constriction; in lateral view strongly convex, especially posteriorly, subapical constriction strongly developed on dorsum. Scales on pronotum elongate, subparallel sided, apically truncate, uniformly recumbent, a few pale fulvous feebly striate scales and more numerous, narrower, darker fulvous more distinctly striate scales intermixed, and with large diffuse lateromedian maculae of darker, narrower fuscous scales; scales on pleuron round to oblong, white, extended onto extreme anterolateral and posterolateral portions of dorsum, replaced dorsally by elongate, striate scales. *Elytra*: in dorsal view humeri feebly prominent; sides broadly, feebly rounded in basal 0.33, in lateral view flat, broadly, evenly convex. Interspaces flat, subequal in width, with large, discrete, oblong impressions. Scales on interspaces similar in shape and color to scales on pronotum but slightly shorter, uniformly recumbent, in triple to quadruple rows on each interspace, fuscous scales dense in basal 0.66 on sutural interspaces and forming diffuse mediobasal macula and oblique posteromedian transverse band; sutural interspaces without basal cluster of white scales; striae narrower than scales on interspaces. *Pygidium*: broadly exposed, convex, broadly subquadrate apically. *Abdomen*: sterna 1–4 shallowly, broadly concave, sternum 5 slightly more deeply concave medially, scales on concave portions reduced, a few with finely setose apical margins; sternum 5 not subapically constricted, posterior margin broadly, subquadrately emarginate. *Tibiae*: strongly curved; protibia curved, with very short, acute apical mucro, mucrones on meso- and metatibiae much longer, curved. *Male genitalia*: (Fig. 89, 90).

Discussion.—A relatively large “*Itychus*”, probably a seed predator; host unknown; known only from the male holotype from southeastern Brazil (Fig. 83).

S. warneri possesses a full complement of “*Itychus* characters”. It closely resembles *S. alvarengae*, also of southern Brazil; specimens of both species have large medioventral seta bearing plates on the median lobe (cf. Figs. 89–91).

S. warneri is named in honor of Rose Ella Warner Spillman, formerly of the USDA Systematic Entomology Laboratory, in expression of appreciation for generously extended help and encouragement.

24—*Sibinia (Microtychius) alvarengae*, new species
(Figs. 40, 83, 91, 92)

Holotype.—Male, BRAZIL: Minas Gerais, Pedra Azul, November, 1972, M. Alvarenga (UPB).

Allotype.—Female, same data as holotype (UPB).

Paratypes.—Same data as holotype, 3 (CWO, WEC).

Diagnosis.—Fulvous to ferruginous and fuscous scales arranged in tessellate clusters; abdominal sterna 1–5 in male broadly, deeply concave, scales on concave portions reduced, finely dissected; spiculum gastrale large, sides of anterolateral plates flared.

Description.—As in *S. warneri*, except—*Length*: male 2.51–2.85 (2.75) mm, female 2.50 mm. *Width*: male 1.72–1.88 (1.79) mm, female 1.79 mm. *Integument*: black, tarsi, antennae and distal portion of rostrum piceous. *Head*: scales on vertex only slightly narrower than scales on rostrum. *Eye*: height ca. 1.5x length; in dorsal view feebly convex anteriorly; hind margin precipitously raised by distance ca. equal to 2.3x eye length. *Rostrum*: male 0.86–0.92 (0.90)x, female 0.86x pronotum length. Distal portion in male 42–47 (45)% of total rostral length; in lateral view tapered, lateral sulcus becoming obsolete in distal 0.50; in female, distal portion slightly longer, 49–50 (49)% of total rostral length, in lateral view attenuate, lateral sulcus obsolete. *Prothorax*: scales on pronotum pale and darker fulvous to ferruginous intermixed, also with patches of fuscous to black scales, but these not forming lateromedian maculae. *Elytra*: apices of interspaces 4–6 slightly raised. Scales on interspaces similar to scales on pronotum, in four or five irregular rows on each interspace, pale and darker fulvous to ferruginous and fuscous to black scales in tessellate pattern. *Pygidium*: in male scales narrow, erect, finely dissected; in female, pygidium strongly narrowed to rounded apex, nearly vertical. *Abdomen*: in male sterna 1–5 broadly, deeply concave medially, scales reduced, finely dissected, suberect, sternum 5 strongly rounded at apex, posterior margin of segment broadly, roundly concave; in female, sterna 1–5 nearly flat medially, sternum 5 rounded, slightly constricted subapically, extreme posteromedian portion slightly prominent. *Tibiae*: straight. *Male genitalia*: (Fig. 91, 92). *Spermatheca*: (Fig. 40).

Discussion.—A relatively large “*Itychus*”, probably a seed predator; host unknown; known only from the type-series from the state of Minas Gerais, Brazil (Fig. 83).

S. alvarengae is named in honor of the collector of the type series, Moacir Alvarenga.

25—*Sibinia (Microtychius) vosei* (Kissinger), new combination
(Figs. 14, 41, 80, 93-95, 102)

Itychus vosei Kissinger 1962: 11. Holotype, male: Tixkokob, Yucatan, Mexico (AMNH).

Diagnosis.—(Fig. 102). Raised portion of frons emarginate laterally adjacent to eyes; scales on vertex of head reduced to fine white setae; scales on pronotum and elytra uniformly gray to yellowish gray, or gray to yellowish gray and darker fuscopiceous scales intermixed; femora moderately enlarged; median lobe with median portion sclerotized ventrally in basal 0.66, bearing numerous long ventral setae, apex abruptly bent downward; posteromedian plate of spiculum gastrale transverse, anterolateral plates large, flared (Fig. 95).

Description.—*Length*: male 2.81–3.32 mm; female 2.95–3.29 mm. *Width*: male 1.58–1.92 mm, female 1.78–1.99 mm. *Integument*: black, tibial apices and distal portion of rostrum piceous, tarsi and antennae ferruginotestaceous. *Head*: punctures on vertex shallow. *Eye*: large, height ca. 1.5x length; in dorsal view strongly convex; hind margin raised by distance ca. equal to 0.66 eye length. *Frons*: narrower than base of rostrum, slightly widened posteriorly, not prominent over eye, in lateral view strongly rounded. *Rostrum*: male 0.94–1.00x, female 0.94–0.99x pronotum length. In dorsal view expanded slightly just distad of eye, sides feebly tapered to antennal insertions, more strongly tapered to tip. In dorsal profile not rounded at base, straight to basad of antennal insertions, feebly curved over insertions. Distal portion in male short, 27–33% of total rostral length, in lateral view conical, lateral sulcus obsolete just distad of antennal insertions; in female, distal portion longer, 39–44% of total rostral length, acuminate, lateral sulcus distinct in proximal 0.50. Dorsomedian and dorsolateral carinae becoming obsolete just proximad of antennal insertions. Scales on sides elongate, parallel sided, apically truncate, cinereous to pale fulvous, those on dorsum narrower, more attenuate, distal portion with long white setae. *Prothorax*: in dorsal view sides subparallel at extreme base, strongly rounded to deep subapical constriction, in lateral view broadly convex, especially posteriorly. Scales on pronotum elongate, subparallel sided, apically truncate, uniformly recumbent, yellowish gray or gray and fuscopiceous scales intermixed, darker scales when present prominent on lateromedian portions and forming diffuse round, dorsomedian macula; scales on lower portion of pleuron round, those on upper portion oblong, flat, white, extending onto extreme dorsolateral portions anteriorly and posteriorly, replaced dorsally by elongate scales. *Elytra*: in dorsal view humeri slightly prominent, sides broadly curved in basal 0.66; in lateral view strongly convex in basal 0.50, rapidly falling away from just beyond middle to apices. Interspaces flat, subequal in width, with large, discrete, oblong impressions; apices of interspaces 4–6 not prominent. Scales on interspaces similar in shape and color to scales on pronotum, but slightly shorter, uniformly

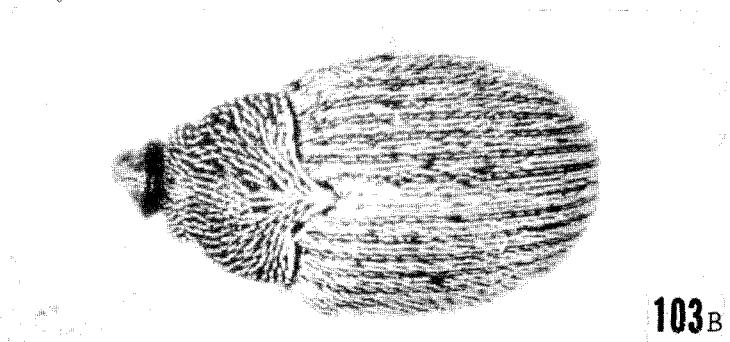
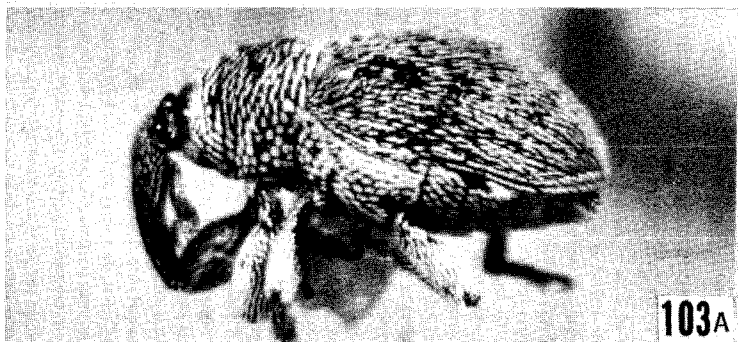
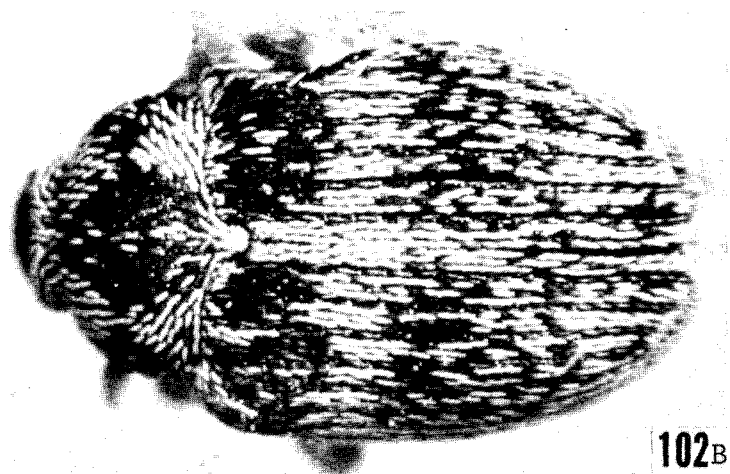
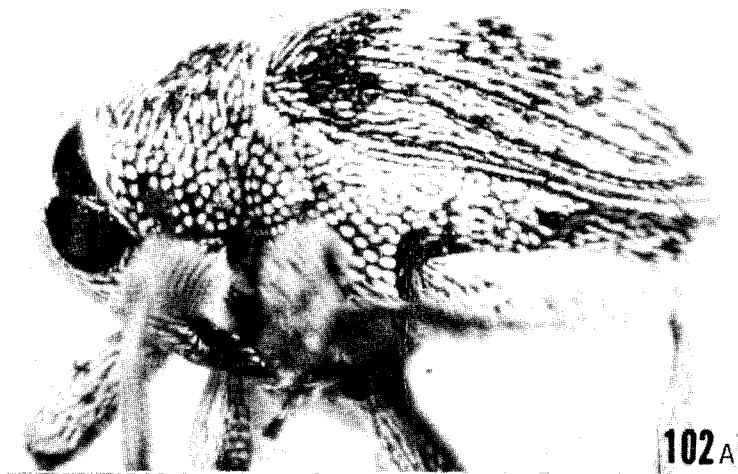


Fig 102, 103, *Sibinia* spp., habitus: 102, *S. vosei*, male, 14 mi W Nilttepec, Oaxaca, Mexico; 103, *S. grisea*, female, 14 mi W Nilttepec, Oaxaca, Mexico.

recumbent, in triple rows on each interspace; dark scales when present forming pattern of diffuse alternating transverse bands; sutural interspaces without round white scales; striae scales narrower than scales on interspaces. *Pygidium*: broadly exposed; in male convex, broadly rounded at apex, in female flat, strongly narrowed to rounded apex, perpendicular. *Abdomen*: in male sterna 1–5 broadly, deeply concave, scales on concave portion finely acuminate, suberect to erect, sternum 5 not constricted subapically, posterior margin slightly, narrowly concave medially; in female, sterna 1–5 broadly convex medially, scales unmodified; sternum 5 broadly constricted subapically, posteromedian portion feebly prominent, posterior margin narrowly concave medially. *Femora*: feebly inflated in distal 0.33. *Tibiae*: straight, protibia with short straight oblique mucro, meso- and metatibiae with long slender straight mucrones. *Male genitalia*: (Fig. 93, 95). *Spiculum ventrale*: (Fig. 14). *Spermatheca*: (Fig. 41).

Discussion.—A relatively large “*Itychus*”, probably a seed predator; collected on *Acacia paniculata*; known from the Mexican states of Campeche, Guerrero, Oaxaca, Puebla, and Yucatan, and from Honduras (Fig. 80); 57 specimens examined.

Adults of *S. vosei* were collected at several localities in southern Mexico on blooming *A. paniculata*, in each instance in microsympatry with adults of the bud predator *S. grisea*. The larvae of *S. vosei* have not been collected, but will probably be found in the pods of *A. paniculata*. The type species of Kissinger’s (1962) genus *Itychus*, *S. vosei* displays a full complement of “*Itychus* characters”, unlike *S. grisea* in which some of these features are somewhat reduced.

26—*Sibinia (Microtychius) fulva* (LeConte)
(Figs. 15, 42, 81, 104–110)

Sibynes fulvus LeConte 1876: 219. Horn 1894; Fall 1901; Knaus 1907. Holotype, male: Cape San Lucas, Baja California Sur, Mexico (MCZ).

Sibinia fulva: Casey 1910; Klima 1934; Blackwelder 1947.

Tychius fulvus: Leng 1920; Moore 1937.

Itychus fulvus: Kissinger 1962, 1964.

Diagnosis.—(Fig. 104). Rostral carinae distinct from antennal insertions to between dorsal margins of eyes (Fig. 107); eye large, strongly convex (Figs. 105 and 107); scales on pronotum and elytra moderately broad, subparallel sided, recumbent, fulvous to reddish orange, interspersed with oval white scales; femora not greatly enlarged, not channeled beneath.

Description.— *Length*: male, 2.16–2.77 mm, female 2.57–2.98 mm. *Width*: male 1.13–1.54 mm, female 1.16–1.62 mm. *Integument*: rufous to rufopiceous, shading to ferruginotestaceous on legs, antennae, and distal portion of rostrum. *Head*: scales on vertex elongate, narrow, apically truncate (Fig. 105), fulvous to reddish orange. *Frons*: narrower than base of rostrum (Fig. 105, 107); prominent over dorsal margins of eyes, in lateral view strongly rounded, continuous with base of rostrum. *Eye*: height ca. 1.3x length; hind margin raised by distance ca. equal to combined diameters of two ocular facets (Fig. 105). *Rostrum*: male 0.73–0.89x, female 0.76–0.94x pronotum length. In dorsal view, sides feebly tapered from base to antennal insertions, abruptly narrowed distad of insertions, sides subparallel to tip. Distal portion in male short, 33–53% of total rostral length, strongly tapered in lateral view, lateral sulcus distinct to tip (Fig. 106); in female, distal portion longer, 40–55% of total rostral length, strongly tapered in lateral view, attenuate, lateral sulcus becoming obsolete distad of antennal insertions. Scales elongate, narrow, parallel sided, apically blunt to truncate, white, scales on dorsum narrower, fulvous to reddish orange. *Prothorax*: in dorsal view sides subparallel in basal 0.50, strongly rounded anteriorly to strongly developed subapical constriction; in lateral view moderately, evenly convex from base to broad subapical constriction. Scales on pronotum short, broad, parallel sided, broadly truncate apically, fulvous to reddish orange, white scales interspersed in feeble circular pattern; scales on pleuron oblong, flat, white, limited to lower portion, medially extending onto extreme anterior and posterior portions of pronotum. *Elytra*: in dorsal view humeri not prominent, sides feebly rounded in basal 0.66; in lateral view strongly, evenly convex. Interspaces flat, feebly impressed, interspace 2 narrower than interspaces 1 and 3, apices of interspaces 4–6 not prominent. Scales on interspaces similar in shape and color to scales on pronotum but slightly shorter and broader, in quadruple rows on each interspace, uniformly recumbent, a few oval white scales sparsely interspersed throughout; sutural interspaces without white scales; striae scales very narrow, white. *Pygidium*: broadly exposed, in male convex, broadly subquadrate apically; in female, pygidium strongly narrowed to rounded apex, slightly oblique, extended posteriorly slightly beyond elytral apices. *Abdomen*: in male sterna 3–5 broadly, shallowly, continuously concave medially, scales unmodified, sternum 5 not constricted subapically, posterior margin broadly, subquadrately emarginate; in female, sterna 3–4 and anterior portion of sternum 5 feebly convex medially, sternum 5 slightly constricted subapically toward middle of segment, posteromedian portion of segment narrowly prominent, posterior margin not produced posteriorly. *Tibiae*: meso- and metatibiae armed with long slender apically notched mucrones, protibia with minute mucro or unarmed (Fig. 108). *Male genitalia*: (Fig. 109, 110). *Spiculum ventrale*: (Fig. 15). *Spermatheca*: (Fig. 42).

Discussion.—A relatively large seed predator “*Itychus*”; hosts *Acacia greggii* and *A. roemeriana*; known from the Sonoran, Mohavean, and Chihuahuan Desert Regions of southern California, Arizona, New Mexico, Texas, and from the Mexican state of Sonora and the territory of Baja California Sur (Fig. 81); 408 specimens examined.

Adults of *S. fulva* have been collected in March (1%), April (8%), May (17%), June (48%), and July (13%). They were abundant 1 mi S Premont, Jim Wells County, Texas, on *A. greggii* when the plants were in late bloom. The fulvous or reddish orange colors of the scales closely match the late bloom colors of the flowers of *A. greggii*, probably affording protection from predators.

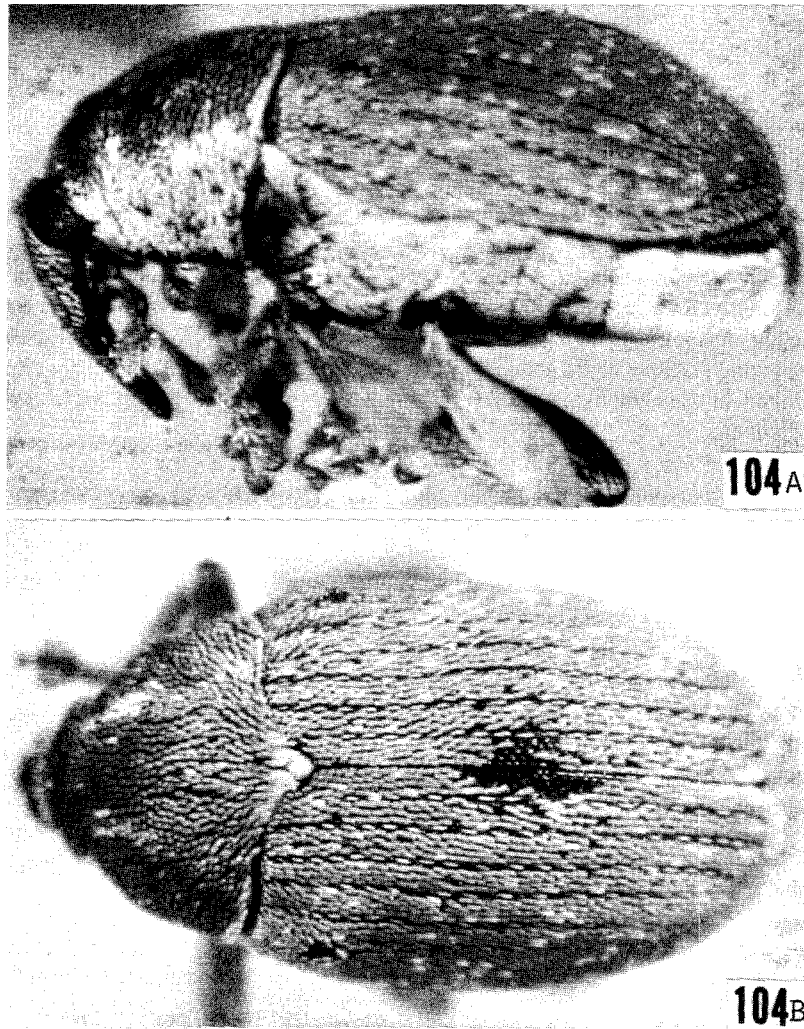


Fig. 104, *Sibinia fulva*, male, 6 mi N Alpine, Brewster Co., Texas. (A, lateral view, B, dorsal view).

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Larvae emerged from pods of *A. greggii* collected 23 May, 1973, 1 mi N Premont, Jim Wells County, Texas and 31 May, 1973, 2 mi E Lajitas, Brewster County, Texas, and from pods of *A. roemeriana*, collected 6 June, 1972, 51 mi S Alpine, Brewster County, Texas. Larvae and eggs were found in pods of *A. greggii*, eggs near the edges of the seeds. Larvae in all three instars were observed feeding around the edges of the seeds. Larvae (average two per seed, maximum observed, 9) exit from pods through holes which they chew in the side of the valve and presumably enter the soil to pupate. Adults were not reared. One pupa was recovered in the laboratory in October, five months after the larva had left the pods.

The seed beetle *Merobruchus julianus* (Horn) (Bruchidae) was reared from *A. greggii* seeds attacked by *S. fulva*. The bruchids occupied the centres of the large flattened seeds while the weevils fed around the edges. Thirty-nine percent of seeds infested by *S. fulva* in a sample from one mi S Premont were also infested by bruchids.

The *grandis* Group

Diagnosis.—Species are assigned to the *grandis* group on the basis of their possession of one or more of apotypic states 31–36 (see appendix II, p. 368). Not one of the species exhibits all of these conditions, however, and no single feature can be cited as diagnostic of the group.

Discussion.—The *grandis* group contains seven species: the Brazilian *S. grandis*, *S. glomerata*, *S. mundururu*, *S. pullipes*, and *S. nigripes*, and *S. furfurosa* of the Bahama Islands, and *S. solaris*, known from Jamaica and from Mexico (the Yucatan Peninsula). Hosts of none of the species are known. One member of the group, *S. grandis*, exhibits several “*Itychus* characters”, but evolution within the group appears to have been accompanied by reduction and loss of these plesiotypic features which are inferred in the group ancestor, and which characterize most members of the paraphyletic “*Itychus*” stock from which the monophyletic *grandis* group is derived.

27—*Sibinia* (*Microtychius*) *grandis*, new species (Figs. 43, 83, 111)

Holotype.—Male, BRAZIL: (Santa Catarina) Nova Teutônia, 27° 11' S, 52° 23' W, September 1954, 300–500m, Fritz Plaumann (MZSP).

Allotype.—Female, same data as holotype (MZSP).

Paratypes.—Same data as holotype (2); the same except—August, 1954 (1); São Paulo, Fazenda Pau D’Alho Itu, January 1959 col. U. Martins (6); total nine, distributed to various collections.

Diagnosis.—Robust; head constricted behind eyes, hind margin of eye but not frons abruptly raised; anterodorsal margins of pronotum with distinct postocular swellings; pronotum and elytra with elongate, narrow, ferruginous and rufopiceous scales and oblong, pale ferruginous to white scales forming distinct V-shaped maculae; odd elytral interspaces slightly raised, apices of interspaces 4–6 strongly prominent; distal portion of rostrum not tapered.

Description.—*Length:* male 3.20–3.88 (3.58) mm, female 3.52–4.12 (3.80) mm. *Width:* male 1.73–2.08 (1.91) mm, female 1.86–2.23 (2.02) mm. *Integument:* piceous to black, antennae rufous. *Head:* scales on vertex elongate, parallel sided, apically blunt, ferruginous. *Frons:* narrower than base of rostrum, in lateral view strongly rounded, continuous with base of rostrum, rounded separately from vertex of head. *Eye:* small, nearly round, height ca. 1.3x length; in dorsal view nearly flat to broadly convex posteriorly, flattened anteriorly; hind margin distinctly raised by distance ca. equal to combined diameters of three ocular facets. *Rostrum:* male 0.98–1.11 (1.05)x, female 0.98–1.28 (1.15)x pronotum length. In dorsal view in male feebly tapered from base to antennal insertions, in female, slightly prominent distad of insertions, expanded distally; in dorsal profile strongly rounded at base, straight to just proximad of antennal insertions, broadly curved over insertions. Dorsomedian carina distinct in male, obsolete in female. Distal portion in male moderately long, 29–38% of total rostral length; in lateral view scarcely tapered, lateral sulcus very deep in proximal 0.66; in female, distal portion

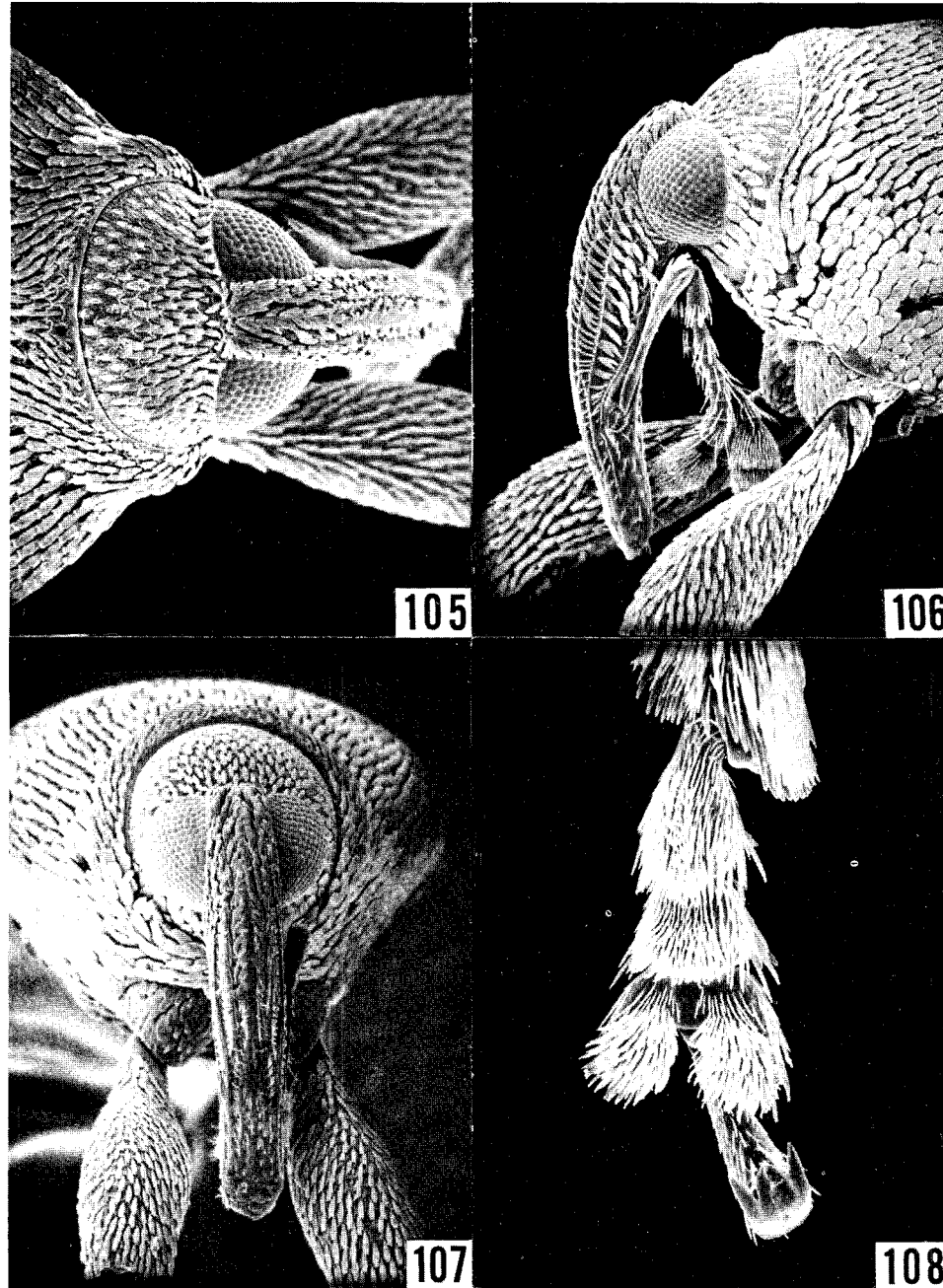


Fig. 105–108, *Sibinia fulva*, male: 105, head and anterior portion of pronotum, dorsal view (79.0x); 106, the same, lateral view (63.2x); 107, the same, front view (63.2x); 108, right protarsus and tibial apex, ventral view (138.3x).

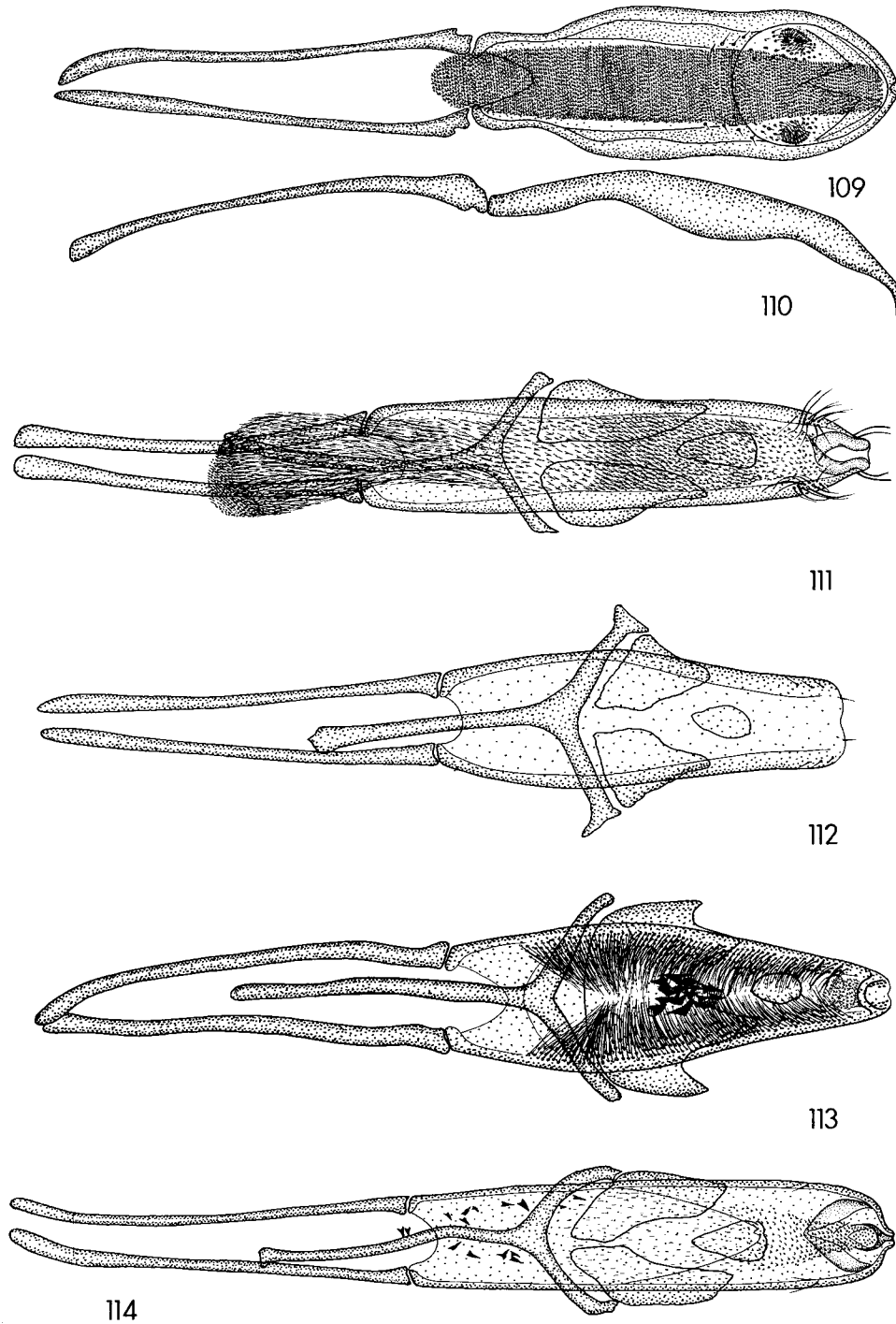


Fig. 109–114, *Sibinia* spp., male external genitalia; 109, *S. fulva* (spiculum gastrale dissociated); 110, *S. fulva*, (spiculum gastrale dissociated); 111, *S. grandis*; 112, *S. glomerata*; 113, *S. mundururu*; 114, *S. pullipes* (not to scale; 109, 111–114 ventral views, 110 lateral view).

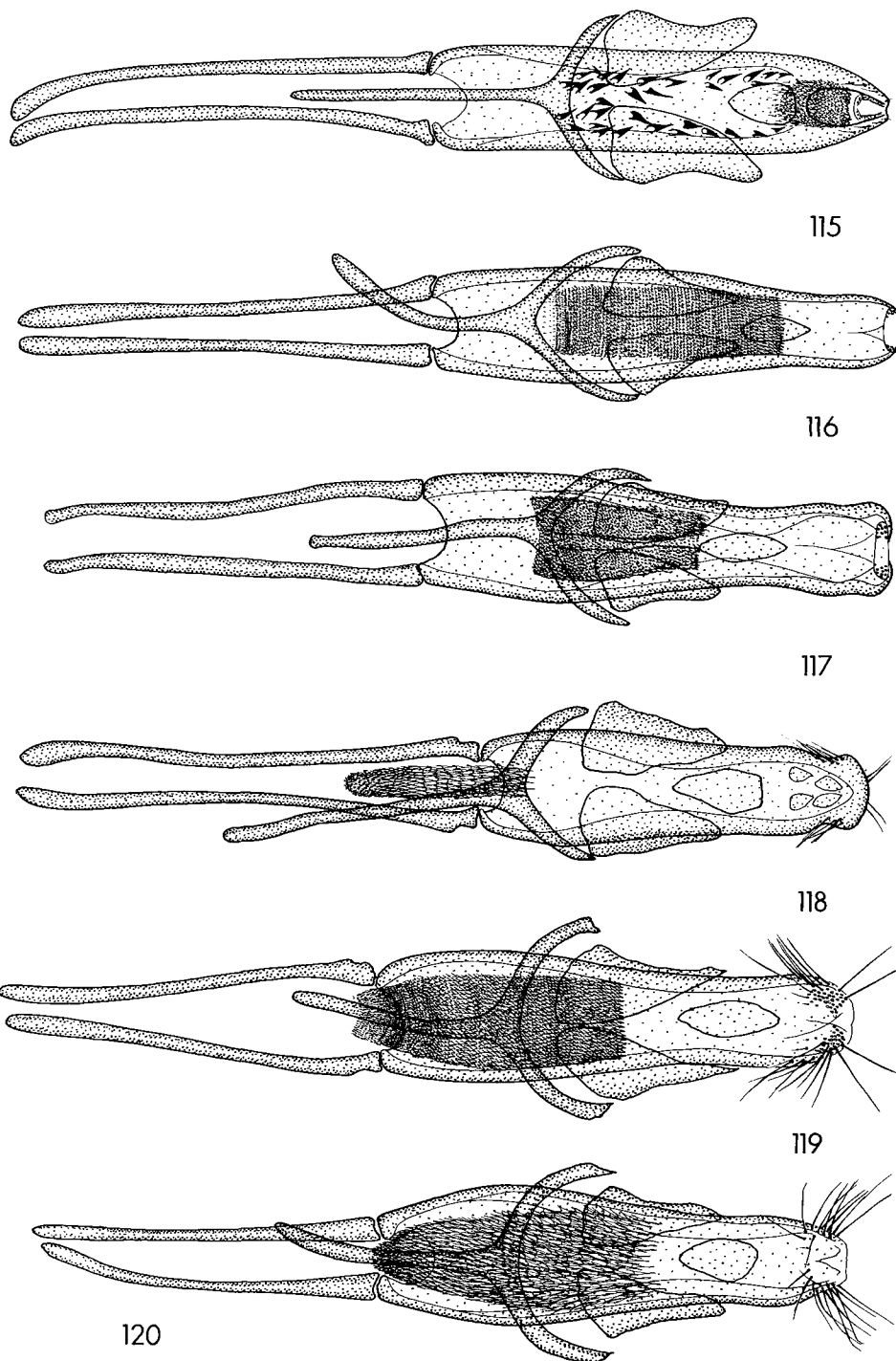


Fig. 115–120, *Sibinia* spp., male external genitalia; 115, *S. nigripes*; 116, *S. furfurosa*; 117, *S. solaris*; 118, *S. santarem*; 119, *S. rotundata*; 120, *S. tropidorhyncha* (not to scale; 115–120 ventral views).

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longer, 36–43 (40)% of total rostral length, more slender, not tapered, lateral sulcus shallow but distinct in proximal 0.75. Scales uniformly elongate, narrow, apically truncate, ferruginous, recumbent. *Prothorax*: in dorsal view broadest at base, sides broadly, evenly rounded from base to strongly developed subapical constriction; in lateral view strongly convex posteriorly, more broadly curved anteriorly, subapical constriction distinct on dorsum. Scales on pronotum uniformly elongate, subparallel sided, apically bluntly rounded, recumbent; with dark ferruginous scales and lighter, whitish scales which form distinct median vitta and prominent lateromedian vittae which extend obliquely from extreme anterolateral angles to lateromedian portion of base, scales on laterobasal portions darker; pleuron with oblong flat pale ferruginous scales and white, broadly imbricated scales which extend onto extreme anterolateral and posterolateral portions of dorsum but are limited to lower portion medially. *Elytra*: in dorsal view humeri slightly prominent, sides feebly convergent behind humeri in basal 0.66, more strongly rounded to apices; in lateral view broadly, feebly convex in basal 0.75. Interspaces shallowly but discretely impressed, even interspaces flat; scales on interspaces similar to those on pronotum in shape and color but slightly smaller, in five or six irregular rows on each interspace, uniformly recumbent, pale ferruginous scales most abundant, with prominent basal V-shaped macula of rufopiceous scales which covers bases of interspaces 2–4 and extends posteriorly on interspaces 2 and 1 to about middle where rufopiceous scales are replaced by oblong, apically rounded, white and pale ferruginous scales; rufopiceous scales covering interspace 2 and lateral portion of sutural interspaces behind white scales to just before apices, also on interspaces 7–9, on humeri, at about middle, and apical 0.25; oblong white scales forming prominent basal V-shaped macula on sutural interspaces, and present on extreme base of interspaces 2 and 5, sparsely scattered throughout on odd interspaces and in form of diagonal line on posteromedian portions of interspaces 7 and 8 and broad patches on interspaces 9–10; striae scales narrower than scales on interspaces, mostly white. *Pygidium*: in male large, broadly exposed, nearly perpendicular, convex medially, broadly subquadrate at apex; in female, pygidium smaller, flat, strongly, narrowed to narrowly rounded apex, slightly oblique. *Abdomen*: in male, sterna 3–4 feebly convex, sternum 5 narrowly, shallowly concave medially, scales unmodified, sternum 5 feebly constricted subapically, posterior margin of segment broadly, distinctly concave medially; in female, sterna 3–4 and anterior portion of sternum 5 broadly convex medially, sternum 5 strongly, broadly constricted subapically, posteromedian portion of segment prominent, narrowed, posterior margin slightly produced posteriorly. *Femora*: narrow at base, gradually, strongly inflated distally, not channeled ventrally, metafemur slightly to much wider than profemur; oblong whitish scales interspersed among elongate ferruginous scales. *Tibiae*: each with stout curved apical mucro. *Male genitalia*: (Fig. 111). *Spermatheca*: (Fig. 43).

Discussion.—One of the largest of all known *Sibinia*, presumably a seed predator; host unknown; known only from the type-series from southern Brazil (Fig. 83).

The slightly constricted head, raised eye, and anterolateral pronotal swellings are features which *S. grandis* has in common with most members of the “*Itychus*” stock, but the species has apparently lost all other characteristics of that paraphyletic stock from which it apparently arose.

28—Sibinia (Microtychius) glomerata, new species
(Figs. 16, 44, 83, 112)

Holotype.—Male, BRAZIL: (Santa Catarina), Nova Teutônia, 27° 11' S, 52° 23' W, 2 November, 1949, Fritz Plaumann, Moraceae, *Morus nigra* (MZSP).

Allotype.—Female, same data as holotype, except—6 November, 1949, Phytolacaceae, *Phytolacca dioica* (MZSP).

Paratypes.—Same data as holotype, except—9 November, 1949, Pflanze 639(3); same data as allotype, except—4 November, 1949(5); total eight, distributed to various collections.

Diagnosis.—Robust; distal portion of rostrum long in male and female; antennal scape much shorter than funiculus; scales on pronotum and elytral interspaces moderately broad, apically rounded, uniformly pale gray, recumbent; internal sac unarmed.

Description.—*Length*: male 1.10–1.26 (1.18) mm, female 1.28–1.38 (1.31) mm. *Width*: male 0.55–0.72 (0.63) mm, female 0.68–0.72 (0.70) mm. *Integument*: black, legs and distal portion of rostrum rufous, antennae testaceous. *Head*: scales on vertex linear, apically bluntly rounded. *Frons*: slightly narrowed posteriorly, in lateral view broadly rounded, continuous with vertex of head. *Eye*: moderately large, height ca. 1.6x length; in dorsal view moderately strongly, evenly convex; hind margin scarcely raised by distance less than diameter of one ocular facet. *Rostrum*: male 0.96–1.04 (1.00)x, female 1.08–1.18 (1.14)x pronotum length. In dorsal view sides slightly convergent from base to antennal insertions, abruptly narrowed distad of insertions, especially in female, sides of distal portion subparallel; in dorsal profile broadly, evenly arcuate from base to tip in male, more strongly rounded at base, distal portion strongly, evenly arcuate in female. Rostral carinae obsolete. Distal portion in male long, 70–73 (72)% of total rostral length, in lateral view not tapered, lateral sulcus obsolete; in female, distal portion somewhat longer, 73–81 (79)% of total rostral length, cylindrical, smooth, shining. Scales uniformly recumbent. *Prothorax*: in dorsal view sides subparallel in basal 0.50, rounded anteriorly, subapical constriction feebly developed; in lateral view feebly, evenly convex, subapical constriction obsolete on dorsum. Scales on pronotum elongate, moderately

broad, parallel sided, bluntly rounded apically, uniformly recumbent, pale gray; scales on pleuron elongate oval, slightly concave, imbricated, replaced on upper portion by elongate scales. *Elytra*: in dorsal view sides feebly, broadly rounded in basal 0.66; in lateral view flat in basal 0.33, strongly rounded in basal 0.66. Interspaces feebly convex; feebly, irregularly impressed, subequal in width, apices of interspaces 4–6 not prominent. Scales on interspaces similar to scales on pronotum but slightly larger, mostly in single rows, but with partial lateral rows in some areas, uniformly recumbent; sutural interspaces with scales in triple rows, scales toward base along suture oval, white; striae scales conspicuous, narrower than scales on interspaces. *Pygidium*: in male moderately broadly exposed, feebly convex, narrowly, evenly rounded apically; in female, pygidium as in male but slightly narrower and more acutely rounded apically, feebly oblique, not produced posteriorly. *Abdomen*: in male sterna 3–5 flat medially, scales unmodified, sternum 5 not constricted subapically, posterior margin of segment straight; in female, sterna 3–4 flat medially, sternum 5 distinctly, narrowly concave medially, posteromedian portion of segment prominent, posterior margin slightly rounded. *Femora*: narrow at base, profemur gradually inflated, metafemur slightly narrower, more gradually inflated. *Tibiae*: each with small acute apical mucrone. *Male genitalia*: (Fig. 112). *Spiculum ventrale*: (Fig. 16). *Spermatheca*: (Fig. 44).

Discussion.—Very small in size, probable bud predator; host probably mimosoid despite labels on some specimens indicating Moraceae and Phytolacaceae; known only from type-series from extreme southern Brazil (Fig. 83).

Since *S. glomerata* and *S. grandis* have the same type-locality they may have the same host; they resemble each other as closely as do members of several known bud-seed predator micro-sympatric pairs (see Table 3, p. 104), and may be sister species. On the other hand, the unarmed internal sac may indicate relationship to *S. bufemorata* and *S. bufemoratoides*. If *S. glomerata* is related to any of these, a great deal of reduction and loss must be assumed; this does not seem unlikely for such a small *Sibinia*.

29—*Sibinia (Microtychius) mundururu* (Bondar)
(Figs. 17, 45, 58, 113)

Teratonychus mundururu Bondar 1949: 186, Figs. 15–19. Vaurie 1953 (Designated lectotype: male, Andaraí, Bahia, Brazil (AMNH)).

Sibinia mundururu Bondar. Kuschel 1950.

Diagnosis.—Robust; pronotum with uniformly elongate recumbent ferruginous and fulvous scales, elytra with fulvous and ferruginous scales in obscure alternating transverse bands, a few oval white scales interspersed; rostrum very long, especially in female, glabrous except at extreme base in female; metatibia minutely mucronate; median lobe (Fig. 113) with dense fringe of long ventrolateral setae from base to apex.

Description.— *Length*: male 2.97 mm, female 2.95 mm. *Width*: male 1.64 mm, female 1.74 mm. *Integument*: rufo-piceous, sterna piceous. *Head*: scales on vertex elongate, bluntly rounded apically. *Frons*: slightly narrowed posteriorly, in lateral view flat, continuous with vertex of head. *Eye*: moderately large, height ca. 1.4 times length; in dorsal view broadly evenly convex; hind margin distinctly raised by distance ca. equal to combined diameters of three ocular facets. *Rostrum*: very long, male 1.17, female 1.67x pronotum length. In dorsal view feebly tapered from base to antennal insertions, more strongly tapered distad of insertions but slightly expanded again at extreme tip in male, strongly tapered in proximal 0.12, sides subparallel from there to distal 0.25, gradually expanded from there to tip in female. In dorsal profile strongly rounded at base, nearly straight from distad of base to antennal insertions, then broadly, evenly arcuate in male, strongly rounded at extreme base, broadly, evenly arcuate distally in female. Dorsomedian carina distinct in male, obsolete in female. Distal portion in male long, 43% of total rostral length, in lateral view feebly tapered, lateral sulcus distinct almost to tip; in female, distal portion longer, 56% of total rostral length, cylindrical, smooth. Scales uniformly recumbent, limited to extreme basal portion in female. *Prothorax*: in dorsal view broadest at base, sides straight, slightly convergent in basal 0.50, broadly rounded anteriorly to strongly developed subapical constriction; in lateral view strongly, nearly evenly convex from base to apex. Scales on pronotum uniformly elongate, parallel sided, apically rounded, recumbent, scales on sides directed toward middle of base, scales on median portion directed straight posteriorly, uniformly fulvous, basal marginal row of long fulvoferruginous scales projected posteriorly, nearly concealing scutellum; pleuron with round to oblong flat white scales, these replaced on upper portion by elongate scales. *Elytra*: in dorsal view broadest just behind humeri, sides slightly convergent to distal 0.66, broadly rounded from there to apices; in lateral view flat in basal 0.50, strongly convex posteriorly. Interspaces flat, odd interspaces slightly wider than even ones, deeply, discretely impressed, apices of interspaces 4–6 broadly prominent; scales in irregular triple to quadruple rows on each interspace, elongate oval apically truncate fulvous scales and narrower, more nearly parallel sided ferruginous scales intermixed, replaced by narrower, more nearly parallel sided rufo-piceous scales which form prominent mediobasal macula on interspaces 2 and 3 and basal portion of interspace 4, large oval white

scales interspersed throughout, especially dense just behind dorsal macula; sutural interspaces with basal cluster of oval white scales, and with oval fulvous scales in posterior 0.66; striae scales very narrow, white. *Pygidium*: in male small, feebly convex distally, perpendicular; in female, pygidium nearly flat, oblique, extending slightly distad of elytral apices, strongly narrowed to rounded apex. *Abdomen*: in male sterna 3–5 shallowly, narrowly concave medially, scales unmodified, posterior margin of sternum 5 shallowly, subquadrately emarginate; in female, sterna 3–4 flat medially, sternum 5 broadly, strongly constricted subapically, posteromedian portion of segment narrowed, prominent, produced posteriorly beyond elytral apices. *Femora*: narrow at base, gradually, evenly expanded but not inflated distally; oblong white scales and narrow, ferruginous scales interspersed throughout. *Tibiae*: pro- and mesotibiae armed with large curved mucrones, metatibia minutely mucronate. *Male genitalia*: (Fig. 113). *Spiculum ventrale*: (Fig. 17). *Spermatheca*: (Fig. 45).

Discussion.—A relatively large *Microtychius*, probably a seed predator; host probably mimosoid, but collected on Melastomaceae called “mundururu” (Bondar 1949); known only from the type-series from the state of Bahia, Brazil (Fig. 58); examined male lectotype, and female paralectotypes (two, FMNH and AMNH).

The color and pattern of scales on the pronotum and elytra and the shape and vestiture of the femora are similar in *S. mundururu* and *S. grandis*. The later species exhibits some “*Itychus* characters” which are lacking from *S. mundururu* (constricted head, raised eyes, anterolateral swellings on the pronotum).

30—*Sibinia (Microtychius) pullipes*, new species
(Figs. 58, 114)

Holotype.—Male, BRAZIL: Goiás, Corumba de Goiás, 31 January–3 February, 1962, J. Bechyné col. (MZSP).

Paratypes.—Same data as holotype (three males); same as holotype, except—Rib. Vaozinho, 12 February, 1962 (four males); total seven, distributed to various collections.

Diagnosis.—(Male only known.) Slender; articles I–III of protarsus and mesotarsus of some specimens black; scales on pronotum and elytra short, oblong to oblong oval, recumbent, pale fulvous, long acuminate erect setae intermixed among oval scales; sternum 5 of male foveate medially; median lobe lightly sclerotized ventrally except in apical 0.25, with dorsomedian sclerotized bridge in apical 0.25 (Fig. 114).

Description.—*Length*: 1.92–2.28 (2.09) mm. *Width*: 0.87–1.12 (0.98) mm. *Integument*: rufous, prothorax, head, and sterna piceous to black. *Head*: scales on vertex elongate, attenuate, fulvous. *Frons*: slightly narrower than rostrum at base, in lateral view broadly curved, continuous with vertex of head. *Eye*: moderately large, nearly round, height ca. 1.25 x length; in dorsal view broadly, evenly convex; hind margin not raised. *Rostrum*: 0.84–1.06 (0.93) x pronotum length. In dorsal view tapered from base to antennal insertions, abruptly narrowed distad of insertions, sides subparallel to tip; in dorsal profile not or scarcely rounded at base, broadly, nearly evenly arcuate from base to tip. Dorsomedian carina distinct. Distal portion moderately long, 42–45 (44)% of total rostral length, in lateral view slightly tapered, lateral sulcus obsolete in distal 0.75. Scales elongate, widened to truncate apices, recumbent, fulvous, also with dorsolateral row of long erect acuminate setae on rostrum and frons over dorsal margin of eye. *Prothorax*: in dorsal view narrow, elongate, sides broadly curved from base to feebly developed subapical constriction, slightly narrower at apex than at base; in lateral view broadly, evenly convex from base to feebly developed subapical constriction. Scales on pronotum short, oblong to oblong-oval, minutely truncate apically, recumbent, uniformly fulvous, long acuminate straight fully erect setae intermixed among recumbent scales; scales on pleuron larger than oblong to oval scales on pronotum, flat, whitish, limited to lower 0.50. *Elytra*: in dorsal view sides subparallel in basal 0.50, in lateral view broadly, evenly convex in basal 0.66. Interspaces flat, subequal in width, feebly rugose, apices of interspaces 4–6 not prominent. Scales on interspaces similar to those on pronotum, in triple row on each interspace, each odd interspace on disc and all interspaces on declivities with median row of straight erect acuminate setae; scales on sutural interspaces not distinguishable from scales on other interspaces; striae scales narrow, absent from some portions. *Pygidium*: broadly exposed, feebly convex, narrowed slightly to subquadrate apex. *Abdomen*: sterna 3–4 flat medially, sternum 5 with distinct median fovea, scales within fovea slightly reduced, erect, segment not constricted subapically, posterior margin slightly produced posteriorly. *Femora*: narrow at base, abruptly, strongly inflated distally. *Tibiae*: each with large, oblique acute black apical mucro. *Male genitalia*: (Fig. 114).

Discussion.—A relatively large *Microtychius*, probably a seed predator; host unknown; known only from the type-series from the state of Goiás, Brazil (Fig. 58).

This distinctive species is placed with reservation in the *grandis* group because the armature on the internal sac (Fig. 114) is similar to that in *S. grandis* (Fig. 111) and *S. mundururu* (Fig. 113). It resembles the bud predator *S. nigripes*, and the two are probably a microsympatric

bud-seed predator pair.

31—*Sibinia (Microtychius) nigripes*, new species
(Figs. 58, 115, 121)

Holotype.—Male, BRAZIL: Minas Gerais, Pedra Azul, November 1972, M. Alvarenga (UPB).

Allotype.—Female, same data as holotype (MZSP).

Paratypes.—Same data as holotype (5); the same, except—malaise trap (1); total six, distributed to various collections.

Diagnosis.—Eye not round; frons flat in lateral view; metafemur much wider than profemur.

Description.—As described for *S. pullipes*, except—*Length*: male, 1.56–1.82 (1.66) mm, female 1.46–1.56 (1.53) mm. *Width*: male 0.76–0.91 (0.82) mm, female 0.71–0.78 (0.75) mm. *Integument*: rufous, sterna and protarsi of male black. *Eye*: small, height ca. 1.33x length; in dorsal view strongly convex posteriorly, flattened anteriorly; hind margin feebly raised by distance somewhat less than diameter of one ocular facet. *Rostrum*: male 0.80–0.89 (0.86)x, female 0.94–1.03 (1.00)x pronotum length. Distal portion in male moderately long, 45–54 (49)% of total rostral length, lateral sulcus obsolete; in female, distal portion long, 61–70 (66)% of total rostral length, subcylindrical, smooth. *Prothorax*: scales on pronotum narrow, apically pointed. *Elytra*: sutural interspaces with sutural row of small white scales. *Abdomen*: in female, sternum 5 broadly, feebly constricted medially, posteromedian portion of segment broad, not producted. *Male genitalia*: (Fig. 115). *Spermatheca*: (Fig. 121).

Discussion.—A relatively small *Microtychius*, probably a bud predator; host unknown, known only from the type-series from the state of Minas Gerais, Brazil (Fig. 58).

Probably a member with the seed predator *S. pullipes* of a bud-seed predator microsympatric pair, *S. nigripes* closely resembles the latter, its probable sister species.

32—*Sibinia (Microtychius) furfurosa*, new species
(Figs. 18, 82, 116, 122)

Holotype.—Male, BAHAMA ISLANDS B.W.I.: Conception Island, Booby Cay, 8 April, 1965, B.D. Valentine and R.W. Hamilton (CWO).

Allotype.—Female, same data as holotype (RWH).

Paratypes.—Same data as holotype (10); the same, except—Crooked Is., 5 mi due NE Gun Point, 26 March 1965 (1); the same, except—Green Cay (Grt. Bahama Bank), 18–19 March, 1965 (1), total twelve, distributed to various collections.

Diagnosis.—Robust; pronotum and elytra with elongate narrow dark ferruginous scales, and oblong, white to pale ferruginous scales; metatibia unarmed; internal sac densely asperate proximally, unarmed distally.

Description.—*Length*: male 1.72 mm, female 1.74–2.00 mm. *Width*: male 0.96 mm, female 1.04–1.11 mm. *Integument*: rufopiceous, becoming piceous on venter, tarsi, distal portion of rostrum and antennae ferruginotestaceous. *Head*: vertex with oblong, pale ferruginous scales which are replaced medially by much narrower, attenuate, darker ferruginous scales. *Frons*: strongly narrowed posteriorly, in lateral view flat, continuous with vertex of head. *Eye*: oblong, height ca. 1.3x length; in dorsal view feebly, evenly convex; hind margin raised by distance somewhat greater than diameter of one ocular facet. *Rostrum*: male 1.08x, female 1.07–1.12x pronotum length. In dorsal view distinctly tapered from base to antennal insertions, sides of distal portion feebly tapered in male, more strongly tapered in female; in dorsal profile distinctly rounded at base, less strongly rounded over antennal insertions. Distal portion in male short, 35% of total rostral length, stout, in lateral view slightly tapered, lateral sulcus distinct in basal 0.66; in female, distal portion slightly longer, 39–44% of total rostral length, in lateral view strongly tapered to acute tip, lateral sulcus distinct in basal 0.50. Dorsomedian carina distinct. Scales elongate, narrow, apically truncate, recumbent scales on sides pale fulvous, scales on dorsum narrower, ferruginous. *Prothorax*: in dorsal view slightly wider at extreme base than at middle, sides broadly, feebly curved from base to deep subapical constriction; in lateral view moderately strongly, evenly convex, subapical constriction obsolete on dorsum. Scales on pronotum elongate, narrow, feebly attenuate, recumbent, ferruginous, oblong flat white to pale fulvous scales interspersed among elongate scales on anterolateral and posterolateral portions and in small mediobasal cluster; scales on pleuron similar to loblong scales on pronotum, white or pale fulvous and pale ferruginous scales intermixed, a few elongate, darker ferruginous scales medially on upper portion. *Elytra*: in dorsal view sides subparallel in basal 0.50, in lateral view flat in basal 0.33, broadly, convex posteriorly. Interpaces flat, distinctly impressed, subequal in width, apices of interspaces 4–6 not prominent. Scales on interspaces similar in size, shape and color to scales on pronotum, in triple rows, uniformly recumbent, pale fulvous to white

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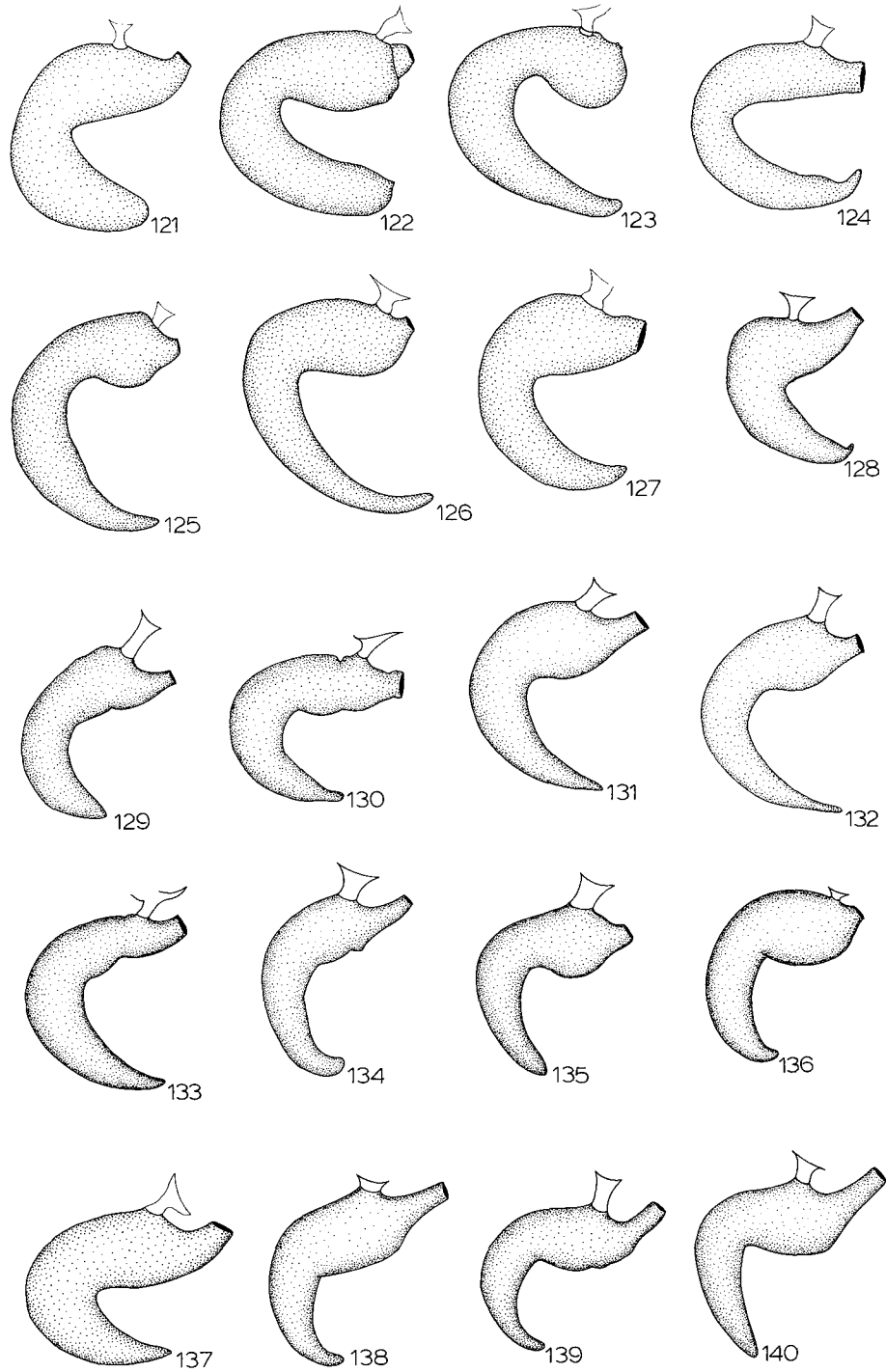


Fig. 121–140, *Sibinia* spp., spermathecae: 121, *S. nigripes*; 122, *S. furfurosa*; 123, *S. dorsena*; 124, *S. santarem*; 125, *S. rotundata*; 126, *S. tropidorhyncha*; 127, *S. barberi*; 128, *S. tessellata*; 129, *S. tessellatopsis*; 130, *S. candidata*; 131, *S. grypa*; 132, *S. albidula*; 133, *S. suturalis*; 134, *S. stricticomula*; 135, *S. albiduloides*; 136, *S. hispida*; 137, *S. aulacis*; 138, *S. sibinoides*; 139, *S. obscura*; 140, *S. guttata* (not to scale).

oblong scales present at base of each interspace, dense on 3 and 5 and in form of narrow, irregular transverse bands, one in basal 0.33, one just posteriad of middle, and one subapical; sutural interspaces with dense, imbricated oval white and pale ferruginous scales in complete lateral rows from base to apex and with median row of narrow, dark ferruginous scales; striae slightly narrower than elongate scales on interspaces. *Pygidium*: in male small, feebly convex, distinctly narrowed to rounded apex; in female, pygidium flat, more strongly narrowed to rounded apex; slightly oblique. *Abdomen*: in male, sterna 3–5 broadly, shallowly, concave medially, scales on concave portion unmodified, sternum 5 not constricted subapically, posterior margin of segment shallowly, subquadrately emarginate; in female, sterna 3–4 and median portion of sternum 5 flat, sternum 5 feebly constricted medially, posteromedian portion of segment prominent, narrowed, posterior margin straight. *Femora*: narrow at base, gradually, moderately inflated distally, profemur subequal in width to metafemur. *Tibiae*: protibia with minute conical apical mucro; mesotibia with slightly longer, acute mucro; metatibia unarmed. *Male genitalia*: (Fig. 116). *Spiculum ventrale*: (Fig. 18). *Spermatheca*: (Fig. 122).

Diagnosis.— A relatively large *Microtychius*, probably a seed predator; host unknown; known only from the type-series from the Bahama Islands (Fig. 82).

S. furfurosa is assigned to the *grandis* group because in vestiture, femoral shape, and structure of sternum 5 of the female it resembles *S. grandis* and *S. mundururu*. These features are not unique to these species, however, and therefore not strong indicators of relationship. *S. furfurosa* also resembles the bud predator *S. solaris*, also known from the West Indies, and the two are considered a bud-seed predator sister pair.

33—*Sibinia (Microtychius) solaris*, new species

(Figs. 82, 117)

Holotype.—Male, MEXICO: Q(uintana) R(oo), Puerto Morelos, 7 August, 1974, C.W. & L. O'Brien & Marshall, at night (CWO).

Allotype.—Female, same data as holotype (CWO).

Paratypes.—Same data as holotype (3). JAMAICA: 1 mi W Discovery Bay, VIII—5—1967, collectors: L. & C.W. O'Brien (one female); total four, distributed to CWO, USNM, and WEC.

Diagnosis.—Narrow ferruginous scales and white, oblong to oval scales intermixed on pronotum and elytra; eye oblong, flat, hind margin strongly raised, flat portion directed nearly straight forward; sternum 5 of male with raised posteromedian disc which is bounded anteriorly by dense rosette of erect ferruginous scales; protibia unarmed, in male metatibial mucro large, apically bifid, displaced proximad ca. 0.25 of distance to base, ventral portion of tibia distad of mucro broadly concave.

Description.— As described for *S. furfurosa*, except—*Length*: male 1.49–1.56 (1.53) mm, female, 1.62 mm. *Width*: male 0.80–0.84 (0.83) mm, female 0.86 mm. *Head*: scales on vertex elongate, very narrow, dark ferruginous, oblong pale scales intermixed in some specimens. *Frons*: strongly narrowed posteriorly, in lateral view continuous with strongly rounded base of rostrum. *Eye*: oblong, height ca. 1.75x length; hind margin distinctly raised by distance ca. equal to combined diameters of two ocular facets. *Rostrum*: male 0.97–1.00 (0.99)x, female 1.03x pronotum length. In dorsal profile strongly rounded at extreme base, straight to just proximad of antennal insertions, slightly curved over insertions. Distal portion in male short, 35–40 (38)% of total rostral length, in lateral view strongly tapered, lateral sulcus distinct in proximal 0.66; in female, distal portion slightly longer, 41% of total rostral length, attenuate in lateral view, lateral sulcus obsolete. *Prothorax*: pronotum with white oval scales dense on posterolateral portion, very sparse anterolaterally, absent mediobasally. *Abdomen*: in male, sterna 1–4 broadly, moderately deeply concave medially, scales on concave portion slightly reduced, attenuate, recumbent; sternum 5 with extreme anteromedian portion concave, posteromedian portion modified into broad elevated disc which is slightly concave medially and bounded posteriorly by semicircular rosette of dense erect pale ferruginous scales; posterior margin of segment narrowly, roundly concave. *Male genitalia*: (Fig. 117). *Spermatheca*: as in *S. furfurosa* (cf. Fig. 122).

Discussion.— A relatively small *Microtychius*, probably a bud predator; host unknown; known only from the type-series from the state of Quintana Roo, Mexico and from Jamaica (Fig. 82).

As discussed above, *S. solaris* may be the sister-species of a seed predator, *S. furfurosa*, of the Bahama Islands. Occurrence of *S. solaris* on the island of Jamaica as well as on the Yucatan Peninsula, with the sister species also in the West Indies, is indication that the species is West Indian. Possibly it became established on the mainland after overseas dispersal.

The *rotundata-suturalis* Stock

Diagnosis.—Species are assigned to the *rotundata-suturalis* stock on the basis of their possession of one or more of apotypic states 37–43 (see appendix II, p. 368). Like *grandis* group members, none of the *rotundata-suturalis* stock members exhibit all of the apotypic states inferred in the ancestor of their group, and no single feature can be cited as diagnostic of the group.

Discussion.—This paraphyletic group contains 14 species, the Brazilian *S. dorsena*, *S. santarem* and *S. rotundata*, *S. tropidorhyncha*, *S. barberi*, *S. calvata*, *S. altensis*, *S. tessellata*, *S. tessellatopsis*, *S. aurifera*, *S. candidata*, *S. grypa*, *S. albidula* and *S. suturalis*, all of which occur in the south-western United States and Mexico, and/or in Central America. Known hosts of members of the group belong to the mimosoid tribe Ingaeae (genera *Calliandra* and *Lysiloma*) and Mimoseae (genus *Mimosa*). The group includes seven seed predators, each of which retains a various number of the plesiotypic “*Itychus* characters”, including relatively large size and robust, convex body form, which characterize most members of the “*Itychus*” stock. It also contains seven bud predators, which to a greater or lesser degree resemble the seed predators, some of whose hosts they share (Table 1, p. 99). The Central and North American seed predators display reduction of “*Itychus* characters” in a series which begins with Panamanian species with many pronounced “*Itychus* characters”, and ends with the less “*Itychus*”-like North American species (Fig. 436).

34—*Sibinia* (*Microtychius*) *dorsena*, new species

(Figs. 19, 83, 123)

Holotype.—Female, (BRAZIL), Santarem, Casey bequest, 1925, 462 (USNM #75398).

Paratype.—Same data as holotype (one female, USNM).

Diagnosis.—(Female only known.) Robust, convex; pronotum and elytra with elongate, pale fulvous scales, and darker fuscous recumbent scales intermixed; rostrum strongly rounded at extreme base, glabrous from well proximad of antennal insertions to tip; apices of interspaces 4–6 not prominent.

Description.—*Length:* 2.36–2.38 mm. *Width:* 1.45 mm. *Integument:* piceous, venter black, tibiae and distal portion of rostrum rufopiceous, antennae testaceous. *Head:* scales on vertex narrow, seta-like medially. *Eye:* height ca. 1.5x length; in dorsal view nearly flat; hind margin distinctly raised by distance ca. equal to combined diameters of two ocular facets. *Frons:* strongly narrowed posteriorly, width between dorsal margins of eyes ca. 0.33 that of rostrum at base; in lateral view flat, continuous with vertex of head. *Rostrum:* 1.12x pronotum length. In dorsal view sides tapered from base to antennal insertions, not narrowed distad of insertions, distinctly expanded at tip; in dorsal profile strongly, prominently rounded at extreme base, strongly, evenly curved in distal 0.75. Dorsomedian carina absent. Distal portion moderately long, 50% of total rostral length, in lateral view not tapered, lateral sulcus feebly developed in basal 0.33. Scales elongate, parallel sided, apically truncate, uniformly recumbent. *Prothorax:* in dorsal view sides broadly, evenly curved from base to feebly developed subapical constriction; in lateral view strongly convex, especially posteriorly, subapical constriction obsolete on dorsum. Scales on pronotum uniformly elongate, narrow, apically bluntly rounded, recumbent, with a basal marginal row of long attenuate apically pointed pale ferruginous scales which project posteriorly over scutellum; scales on pleuron oblong, flat, white, limited to lower 0.66 anteriorly, replaced by elongate scales dorsally. *Elytra:* in dorsal view humeri not prominent, sides subparallel in basal 0.50; in lateral view evenly convex from base to apices. Interspaces flat, deeply, distinctly impressed, subequal in width. Scales on interspaces identical in size, shape and color to scales on pronotum, in irregular triple rows on each interspace; sutural interspaces with small clusters of oval white scales at extreme base, just posterior to middle and at extreme apices; striae slightly narrower than scales on interspaces. *Pygidium:* narrowly exposed, flat, slightly narrowed to rounded apex, slightly oblique but not produced posteriorly and not visible beyond elytral apices from above. *Abdomen:* sterna 3–4 and anterior portion of sternum 5 flat medially, sternum 5 feebly constricted subapically, posteromedian portion of segment not prominent, posterior margin straight. *Femora:* Moderately broad at base; profemur gradually, feebly inflated distally; mesofemur and metafemur feebly widened but not inflated; profemur slightly wider than metafemur. *Tibiae:* mesotibiae minutely mucronate, pro- and metatibiae unarmed. *Spiculum ventrale:* (Fig. 19). *Spermatheca:* (Fig. 123).

Discussion.—A relatively large *Microtychius*, probably a seed predator; host unknown; known only from the type-series from the Amazon Basin of Brazil (Fig. 83).

The relationship of *S. dorsena* to the other *rotundata-suturalis* stock members is uncertain; it does not fit into the transformation series which Central American seed predator members of the stock exhibit (Fig. 436). Possibly it was derived independently from the “*Itychus*” stock on a lineage which underwent parallel independent reduction and loss of “*Itychus* characters”.

35—*Sibinia (Microtychius) santarem*, new species
(Figs. 20, 83, 118, 124)

Holotype.— Male, (BRAZIL), Santarem, Casey bequest, 1925 (USNM #75399).

Allotype.— Female, same data as holotype (USNM).

Paratypes.— Same data as holotype (4, USNM).

Diagnosis.— Moderately robust; scales on pronotum and elytra uniformly elongate, apically pointed, recumbent, pale brownish gray; apex of median lobe entire, abruptly widened, rounded (Fig. 118).

Description.— *Length*: 1.90 mm, female 1.90–2.00 (1.94) mm. *Width*: male 1.04–1.07 mm, female 1.04–1.11 (1.08) mm. *Integument*: piceous, tarsi, distal portion of rostrum and antennae rufous. *Head*: scales on vertex narrow, attenuate. *Eye*: height ca. 1.5x length; in dorsal view feebly, broadly convex; hind margin distinctly raised by distance ca. equal to combined diameters of two ocular facets. *Frons*: distinctly narrowed posteriorly, in lateral view flat, continuous with vertex of head. *Rostrum*: male 1.02–1.10x, female 1.07–1.16 (1.12)x pronotum length. In dorsal view distinctly, evenly tapered from base to antennal insertions, sides of distal portion subparallel; in dorsal profile strongly rounded at extreme base, broadly curved over antennal insertions. Dorsomedian carina distinct. Distal portion in male moderately long, 45% of total rostral length, feebly tapered in lateral view, lateral sulcus distinct to tip; in female, distal portion longer, 43–46 (45)% of total rostral length, slightly more strongly tapered to acute tip, lateral sulcus becoming obsolete about halfway to tip. Scales elongate, narrow; scales on sides apically truncate, recumbent; scales on dorsum longer, attenuate, feebly raised. *Prothorax*: in dorsal view sides broadly, evenly rounded from base to feebly developed subapical constriction; in lateral view broadly evenly convex, subapical constriction obsolete on dorsum. Scales on pleuron ovate, flat, slightly paler than scales on pronotum, limited to lower 0.66 medially, replaced dorsally by elongate scales. *Elytra*: in dorsal view sides feebly, broadly curved in basal 0.66; in lateral view feebly convex in basal 0.50. Interspaces flat, moderately deeply impressed, apices of interspaces 4–6 not prominent. Scales arranged in triple rows on each interspace; sutural interspaces without oval scales; striae slightly narrower than scales on interspaces. *Pygidium*: broadly exposed, in male broadly convex, apex broadly, evenly rounded; in female, pygidium slightly more strongly narrowed to rounded apex; feebly oblique. *Abdomen*: in male sterna 3–5 feebly, broadly concave medially, scales on concave portion unmodified, subapical constriction obsolete laterally and medially, posterior margin of segment nearly straight; in female, sterna 3–4 medially and anteromedian portion of sternum 5 feebly convex, median portion of sternum 5 feebly constricted, posteromedian portion feebly prominent but posterior margin nearly straight. *Femora*: narrow at base, profemur stout, rapidly inflated in distal 0.66, metafemur slightly more elongate, more gradually inflated, *Tibiae*: pro- and mesotibiae with long curved oblique mucrones, metatibial mucro shorter, more nearly perpendicular to long axis of tibia. *Male genitalia*: (Fig. 118). *Spiculum ventrale*: (Fig. 20). *Spermatheca*: (Fig. 124).

Discussion.— A relatively small *Microtychius*, probably a bud predator; host unknown; known only from the type-series from the Amazon Basin of Brazil (Fig. 83).

This species bears a general resemblance to the seed predator *S. dorsena*, and the two are inferred to be a sister pair of bud-seed predators. Since the only known specimens of both species came from the same locality and bear identical labels, there is good possibility that they were collected together, possibly on the same host.

36—*Sibinia (Microtychius) rotundata* Champion
(Figs. 21, 119, 125, 141, 186, 436)

Sibinia rotundata Champion 1903: 209, tab 12, figs. 4, 4a. Champion 1910; Klima 1934; Blackwelder 1947. Holotype, male: Panama, Volcan de Chiriqui (BMNH).

Diagnosis.— (Fig. 141) Frons narrow, ca. 0.50x width of base of rostrum; pronotum with white scales, fulvous scales, and fuscous to black scales, dark scales forming prominent sutural vitta on elytra; eye flat, hind margin strongly raised; anterodorsal margin of pronotum broadly concave; rostrum keel shaped at base in female.

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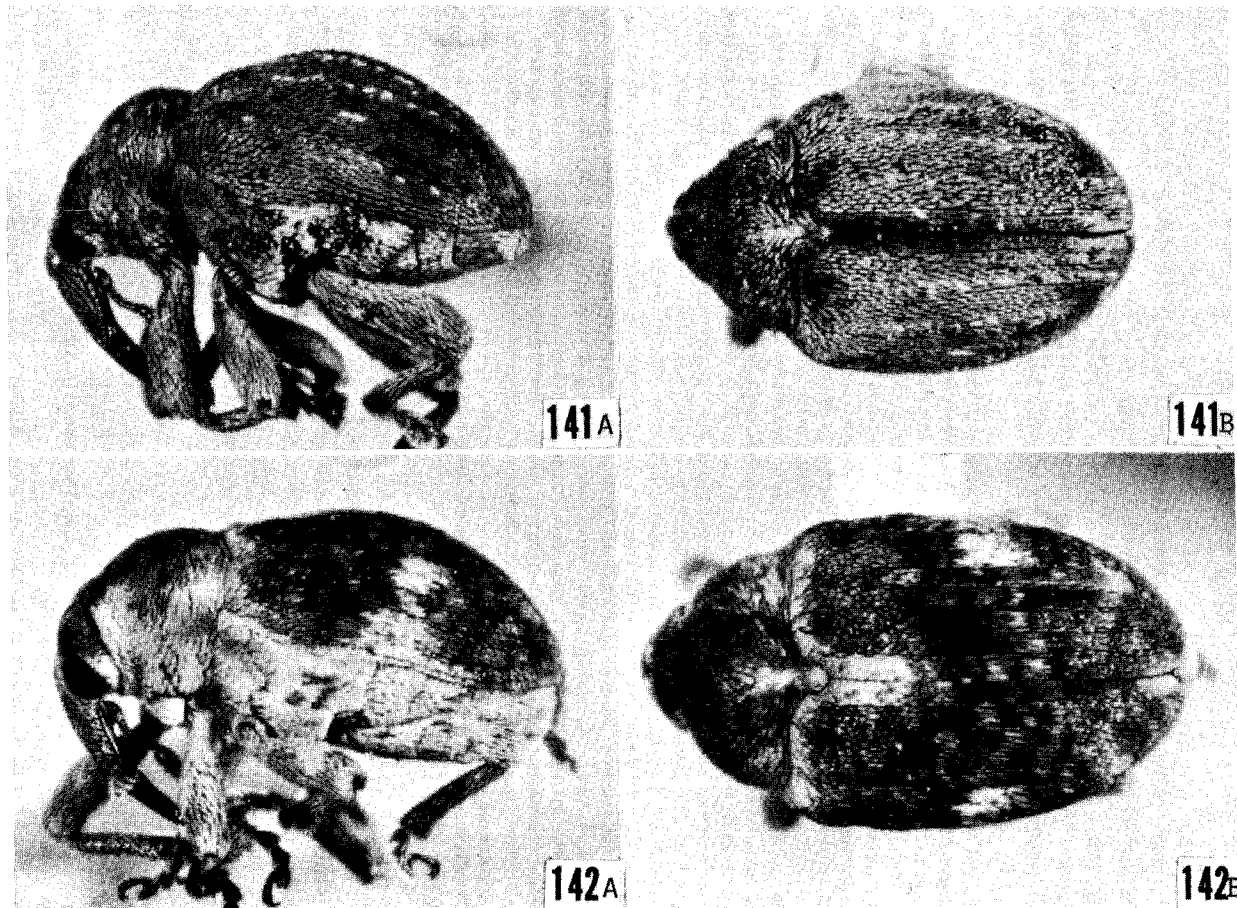


Fig. 141–142, *Sibinia* spp., habitus: 141, *S. rotundata*, holotype, male, Volcan Chiriqui, Panama; 142, *S. tessellata*, male, 3 mi SE La Trinitaria, Chiapas, Mexico. (A, lateral view; B, dorsal view).

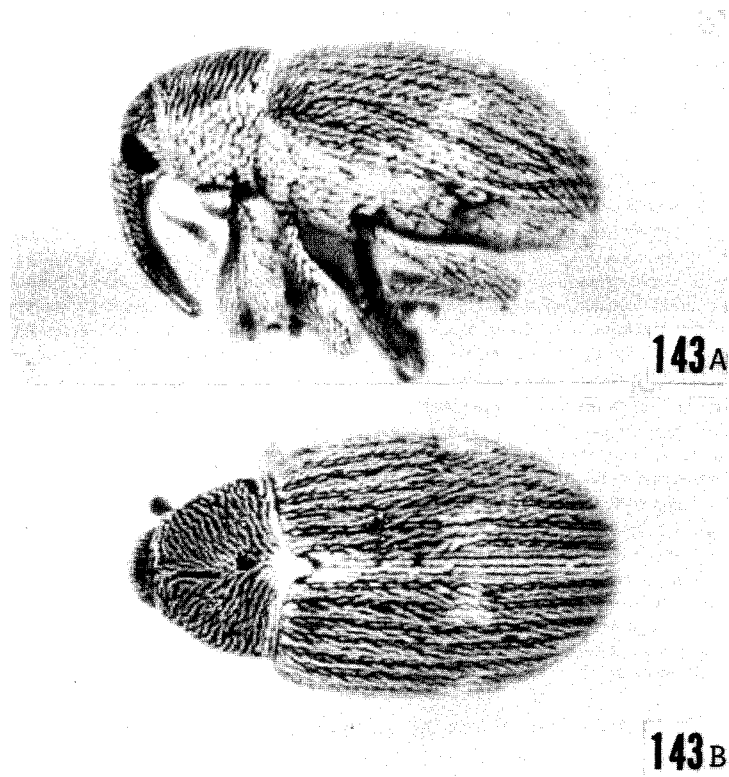


Fig. 143, *Sibinia tessellatopsis*, male, 14 mi E Conejos, Veracruz, Mexico. (A, lateral view; B, dorsal view).

Description.— *Length:* male 2.59–2.79 (2.70) mm, female 1.03–1.10 (1.07) mm. *Width:* male 1.59–1.74 (1.68) mm, female 1.67–1.77 (1.72) mm. *Integument:* piceous to black, legs and rostrum rufopiceous, tarsi and antennae rufous. *Head:* scales on vertex small, narrow, pale fulvous. *Eye:* height ca. 1.6x length; in dorsal view nearly flat; hind margin strongly raised by distance ca. equal to combined diameters of three ocular facets. *Frons:* in lateral view flat, continuous with vertex of head. *Rostrum:* male 1.08–1.22 (1.12)x, female 1.14–1.24 (1.19)x pronotum length. In dorsal view tapered from base to antennal insertions in male, tapered to somewhat proximad of antennal insertions in female, sides of distal portion subparallel in male and female; in dorsal profile slightly to prominently rounded at extreme base, more strongly so in female, feebly curved to straight from distad of base to tip. Dorsomedian carina feebly developed. Distal portion in male short, 35–39 (37)% of total rostral length, moderately stout, not tapered in lateral view, lateral sulcus distinct in proximal 0.66; in female, distal portion longer, 43–47 (45)% of total rostral length, slender, not tapered, lateral sulcus represented by series of shallow punctures in proximal 0.66. Scales on sides elongate, moderately broad, parallel sided, apically truncate, fulvous; scales on dorsum much narrower, recumbent. *Prothorax:* in dorsal view sides broadly, evenly curved from base to strongly developed subapical constriction; in lateral view prominently convex posteriorly, subapical constriction broadly developed on dorsum. Scales on pronotum elongate, uniformly recumbent, elongate oval apically rounded white scales interspersed among narrower, more elongate, apically bluntly rounded fulvous scales, and even narrower, feebly striate apically truncate fuscous scales, most specimens also with distinct basal marginal row of long, attenuate ferruginous scales which project posteriorly over scutellum; scales on pleuron oblong, flat, pale whitish to fulvous, limited to lower 0.33 medially, sparser and interspersed among elongate scales dorsally. *Elytra:* in dorsal view humeri not prominent, sides broadly, feebly curved in basal 0.66; in lateral view broadly, evenly convex from base to apices. Interspaces broad, flat, odd interspaces slightly prominent, especially posteriorly, deeply, discretely impressed, apices of interspaces 4–6 feebly prominent. Scales in irregular triple to quadruple rows on each interspace, uniformly recumbent; oval white scales sparsely interspersed among fulvous scales on interspaces 3 and 5, fuscous scales most abundant on posterolateral portions but scattered elsewhere in variable proportions; sutural interspaces with shorter, more broadly imbricated, suberect fuscous to black scales forming prominent vitta in basal 0.75; striae scales indistinguishable from scales on interspaces. *Pygidium:* small, narrowly exposed, in male feebly convex toward apex, narrowly, evenly rounded at apex, perpendicular; in female, pygidium slightly narrower, otherwise indistinguishable from male. *Abdomen:* in male, sterna 3–4 shallowly, sternum 5 more deeply concave medially, scales on concave portions unmodified, sternum 5 not constricted subapically, posterior margin of segment shallowly subquadrately emarginate; in female, sterna 3–4 shallowly concave, sternum 5 more deeply concave, posteromedian portion of segment feebly prominent but not produced posteriorly, posterior margin nearly straight. *Femora:* large, stout, moderately broad at base; profemur strongly rounded dorsally, concave ventrally in distal 0.66; mesofemur and metafemur more elongate, about same shape as profemur. *Tibiae:* each with short acute horizontal apical mucrone, metatibia minutely mucronate. *Male genitalia:* (Fig. 119). *Spiculum ventrale:* (Fig. 21). *Spermatheca:* (Fig. 125).

Discussion.— A relatively large *Microtychius*, probably a seed predator; collected “on Mimosaceae”; known only from Panama (Fig. 186); eight specimens examined.

This species is the most “*Itychus*”-like of all members of the *rotundata-suturalis* stock. Some of the “*Itychus* characters” are apparent in reduced expression; the eyes are prominently raised, but the head is not constricted behind them; the anterodorsal margin of the pronotum is broadly concave, but the anterolateral margins are not swollen into prominent postocular lobes; the femora are feebly channeled beneath in the extreme distal portion.

37—*Sibinia (Microtychius) tropidorhyncha*, new species
(Figs. 22, 120, 126, 186, 436)

Holotype.—Male, PANAMÁ: Cerro Campana, 29 June, 1974, C.W. & L. O'Brien & Marshall (CWO).

Allotype.—Female, PANAMÁ: Panama Prov., Cerro Campana, 850 m, 8° 40' N, 79° 56' W, 13 May, '73, Stockwell (USNM #75434).

Diagnosis.—Robust, convex; anterodorsal margin of pronotum broadly concave; pronotum and elytra with uniformly elongate recumbent apically blunt to subtruncate dark fulvoferruginous scales, and fuscous to black scales intermixed in diffuse tessellate pattern, and with sparsely intermixed oblong white scales; frons very narrow; rostrum in lateral view prominently keel shaped at base, nearly straight to tip.

Description.— *Length:* Male 2.51 mm, female 2.56 mm. *Width:* male 1.57 mm, female 1.72 mm. *Integument:* piceous, venter black, tarsi, distal portion of rostrum and antennae rufopiceous. *Head:* scales on vertex small, attenuate. *Eye:* height ca. 1.4x length; in dorsal view nearly flat; hind margin strongly raised by distance ca. equal to combined diameters of three

ocular facets. *Frons*: strongly narrowed posteriorly, distance between eyes ca. 0.50 width of rostrum at base; in lateral view flat, continuous with rostrum. *Rostrum*: male 1.14x, female 1.40x pronotum length. In dorsal view slightly widened to just distad of base, strongly tapered to antennal insertions in male, to somewhat proximad of insertions in female; sides of distal portion subparallel in male, gradually widened to tip in female; in dorsal profile prominently rounded at extreme base, nearly straight from distad of base to tip. Dorsomedian carina distinct in male. Distal portion in male short, 37% of total rostral length, in lateral view feebly tapered, lateral sulcus deep in proximal 0.75; in female, distal portion 52% of total rostral length, slender, not tapered in lateral view, lateral sulcus obsolete, shallowly punctate. Scales on sides elongate, parallel sided, apically truncate, fulvoferruginous, replaced by fine setae well proximad of antennal insertions in female, scales on dorsum narrow, uniformly recumbent. *Prothorax*: in dorsal view sides moderately strongly, evenly rounded from base to distinct subapical constriction; in lateral view strongly convex posteriorly, subapical constriction broadly, deeply developed on dorsum. Pronotum with posterior marginal row of long attenuate ferruginous scales which extend posteriorly over anterior portion of scutellum; pleuron with round flat white scales on lower portion, posteriorly, darker more elongate, ferruginous and fuscous scales intermixed on lower 0.66 anteriorly. *Elytra*: in dorsal view sides feebly convergent from prominent humeri in basal 0.50; in lateral view broadly, strongly convex medially. Interspaces broad, flat, subequal in width, deeply, discretely impressed; sutural interspaces raised, apices of interspaces 4–6 slightly prominent. Scales in irregular triple to quadruple rows on each interspace; striae scales indistinguishable from scales on interspaces; sutural interspaces with scales dense, more broadly imbricated than scales on other interspaces, mostly black, but with basal cluster and subapical sutural row of oval whitish scales. *Pygidium*: narrowly, exposed, in male feebly subquadrate at apex, in female flat, narrowed slightly to rounded apex, slightly oblique but not visible beyond elytral apices from above. *Abdomen*: in male sterna 3–5 concave medially, scales unmodified, sternum 5 not at all constricted subapically, posterior margin of segment narrowly, subquadrately emarginate medially; in female, sterna 3–4 and anterior portion of sternum 5 shallowly, narrowly concave medially, posteromedian portion of sternum 5 feebly prominent but not produced posteriorly, posterior margin of segment nearly straight. *Femora*: Moderately broad at base, profemur strongly rounded dorsally in distal 0.75, concave ventrally, metafemur more elongate. *Tibiae*: protibia with short slender horizontal apical mucro, mesotibia with larger mucro, metatibia unarmed. *Male genitalia*: (Fig. 120). *Spiculum ventrale*: (Fig. 22). *Spermatheca*: (Fig. 126).

Discussion.—A relatively large *Microtychius*, probably a seed predator; host unknown; known only from the type-series from Panamá (Fig. 186).

Specimens of *S. tropidorhyncha* resemble those of another seed predator known only from Panama, *S. rotundata*. Members of both species exhibit some plesiotypic “*Itychus* characters”, namely raised eyes, anterolateral pronotal lobes, channeled femora, and a tessellate scale pattern. Specimens of *S. tropidorhyncha* are distinguished from *S. rotundata* specimens by the latter feature.

38—*Sibinia (Microtychius) barberi*, new species (Figs. 127, 144, 156, 187)

Holotype.—Male, GUATEMALA: Livingston, 5 July, H.S. Barber Collector (USNM #75400).

Allotype.—Female, same data as holotype (USNM).

Paratypes.—Same data as holotype (2, USNM, WEC).

Diagnosis.—Scales on pronotum and elytra uniformly recumbent, elongate, apically blunt to attenuate and minutely truncate, narrow, integument broadly visible; pale fulvoaeneous and darker aeneous; aeneous scales forming macula on pronotum and covering most of median portion of elytra; sutural interspaces with prominent clusters of white oval scales at base, just behind middle, and at apices.

Description.—*Length*: male 1.56 mm, female 1.64 mm. *Width*: male 0.83 mm, female 0.89 mm. *Integument*: pronotum and venter piceous to black; elytra, femora and basal portion of rostrum rufopiceous; tibiae, tarsi, distal portion of rostrum and antennae rufous to ferruginotestaceous. *Head*: scales reduced to minute setae medially on vertex. *Eye*: height ca. 1.4x length; in dorsal view broadly, evenly convex; hind margin distinctly raised by distance ca. equal to combined diameters of two ocular facets. *Frons*: narrowed posteriorly, in lateral view flat, continuous with vertex of head. *Rostrum*: male 1.00–1.09x female 1.24x pronotum length. In dorsal view feebly tapered from base to antennal insertions, sides of distal portion subparallel in dorsal profile, distinctly rounded just distad of base, strongly rounded over antennal insertions. Distal portion in male short, 31–38% of total rostral length, stout, tapered in lateral view, lateral sulcus distinct almost to tip; in female, distal portion slightly longer, 43% of total rostral length, more finely tapered, lateral sulcus obsolete in distal 0.75. Dorsomedian carina distinct. Scales uniformly recumbent. *Prothorax*: in dorsal view sides subparallel in basal 0.50; in lateral view broadly, evenly convex, subapical constriction obsolete on dorsum. Scales on pleuron oblong, flat, white, restricted to lower 0.66 anteriorly, replaced dorsally by elongate scales. *Elytra*: in dorsal view parallel sided in basal 0.50; in lateral view feebly convex in basal 0.50. Interspaces flat, moderately deeply, discretely impressed, apices of interspaces 4–6 not all prominent. Scales in double or triple rows on each interspace; striae scales very narrow; sutural interspaces with oval flat white scales forming conspicuous

basal and posteromedian clusters and apical sutural rows. *Pygidium*: broadly exposed, in male slightly convex, apically rounded, in female flat, more narrowly, evenly rounded, distinctly oblique. *Abdomen*: in male sterna 3–4 flat, sternum 5 feebly concave medially, scales on median portion unmodified, subapical constriction not developed, posteromedian portion of segment not at all prominent, posterior margin narrowly, subquadrately emarginate; in female, sterna 3–4 and anteromedian portion of sternum 5 feebly convex, narrowly concave subapically, posteromedian portion of segment feebly prominent but posterior margin nearly straight. *Femora*: narrow at base; profemur moderately stout, gradually inflated in distal 0.66, dorsal margin strongly rounded; metafemur more gradually inflated, dorsal margin most strongly rounded medially. *Tibiae*: each with moderately large acute horizontal mucro, metatibial mucro slightly shorter. *Male genitalia*: (Fig. 144). *Spiculum ventrale*: (Fig. 156). *Spermatheca*: (Fig. 127).

Discussion. — A relatively small *Microtychius*, probably a bud predator; host unknown; known only from the type-series collected in Guatemala (Fig. 187).

S. barberi closely resembles the bud predator *S. calvata* of Panamá. Adults of both have the hind margin of the eye distinctly raised and have a sutural vitta of dark scales on the elytra as do the seed predators *S. rotundata* and *S. tropidorhyncha* of Panamá, and *S. altensis* of Guatemala. One or more of these may be expected to share a host or hosts with *S. barberi*, possibly in micro-sympatry.

S. barberi is named in honor of its collector, American entomologist, H.S. Barber.

39—*Sibinia (Microtychius) calvata*, new species
(Figs. 145, 187)

Holotype. — Male, PANAMÁ: Panamá Pr., Cerro Campana, 850 m, 8° 40' N, 79° 56' W, 12 Mar. '72. Stockwell (USNM #75401).

Diagnosis. — Integument mostly black; scales on head and rostrum reduced to fine setae; scales on median portions of abdominal sterna 3–5 reduced to fine acuminate setae.

Description. — As described for *S. barberi*, except—*Length*: 1.74 mm. *Width*: 0.91 mm. *Integument*: black, distal portion of rostrum rufopiceous, legs and antennae pale rufous. *Head*: scales on vertex reduced to fine setae, normal scales limited to ventrolateral portions. *Rostrum*: 1.11x pronotum length. Distal portion short, 35% of total rostral length, strongly tapered in lateral view, lateral sulcus obsolete about halfway to tip. Scales on sides very narrow, apically truncate, scales on dorsum reduced to fine inconspicuous setae. *Prothorax*: Scales dark, brownish. *Abdomen*: sterna distinctly concave, all scales on concave portions reduced to fine, acuminate setae. *Male genitalia*: (Fig. 145).

Discussion. — A relatively small *Microtychius*, probably a bud predator; host unknown; known only from the male holotype from Panama (Fig. 187).

S. calvata closely resembles *S. barberi*; the male genitalia distinguish the two species (cf. Figs. 144, 145). Collected at the same locality as *S. tropidorhyncha*, *S. calvata* and that seed predator may be expected to share the same host; their resemblance is strong enough to indicate a microsympatric bud-seed predator pair.

40—*Sibinia (Microtychius) altensis*, new species
(Figs. 146, 186, 436)

Holotype. — Male, GUATEMALA: Alta Verapaz, Trece Aguas, 9–4, Cacao, Schwarz & Barber coll. (USNM #75402).

Diagnosis. — Pronotum and elytra with fulvous and fuscous scales; base of rostrum not abruptly angulate in lateral view, anterior margin of pronotum straight, anterodorsal margin not concave; pronotum more prominently convex dorso-medially.

Description. — As described for *S. tropidorhyncha*, except—*Length*: 2.31 mm. *Width*: 1.37 mm. *Integument*: rufopiceous. *Head*: vertex with narrow and broad apically blunt fulvous scales. *Eye*: hind margin raised by distance ca. equal to combined diameters of two ocular facets. *Rostrum*: length: 1.20x pronotal length; in dorsal profile broadly rounded at base, curved over antennal insertions. Dorsomedian carina obsolete. Distal portion moderately long, 34% of total rostral length. Scales on sides broad, apically rounded, fulvous, replaced dorsally by narrow, parallel sided scales. *Prothorax*: in dorsal view sides broadly, feebly curved from base to distinct subapical constriction. *Elytra*: interspaces with pale and darker fulvous scales, and with two diffuse transverse bands of oval white scales. *Male genitalia*: (Fig. 146).

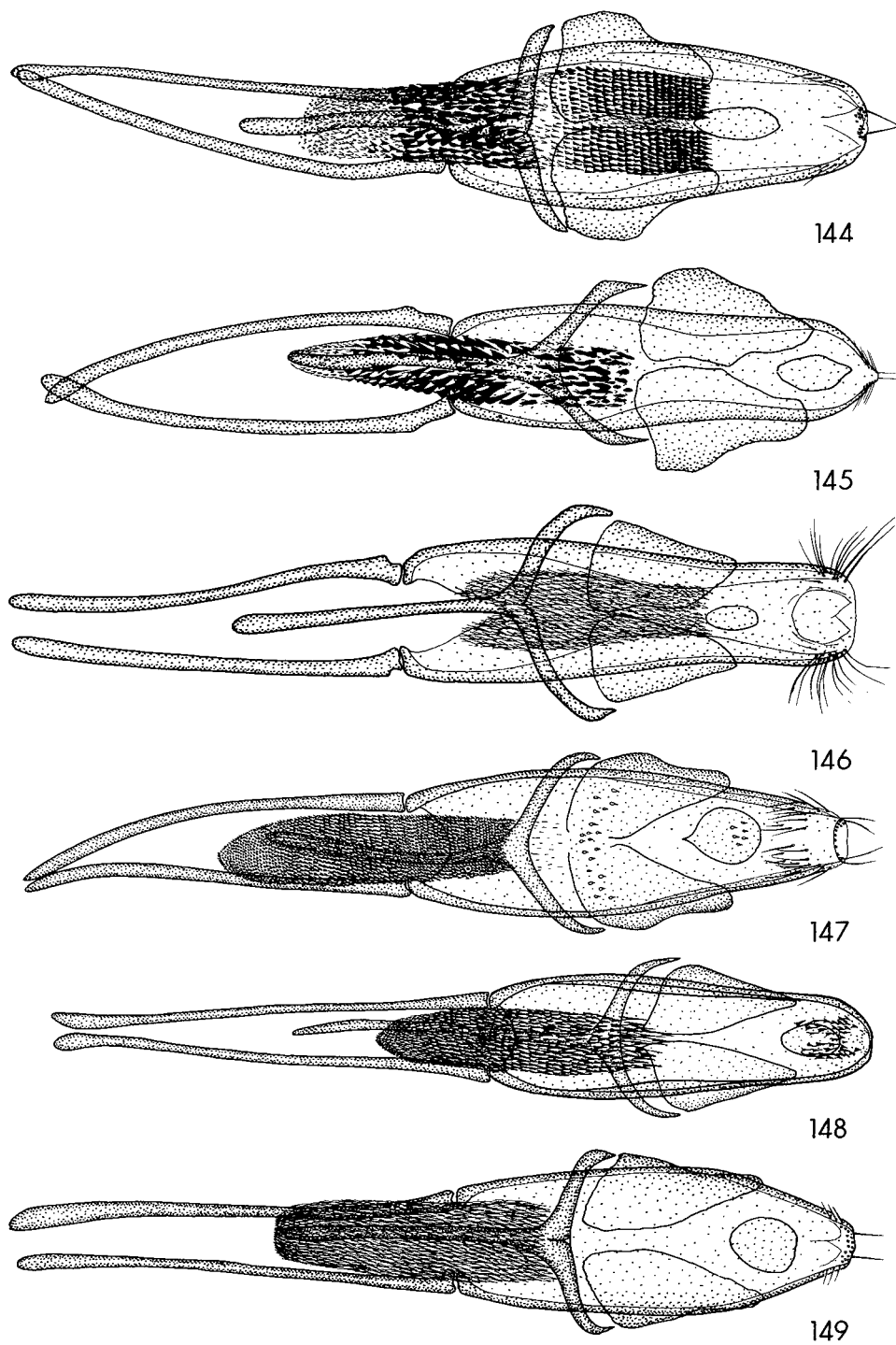
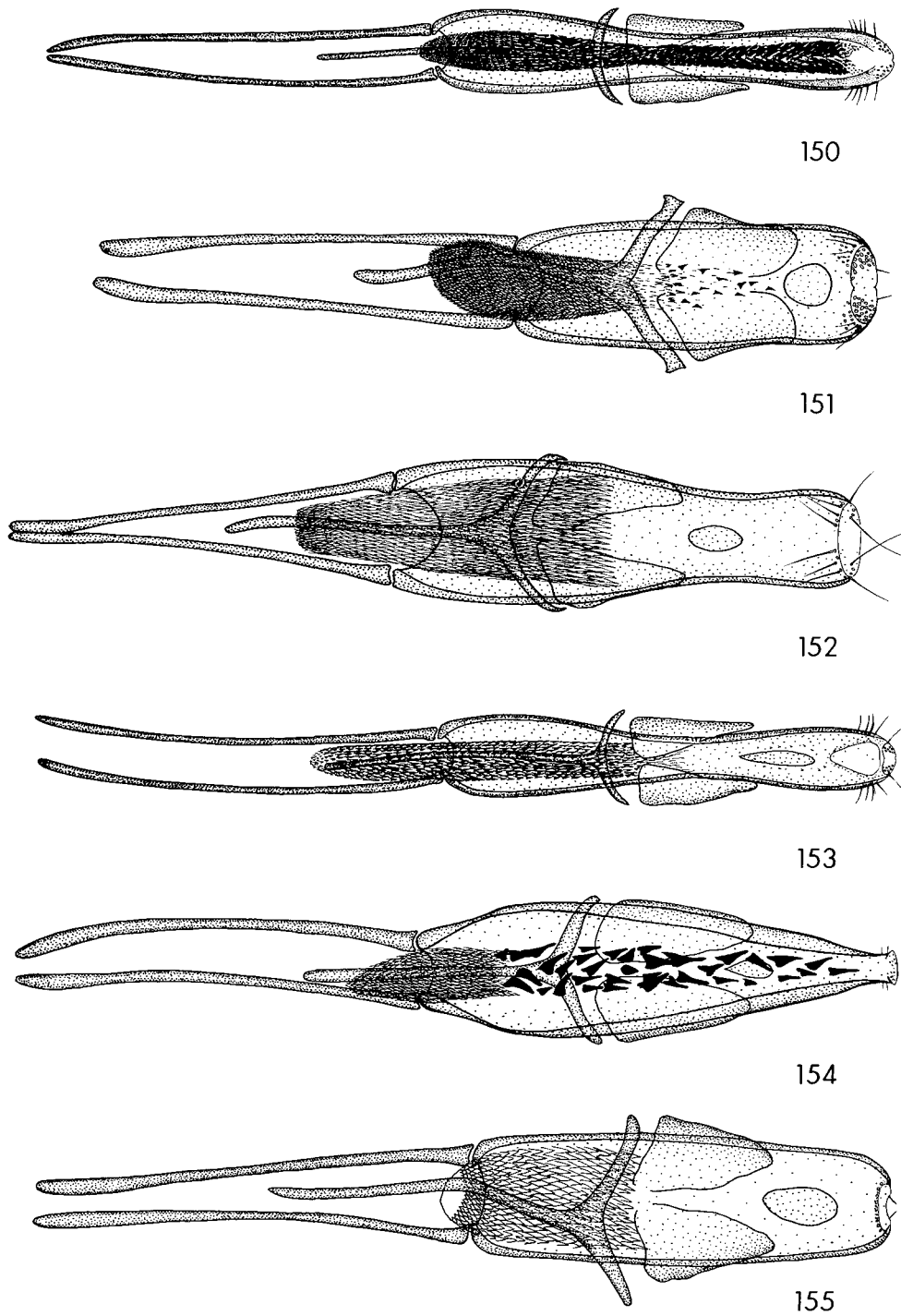


Fig. 144–149, *Sibinia* spp., male external genitalia; 144, *S. barberi*; 145, *S. calvata*; 146, *S. altensis*; 147, *S. tessellata*; 148, *S. tessellatopsis*; 149, *S. aurifera*, (not to scale, all ventral views).



Figs. 150–155, *Sibiria* spp., male external genitalia: 150, *S. candidata*; 151, *S. grypa*; 152, *S. albidula*; 153, *S. suturalis*; 154, *S. stricticomula*; 155, *S. albiduloides* (not to scale, all ventral views).

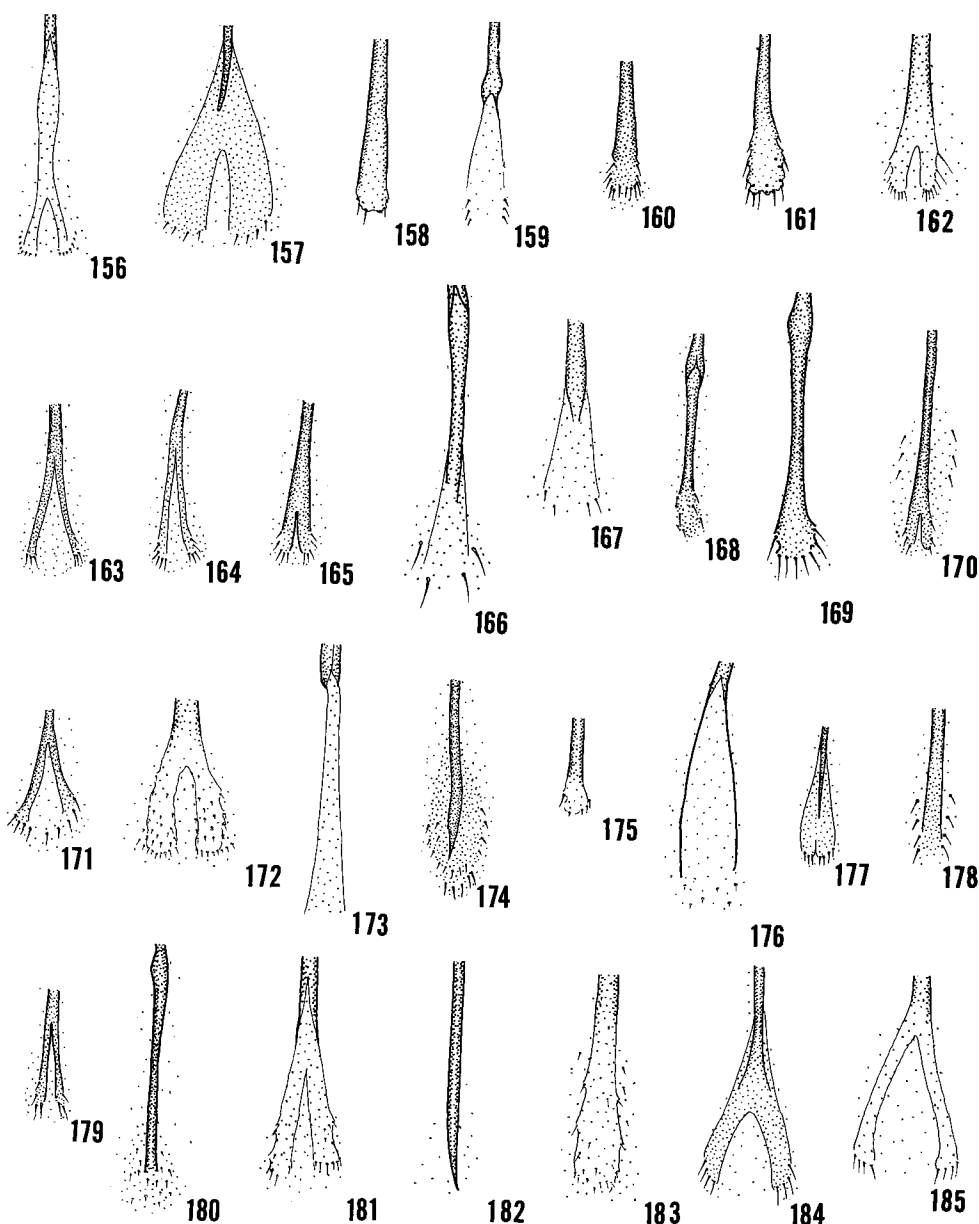


Fig. 156–185, *Sibinia* spp., spiculi ventrali: 156, *S. barberi*; 157, *S. grypa*; 158, *S. albidula*; 159, *S. suturalis*; 160, *S. stricticomula*; 161, *S. albiduloides*; 162, *S. aulacis*; 163, *S. hispida*; 164, *S. sibinioides*; 165, *S. inermis*; 166, *S. championi*; 167, *S. foveolata*; 168, *S. aspersa*; 169, *S. ferruginosa*; 170, *S. americana*; 171, *S. nana*; 172, *S. mendica*; 173, *S. zapoteca*; 174, *S. vagabunda*; 175, *S. varga*; 176, *S. caatingensis*; 177, *S. fastigiata*; 178, *S. seminicola*; 179, *S. ochreosa*; 180, *S. prolata*; 181, *S. geminata*; 182, *S. acuminata*; 183, *S. quinquemembrata*; 184, *S. peruana*; 185, *S. hirticus* (not to scale).

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Discussion. — A relatively large *Microtychius*, probably a seed predator; host unknown; known only from the male holotype from Guatemala (Fig. 186).

Adults of *S. altensis* resemble those of *S. tropidorhyncha* of Panama, but lack the “Itychus”-like concave anterodorsal pronotal margin and the eyes are less strongly raised. In these and other features, *S. altensis* is intermediate, with respect to apparent reduction of “Itychus characters”, between *S. tropidorhyncha* and *S. tessellata* of Guatemala and Mexico. The latter species occurs on *Calliandra* spp. in Mexico, and *S. altensis* may also have a *Calliandra* host.

41— *Sibinia (Microtychius) tessellata* (Champion)
(Figs. 23, 128, 147, 186)

Sibinia tessellata Champion 1903: 210 (Table 12, Fig. 5). Klima 1934; Blackwelder 1947. Holotype, female: “Sierra de Durango” (BMNH).

Diagnosis. — (Fig. 142). Anterior margin of pronotum straight; hind margin of eye feebly raised; elytra and pronotum with tessellate pattern of recumbent, white, pale ochreous scales and darker golden brown scales, most specimens also with darker fuscopiceous scales; elytra with distinct lateral posteromedian transverse band of white scales.

Description. — *Length:* male 2.64–2.67 mm, female 2.57–2.81 mm. *Width:* male 1.61–1.64 mm, female 1.54–1.61 mm. *Integument:* piceous to black; tibiae, tarsi, antennae and distal portion of rostrum rufopiceous to ferruginotestaceous. *Head:* scales on vertex elongate, moderately broad, apically truncate. *Eye:* height ca. 1.5–1.6x length. In dorsal view flat to feebly, evenly convex; hind margin raised by distance slightly greater than diameter of one ocular facet (covered by scales). *Frons:* narrowed posteriorly, in lateral view rounded separately from vertex of head. *Rostrum:* male 1.08–1.13x, female 1.04–1.17x pronotum length. In dorsal view tapered from base to somewhat proximad of antennal insertions, slightly swollen at extreme base; sides of distal portion subparallel; in dorsal profile feebly to strongly rounded at extreme base, broadly curved from distad of base to tip. Dorsomedian carina feebly developed. Distal portion in male short, 40–44% of total rostral length, in lateral view feebly tapered, lateral sulcus distinct about halfway to tip; in female, distal portion slightly longer, 38–42% of total rostral length, more strongly tapered, shallowly punctate to tip. Scales elongate, narrowly truncate apically, uniformly recumbent. *Prothorax:* in dorsal view sides subparallel in basal 0.50, strongly rounded anteriorly to strongly developed subapical constriction; in lateral view strongly convex in basal 0.66, flattened anteriorly, subapical constriction well developed on dorsum. Scales on pronotum broadly imbricated with narrower, apically truncate fuscopiceous scales intermixed in small clusters among broader, ochreous and golden brown scales, also with mediobasal patch of oval white scales; pleuron with oblong, apically rounded, white and pale ochreous scales on lower portion which extend onto anterolateral and laterobasal portions of pronotum. *Elytra:* in dorsal view humeri prominent, sides broadly rounded in basal 0.50; in lateral view strongly convex medially. Interspaces flat, deeply impressed, subequal in width, apices of interspaces 4–6 prominent. Scales in four or five rows on each interspace, uniformly recumbent, golden brown and fuscopiceous scales in diffuse clusters forming tessellate pattern; sutural interspaces with oblong, white to pale ochreous scales forming distinct basal and apical patches, oval white scales scattered across extreme base of each interspace and forming broad lateromedian transverse band which extends from interspace 6 to costal margin; striae slightly narrower than narrowest scales on interspaces. *Pygidium:* moderately broadly exposed; in male feebly convex, apically subquadrate; in female strongly narrowed to rounded apex, convex apically, slightly oblique, extending slightly beyond elytral apices. *Abdomen:* in male sterna 1–5 shallowly, narrowly concave medially, scales on concave portions slightly reduced, sternum 5 feebly constricted laterally near apex, posterior margin of segment shallowly, subquadrate emarginate; in female, sterna 1–4 flat medially, sternum 5 slightly concave medially, not at all constricted subapically, posteromedian portion of segment not prominent, posterior margin nearly straight. *Femora:* profemur stout, nearly uniformly inflated distally, not channeled ventrally, very slightly wider than metafemur; each femur with broad median transverse band of flat ovate white to pale ochreous scales around widest portion. *Tibiae:* pro- and mesotibiae with stout, curved apical mucrones; metatibia with very small straight oblique mucro. *Male genitalia:* (Fig. 147). *Spiculum ventrale:* (Fig. 23). *Spermatheca:* (Fig. 128).

Discussion. — A relatively large *Microtychius*, probably a seed predator; adults collected on *Calliandra portoricensis* (4.3 mi S Acatepec, Puebla, Mexico), and *C. rubescens* (14 mi W Conejos, Veracruz, Mexico); known from Mexico and Guatemala (Fig. 186); 25 specimens examined.

Less “Itychus”-like than *S. rotundata*, *S. tropidorhyncha*, and *S. altensis*. Adults of *S. tessellata* have only the robust body form and tessellate scale pattern of the plesiotypic “Itychus characters” and the species appears to represent a stage in a transitional reduction and loss of these characters in the *rotundata-suturalis* stock (see phylogeny section, p. 321).

In reference to *S. tessellata*, Champion (1903: 210) stated that “This insect and various

others quoted in the preceding pages were obtained by us from M. Donckier, of Paris; but there is reason to believe that they were found much further south, probably in Vera Cruz or Oaxaca, although all are labelled 'Sierra de Durango' ”.

42— *Sibinia (Microtychius) tessellatopsis*, new species

(Figs. 24, 143, 148, 187)

Holotype.— Male, MEXICO: Veracruz, Tamarindo, 28 July, 1974, Clark, Murray, Ashe, Schaffner, on *Calliandra* sp. (USNM #75403).

Allotype.— Female, same data as holotype (USNM).

Paratypes.— Same data as holotype (16); the same except—reared from flower buds *Calliandra* sp. (1); the same, except—14 mi W Conejos, 29–30 June, 1971, Clark, Murray, Hart, Schaffner (36); HONDURAS: Siguatepeque, 11 June, 1974, C.W. O'Brien & Marshall (1); total 54, distributed to various collections.

Diagnosis.— (Fig. 143). Scales on pronotum and elytra ovate, acuminate, uniformly fulvo-aeneous; elytra with posteromedian transverse band of oval white scales, band interrupted between interspaces 3–5 or 6; scales in median row on each elytral interspace slightly raised; apex of median lobe entire.

Description.— *Length*: male 1.68 mm, female 1.71–2.02 mm. *Width*: male 0.88–0.98 mm, female 1.03–1.13 mm. *Integument*: piceous to black; legs, distal portion of rostrum, tarsi and antennae rufopiceous. *Head*: scales on vertex, elongate, narrow, apically attenuate. *Eye*: height ca. 1.5x length; in dorsal view flat, slightly tilted forward; hind margin distinctly raised by distance ca. equal to combined diameters of two ocular facets. *Frons*: slightly narrowed posteriorly, in lateral view flat, continuous with vertex of head. *Rostrum*: in male 1.08–1.11x, female 1.08–1.18x pronotum length. In dorsal view slightly tapered to antennal insertions, sides of distal portion more strongly tapered; in dorsal profile distinctly rounded at base, broadly curved over antennal insertions. Dorsomedian carina distinct. Scales narrow, parallel sided to attenuate, apically truncate to pointed, recumbent. *Prothorax*: in dorsal view slightly broader at base than at middle, broadly rounded anteriorly to feebly developed subapical constriction; in lateral view broadly convex, especially posteriorly, subapical constriction obsolete medially on dorsum. Pronotum with small mediobasal patch of oval white scales; scales on pleuron oblong, white, medially impressed, extending onto extreme posterolateral portions of pronotum. *Elytra*: in dorsal view sides subparallel in basal 0.50, in lateral view slightly convex on disc. Interspaces flat, distinctly impressed, subequal in width; apices of interspaces 4–6 not prominent. Scales in irregular triple rows on each interspace, slightly raised and decurved, scales in median row slightly more distinctly raised than scales in lateral rows; oval white scales forming incomplete posteromedian transverse band, sparsely scattered on interspaces 1–3, usually absent from interspaces 4–6, band increasing in width from interspace 6 to costal margin; sutural interspaces with oval white scales in prominent basal cluster, and in complete row extending from base to apex adjacent to suture; striae scales narrower than scales on interspaces. *Pygidium*: in male slightly narrowed to rounded apex, convex; in female slightly more strongly narrowed to rounded apex, flat, slightly oblique, but not produced beyond elytral apices. *Abdomen*: in male sternum 5 feebly concave medially, scales unmodified, subapical constriction feebly developed laterally, obsolete medially, posteromedian portion of segment not at all prominent, posterior margin broadly concave medially; in female, sternum 5 broadly constricted medially, posteromedian portion of segment prominent, posterior margin straight. *Femora*: narrow at base; profemur rapidly expanded in distal 0.75; metafemur more gradually expanded, slightly narrower than profemur. *Tibiae*: pro- and mesotibiae with large mucrones, metatibia unarmed. *Male genitalia*: (Fig. 148). *Spiculum Ventrals*: (Fig. 24). *Spermatheca*: (Fig. 129).

Discussion.— A relatively small *Microtychius* bud predator of *Calliandra rubescens*; known from the type-series from the state of Veracruz, Mexico, and from two specimens from 17 mi W Montebello, Chiapas, Mexico (CWO) (Fig. 187).

Larvae of *S. tessellatopsis* emerged from flower buds of the host collected in March at the type locality; adults emerged from these between two and three weeks afterward. Adults resemble adults of *S. tessellata* (cf. Figs. 142, 143), a seed predator collected on the same *Calliandra* plants at the type locality, but are much smaller and lack the tessellate scale pattern. Both species have a posteromedian transverse elytral band of white scales and are inferred to be sister species.

The specimens from Chiapas differ from members of the type-series in color of scales on the pronotum and elytra; one has uniformly dark ferruginous scales; scales of the other appear “bleached”. Both Chiapas specimens are excluded from the type-series.

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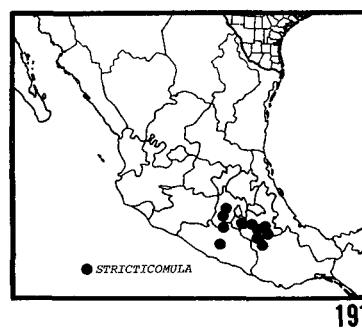
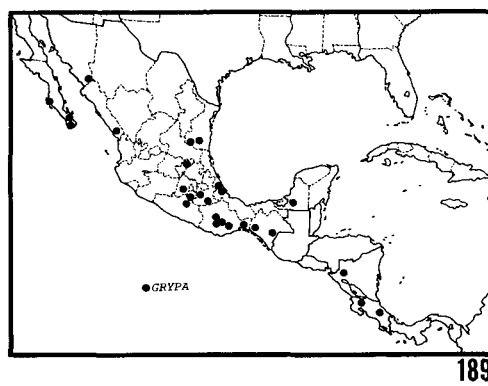
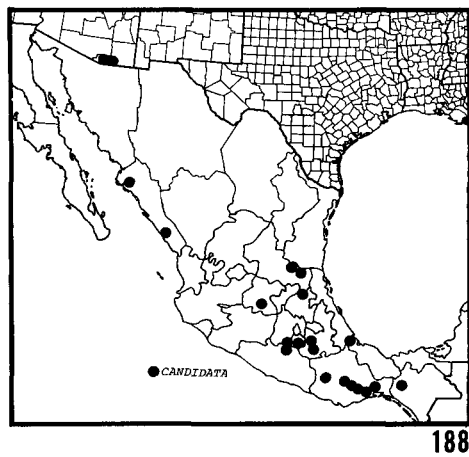
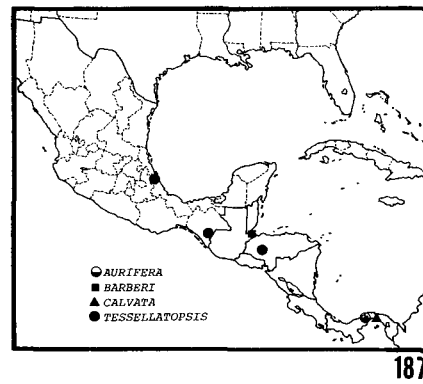
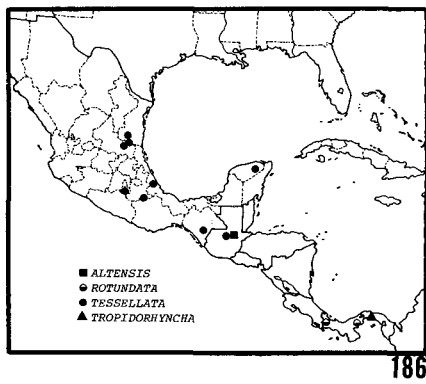


Fig. 186–191, *Sibiria* spp., distribution records: 186, *S. altensis*, *S. rotundata*, *S. tessellata*, and *S. tropidorhyncha*; 187, *S. aurifera*, *S. barberi*, *S. calvata*, and *S. tessellatopsis*; 188, *S. candidata*; 189, *S. grypa*; 190, *S. albidula*; 191, *S. stricticomula*.

43—*Sibinia (Microtychius) aurifera*, new species
(Figs. 149, 187)

Holotype.— Male, PANAMÁ: Canal Zone, El Cermeno, I-III, 41, Fruit Fly Trap, Jas. Zetek, No. 4755, Lot. No. 41-6852 (USNM #75404).

Allotype.— Female, same data as holotype, except—Apr.—May, '39, J. Zetek, Z-4401, 39-10903 trap catch (USNM).

Paratype.— Same data as holotype, except—IV-V-39, Jas. Zetek, No. 4401 (1, WEC).

Diagnosis.— Scales on pronotum and elytra uniformly recumbent, elongate, parallel sided to feebly attenuate, apically minutely truncate, fulvoaeneous except for laterobasal patches of whitish scales on pronotum and sutural row of white scales on elytra; pronotum without medio-basal patch; elytra without posteromedian transverse band of white scales; metatibia unarmed.

Description.— *Length*: male 1.59 mm, female 1.62–1.69 mm. *Width*: male 0.87 mm, female 0.89–1.01 mm. *Integument*: rufopiceous to piceous; sterna black; tarsi, antennae and distal portion of rostrum ferruginotestaceous. *Head*: scales on vertex elongate, narrow, apically truncate, fulvoaeneous. *Eye*: small, height ca. 1.5x length; in dorsal view flat; hind margin raised by distance ca. equal to combined diameters of two ocular facets. *Frons*: distinctly narrowed posteriorly, feebly curved in lateral view, continuous with vertex of head. *Rostrum*: male 0.91x, female 0.92–0.97x pronotum length. In dorsal view sides slightly tapered from base to antennal insertions, sides of distal portion subparallel in male, slightly tapered in female; in dorsal profile strongly, evenly curved from base to antennal insertions in male, strongest curvature in basal 0.33 in female. Distal portion in male short, 39% of total rostral length, in lateral view tapered, lateral sulcus becoming obsolete in distal 0.50; in female, distal portion not much longer, 39–42% of total rostral length, acuminate, lateral sulcus obsolete just distad of antennal insertions. Dorsomedian carina distinct. Scales narrow, parallel sided, apically truncate, recumbent, fulvoaeneous. *Prothorax*: in dorsal view sides subparallel in basal 0.50, in lateral view broadly, evenly convex, subapical constriction obsolete on dorsum. *Elytra*: in dorsal view sides subparallel in basal 0.50; in lateral view feebly convex on disc. Interspaces flat, distinctly impressed, subequal in width, apices of interspaces 4–6 not prominent. Scales on interspaces narrow, nearly parallel sided; in uniform double rows on all but sutural interspaces and on humeri, with a few scattered scales median to scales in lateral rows, without indication of posteromedian transverse band of white scales; striae scales narrower than scales on interspaces. *Pygidium*: in male slightly narrowed to subquadrate apex, feebly convex; in female, pygidium more strongly narrowed to rounded apex, flat, nearly vertical, as in male. *Abdomen*: in male sternum 5 feebly concave medially, not subapically constricted, posteromedian portion of segment not prominent, posterior margin broadly emarginate medially; in female sternum 5 broadly constricted medially, posteromedian portion of segment prominent, posterior margin very feebly emarginate medially. *Femora*: narrow at base, profemur rapidly inflated in distal 0.75, metafemur more gradually widened, very slightly narrower than profemur. *Tibiae*: pro- and mesotibiae with small conical mucrones, metatibia unarmed. *Male genitalia*: (Fig. 149).

Discussion.— A relatively small *Microtychius*, probably a bud predator; host unknown; known only from the type-series from the Panamá Canal Zone (Fig. 187).

This species resembles *S. tessellatopsis*, a bud predator of *Calliandra* from Mexico, but is distinguished from that species by the lack of a posteromedian transverse band of white scales on the elytra and by the male genitalia (cf. Figs. 148, 149).

44—*Sibinia (Microtychius) candidata* Champion
(Figs. 25, 130, 150, 188, 192, 436)

Sibinia candidata Champion 1903: 210. Klima 1934; Blackwelder 1947. LECTOTYPE (HERE DESIGNATED), male, labelled "Jalapa, Mexico, Hoege" "B.C.A. Col. IV. 4. *Sibinia candidata*, Champ." (BMNH).

Diagnosis.— (Fig. 192). Scales on pronotum and elytral interspaces uniformly short, apically blunt to truncate, recumbent, cinereous; posterior margin of abdominal sternum 5 broadly concave; medioventral portion of median lobe (Fig. 150) sclerotized in basal 0.33; internal sac with moderately large dense spines throughout.

Description.— *Length*: male 2.47–3.08 (2.84) mm, female 2.53–3.09 (2.82) mm. *Width*: male 1.54–1.75 (1.67) mm, female 1.54–1.78 (1.65) mm. *Integument*: black; tibiae, tarsi, antennae and distal portion of rostrum piceous. *Eye*: length ca. 1.5x width; in dorsal view nearly flat to distinctly, broadly convex; hind margin slightly raised by distance ca. equal to diameter of one ocular facet. *Frons*: Distinctly narrowed posteriorly, in lateral view flat, continuous with vertex of head. *Rostrum*: male 0.86–1.02 (0.95)x, female 0.89–1.06 (0.96)x pronotum length. In dorsal view tapered from base to antennal insertions then abruptly narrowed to tip, sides of distal portion subparallel; in dorsal profile rounded at base and over antennal insertions. Dorsomedian carina distinct. Distal portion in male short, 31–40 (36)% of total rostral length.

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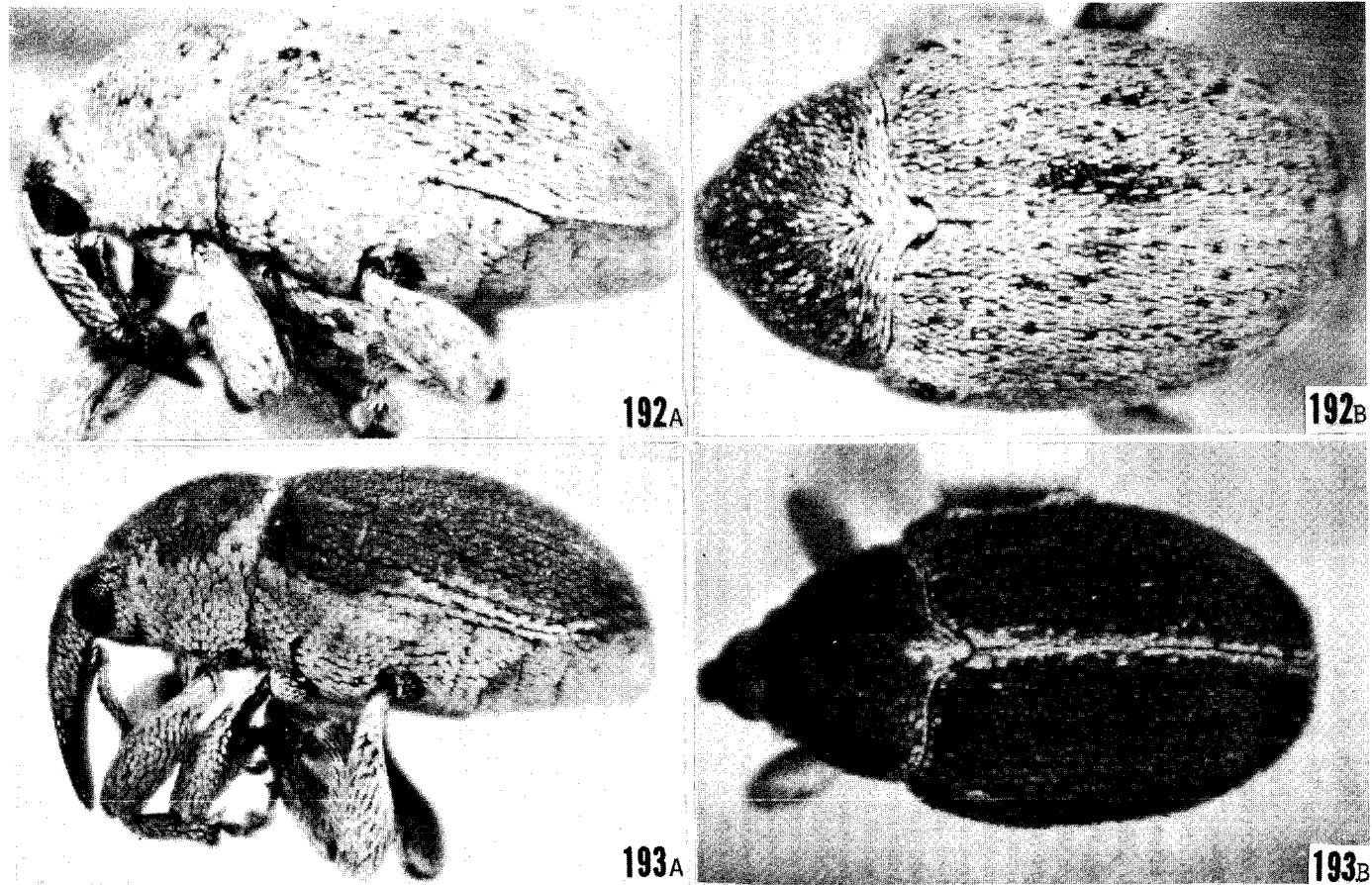


Fig. 192–193, *Sibinia* spp., habitus: 192, *S. candidata*, male, 2.1 mi E Jalapa del Marques, Oaxaca, Mexico; 193, *S. suturalis*, male, Sunset, Lincoln Co., New Mexico. (A, lateral view; B, dorsal view).

in lateral view strongly tapered to acute apex, lateral sulcus obsolete ca. halfway to tip; in female distal portion slightly longer, 34–45 (38)% of total rostral length, in lateral view strongly acuminate, lateral sulcus distinct in proximal 0.25. Scales uniformly short, broad, apically truncate, recumbent. *Prothorax*: in dorsal view wider at base than at middle, sides broadly, evenly curved from base to feebly developed subapical constriction, in lateral view strongly convex posteriorly, subapical constriction obsolete on dorsum. Scales on pleuron flat to feebly impressed, apically rounded, not lighter than scales on pronotum. *Elytra*: in dorsal view sides broadly, feebly curved behind humeri, in lateral view broadly, evenly convex in basal 0.75. Interspaces broad, flat, subequal in width, distinctly, moderately deeply impressed; apices of interspaces 4–6 feebly prominent. Scales on interspaces slightly smaller than those on pronotum, in irregular quadruple rows on each interspace, uniformly recumbent, imbricated; striae slightly narrower than scales on interspaces, scales on sutural interspaces slightly smaller and more dense, but not otherwise distinguishable from scales on other interspaces. *Pygidium*: broadly exposed, in male slightly convex, subquadrately rounded at apex, in female, smaller, narrowed to rounded apex, flat, slightly oblique, produced very slightly beyond elytral apices. *Abdomen*: in male sterna 3–5 flat medially, scales unmodified, subapical constriction feebly developed, posterior margin broadly, subquadrately emarginate; in female, sterna 3–4 and median portion of sternum 5 feebly convex, sternum 5 distinctly constricted subapically, but posteromedian portion of segment not prominent, posterior margin slightly concave. *Tibiae*: pro- and mesotibiae with large stout curved mucrones, mucro on metatibia slightly shorter, stouter, more oblique. *Male genitalia*: (Fig. 150). *Spiculum ventrale*: (Fig. 25). *Spermatheca*: (Fig. 130).

Discussion.— A relatively large *Microtychius*, probably a seed predator; adults collected on *Lysiloma divaricata* (Iguala, Guerrero, Mexico), known from Mexico south to the Isthmus of Tehuantepec, northward into southern Arizona (Fig. 188); 55 specimens examined.

Adults of *S. candidata* have been collected in April, June, and July. They were abundant on the host at Iguala on 8–9 July, 1974, when the host was in full bloom.

S. candidata closely resembles *S. suturalis*, especially a form of that variable species which occurs on *Mimosa benthami* and *M. stipitata* in southcentral Mexico. It is distinguished from that form by its slightly larger size, shorter, stouter rostrum, smaller pygidium which is less strongly produced beyond the elytral apices, and by the male genitalia (cf. Figs. 150 and 153). One of several specimens of *S. candidata* on hand from Puebla, Mexico, and all examined specimens from southeastern Arizona are distinguished by their large size (male 3.87 mm, female 3.97 mm in length).

Champion described *S. candidata* from two syntypes, one from Matamoros Izucar, Puebla, Mexico, and the other from Jalapa, Veracruz, Mexico. The specimen from Matamoros, labelled "type", belongs to the form of *S. suturalis* mentioned above. Selection of the Jalapa syntype as lectotype of *S. candidata* permits retention of the name *S. suturalis* in its original context and eliminates the necessity of proposing a new name for the species represented by the lectotype of *S. candidata*. The Champion collection also has two specimens labelled "Mexico" identified as *S. candidata*. One of these is conspecific with the lectotype of *S. candidata*, the other is *S. vosei*.

45—*Sibinia (Microtychius) grypa* (Casey), new combination (Figs. 131, 151, 157, 189, 194–196)

Tychius (Microtychius) grypus Casey, 1910: 139. Champion 1910; Klima 1934; Blackwelder 1947. Holotype, female: Type USNM 36765, Rio Balsas, Guerrero, Mexico (USNM).

Sibinia solariella Champion, 1910: 192. Klima 1934; Blackwelder 1947. LECTOTYPE (HERE DESIGNATED), male, standing first in series of five syntypes, labelled "Type" "Managua, Nicaragua, Solari" "B.C.A. Col. IV. 7. *Sibinia solariella* Champ." (BMNH).

Diagnosis.— Scales on pronotum and elytra uniformly ovate, attenuate, minutely truncate apically (Figs. 194, 195), cinereous or dark ochreous; scales in median row on each elytral interspace suberect; eye flat in dorsal view, hind margin raised by distance ca. equal to diameter of two ocular facets (Fig. 196).

Description.— *Length*: male 1.54–1.85 (1.64) mm, female 1.64–1.82 (1.75) mm. *Width*: male 0.75–0.99 (0.85) mm, female 0.88–0.95 (0.91) mm. *Integument*: rufopiceous to black, darkest anteriorly on pronotum, venter, and triangular basal portion of elytra. *Head*: scales on vertex elongate, apically truncate. *Eye*: height ca. 1.5x length; in dorsal view flat to very feebly convex. *Frons*: slightly narrowed posteriorly; in lateral view feebly rounded, continuous with vertex of head. *Rostrum*: male

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0.90–1.02 (0.96)x, female 0.85–1.05 (1.00)x pronotum length. In dorsal view tapered to antennal insertions, subparallel sided distally; in dorsal profile distinctly rounded distad of base, straight to feebly curved to just basad of antennal insertions, broadly curved over insertions. Dorsomedian carina obsolete. Distal portion in male short, stout, 37–44 (40)% of total rostral length, in lateral view tapered, lateral sulcus distinct almost to tip; in female, distal portion slightly longer, 39–45 (43)% of total rostral length, feebly tapered, lateral sulcus distinct in proximal 0.50. Scales elongate, linear to slightly attenuate, apically truncate, uniformly recumbent. *Prothorax*: in dorsal view rounded at base; in lateral view broadly, evenly convex, subapical constriction feebly developed medially on dorsum. Pronotum with recumbent and feebly raised scales intermixed, most specimens without mediobasal patch of white scales; scales on pleuron oblong, feebly concave, limited to lower 0.66 anteriorly, replaced dorsally by elongate scales. *Elytra*: in dorsal view sides subparallel in basal 0.50, in lateral view flat on disc. Interspaces flat, shallowly, irregularly impressed, odd interspaces slightly wider than even ones; apices of interspaces 4–6 not prominent. Scales (Figs. 194, 195) in triple rows on each interspace, scales in lateral rows recumbent, scales in median rows suberect to erect, slightly wider and longer than recumbent scales; sutural interspaces with small basal cluster of oval white scales; striae slightly narrower than scales on interspaces. *Pygidium*: narrowly exposed, flat; in male broadly rounded apically, nearly vertical, in female not more distinctly narrowed to rounded apex, oblique, produced very slightly beyond elytral apices. *Abdomen*: sternum 5 in male very slightly concave medially, scales unmodified, subapical constriction feebly developed; in female, sternum 5 feebly constricted subapically, posteromedian portion of segment slightly, broadly prominent, posterior margin broadly, shallowly concave. Scales at base oval, white, replaced distally by elongate scales. *Tibiae*: pro- and mesotibiae with short, stout slightly curved mucrones, mucro on metatibia long, narrow, straight, oblique. *Male genitalia*: (Fig. 151); nonsclerotized medially both dorsally and ventrally. *Spiculum ventrale*: (Fig. 157). *Spermatheca*: (Fig. 131).

Discussion.—A relatively small bud predator *Microtychius*; host *Lysiloma divaricata*; known from Mexico and from Costa Rica (Fig. 189); 495 specimens examined.

Adults of *S. grypa* were reared from larvae which emerged from flower buds of the host collected 12 July, 1973, 6.2 mi E Antiguo Morelos, Tamaulipas, Mexico and 23 July, 1974, at Presa Benito Juarez, Oaxaca, Mexico. Adults were noted in pupal cells 24 days after buds were collected at the latter locality on 16 August, 1974. Adults were also collected on the host at numerous localities in the states of Guerrero, Puebla and Oaxaca. They have been collected in February, March, May, June, July and August; most records are for July. Labels indicate that adults are attracted to light.

The color of scales on the pronotum and elytra is variously pale fulvous, ochreous or gray. The members of the only large series available (collected on the host at Presa Benito Juarez, Oaxaca, Mexico) have uniformly dark ochreous scales.

46—*Sibinia (Microtychius) albidula* Champion (Figs. 152, 158, 190, 198)

Sibinia albidula Champion 1910: 192. Klima 1934; Blackwelder 1947. Holotype, male: (Champion listed Corinto, Nicaragua as the type locality but the locality label on the holotype is Managua, Nicaragua) (BMNH).

Diagnosis.—(Fig. 198). Scales on pronotum and elytra finely attenuate, uniformly pale fulvous to whitish gray; scales in median row on each elytral interspace acuminate, suberect broadly decurved; median lobe with long apical setae.

Description.—Characters of *S. grypa*, except—*Length*: male 1.30–1.57 (1.43) mm, female 1.38–1.65 (1.55) mm. *Width*: 0.65–0.84 (0.72) mm, female 0.76–0.84 (0.78) mm. *Integument*: rufopiceous to black, legs, antennae and distal portion of rostrum ferruginotestaceous. *Eye*: in dorsal view feebly convex posteriorly, flattened anteriorly; hind margin raised by distance ca. equal to or slightly greater than diameter of one ocular facet. *Rostrum*: male 0.90–1.06 (0.97)x, female 0.98–1.05 (1.01)x pronotum length. In dorsal view strongly tapered from base to antennal insertions, subparallel sided distally; in dorsal profile feebly but distinctly rounded at extreme base, especially in female, broadly curved from just distad of base to tip. Dorsomedian carina obsolete. Distal portion in male moderately long, 36–49 (45)% of total rostral length, feebly tapered, sulcate almost to tip; in female, distal portion slightly longer, 44–55 (49)% of total rostral length, narrow, tapered to acuminate, very shallowly punctate. Scales suberect but not prominent. *Prothorax*: pronotum with recumbent scales and slightly longer, slightly raised scales intermixed; scales on pleuron oblong, concave. *Elytra*: interspaces subequal in width, scales in lateral rows on each interspace feebly raised, suberect scales in median rows longer and wider than scales in lateral rows. *Abdomen*: sternum 3–5 in male flat medially, subapical constriction of sternum 5 obsolete; in female, sternum 5 feebly constricted subapically, posteromedian portion very feebly prominent, posterior margin very slightly produced posteriorly. *Tibiae*: metatibial mucro minute or absent. *Male genitalia*: (Fig. 152). *Spiculum ventrale*: (Fig. 158). *Spermatheca*: (Fig. 132).

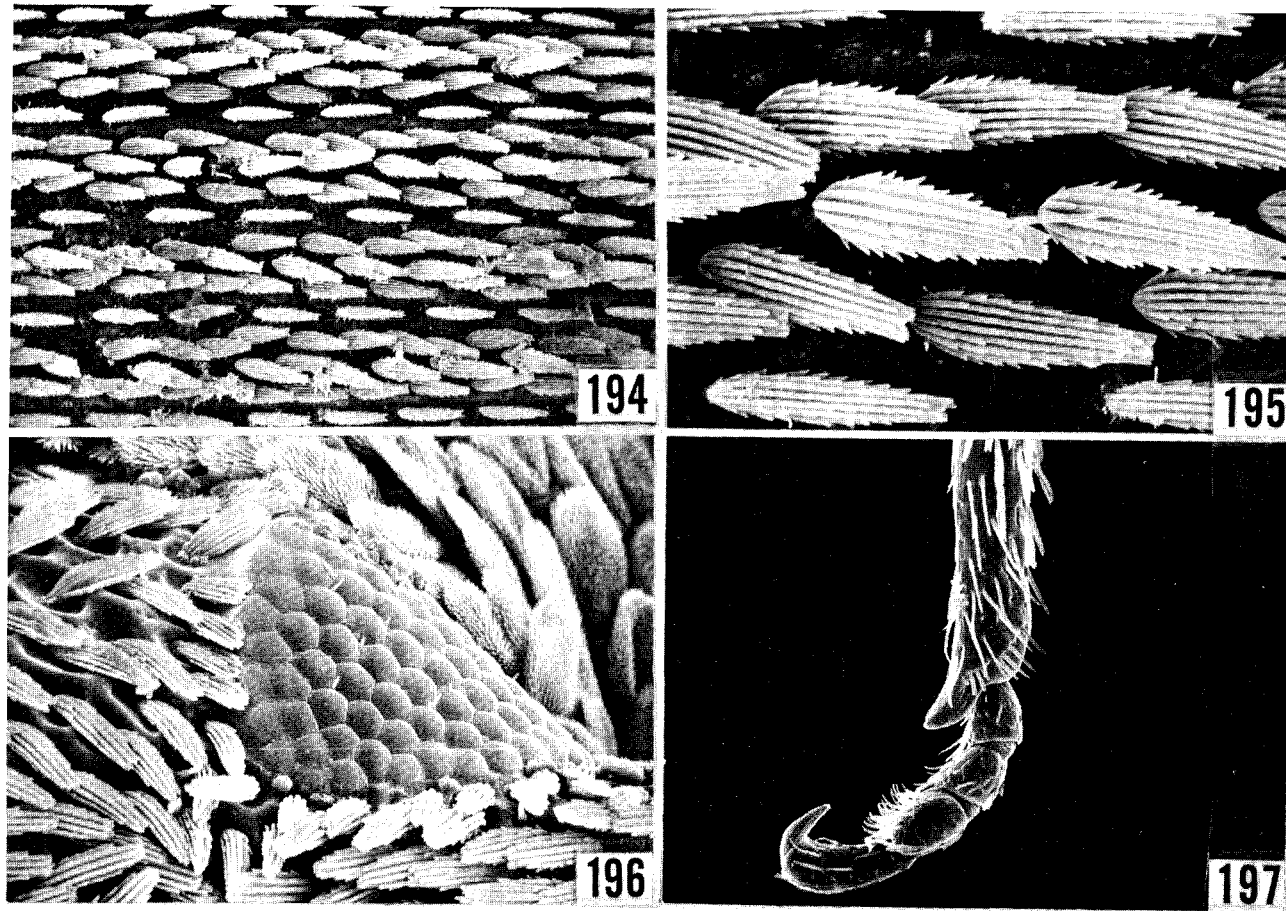


Fig. 194–197, *Sibinia grypa*: 194, left elytron, interspaces 2–7 (134.7x); 195, scales on interspace (broad ones) and striae scales (narrow ones) (520.6x); 196, left eye, dorsal view (290.9x).
 Fig. 197, *Sibinia inflata*: left metatarsus and tibial apex (134.7x).

Discussion.—A very small *Microtychius*, probably a bud predator; adults collected on *Lysiloma divaricata* (Presa Benito Juarez, Mexico; 4.3 mi NE Ixtapan, Mexico, Mexico); known from southern Mexico and Central America (Fig. 190); 33 specimens examined.

Adults of *S. albidula* have been collected in March and July. In July they were collected on the host at the localities cited above when the trees were in full bloom. They were microsympatric at the Oaxaca locality with adults of another bud predator, *S. grypa*.

S. albidula resembles *S. grypa* but is distinguished by its smaller size, finely attenuate female rostrum, and finer more nearly completely erect setae on the elytral interspaces. Both species have a gray form and a fulvous or greenish fulvous form. Most populations of *S. albidula* are represented by only a few specimens from several different localities. Most of these are gray, as are all members of the short series from Presa Benito Juarez mentioned above. All members of series from 8 mi W Palma Sola, Veracruz, and from 4.3 mi NE Ixtapan, Mexico, however, have fulvous scales. These specimens with fulvous scales also have somewhat larger metatibial mucrones. The Palma Sola series is further distinguished by having broader, lighter scales on the pronotum and elytra and shorter erect scales in median rows on the elytral interspaces.

47—*Sibinia (Microtychius) suturalis* (Schaeffer)

(Figs. 133, 153, 159, 193, 201)

Tychius suturalis Schaeffer 1908: 218. (not Brisout 1861: 605). Leng 1920; LECTOTYPE (HERE DESIGNATED), male one of three syntypes, labelled "Huachuca Mts. July 1905 Ariz." "Brooklyn Museum coll. 1929" "Type No. 42485.

U.S.N.M." "*Tychius suturalis* Schaeff." (U.S.N.M.); other syntypes examined (1, BYU, 1, FMNH).

Sibinia suturalis: Casey 1910; Klima 1934; Clark 1977a.

Diagnosis.—(Fig. 193). Pronotum and elytral interspaces either with uniformly cinereous or ferruginous scales or with admixture of cinereous scales, pale fulvous scales, and dark ferruginous scales; scales in median row on each elytral interspace feebly to distinctly raised in some specimens; median portion of median lobe (Fig. 153) sclerotized dorsally and ventrally, except for small subapical dorsal membranous area; proximal 0.50 of internal sac unarmed or with minute spines.

Description.— Characters of *S. candidata*, except—*Length*: male 2.23–3.05 mm, female 2.26–3.12 mm. *Width*: male 1.23–1.80 mm, female 1.30–2.02 mm. *Eye*: feebly to strongly, prominently convex in dorsal view. *Frons*: in lateral view rounded, feebly to distinctly separated from head. *Rostrum*: male 0.86–1.02x, female 0.89–1.06x pronotum length. In lateral view distinctly rounded at extreme base, continuous with frons, feebly curved over antennal insertions in male, broadly rounded in basal 0.33, not or only slightly curved over antennal insertions in female. Distal portion in male moderately long, 38–57 (48)% of total rostral length, in lateral view evenly tapered to acute tip, lateral sulcus distinct almost to tip; in female, distal portion somewhat longer, 44–64 (53)% of total rostral length, in lateral view feebly acuminate, lateral sulcus distinct in basal 0.66. *Elytra*: sutural interspaces of some specimens with distinct vitta of cinereous or pale fulvous, oblong to oval scales. *Pygidium*: as in *S. candidata* or distinctly narrowed and evenly rounded apically in male, strongly oblique and distinctly produced posteriorly beyond elytral apices in female. *Male genitalia*: (Fig. 153). *Spiculum ventrale*: (Fig. 159). *Spermatheca*: (Fig. 133).

Discussion.— A relatively large seed predator *Microtychius*; hosts *Mimosa biuncifera* (United States and state of Nuevo Leon, Mexico), *M. lacerata* (states of Oaxaca and Puebla, Mexico), *M. monancistra* (states of Nuevo Leon, and Tamaulipas, Mexico), *M. malacophylla* (state of Tamaulipas, Mexico), *M. benthami* and *M. stipitata* (each in states of Morelos, Puebla, and Oaxaca, Mexico); known from western Texas, New Mexico, southeastern Arizona, and from Mexico from the regions surrounding the Chihuahuan Desert, the Balsas Basin and Valley of Tehuacan regions and the states of Chiapas and Yucatan (Fig. 201); 528 specimens examined.

Adults of *S. suturalis* have been collected in April (1%), May (2%), June (18%), July (48%), August (26%), September (3%), and October (2%). Larvae emerged from pods of *M. monancistra*, collected 11 October, 1973, 6.5 mi SW Nueva Padilla, Tamaulipas, Mexico. Some of

these remained alive in pupal cells until June, 1974, but all died before pupating. Specimens of *S. suturalis* (USNM) bearing the label "on *Leucaena pulverulenta*", from Olmito, Cameron Co., Texas, were examined, but numerous attempts to collect the species on *Leucaena* in Texas were unsuccessful.

Several morphologically distinct forms are represented in the material examined. Probably all are host specific and, as noted below, some have been collected in sympatry, although not in microsympatry. Several species or host and/or geographic races may be represented, but further study, including collection of specimens from intervening areas and determination of host relationships of some of the forms is needed to clarify the situation.

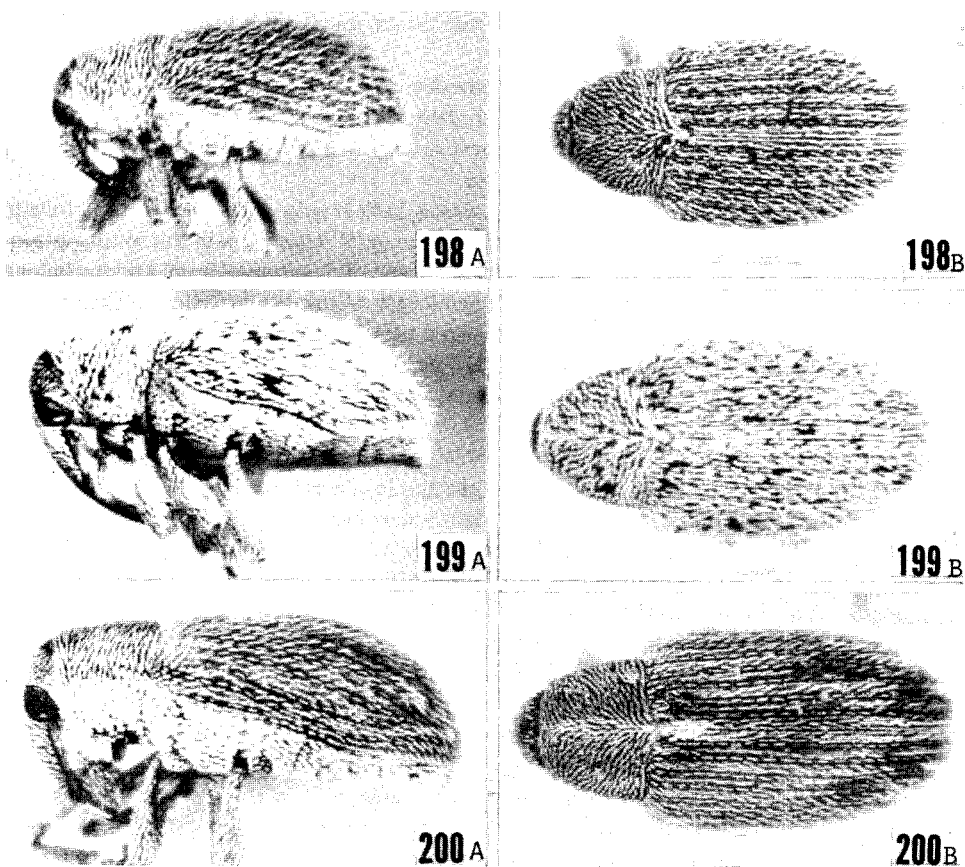


Fig. 198–200, *Sibinia* spp., habitus: 198, *S. albidula*, female, 35 mi SW Cintalapa, Chiapas, Mexico; 199, *S. stricticomula*, female, 4 mi SW Acatepec, Puebla, Mexico; 200, *S. bothrosterna*, male, Teopisca, Chiapas, Mexico. (A, lateral view; B, dorsal view).

The lectotype belongs to a form distinguished by relatively large size (length 2.47–3.12 mm), short distal portion of rostrum (in male 38–44%, in female 44–51% of total rostral length), flat to feebly convex eye, uniformly gray scales on the pronotum and elytra, apically subquadrate male pygidium, and relatively large spines on proximal 0.50 of internal sac. This form occurs in Mexico in the Balsas River Basin on *M. benthami* and *M. stipitata* in areas where both plants occur together. It closely resembles *S. candidata* which occurs on *Lysiloma divaricata* in the same geographical area.

A form distinguished from the *M. benthami*–*M. stipitata* form by its smaller size (length 2.40–2.80 mm), slightly smaller spines on internal sac, and more evenly rounded male pygidium, was collected 16 mi NE Acatlan, Puebla.

Another form with uniformly gray to yellowish gray scales occurs in the Mexican states of Tamaulipas and Nuevo Leon and in the Lower Rio Grande Valley of Texas on *M. malacophylla*. This form is moderately large (length 2.31–2.81 mm) and has the distal portion of the rostrum moderately long (in male 48–56%, in female 52–63% of total rostral length). It has the base of the rostrum very strongly rounded, the internal sac unarmed or with very small spines in proximal 0.50.

A similar form occurs in Tamaulipas and Nuevo Leon on *M. monancistra*. In this form, scale color ranges from gray to dark yellowish brown; the eye ranges from nearly flat as in the *M. benthami*–*M. stipitata* form, to strongly convex. Gray to yellowish gray individuals cannot be distinguished from the *M. malacophylla* form.

A form characterized by dark ferruginous scales, a distinct sutural vitta of white to fulvous scales, and very strongly convex eyes (Fig. 193) occurs on *M. biuncifera* in the southwestern United States and on the Mexican Plateau. The lectotype of *S. suturalis* from Arizona belongs to this form. The size (length 2.40–2.81 mm) and length of the distal portion of the rostrum (in male 49–57%, in female 49–64% of total rostral length) of this form are comparable to that of the *M. malacophylla* and *M. monancistra* forms. Some members of a series collected on *M. biuncifera* 3 mi S Pacheco and 9 mi W Iturbide, Neuvo Leon, Mexico have fulvous scales in place of the dark ferruginous scales.

Several specimens from the Mexican states of Durango, Michoacan, Puebla, and Oaxaca resemble the *M. biuncifera* form in size, eye shape and in general facies and have the scales in the median row on each elytral interspace slightly narrower than those in the lateral rows, but are distinguished from that form by their gray or fulvous instead of dark ferruginous scales on the elytra and pronotum. In most of these, light scales are much more abundant than dark ones. A few of these from 4 mi SE Acatepec, Puebla, are further distinguished from the *M. biuncifera* form in having the spines on the internal sac of the male genitalia arranged in short transverse rows with interconnected bases. These were collected on *Mimosa lacerata*, and were sympatric with the *M. benthami*–*M. stipitata* form. Hosts of other specimens from Durango, Michoacan, Puebla, and Oaxaca are unknown.

Another markedly distinct small form (length 2.23 mm), represented by a single specimen from Teopisca, Chiapas, has very dark reddish ferruginous scales with fulvous scales in a short median vitta and diffuse posterolateral patches on the pronotum, a sutural vitta on the elytra and sparsely interspersed on elytral interspaces 5–7 and on the femora. The scales in the median row on each elytral interspace are suberect, the spines on the proximal portion of the internal sac arranged in short transverse rows, some with interconnected bases, the eyes strongly convex. The host of this form is unknown. A female from 23.9 mi SW Jaumave, Tamaulipas, Mexico is also distinguished by possession of very dark reddish scales but has far fewer fulvous scales on the sutural interspaces and elsewhere. It is relatively large (length 2.84 mm), the distal portion of the rostrum moderately long (45% of the total rostral length), the scales on the elytral interspace recumbent, those on the femora variegated fulvous and ferruginous as in the

Chiapas form. A specimen from the state of Yucatan, Mexico, is similar to this one, but has strongly convex eyes. The latter two forms have unknown hosts.

The name *Tychius suturalis* Schaeffer, 1908, is a junior primary homonym of *T. suturalis* Brisout, 1861. Since Schaeffer's species was misidentified as *Tychius*, the "actuality principle" (Mayr 1969) is cited as justification for retention of the name *suturalis* for this *Sibinia*.

The *hispida* Stock

Diagnosis.— Rostrum of female abruptly narrowed distad of antennal insertions, distal portion elongate, slender, smooth; each elytral interspace with elongate, narrow scales in triple rows; metatibia unarmed; median lobe more or less broad at base, attenuate distally; internal sac with large spines.

Discussion.— The *hispida* stock contains nine species: *S. hispida* of the southwestern United States and Mexico, *S. stricticomula*, *S. albiduloides*, *S. inflata*, *S. bothrosterna*, and *S. aulacis*, of Mexico only, *S. criniventer* of Mexico and Guatemala, *S. obrienorum* of Guatemala, and *S. tenuicauda* of Honduras. Known hosts of the members of the paraphyletic group are all species of *Mimosa*. All of the species are bud predators. The group does not include members of the *sibinioides* complex. These have similarly formed female rostra, but lack large spines of the internal sac.

48—*Sibinia* (*Microtychius*) *stricticomula*, new species

(Figs. 134, 154, 160, 191, 199)

Holotype.— Male, MEXICO: Guerrero, 2.5 mi NE Cacahuamilpa, 6 July, 1974, Clark, Murray, Ashe, Schaffner, on *Mimosa benthami* (USNM #75405).

Allotype.— Female, same data as holotype (USNM).

Paratypes.— Same data as holotype (103); Guerrero: El Gavilan, 21 June, 1948, Nutting and Werner (1), Iguala, 8–9 July, 1974, Clark, Murray, Ashe, Schaffner, on *Mimosa benthami* (16), 2.4 mi N Mazatlan, 9 July, 1974, Clark, Murray, Ashe, Schaffner, on *Mimosa benthami* (1), Mexcala, July 9, 1955, R.B. & J.M. Selander, light, J.M. Kingsolver collection, 1963 (2), 1 mi E Taxco, 14 August, 1974, 5500' C.W. & L. O'Brien & Marshall (1); Mexico: Real de Arriba, Temascaltepec, V-20, VI-4-53, H.E. Hinton, R.L. Usinger Collectors, Colln. E.C. Zimmerman, 1941 (1), Temascaltepec, July, 1932, H. Hinton collector, colln. E.C. Zimmerman, 1941 (1), 19 mi S Toluca, 15, July, 1966, P.M. and P.K. Wagner (1); Morelos: 10 mi E Cuernavaca, 8 July, 1974, Clark, Murray, Ashe, Schaffner, on *Mimosa benthami* (9), 2 mi N Jojutla, 20 July, 1974, R.L. Mangan & D.S. Chandler (2); Oaxaca: Huajuapán de León, 28 June, 1971, G.B. Marshall, on *Acacia* (1), 10 mi NE Huajuapán de León, 27 June, 1965, H.R. Burke, J.R. Meyer, J.C. Schaffner (1), 10 mi W Tamazulpan, 28 June, 1971, Ward and Brothers (1), 10 mi W Tamazulpan, 28 June, 1971, 7500' (3): Puebla: 4.3 mi SW Acatepec, 16 July, 1971, Clark, Murray, Hart, Schaffner on *Mimosa benthami* (32), 4 mi SW Acatepec, 11 July, 1963, Mastro, J.C. Schaffner (1), 4.4 mi SW Acatepec, 14 July, 1974, Clark, Murray, Ashe, Schaffner, on *Mimosa benthami* (1), 16 mi NW Acatlan, 14 July, 1974, Clark, Murray, Ashe, Schaffner, on *Mimosa benthami* (1), 11.8 mi NW Izucar de Matamoros, 13 July, 1974, Clark, Murray, Ashe, Schaffner, on *Mimosa benthami* (2), 1 mi SE Izucar de Matamoros, 11 mi SE Petalcingo, 28 June, 1971, Ward and Brothers, 6100', on *Acacia* (29), 6 mi SW Tehuacan, 7 July, 1973, Mastro and Schaffner (2), 1.6 mi SW Zapotitlan, 16 July, 1971, Clark, Murray, Ashe, Schaffner (1), 5 mi SW Zapotitlan, 8 July, 1973, Mastro and Schaffner (1); total 214, distributed to various collections.

Diagnosis.— (Fig. 199). Rostrum in female not rounded at base; scales on pronotum and elytra uniformly yellowish gray; elytral interspaces each with median row of fine erect straight seta-like scales; metatibia mucronate; median lobe attenuate in distal 0.50, abruptly widened at extreme apex; internal sac with large spines throughout.

Description.— *Length:* male 1.75–1.88 mm, female 1.82–2.02 mm. *Width:* 0.85–0.93 mm; female 0.89–0.99 mm. *Integument:* black, shaded to rufopiceous on posterolateral portions of elytra and rostrum; legs rufous, distal portion of rostrum, tarsi and antennae ferruginotestaceous, tarsi darker than tibiae in most specimens. *Head:* scales on vertex elongate, apically blunt to truncate. *Eye:* small, height ca. 1.4x length; in dorsal view strongly, evenly convex; hind margin raised by distance ca. equal to diameter of one ocular facet. *Frons:* sides subparallel, in lateral view nearly flat, continuous with vertex of head. *Rostrum:* male 0.91–1.05x, female 0.96–1.14x pronotum length. In dorsal view tapered from base to antennal insertions, subparallel sided distally; in dorsal profile feebly rounded distad of base, broadly curved over antennal insertions. Dorsomedian carina feebly to strongly developed. Distal portion in male moderately long, 38–49% of total

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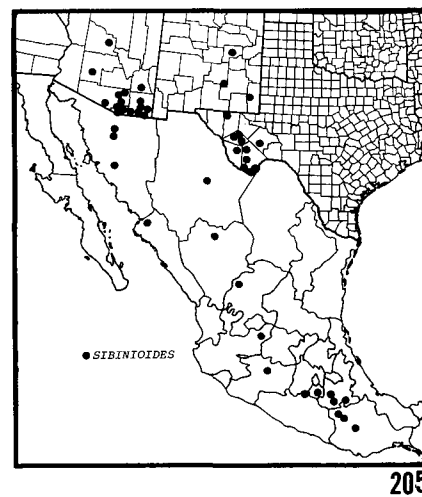
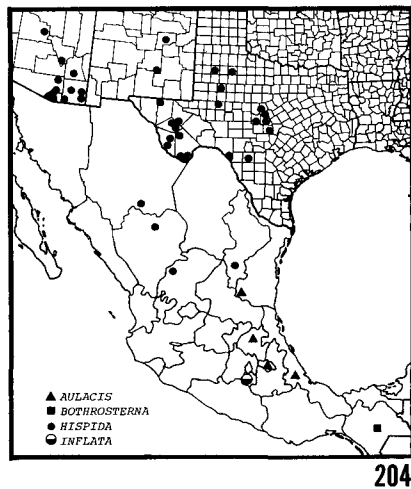
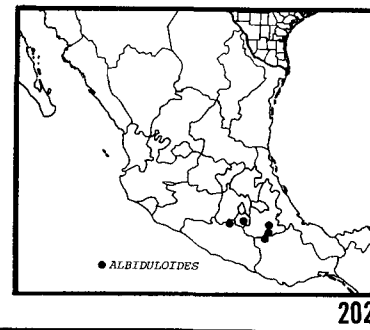
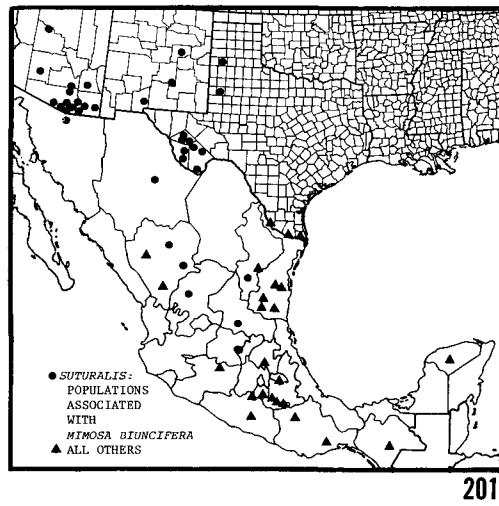


Fig. 201–205, *Sibinia* spp., distribution records: 201, *S. suturalis*; 202, *S. albiduloides*; 203, *S. criniventer*, *S. obrienorum*, and *S. tenuicauda*; 204, *S. aulacis*, *S. bothrosterna*, *S. hispida*, and *S. inflata*; 205, *S. sibinioides*.

rostral length, slender, in lateral view tapered, lateral sulcus distinct in proximal 0.50; in female, distal portion longer, 49–57% of total rostral length. Scales on dorsolateral portion suberect, fully erect laterally on frons. *Prothorax*: in dorsal view sides subparallel at base; in lateral view broadly, evenly convex, subapical constriction obsolete on dorsum. Scales on pronotum elongate oval, narrowly truncate apically, recumbent, narrower erect acuminate scales interspersed throughout, pale fulvous, with dorsomedian vitta of slightly broader, more rounded scales; scales on pleuron oblong, impressed medially, white, replaced on upper 0.25 by elongate scales dorsally. *Elytra*: in dorsal view sides subparallel in basal 0.50; in lateral view flat in basal 0.33. Interspaces flat, shallowly, irregularly impressed, odd interspaces similar to scales on pronotum, in triple rows on each interspace; scales on lateral rows recumbent, each interspace with median row of erect straight acuminate seta-like scales; sutural interspaces with basal cluster of small, oval white scales; striae slightly narrower than recumbent scales on interspaces. *Pygidium*: in male flat, rounded at apex, in female less broadly exposed, flat, strongly narrowed to rounded apex, slightly oblique, produced slightly beyond elytral apices. *Abdomen*: sterna 3–5 in male narrowly, shallowly concave medially, margins of scales on concave portion finely dissected, sternum 5 feebly constricted subapically, posterior margin of segment not emarginate; in female, sternum 5 broadly constricted, posteromedian portion of segment distinctly prominent, posterior margin produced slightly posteriorly but not beyond elytral apices. *Tibiae*: each with long curved horizontal mucro. *Male genitalia*: (Fig. 154). *Spiculum ventrale*: (Fig. 160). *Spermatheca*: (Fig. 134).

Discussion. — A relatively small bud predator *Microtychius*; host *Mimosa benthami*; known from the type-series from the Balsas Basin and Valley of Tehuacan regions of south-central Mexico (Fig. 191).

Adults of *S. stricticomula* were reared from larvae which emerged from flower buds of the host collected 6 July, 1974, at the type-locality. These were removed from pupal cells on 30 July, 1974, 24 days after larvae were collected. Adults have been collected in May, June, and July. They were abundant at several localities when the host was in bloom.

Adults of *S. stricticomula* were taken on the host along with adults of another bud predator, *S. albiduloides*, at most of the localities cited above. Adults of both species were reared from flower buds taken from the same tree at the type-locality of *S. stricticomula*. The two species are distinguished by the larger size and pale fulvous rather than gray scales of *S. stricticomula*, and by the male genitalia (cf. Figs. 154, 155). The strong resemblance of *S. stricticomula* and *S. albiduloides* and their common host are considered sufficient evidence to infer that the two are sister species. Both species share *M. benthami* as a host with a seed predator *Microtychius*, *S. suturalis*.

49—*Sibinia* (*Microtychius*) *albiduloides*, new species
(Figs. 135, 155, 161, 202)

Holotype. — Male, MEXICO: Puebla, 4.3 mi SW Acatepec, 16 July, 1971, Clark, Murray, Hart, Schaffner, on *Mimosa benthami* (USNM #75406).

Allotype. — Female, same data as holotype (USNM).

Paratypes. — Same data as holotype (78); Puebla: 4.4 mi SW Acatepec, July 26, 1974, Clark, Murray, Ashe, Schaffner, on *Mimosa benthami* (13); Guerrero: 2.5 mi NE Cacahuamilpa, July 6, 1974, Clark, Murray, Ashe, Schaffner, on *Mimosa benthami* (20); Morelos: 10 mi E Cuernavaca, July 8, 1974, Clark, Murray, Ashe, Schaffner, on *Mimosa benthami* (6); Puebla: 5.1 and 5.8 mi SW Tehuacan, July 27, 1974, Clark, Murray, Ashe, Schaffner (10), 1.6 mi SW Zapotitlan, July 16, 1971, Clark, Hart, Murray, Schaffner (1); Oaxaca: 10 mi N Miltepec, July 15–16, 1971, Clark, Murray, Hart, Schaffner (1); total 129, distributed to various collections.

Diagnosis. — Scales on pronotum and elytra uniformly pale yellowish gray; pronotum with slightly raised scales interspersed among recumbent ones; scales in median rows on each elytral interspace erect, acuminate, straight; median lobe with single pair of minute apicodorsal setae (Fig. 155).

Description. — *Length*: male 1.36–1.55 (1.45) mm, female 1.30–1.59 (1.46) mm. *Width*: male 0.63–0.75 (0.70) mm, female 0.61–0.80 (0.71) mm. *Integument*: black, shading to ferruginotestaceous on tip of rostrum, antennae, tibiae and tarsi; piceous to rufopiceous on lateral and apical portions of elytra. *Head*: scales on vertex elongate, attenuate, minutely truncate apically. *Frons*: slightly narrower than rostrum at base, in lateral view feebly rounded, continuous with vertex of head. *Eye*: height ca. 1.5–1.6x length; in dorsal view nearly flat; hind margin raised by distance ca. equal to diameter of one ocular facet. *Rostrum*: male 0.93–1.08 (0.99)x, female 1.00–1.20 (1.09)x pronotum length. In dorsal view tapered from base to antennal insertions, sides of distal portion subparallel; in dorsal profile base of rostrum and frons slightly, continuously curved, rostrum more strongly curved over antennal insertions. Dorsomedian carina obsolete. Distal portion in

male moderately long, 43–55 (48)% of total rostral length, in lateral view feebly tapered, lateral sulcus becoming obsolete well proximad of tip; in female, rostrum not abruptly narrowed distad of antennal insertions, distal portion long, 56–70 (62)% of total rostral length, narrow, feebly tapered from just basad of tip, shallowly punctate. Scales suberect, prominent, and nearly fully erect on dorsolateral portions of rostrum and laterally on frons. *Prothorax*: in dorsal view sides slightly rounded from base to feebly developed subapical constriction, in lateral view broadly and evenly convex, subapical constriction obsolete on dorsum. Scales on pronotum elongate, attenuate, minutely truncate apically; scales on pleuron round, flat, replaced in dorsal 0.50 by elongate scales. *Elytra*: in dorsal view sides subparallel in basal 0.50; in lateral view flat on disc. Interspaces flat, shallowly impressed, shining, subequal in width, integument broadly visible between scales; apices of interspaces 4–6 not prominent. Scales in triple rows on each interspace, those in lateral rows recumbent, those in median rows erect, straight, longer than scales in lateral rows; sutural interspaces with a few oblong, apically rounded scales at base; striae scales narrower than recumbent scales on interspaces. *Pygidium*: in male narrowly exposed, flat, broadly rounded apically; in female, pygidium not so broadly exposed, not narrowed apically, oblique, not produced beyond elytral apices. *Abdomen*: in male sterna 3–5 flat medially, scales unmodified, sternum 5 feebly constricted subapically; in female, sternum 5 broadly, distinctly constricted laterally and medially, posteromedian portion slightly prominent, posterior margin slightly produced posteriorly. *Tibiae*: pro- and mesotibiae with short stout slightly curved mucrones, metatibial mucro minute or absent. *Male genitalia*: (Fig. 155). *Spiculum ventrale*: (Fig. 161). *Spermatheca*: (Fig. 135).

Discussion.—A very small *Microtychius* bud predator of *Mimosa benthami*; known from the type-series from the Balsas Basin and Valley of Tehuacan regions of south-central Mexico (Fig. 202).

Adults of *S. albiduloides* were reared from larvae which emerged from flower buds of the host collected 6 July, 1974, 2.5 mi NE Cacahuamilpa, Guerrero. Live adults were taken from pupal cells on 31 July, 1974. As discussed above, adults of *S. albiduloides* were reared from larvae which emerged from the same flower buds as did larvae of *S. stricticomula*, the probable sister species. Both species also share their common host with the seed predator *Microtychius*, *S. suturalis*.

50—*Sibinia (Microtychius) inflata*, new species

(Figs. 197, 204, 206)

Holotype.—Male, MEXICO: Morelos, 6 mi N Cuernavaca, 31 July, 1963, J. Doyen Collector (CAS).

Diagnosis.—Pronotum and elytra with erect, apically widened scales; abdominal sterna 4–5 broadly, shallowly concave; metafemur much larger than profemur (width 1.21x greater); metatibia with large blunt apical mucro (Fig. 197).

Description.—*Length*: 1.62 mm. *Width*: 0.76 mm. *Integument*: rufous; prothorax, basal triangular portion of elytra and venter black, antennae and distal portion of rostrum ferruginotestaceous. *Head*: scales on vertex elongate, apically truncate, pale ferruginous. *Eye*: height ca. 1.4x length; in dorsal view feebly, broadly, evenly convex; hind margin feebly raised by distance ca. equal to diameter of one ocular facet. *Frons*: feebly narrowed posteriorly, in lateral view slightly curved, continuous with vertex of head. *Rostrum*: 0.91x pronotum length. In dorsal view strongly tapered from base to antennal insertions, sides subparallel distally; in dorsal profile feebly rounded at base, strongly rounded over antennal insertions. Distal portion moderately long, 44% of total rostral length, tapered, smooth, lateral sulcus becoming obsolete over antennal insertions, dorsomedian carina obsolete. Scales suberect, nearly fully erect over dorsal margins of eyes. *Prothorax*: in dorsal view sides strongly, evenly rounded from base to subapical constriction; in lateral view broadly, evenly convex from base to strongly developed subapical constriction. Scales on pronotum elongate, parallel sided recumbent scales and suberect apically expanded, broadly subtruncate scales intermixed, all scales pale ferruginous; scales on lower portion of pleuron round, replaced by slightly oblong scales toward dorsum, concave, whitish, replaced on upper 0.33 of pleuron by elongate scales. *Elytra*: in dorsal view sides subparallel in basal 0.66; in lateral view flat in basal 0.33, broadly rounded to apices. Interspaces flat, feebly impressed, subequal in width, apices of interspaces 4–6 feebly raised. Scales on interspaces similar in size shape and color to scales on pronotum, pale ferruginous, in triple rows on each interspace, scales in median rows erect, nearly straight, widened from base to rounded or subtruncate apices, wider than recumbent parallel sided scales in lateral rows; sutural interspaces with small basal cluster of flat white scales; striae scales very narrow. *Abdomen*: sterna 1–3 flat, sterna 4 and 5 shallowly, broadly concave medially, scales on concave portion unmodified, sternum 5 not constricted subapically, posteromedian portion of segment not prominent, posterior margin with large broad posterior projection which fits into strongly curved pygidium. *Femora*: metafemur width 1.21x profemur width. *Tibiae*: pro- and mesotibiae with large stout acuminate oblique mucrones. *Male genitalia*: (Fig. 206). Median portion of median lobe lightly sclerotized ventrally and dorsally except for elongate dorsal membranous area which is not distinctly demarcated posteriorly.

Discussion.— A relatively small *Microtychius*, probably a bud predator; host unknown; known only from the male holotype from the state of Morelos, Mexico (Fig. 204).

This *hispidus* stock member is probably sister to *S. obrienorum*; adults of both have strap-like extensions of the anterolateral margins of the pygidium.

51—*Sibinia (Microtychius) obrienorum*, new species
(Figs. 203, 207)

Holotype.— Male, GUATEMALA: 6 mi NE El Progreso, 1200', 27 July, 1974, C.W. & L. O'Brien & Marshall, on *Mimosa platycarpa* (CWO).

Allotype.— Female, same data as holotype (CWO).

Paratypes.— Same data as holotype (41); distributed to various collections.

Diagnosis.— Pronotum and elytra with uniformly elongate, narrow, pale grayish fulvous scales which are suberect in median row on each elytral interspace; metafemur, especially of male, greatly enlarged; protibia unarmed or minutely mucronate, mesotibia with long apical mucro which extends parallel to long axis of tibia; metatibia curved, enlarged distally, with large conical sharply pointed apical mucro.

Description.— *Length:* Male 1.36–1.56 (1.49) mm, female 1.38–1.54 (1.47) mm. *Width:* male 0.76–0.83 (0.79) mm, female 0.76–0.87 (0.81) mm. *Integument:* black; femora and rostrum rufopiceous; tibiae, tarsi and antennae ferruginotestaceous. *Head:* scales on vertex elongate, narrow. *Frons:* about as wide as rostrum at base, not narrowed posteriorly, in lateral view rounded, continuous with base of rostrum. *Eyes:* small, oblong, height ca. 1.6x length; in dorsal view feebly, broadly convex; hind margin distinctly raised by distance ca. equal to combined diameters of two ocular facets. *Rostrum:* in dorsal view in male slightly tapered from base to antennal insertions, more strongly tapered from there to tip, in female, not abruptly narrowed distad of antennal insertions, sides of distal portion subparallel; in lateral view in male rounded at base, straight to just proximad of antennal insertions, broadly rounded over insertions, in female, rounded at extreme base, broadly, evenly curved from just distad of base to tip. Distal portion in male short, 41–50 (47)% of total rostral length, in lateral view slightly tapered, lateral sulcus distinct in proximal 0.66; in female, distal portion 51–59 (55)% of total rostral length, cylindrical, smooth. Scales elongate, recumbent. *Prothorax:* in dorsal view sides strongly, evenly rounded from base to distinct subapical constriction; in lateral view broadly, evenly convex from base to feebly developed subapical constriction. Pronotum with recumbent and feebly raised scales intermixed throughout; scales on pleuron elongate oval, concave, limited to lower portion anteriorly. *Elytra:* in dorsal view sides subparallel in basal 0.66; in lateral view flat in basal 0.50. Interspaces flat, subequal in width, apices of interspaces 4–6 not prominent. Scales in triple rows on each interspace, scales in lateral rows elongate, attenuate, apically narrowly truncate, recumbent, scales in median rows slightly narrower, more nearly parallel sided, suberect, decurved; sutural interspaces with basal cluster of oval white scales; striae scales narrower than scales on interspaces. *Pygidium:* in male moderately broadly exposed, feebly convex, apically subquadrate, posterolateral angles extended into long straplike extensions which are about as long as pygidium itself; in female, pygidium smaller, lacking posterolateral extensions. *Abdomen:* in male sterna 3–4 flat, sternum 5 feebly concave medially, scales unmodified, sternum 5 distinctly constricted subapically, posterior margin of segment subquadrately emarginate; in female, sternum 5 broadly, strongly constricted medially, posteromedian portion of segment prominent but not produced posteriorly. *Tarsi:* in male, article one of metatarsus much longer than corresponding article on pro- and mesotarsi. *Male genitalia:* (Fig. 207), median portion non-sclerotized dorsally and ventrally; anterolateral plates of spiculum gastrale modified (Fig. 207).

Discussion.— A relatively small *Microtychius*, probably a bud predator; adults collected on *Mimosa platycarpa*; known only from the type-series from Guatemala (Fig. 203).

Members of the type-series were collected in apparent microsympatry with another bud predator, *S. criniventer*. The species is apparently sister to the Mexican *S. inflata* as evidenced by the shared possession in adults of elongate straplike extensions of the posterolateral angles of the pygidium.

S. obrienorum is named for Charles W. and Lois B. O'Brien who collected the type-series and many other specimens examined in the present study.

52—*Sibinia (Microtychius) criniventer*, new species
(Figs. 203, 208)

Holotype.— Male, GUATEMALA: 6 mi NE El Progreso, 1200', 27 July, 1974, C.W. & L.

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O'Brien, & Marshall, on *Mimosa platycarpa* (CWO).

Allotype.— Female, same data as holotype (CWO).

Paratypes.— Same data as holotype (92); GUATEMALA, 15 mi. NW Zacapa, 1000', 25 July, 1974, C.W. & L. O'Brien & Marshall on *Mimosa platycarpa* (7); HONDURAS, Tegucigalpa, 13 April, 1918, F.J. Dyer, Acacia fls (1), Choluteca, 2 mi NE San Marcos de Colon, 3000', 16 July, 1975, C.W. & L. O'Brien & Marshall (1); MEXICO, Nayarit: 9 mi E El Refugio, 20 July, 1955, R.B. & J.M. Selander, meadow grass, J.M. Kingsolver collection, 1963 (1); total 102, distributed to various collections.

Diagnosis.— Scales on pronotum and elytra pale green, uniformly attenuate and apically pointed except for sutural row of small oval white scales on elytra; sterna 3–5 broadly, deeply concave in male, scales on concave portion fine, seta-like, erect; internal sac armed with small spines throughout (Fig. 208).

Description.— *Length*: male 1.38–1.59 (1.47) mm, female 1.26–1.69 (1.52) mm. *Width*: male 0.74–0.86 (0.81) mm, female 0.70–0.89 (0.84) mm. *Integument*: black; ferruginotestaceous to piceous on tibiae, tarsi, antennae and distal portion of rostrum. *Head*: scales on vertex narrow, apically pointed, green, *Eye*: large, height ca. 1.4x length; in dorsal view feebly convex posteriorly, flattened anteriorly; hind margin distinctly raised by distance somewhat greater than diameter of one ocular facet. *Frons*: feebly narrowed posteriorly, in lateral view feebly rounded, continuous with vertex of head. *Rostrum*: male 0.94–1.09 (1.00)x, female 0.97–1.12 (1.06)x pronotum length. In dorsal view in male, feebly tapered from base to antennal insertions, sides of distal portion somewhat more strongly tapered, in female, abruptly narrowed distad of antennal insertions, subparallel distally; in dorsal profile rounded at base, broadly curved over antennal insertions in male; in female, strongly, evenly rounded from base to antennal insertions, more broadly curved to tip. Distal portion in male short, 41–50 (47)% of total rostral length, in lateral view tapered, lateral sulcus distinct in proximal 0.66; in female, distal portion longer, 58–68 (63)% of total rostral length. Scales uniformly recumbent. *Prothorax*: in dorsal view sides subparallel in basal 0.33, broadly rounded anteriorly to feebly developed subapical constriction; in lateral view broadly, evenly convex, subapical constriction obsolete on dorsum. Scales on pronotum elongate, strongly attenuate to pointed apices, uniformly recumbent; scales on lower portion of pleuron ovate, feebly impressed, white, replaced on upper 0.25 by elongate scales. *Elytra*: in dorsal view sides subparallel in basal 0.66, in lateral view flat in basal 0.50. Interspaces flat, subequal in width, moderately deeply impressed, apices of interspaces 4–6 not prominent. Scales on interspaces similar to scales on pronotum but slightly smaller, in triple rows except where reduced to single rows in some areas on each interspace, uniformly slightly raised, decurved; sutural interspaces with nearly complete sutural row of oval white scales; striae scales distinctly narrower than scales on interspaces. *Pygidium*: in male and female narrowly exposed, slightly convex, apically rounded. *Abdomen*: in male, sterna 3–5 broadly, distinctly concave medially, scales on concave portion reduced, some with finely dissected margins, some completely reduced to long, fine suberect setae, sternum 5 not subapically constricted, posteromedian portion of segment not prominent, posterior margin feebly concave; in female, sterna 3–4 flat medially, scales unmodified, sternum 5 slightly but distinctly constricted medially, posteromedian portion of segment broadly prominent, but not produced posteriorly, posterior margin rounded. *Femora*: metafemur subequal in width and about same shape as profemur. *Tibiae*: protibia with minute apical mucro, mesotibia with short stout acute curved horizontal mucro, metatibia unarmed. *Male genitalia*: (Fig. 208). Median portion of median lobe nonsclerotized dorsally and ventrally.

Discussion.— A relatively small *Microtychius*, probably a bud predator; adults collected on *Mimosa platycarpa*; known from the type-series from Mexico, Guatemala, and Honduras (Fig. 203).

Adults of *S. criniventer* were collected in Guatemala on the host in apparent microsympatry with adults of another bud predator, *S. obrienorum*. Adults of the two species are distinguished from each other by the green scales and concave male abdominal sterna of *S. criniventer*, and the femoral and tibial modifications of *S. obrienorum*. Inference of a sister-group relationship between the two species is based solely on the shared host, a weak criterion in the absence of morphological supporting evidence.

53—*Sibinia (Microtychius) tenuicauda*, new species
(Figs. 203, 209)

Holotype.— Male, HONDURAS: Seyapa Morazan, XI-3-1965, N.L.H. Krauss (USNM #75467).

Diagnosis.— Scales on pronotum and elytra narrow, acuminate fulvoaeneous, uniformly recumbent; scales on venter small, integument broadly visible; median lobe strongly narrowed in distal 0.66 (Fig. 209).

Description.— *Length*: 1.46 mm. *Width*: 0.87 mm. *Integument*: black; rufopiceous on posterolateral portions of elytra, rostrum, femora and tibiae; tarsi and antennae ferruginotestaceous. *Head*: scales on vertex small, attenuate, integument broadly visible. *Eye*: small, ca. 1.5x length; in dorsal view broadly evenly convex; hind margin feebly raised by distance ca. equal to diameter of one ocular facet. *Frons*: narrowed slightly posteriorly, in lateral view broadly curved, continuous with vertex of head. *Rostrum*: 1.10x pronotum length. In dorsal view slightly widened at base, tapered from distad of base to antennal insertions, sides of distal portion subparallel; in dorsal profile strongly rounded in basal 0.33, straight in distal 0.66. Dorsomedian carina distinct. Scales recumbent, except where feebly raised over dorsal margins of eyes. Distal portion moderately long, 50% of total rostral length, slightly tapered in lateral view, lateral sulcus distinct in proximal 0.66. *Prothorax*: in dorsal view sides subparallel in basal 0.50, in lateral view broadly, evenly convex, subapical constriction obsolete on dorsum. Scales on pleuron oval, white, small, integument broadly visible, these limited to lower 0.75 anteriorly, replaced dorsally by acuminate scales. *Elytra*: in dorsal view sides subparallel in basal 0.50; in lateral view flat in basal 0.33, broadly curved distally. Interspaces flat, not distinctly impressed, odd interspaces slightly wider than even ones, apices of interspaces 4–6 not prominent. Scales on interspaces in diffuse triple rows except where reduced to double or single rows in some areas; sutural interspaces with basal cluster of small oval white scales; striae scales seta-like, much narrower than scales on interspaces. *Pygidium*: narrowly exposed, feebly convex apically, apex rounded. *Abdomen*: sterna 3–4 flat medially, anteromedian portion of sternum 5 broadly, shallowly concave, scales unmodified, posterior margin of segment straight. *Femora*: profemur and metafemur subequal in width. Scales at base oval, white, replaced distally by slender acuminate scales. *Tibiae*: each with stout curved horizontal mucro. *Male genitalia*: (Fig. 209). Median portion of median lobe non-sclerotized dorsally and ventrally.

Discussion.— A relatively small *Microtychius*, probably a bud predator; host unknown; known only from the male holotype from Honduras (Fig. 203).

The relationship of *S. tenuicauda* to other *hispid*a stock members is uncertain; the median lobe resembles that of *S. stricticomula* (cf. Figs. 209, 154).

54—*Sibinia (Microtychius) bothrosterna*, new species
(Figs. 200, 204, 210)

Holotype.— Male, MEXICO: Chiapas, Teopisca, 20 June, 1965, H.R. Burke, J. R. Meyer, J.C. Schaffner (USNM #75408).

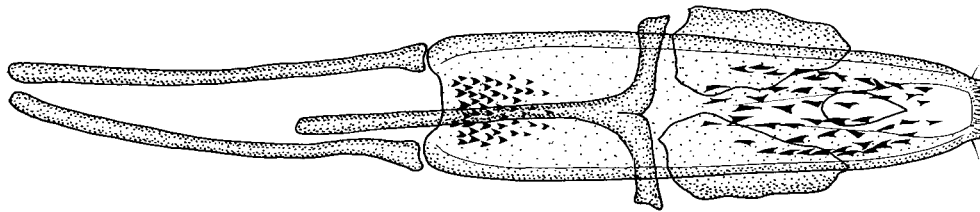
Paratype.— Same data as holotype, (1 male, TAM).

Diagnosis.— (Fig. 200). With pale fulvous and lustrous ferruginous scales on pronotum and elytra, ferruginous scales forming prominent lateromedian vittae; internal sac with large spines through entire length.

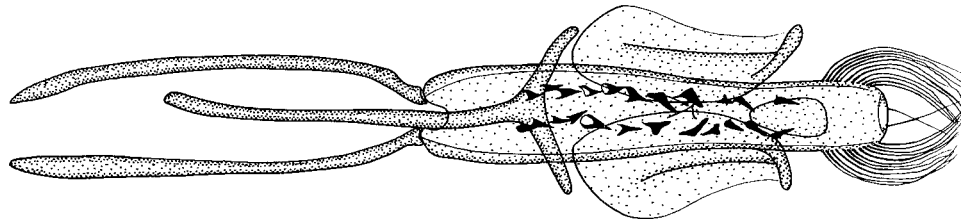
Description.— Characters of *S. hispid*a except—*Length*: 1.82–2.02 mm. *Width*: 0.83–0.85 mm. *Integument*: rufotestaceous, basal triangular portion of elytra and venter black. *Head*: scales on vertex attenuate, pale ferruginous. *Frons*: slightly narrower than base of rostrum; in lateral view flat, continuous with vertex of head. *Eye*: height ca. 1.3x length; in dorsal view strongly convex, especially posteriorly. *Rostrum*: 1.03–1.05x pronotum length. In dorsal view strongly tapered from base to antennal insertions, more strongly tapered from there to tip; in dorsal profile rounded just distad of base. Dorsomedian carina obsolete. Distal portion short, 30–36% of total rostral length, in lateral view tapered, smooth, lateral sulcus becoming obsolete just proximad of antennal insertions. Scales elongate, parallel sided, recumbent, except where slightly raised laterally on frons, scales on sides fulvous, these replaced dorsally by ferruginous scales, with ventrolateral row of long seta-like scales distad of antennal insertions. *Prothorax*: in dorsal view sides slightly wider at base than at middle, feebly rounded to feebly developed subapical constriction; in lateral view broadly convex from base to distinct subapical constriction. Scales on pronotum slightly attenuate, apically truncate, mostly recumbent but with slightly raised scales intermixed on lateromedian portions, pale fulvous scales and darker, narrower, ferruginous scales forming broad lateromedian vittae; scales on pleuron round, replaced by slightly elongate scales dorsally. *Elytra*: in dorsal view sides subparallel in basal 0.66. Scales on interspaces in triple rows on each interspace, reduced to single row on interspaces 2 and 4 on disc, scales in median rows suberect, decurved, wider and more strongly attenuate than recumbent scales in lateral rows, fulvous and ferruginous scales forming diffuse pattern; striae scales slightly narrower than recumbent scales on interspaces. *Abdomen*: sterna 1–3 with broad shallow median channel, sterna 4 and 5 broadly, deeply concave medially, margins of some scales on concave portions minutely dissected, some scales on sternum 5 reduced to fine erect setae, posterior margin of sternum 5 broadly, shallowly emarginate. *Tibiae*: pro- and mesotibiae with short stout conical mucrones. *Male genitalia*: (Fig. 210).

Discussion.— A relatively small *Microtychius*, probably a bud predator; host unknown; known only from the type-series from the state of Chiapas, Mexico (Fig. 204).

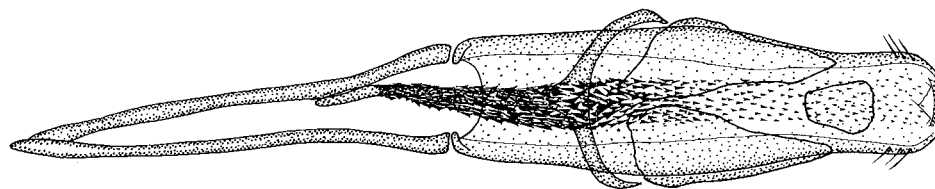
S. bothrosterna adults resemble those of *S. aulacis* of northern Mexico, but are distinguished from those bud predators by having sterna 1–5 evenly, continuously channeled, the eye more strongly convex, and the elongate scales on the pronotum more strongly inclined toward the midline (cf. Figs. 200 and 218); the male genitalia are also diagnostic (cf. Figs. 210, 211).



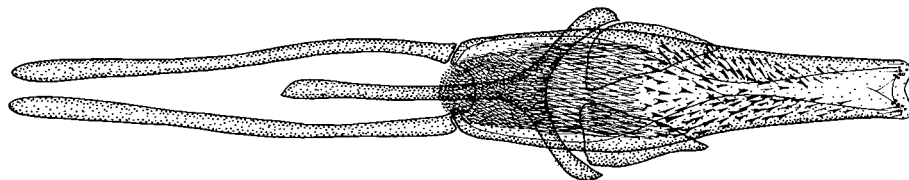
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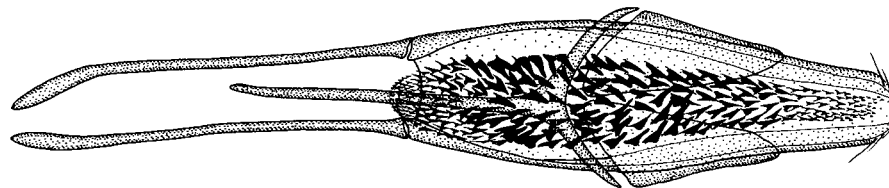
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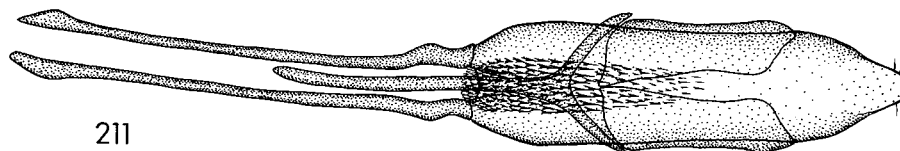
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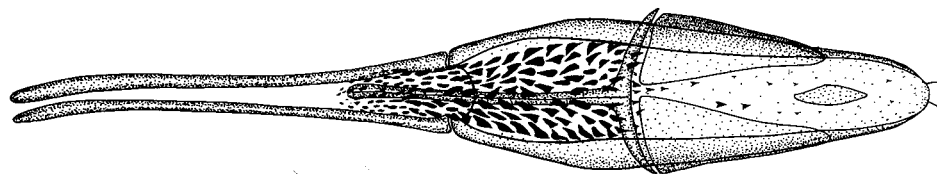


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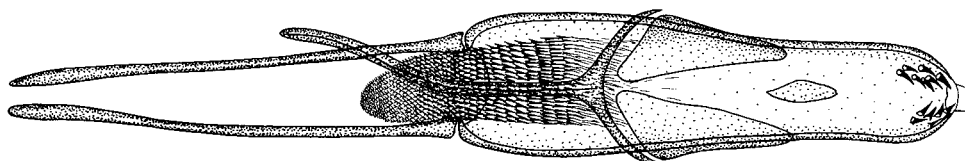


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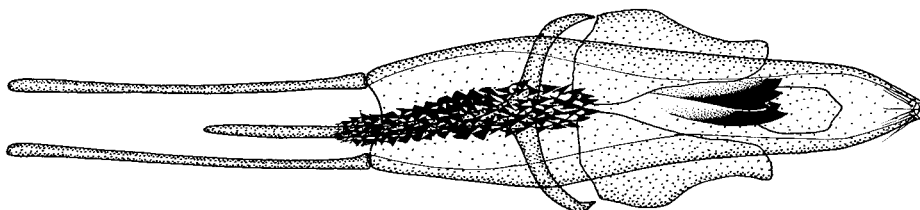
Fig. 206–211, *Sibinia* spp., male external genitalia: 206, *S. inflata*; 207, *S. obrienorum*; 208, *S. criniventer*; 209, *S. tenuicauda*; 210, *S. bothrosterna*; 211, *S. aulacis*, (not to same scale; all ventral views).



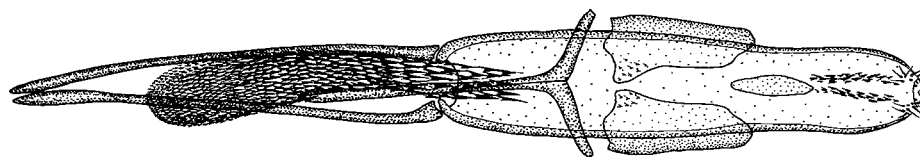
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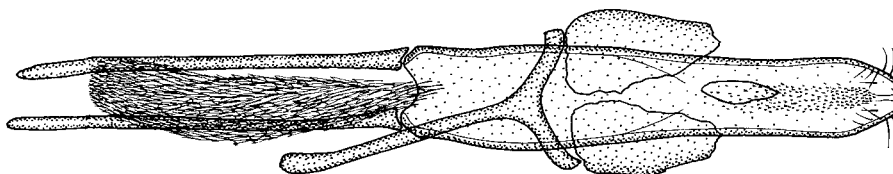
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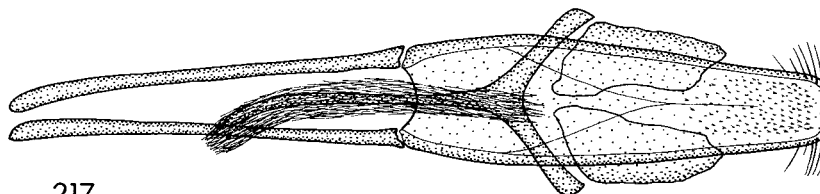
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Fig. 212–217, *Sibinia* spp., male external genitalia: 212, *S. hispida*; 213, *S. sibinioides*; 214, *S. inermoides*; 215, *S. championi*; 216, *S. championi*; 217, *S. peniculata* (not to same scale; all ventral views).

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55—*Sibinia (Microtychius) aulacis*, new species
(Figs. 137, 162, 204, 211, 218)

Holotype.—Male, MEXICO: Tamaulipas, 39.5 mi S Jaumave, 18 July, 1973, G.C. Gaumer, W.E. Clark, on *Mimosa eurycarpa* (USNM #75409).

Allotype.—Female, MEXICO: Veracruz, Fortin de las Flores, 28 June, 1975, sifting leaf litter, D.S. Chandler (CWO).

Paratypes.—Same data as holotype (1); Hidalgo: 6 mi NE Jacala, 5500', 27 May, 1974, C.W. & L. O'Brien & Marshall (1); Tlaxcala: Tepeyanco, 25 June, 1975, L.E. Watrous (1); total three, distributed to various collections.

Diagnosis.—(Fig. 218). Scales on pronotum and elytra fulvous and pale ferruginous; scales in median row on each elytral interspace suberect, slightly widened to bluntly rounded apices; sterna 3 and 4 deeply, continuously channeled medially, sternum 5 separately concave; median lobe sclerotized medially from base to apex ventrally and dorsally, apex entire (Fig. 211).

Description.—Characters of *S. hispida*, except—*Length*: male 1.61–1.64 mm, female 1.82–1.97 mm. *Width*: male 0.74–0.82, female 0.89–0.92 mm. *Integument*: rufous; pronotum, basal triangular portion of elytra, and venter black. *Head*: scales on vertex fulvous to ferruginous. *Eye*: height ca. 1.4x length; in dorsal view strongly, evenly convex; hind margin feebly raised by distance slightly less than diameter of one ocular facet. *Frons*: slightly narrower than base of rostrum, not narrowed posteriorly; in lateral view flat, continuous with vertex of head. *Rostrum*: male 0.94–1.03x, female 0.97–1.00x pronotum length. In dorsal view strongly tapered from base to antennal insertions, parallel sided distally; in dorsal profile distinctly rounded just distad of base. Dorsomedian carina obsolete. Scales slightly raised, especially on dorsolateral portions; scales over dorsal margins of eyes short, fully erect. Distal portion in male moderately long, 40–43% of total rostral length, in lateral view tapered, smooth, lateral sulcus obsolete proximad of antennal insertions; in female, distal portion longer, 54–56% of total rostral length. *Prothorax*: in dorsal view sides rounded from base to subapical constriction; in lateral view broadly, evenly convex from base to distinct subapical constriction. Scales on pronotum elongate, parallel sided to slightly widened to truncate apices, striate, with pale fulvous, recumbent scales and ferruginous suberect scales, ferruginous scales forming broad, faint lateromedian vittae; scales on pleuron nearly round, feebly impressed, white. *Elytra*: in dorsal view sides subparallel in basal 0.50, in lateral view feebly convex on disc. Interspaces flat, odd interspaces slightly wider than even ones, apices of interspaces 4–6 feebly prominent. Scales on interspaces similar in size, shape and color to scales on pronotum, scales in lateral rows recumbent, linear, apically blunt to truncate, scales in median rows suberect, decurved, slightly widened to blunt apices, distinctly longer and wider than recumbent scales, pale fulvous scales and darker ferruginous scales interspersed throughout; striae scales much narrower than recumbent scales on interspaces. *Pygidium*: in male slightly narrowed to broadly subtruncate apex, feebly convex, perpendicular; in female, slightly narrowed to rounded apex. *Abdomen*: in male sterna 3 and 4 narrowly, deeply, continuously concave medially, sternum 5 separately concave medially, concavity narrow anteriorly, broadened posteriorly, some scales on concave portions with finely dissected margins, some reduced to fine erect setae, subapical constriction of sternum 5 obsolete, posterior margin broadly subtruncate emarginate. *Tibiae*: pro- and mesotibiae with slender straight oblique mucrones. *Male genitalia*: (Fig. 211). *Spiculum ventrale*: (Fig. 162). *Spermatheca*: (Fig. 137).

Discussion.—A relatively small *Microtychius*, probably a bud predator; adults collected at the type-locality on *Mimosa eurycarpa*; known only from the type-series from the states of Hidalgo, Tamaulipas, and Veracruz, Mexico (Fig. 204).

Adults of *S. aulacis* were collected on the host at the type-locality with adults of *S. obscura*, a member of the *sibinioides* complex. The species resembles and is probably closely allied to *S. bothosterna* of Chiapas, Mexico. The two are distinguished by characters listed in the discussion of the latter.

56 — *Sibinia (Microtychius) hispida* (Casey), new combination
(Figs. 136, 163, 204, 212, 219)

Tychius hispidus Casey 1892: 424. Wickham 1896–1898. LECTOTYPE (HERE DESIGNATED), male, standing first in series of eight syntypes, labelled "Ar" (with black dot over "r": Santa Rita Mountains) "Casey bequest 1925" "Type USNM 36770" (USNM).

Tychius (Microtychius) hispidus: Casey 1910; Leng 1920; Klima 1934.

Tychius (Microtychius) erraticus Casey 1910: 136. Leng 1920; Klima 1934. Holotype, female: Alpine, Texas (USNM).
NEW SYNONYMY.

Diagnosis.—(Fig. 219). Rostrum prominently rounded at base, especially in female; scales in median row on each elytral interspace nearly fully erect, distinctly longer and wider than recumbent scales in lateral rows; abdominal sterna 3–5 in male each with lateromedian pair of fine erect setae; internal sac with dense large spines in distal 0.50.

Description.— *Length:* male 1.54–1.95 mm, female 1.78–2.20 mm. *Width:* male 0.70–0.88 mm, female 0.85–0.95 mm. *Integument:* prothorax, venter and triangular mediobasal portion of elytra piceous to black, otherwise rufous; tarsi and antennae ferrugino-testaceous. *Head:* scales on vertex elongate, narrow, white and ferruginous scales intermixed. *Frons:* ca. as wide as rostrum on head. *Eye:* small, height ca. 1.8x length; in dorsal view broadly, evenly convex; hind margin raised by distance ca. equal to diameter of one ocular facet. *Rostrum:* male 0.91–1.01x, female 0.97–1.14x pronotum length. In dorsal view evenly tapered from base to tip in male, tapered from base to antennal insertions, subparallel distally in female; in dorsal profile strongly rounded somewhat distad of base then broadly curved to tip in male, more strongly arcuate from base to tip in female. Dorsomedian carina absent, dorsolateral and lateral carinae becoming obsolete just proximad of antennal insertions. Distal portion in male moderately long, 37–56% of total rostral length, feebly tapered in lateral view, lateral sulcus distinct in basal 0.50; in female, distal portion long, 52–61% of total rostral length. Scales elongate, narrow, recumbent, erect to suberect over dorsal margins of eyes, white and ferruginous scales intermixed. *Prothorax:* in dorsal view sides subparallel in basal 0.50, rounded anteriorly to feebly developed subapical constriction; in lateral view feebly, evenly convex from base to feebly developed subapical constriction. Scales on pronotum elongate, subparallel sided, apically truncate, recumbent and slightly raised scales intermixed, white scales forming diffuse median and lateral vittae with ferruginous scales predominant in broad lateromedian vitta on each side; scales on lower portion of pleuron oblong, flat, white, limited to lower 0.50 medially, replaced on upper portion by elongate scales. *Elytra:* in dorsal view humeri prominent, sides feebly convergent behind humeri, broadly curved in apical 0.66; in lateral view flat in basal 0.33. Interspaces flat, subequal in width, feebly, irregularly impressed, apices of interspaces 4–6 feebly raised. Scales on interspaces similar to scales on pronotum in size, shape and color, in diffuse triple rows on each interspace, scales in lateral rows recumbent, scales in median rows nearly fully erect, attenuate, apically pointed, white and ferruginous scales forming diffuse alternating transverse bands; sutural interspaces with small basal cluster of oblong white scales; striae scales much narrower than scales on interspaces. *Pygidium:* narrowly exposed, in male feebly convex, broadly rounded apically, in female flat, slightly narrower than in male, oblique but not produced beyond elytral apices. *Abdomen:* in male sterna 3–4 shallowly concave, sternum 5 slightly more deeply, narrowly concave, scales on concave portions unmodified except for lateromedian pair of erect setae on each segment, posterior margin of sternum 5 not concave; in female, sterna 3–4 and anterior portion of sternum 5 feebly convex medially, sternum 5 feebly constricted subapically, posteromedian portion of segment not prominent, posterior margin straight. *Tibiae:* pro- and mesotibiae with stout curved mucrones, metatibia unarmed. *Male genitalia:* (Fig. 212); median portion nonsclerotized dorsally and ventrally. *Spiculum ventrale:* (Fig. 163). *Spermatheca:* (Fig. 136).

Discussion.— A relatively small *Microtychius*, bud predator of *Mimosa biuncifera*, known from western Texas, Arizona and New Mexico, and from the Mexican states of Chihuahua, Nuevo Leon, and Durango (Fig. 204); 733 specimens examined.

Adults of *S. hispida* have been collected in January (1%), April (4%), May (20%), June (29%) July (29%), August (14%), September (1%), and November (2%). They are active later in the season in southwestern Arizona than in Texas; 91% of August and all September and November collections were made in Arizona. The January record, also from Arizona, is labelled “*Acrostaphylos duff berlese*”, indicating that adults overwinter in ground cover.

Larvae emerged from flower buds of *M. biuncifera* collected in May and June at numerous localities in western Texas and in August in Lincoln County, New Mexico. In the laboratory pupae were observed in cells 9–11 days after larval emergence. The pupal stage lasted eight or nine days and ten days later adults had emerged from their pupal cells. Time between larval emergence from flowers and adult emergence from pupal cells was 27–30 days.

Eggs were observed in apical portions of unopened buds. Young larvae occupy a single bud. As the larva grows, it tunnels through adjacent buds in the compact, globose inflorescence, eventually consuming the contents of four or five buds.

In western Texas and New Mexico *S. hispida* is virtually always microsympatric with another bud predator *S. sibinioides*, and with the seed predator *S. suturalis*.

The *sibinioides* Complex

Diagnosis.— With characters of the *hispida* stock, except—spines on internal sac limited to extreme proximal portion (Fig. 213) (except *S. inermoides* which has a pair of large plates on the internal sac, but no spines (Fig. 214)).

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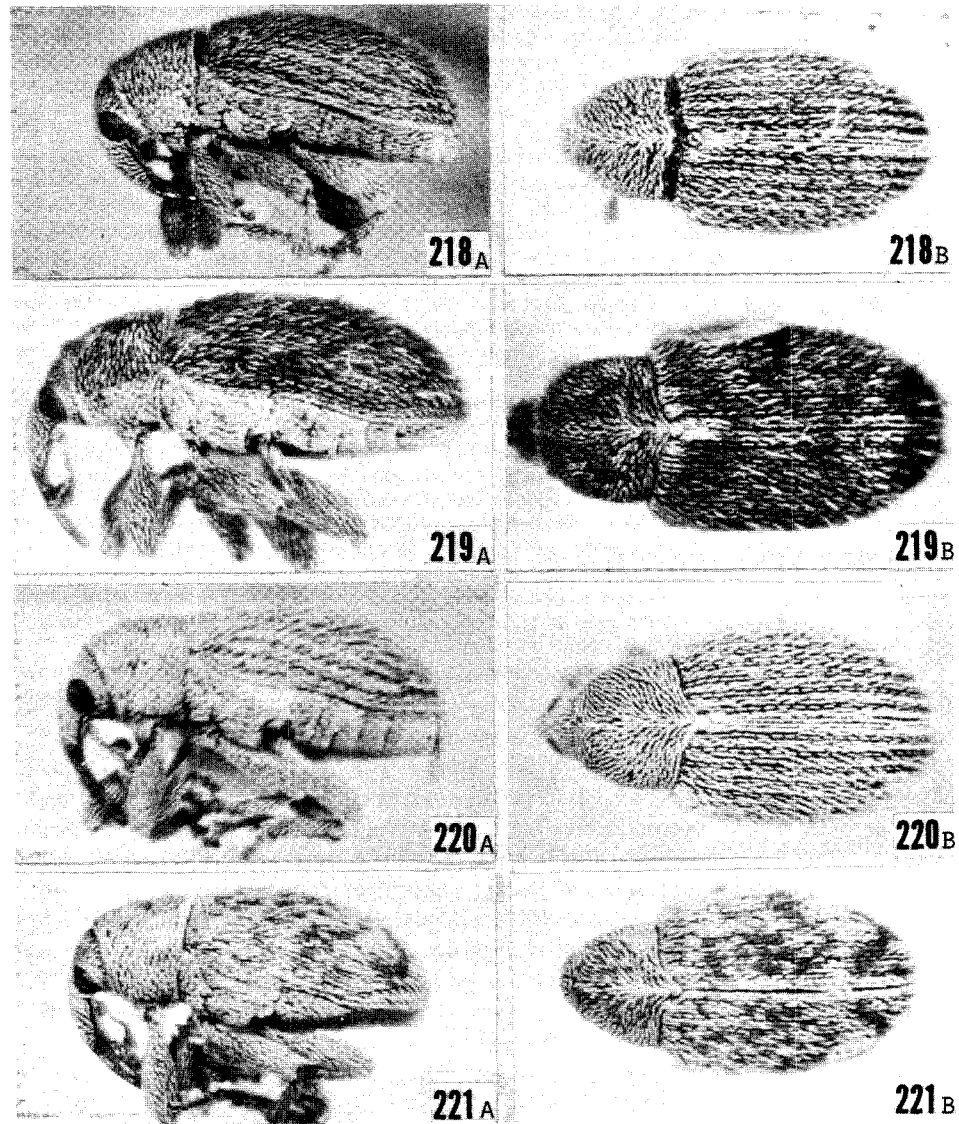


Fig. 218-221, *Sibiria* spp., habitus: 218, *S. aulacis*, male, 39.5 mi SW Jaumave, Tamaulipas, Mexico; 219, *S. hispida*, female, 0.5 mi E Sunset, Lincoln Co., New Mexico; 220, *S. sibinioides*, female, 0.5 mi E Sunset, Lincoln Co., New Mexico; 221, *S. guttata*, female, 101 km E Cd. Victoria, Tamaulipas, Mexico. (A, lateral view; B, dorsal view).

Discussion.— The *sibinioides* complex includes nine species, *S. lecontei*, known only from Texas, *S. sibinioides*, *S. caseyi*, *S. inermis*, and *S. errans*, of the southwestern United States and Mexico, and the Mexican *S. obscura*, *S. guttata*, *S. reburrata*, and *S. inermoides*. All known *sibinioides* complex members are bud predators; their known hosts are species of *Mimosa* and *Acacia*.

Differences between some members of the complex are slight, but there is no apparent intergradation between them. Furthermore, the species appear to be strictly host specific, and even where two or more *sibinioides* complex members are sympatric, there is no evidence that they do not retain their host specificity. Except for slight differences in the number of spines on the internal sac, the male genitalia of *sibinioides* complex members, except as noted above for *S. inermoides* (Fig. 214), do not differ significantly from those of *S. sibinioides* (Fig. 213), and the genitalia of the latter two species are illustrated as representative of the group. The structure of the spiculum ventrale and spermatheca of all members of the group, except *S. inermis* (Fig. 165) and *S. errans*, are also essentially the same as in *S. sibinioides* (Fig. 138), and only these are illustrated (*S. inermoides* is known only from the male holotype). *S. inermis* and *S. errans* have *Acacia* rather than *Mimosa* hosts (the host of *S. inermoides* is unknown). The term complex is used instead of the usual “species group” designation to emphasize the relatively high degree of phenetic similarity of *sibinioides* complex members to each other.

57—*Sibinia* (*Microtychius*) *sibinioides* (Casey), new combination
(Figs. 138, 164, 205, 213, 220)

Tychius sibinioides Casey 1892: 421. Wickham 1896–1898. LECTOTYPE (HERE DESIGNATED), female, first in series of four syntypes, labelled “Ari” (with black dot over “r”: Santa Rita Mountains) “Casey bequest 1925” “Type USNM 36769” and “*sibinioides*” (USNM).

Tychius (*Microtychius*) *sibinioides*: Casey 1910; Leng 1920; Klima 1934.

Diagnosis.—(Fig. 220). Scales on pronotum and elytra uniformly fulvous, pronotum with dorsolateral vittae of slightly darker brown scales; scales in median row on each elytral interspace suberect.

Description.— With characters of *sibinioides* group, and—*Length*: male 1.54–1.75 mm, female 1.58–1.82 mm. *Width*: male 0.78–0.90 mm, female 0.78–0.90 mm. *Head*: scales on vertex apically truncate, fulvous. *Eye*: small, height ca. 1.4x length; in dorsal view slightly convex posteriorly, becoming flattened anteriorly. *Frons*: slightly narrower than base of rostrum, in lateral view broadly curved, continuous with vertex of head. *Rostrum*: male 0.95–1.15x, female 0.92–1.17x pronotum length. In dorsal profile feebly rounded at base in male, usually more strongly rounded in female, broadly curved over antennal insertions. Dorsomedian carina obsolete, lateral and dorsolateral carinae distinct. Scales on sides pale fulvous, replaced by darker scales dorsally in most specimens. Distal portion of male 44–55%, of female 52–65% of total rostral length. *Prothorax*: subapical constriction feebly developed on dorsum. Scales on pronotum moderately broad, parallel sided to slightly attenuate, uniformly recumbent, apically truncate; scales on pleuron pale yellowish white. *Elytra*: humeri not prominent, in dorsal view sides subparallel in basal 0.50. Scales on interspaces strongly attenuate, apically truncate, scales in lateral rows recumbent, scales in median row suberect, strongly decurved, longer and wider than recumbent scales; striae scales narrower than recumbent scales on interspaces. *Abdomen*: scales on sterna unmodified. *Male genitalia*: (Fig. 213). internal sac with three or four large spines in extreme proximal cluster. *Spiculum ventrale*: (Fig. 164). *Spermatheca*: (Fig. 138).

Discussion.— A relatively small *Microtychius*, probably a bud predator; adults collected on *Mimosa biuncifera* and *M. stipitata*; known from Texas, southern New Mexico, southeastern Arizona, and from the Mexican states of Chihuahua, Durango, Guerrero, Michoacan, Oaxaca, Puebla, Sinaloa, Sonora, and Zacatecas (Fig. 205); 1, 172 specimens examined.

Adults of *S. sibinioides* are usually microsympatric on *Mimosa biuncifera* with the bud predator *S. hispida* and the seed predator *S. suturalis* in the Trans-Pecos region of Texas, in New Mexico, and in Arizona. They have been collected in April (1%), May (3%), June (14%), July (26%), August (14%), September (26%), October (2%) and November (1%). Peak

abundance of adults in Arizona and northwestern Mexico is July through September, in Texas, June and July. Larvae probably develop in flower buds, as do the larvae of *S. hispida*, but attempts to rear them have not been successful. One adult was collected in Arizona in "sycamore duff" in October in a berlese sample, indicating that the adult is the overwintering stage.

Specimens examined from Arizona and northwestern Mexico have uniformly pale fulvous scales on the pronotum and elytra. Specimens from Texas usually have a few darker fulvous scales on the elytra and sometimes in lateromedian vittae on the pronotum. Specimens from the Balsas Basin-Valley of Tehuacan region of southern Mexico usually have darker brown scales interspersed in small patches throughout on the elytra. These are associated with *Mimosa stipitata* and may represent a distinct species.

58—*Sibinia (Microtychius) obscura*, new species
(Figs. 139, 245)

Holotype.— Male, MEXICO: Tamaulipas, 39.5 mi S Jaumave, 18 July, 1973, G.C. Gaumer, W.E. Clark, on *Mimosa eurycarpa* (USNM #75410).

Allotype.— Female, same data as holotype (USNM).

Paratypes.— Same data as holotype (4); paratypes distributed to various collections.

Diagnosis.— Pronotum and elytra with white and ferruginous scales intermixed; scales in median row on each elytral interspace suberect.

Description.— With characters of *sibinioides* complex, and—*Length*: male 1.54–1.61 mm, female 1.47–1.78 mm. *Width*: male 0.73–0.80 mm, female 0.77–0.85 mm. *Head*: scales on vertex narrow, linear, apically blunt, pale ferruginous. *Eye*: height ca. 1.3x length; in dorsal view slightly convex posteriorly, becoming flattened anteriorly; hind margin feebly raised by distance less than diameter of one ocular facet. *Frons*: slightly narrower than base of rostrum, continuous with vertex of head. *Rostrum*: male 0.97–1.06x, female 0.97–1.10x pronotum length. In dorsal profile feebly to distinctly rounded at base, broadly curved from just basad of antennal insertions to tip. Dorsomedian carina obsolete, lateral and dorsolateral carinae feebly developed. Scales whitish to pale ferruginous. Distal portion in male 43–51%, in female 59–69% of total rostral length. *Prothorax*: subapical constriction obsolete dorsally. Scales on pronotum elongate, very narrow, feebly attenuate, apically truncate, recumbent to slightly raised throughout, ferruginous scales forming broad, more or less distinct lateromedian vitta on each side; scales on pleuron white. *Elytra*: in dorsal view sides subparallel in basal 0.50; scales on interspaces similar in size and shape to scales on pronotum, white scales and pale ferruginous scales intermixed, scales in lateral rows recumbent, scales in median rows suberect, longer and broader than recumbent scales; sutural interspaces without oval white scales; striae slightly narrower than recumbent scales on interspaces. *Male genitalia*: as illustrated for *S. sibinioides* (cf. Fig. 213), except internal sac with three or four large spines in extreme proximal cluster. *Spermatheca*: (Fig. 139).

Discussion.— A relatively small *Microtychius*, probably a bud predator; adults collected on *Mimosa eurycarpa*; known only from the type-series from the state of Tamaulipas, Mexico (Fig. 245).

The type-series of *S. obscura* was collected on the host along with adults of another bud predator, *S. aulacis*. Larvae, apparently of *S. obscura* or *S. aulacis*, emerged from flower buds of the host collected at the time the adults were collected, but these died before pupating and could not be associated with adults of either species.

S. obscura adults closely resemble those of *S. sibinioides* which also have suberect relatively broad scales in the median rows of the elytral interspaces. Ferruginous rather than fulvous scales and more slender form distinguish *S. obscura* adults from those of *S. sibinioides*.

59—*Sibinia (Microtychius) guttata*, new species
(Figs. 140, 221, 245)

Holotype.— Male, MEXICO: Tamaulipas, 101 km E Cd. Victoria, 17 July, 1973, G.C. Gaumer, W.E. Clark, on *Mimosa malacophylla* (USNM #75411).

Allotype.— Female, same data as holotype (USNM).

Paratypes.—Same data as holotype (18); MEXICO: Tamaulipas, 103 Km E Cd. Victoria, 16 July, 1973, G.C. Gaumer, W.E. Clark, on *Mimosa malacophylla* (14); Neuvo Leon, 18 mi W Linares, 2 July, 1974, Clark, Murray, Ashe, Schaffner, on *Mimosa malacophylla* (14); total 46, distributed to various collections.

Diagnosis.—(Fig. 221). Scales on pronotum and elytra broad, rounded, ochreous, patches of darker yellowish brown scales intermixed; scales in median rows on elytral interspaces feebly raised.

Description.— With characters of *sibinioides* complex, and—*Length*: male, 1.64–1.85 mm, female 1.71–1.92 mm. *Width*: male 0.85–0.99 mm, female 0.86–0.99 mm. *Integument*: elytra uniformly piceous to black. *Head*: scales on vertex elongate, narrow, apically blunt to truncate, ochreous. *Eye*: height ca. 1.4x length; in dorsal view slightly, nearly evenly convex; hind margin raised by distance slightly greater than diameter of one ocular facet. *Frons*: slightly narrower than base of rostrum, in lateral view rounded separately from vertex of head. *Rostrum*: male 0.93–1.11x, female 0.98–1.13x pronotum length. In dorsal profile strongly rounded at base, especially in female, broadly curved from distad of base to tip. Dorsomedian carina feebly developed, lateral and dorsolateral carinae distinct. Scales on sides pale ochreous, replaced by darker, brighter scales dorsally. Distal portion in male 49–54%, in female 58–68% of total rostral length. *Prothorax*: subapical constriction obsolete on dorsum. Scales on pronotum moderately broad, parallel sided, apically blunt, recumbent, bright ochreous and dark yellowish brown; darker scales forming broad, diffuse lateromedian vitta on each side, scales on pleuron yellowish white. *Elytra*: in dorsal view sides subparallel in basal 0.50. Scales on interspaces broad, parallel sided, apically blunt, pale ochreous scales and dark yellowish brown scales intermixed, scales in lateral rows recumbent, scales in median rows slightly longer and wider and slightly raised above scales in lateral rows; sutural interspaces with white oval scales forming dense basal cluster and uninterrupted row from base to apices adjacent to suture; striae scales almost as wide as recumbent scales on interspaces. *Male genitalia*: as illustrated for *S. sibinioides* (Fig. 213), except internal sac bearing three or four large spines in extreme proximal cluster. *Spermatheca*: (Fig. 140).

Discussion.— A relatively small *Microtychius* bud predator of *Mimosa malacophylla*; known from the type-series from the states of Nuevo Leon and Tamaulipas, Mexico (Fig. 245).

Adults of *S. guttata* were reared from larvae which emerged from flower buds of the host collected 25 August, 1974, 24 mi W Soto la Marina, Tamaulipas, Mexico. Adults were noted in pupal cells 19 days later on 13 September. Adults were also collected on the host in Nuevo Leon and Tamaulipas in July.

Adults of *S. guttata* are distinguished from those of *S. sibinioides*, the other *sibinioides* complex member with fulvous scales, by larger size, more robust body form, more strongly rounded basal portion of the rostrum, and feebly raised rather than suberect scales in the median rows on each elytral interspace (cf. Fig. 220, 221).

60—*Sibinia (Microtychius) caseyi*, new species
(Figs. 222, 245)

Holotype.— Male, TEXAS: Presidio Co., 2 mi S Shafter, 30 May, 1973, G.C. Gaumer, W.E. Clark, reared from larvae from flower buds *Mimosa emoryana* (USNM #75412).

Allotype.— Female, same data as holotype (USNM).

Paratypes.— Same data as holotype (36); TEXAS: Presidio Co., 13 mi N Presidio, 20 November, 1967, C.L. Cole (2); Big Bend N.P., Green Gulch, 8 June, 1972, W.E. Clark (1). MEXICO: Durango, 9 mi N Rodeo, 4600' 1 July, 1971, C.W. O'Brien (2), 9 mi S San Antonio, 5200', 1 July, 1976, O'Brien & Marshall (14); Nuevo Leon, 9 mi W Iturbide, 3 July, 1974, Clark, Murray, Ashe, Schaffner (14), 18 mi N LaEscondida, 4 July, 1974, Clark, Murray, Ashe, Schaffner (2), 3 mi S Pacheco, 3–4 July, 1974, Clark, Murray, Ashe, Schaffner (4); total 75, distributed to various collections.

Diagnosis.—(Fig. 222). Pale whitish and darker ferruginous scales intermixed on pronotum and elytra; scales in median rows on elytral interspaces feebly raised.

Description.— With characters of *sibinioides* complex, and—*Length*: 1.68–1.88 mm, female 1.75–1.88 mm. *Width*: male 0.88–0.95 mm, female 0.85–0.99 mm. *Integument*: elytra uniformly piceous to black. *Head*: scales on vertex narrow, linear, apically truncate, ferruginous. *Eye*: height ca. 1.3x width; in dorsal view slightly, nearly evenly convex; hind margin raised by distance ca. equal to diameter of one ocular facet. *Frons*: slightly narrower than base of rostrum, in lateral view continuous with vertex of head. *Rostrum*: male 0.95–1.08x, female 1.00–1.14x pronotum length. In dorsal profile strongly rounded at base, especially in female, broadly curved from just distad of base to tip. Dorsomedian carina feebly developed, lateral and dorsolateral carinae distinct. Scales white, a few pale ferruginous scales on dorsum. Distal portion in male 47–53% in female 58–64% of total rostral length. *Prothorax*: subapical constriction obsolete on dorsum. Scales on pronotum linear to slightly attenuate, apically truncate, recumbent, pale fulvous and ferruginous, darker scales forming broad, distinct latero-

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median vitta on each side; scales on pleuron brownish white. *Elytra*: in dorsal view sides subparallel in basal 0.50. Scales on interspaces linear to feebly attenuate, apically truncate, fulvous scales and ferruginous scales interspersed throughout, scales in lateral rows feebly raised, scales in median rows more distinctly raised; sutural interspaces without oval white scales; striae scales almost as wide as recumbent scales on interspaces. *Male genitalia*: as illustrated for *S. sibinioides* (cf. Fig. 213) except internal sac with numerous very small spines and a few larger spines in proximal cluster.

Discussion.—A relatively small bud predator *Microtychius*; hosts *Mimosa emoryana* and probably *M. biuncifera*; known from the type-series from the Mexican states of Durango and Nuevo Leon (Fig. 245).

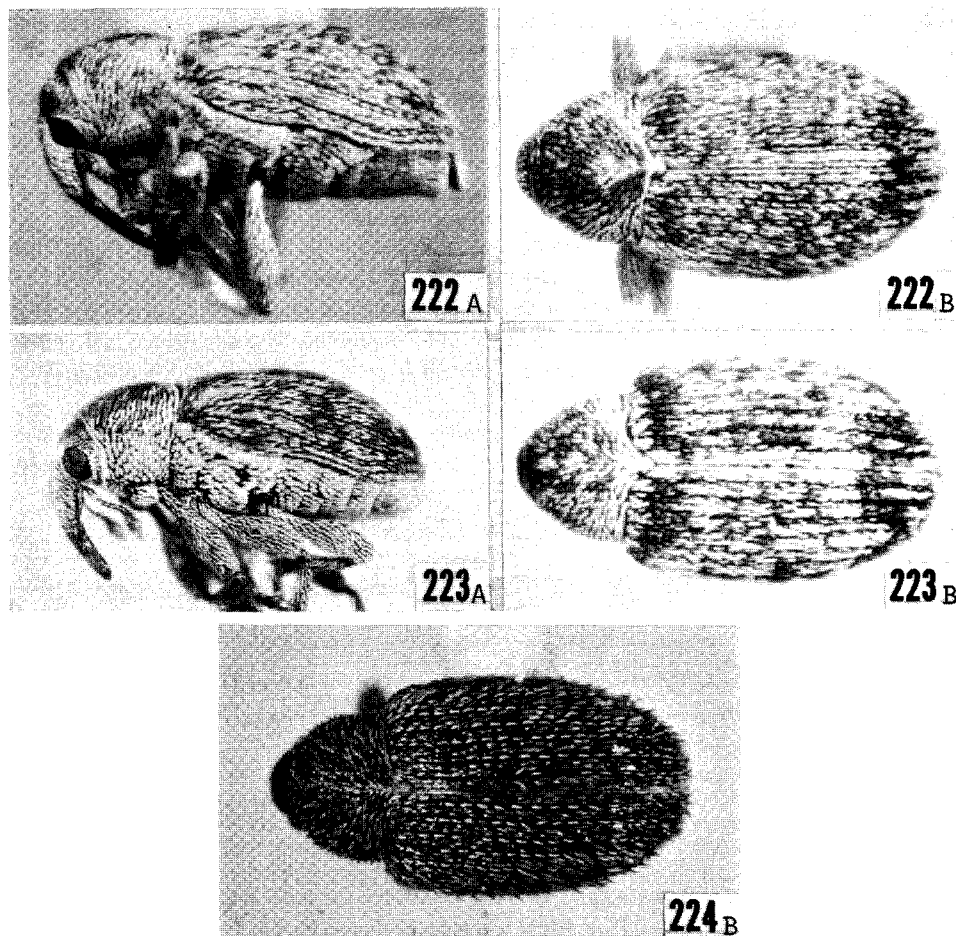


Fig. 222–224, *Sibinia* spp., habitus: 222, *S. caseyi*, female, 2 mi S Shafter, Presidio Co., Texas; 223, *S. lecontei*, male, 7 mi NW San Saba Co., Texas; 224, *S. reburrata*, male, 4 mi SW Acatepec, Puebla, Mexico. (A, lateral view; B, dorsal view).

Adults of *S. caseyi* have been collected in May, June, and November. They were reared from larvae which emerged from flower buds of the host collected 30 May, 1973, 2 mi S Shafter, Presidio County, Texas. Pupae were noted in cells on 7 June, 1973 and by 20 June, numerous adults had emerged. Adults collected in Neuvo Leon, Mexico, were on *M. biuncifera* with adults of the bud predator, *S. hispida* and the seed predator, *S. suturalis*.

Adults of *S. caseyi* closely resemble those of *S. guttata* which also have the basal portion of the rostrum very strongly rounded in the female. The former are distinguished from the latter species by the different color and pattern of the scales. This species is named after the American coleopterist, Thomas Lincoln Casey.

61—*Sibinia (Microtychius) lecontei*, new species
(Figs. 223, 245)

Holotype.— Male, TEXAS: Llano Co., Buchanan Dam, 24 April, 1971, W.E. Clark, on *Mimosa borealis* (USNM #75413).

Allotype.— Female, same data as holotype (USNM).

Paratypes.— Same data as holotype (63); the same, except— 15 May, 1971 (2); Texas Llano Co., 2 mi S Buchanan Dam, 7 September, 1963, H.R. Burke (4), the same, except 28 May, 1973, G.C. Gaumer, W.E. Clark, on *Mimosa borealis* (7); Schleicher Co., 18 mi E El Dorado, 10 June, 1972, W.E. Clark, on *Mimosa borealis* (20); San Saba Co., 7 mi NW San Saba, on Hwy. 16, 15 May, 1971, V.V. Board, W.E. Clark, on *Mimosa borealis* (7); Llano Co., 20 mi S Llano, 15 May, 1971, W.E. Clark, on *Mimosa borealis* (2); Upton Co., 9 mi W Rankin, 13 June, 1971, C.W. O'Brien, G.B. Marshall (9); Pecos Co., 30 mi S Ft. Stockton, 3 June, 1970, L. & C.W. O'Brien (1); total 115, distributed to various collections.

Diagnosis.— (Fig. 223). With strongly contrasting white and ferruginous scales on pronotum and elytra; scales in median row on each elytral interspace recumbent to very feebly raised.

Description.— With characters of *sibinioides* complex, and—*Length*: male 1.64–1.82 mm, female 1.68–1.84 mm. *Width*: male 0.83–0.95 mm, female 0.90–1.00 mm. *Head*: scales on vertex narrow, linear, apically truncate, white scales and pale ferruginous scales intermixed. *Eye*: height ca. 1.3x length; in dorsal view slightly, nearly evenly convex. Hind margin feebly raised by distance ca. equal to diameter of one ocular facet. *Frons*: slightly narrower than base of rostrum in lateral view, continuous with vertex of head. *Rostrum*: male 0.92–1.07x, female 0.93–1.08x pronotum length. In dorsal profile slightly rounded at base in male, more strongly rounded in female, straight to broadly curved from just distad of base to tip. Dorsomedian carina obsolete, lateral and dorsolateral carinae distinct. Scales on sides white, scales on dorsum usually ferruginous. Distal portion in male 45–55%, in female 50–61% of total rostral length. *Prothorax*: subapical constriction obsolete dorsally. Scales on pronotum moderately broad, parallel sided to feebly attenuate, apically truncate, uniformly recumbent, white scales and ferruginous scales intermixed, not forming distinct lateromedian vittae; scales on pleuron white. *Elytra*: in dorsal view sides subparallel in basal 0.50. Scales on interspaces broad, parallel sided, apically blunt to truncate, white scales and ferruginous scales intermixed, scales in lateral rows recumbent, scales in median rows recumbent to feebly raised; sutural interspaces without oval white scales; striae narrower than recumbent scales on interspaces. *Male genitalia*: as illustrated for *S. sibinioides* (cf. Fig. 213), except internal sac with 10–15 small spines in extreme proximal cluster.

Discussion.— A relatively small *Microtychius* bud predator of *Mimosa borealis*; known from the type-series from western Texas (Fig. 245).

Adults of *S. lecontei* have been collected in April, May, June, and September. They were abundant on blooming *M. borealis* in April in Llano County, in May in San Saba County, and in June on the same plant in late fruit in Schleicher County. Larvae emerged from flower buds of the host collected 24 April, 1971, 2 mi S Buchanan Dam, Llano County. A few of these had pupated by 4 May, but none survived to adulthood. Eggs and larvae in all three instars were observed in flower buds. Larvae apparently confine their feeding to a single bud. There is no evidence that larvae move to adjacent buds as they feed, even though the tight congestion of flowers in the globose inflorescence would seem to make this possible. Buds and flowers in mature inflorescences were observed with what apparently were weevil emergence holes in the sides. A large mass of fecal material was present in most of these buds.

The stouter form and darker ferruginous scales of *S. lecontei* distinguish its members from those of *S. caseyi*, which also occur in western Texas (on *M. emoryana*).

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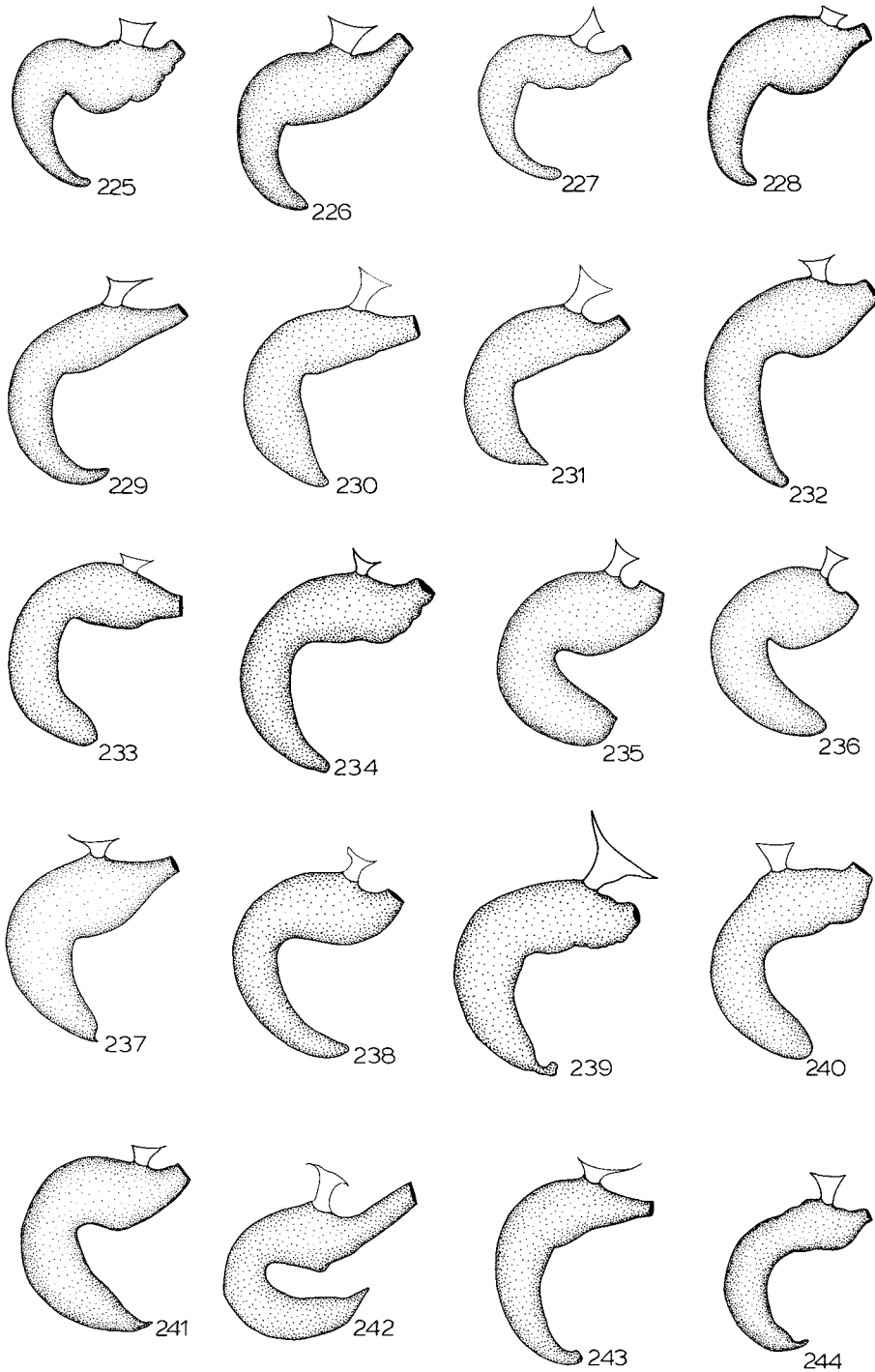


Fig. 225–244, *Sibiria* spp., spermathecae: 225, *S. caseyi*; 226, *S. lecontei*; 227, *S. inermis*; 228, *S. errans*; 229, *S. championi*; 230, *S. peniculata*; 231, *S. foveolata*; 232, *S. aspersa*; 233, *S. acicularis*; 234, *S. ferruginosa*; 235, *S. americana*; 236, *S. americana*; 237, *S. nana*; 238, *S. mendica*; 239, *S. caatingensis*; 240, *S. varga*; 241, *S. vagabunda*; 242, *S. collibita*; 243, *S. zapoteca*; 244, *S. fastigiata* (not to scale).

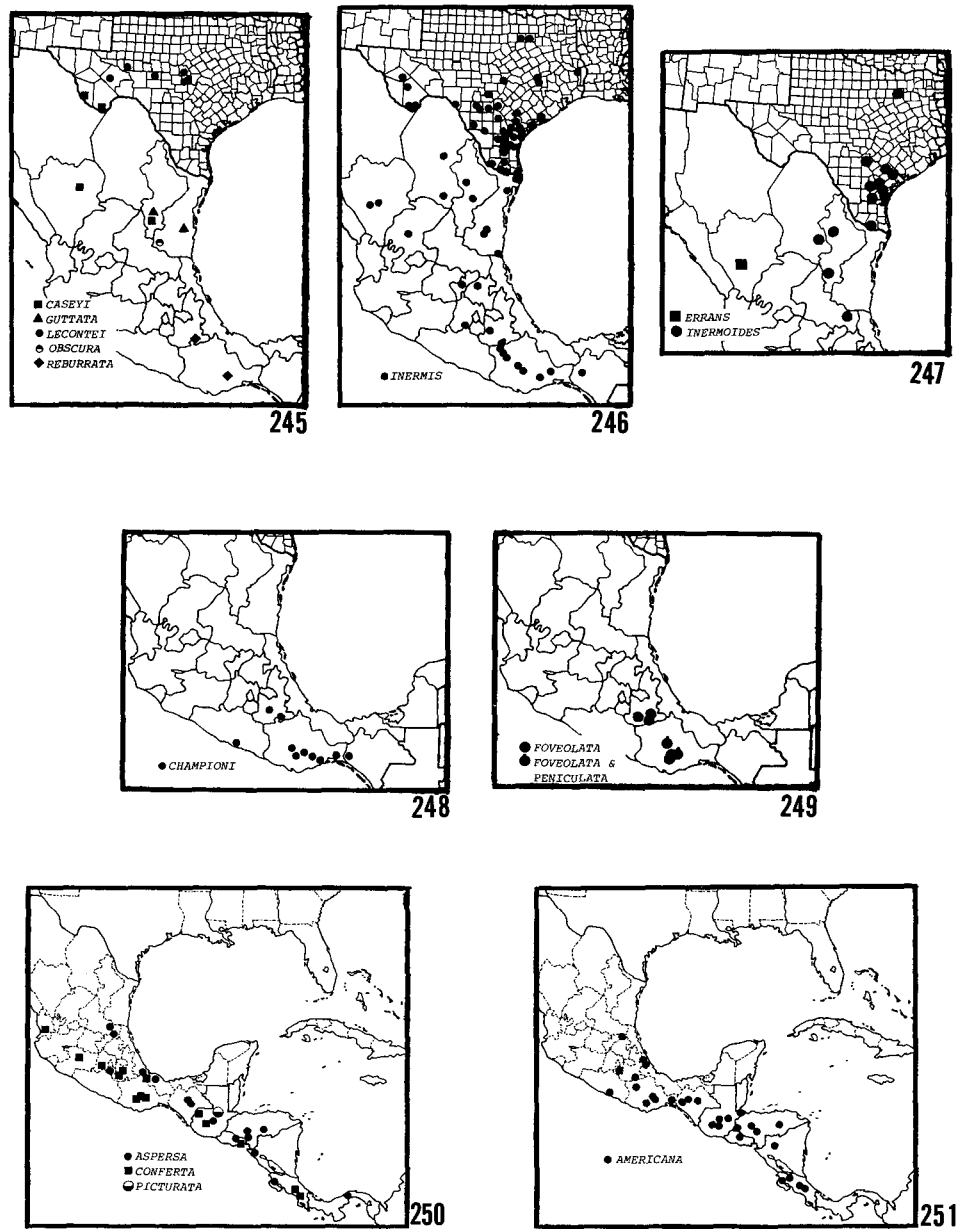


Fig. 245–251, *Sibinia* spp., distribution records: 245, *S. caseyi*, *S. guttata*, *S. lecontei*, *S. obscura*, and *S. reburrata*; 246, *S. inermis*; 247, *S. errans*, and *S. inermoides*; 248, *S. championi*; 249, *S. foveolata* and *S. peniculata*; 250, *S. aspersa*, *S. conferta*, and *S. picturata*; 251, *S. americana*.

62—*Sibinia (Microtychius) reburata*, new species
(Figs. 224, 245)

Holotype.— Male, MEXICO: Puebla, 4.4 mi S Acatepec, 26 July, 1974, Clark, Murray, Ashe, Schaffner (USNM #75414).

Allotype.— Female, same data as holotype (USNM).

Paratypes.— Same data as holotype (16); MEXICO: Oaxaca, 13 mi SE Tlalcolula, 6100', VI-2-1974, O'Brien and Marshall (11); total 37, distributed to various collections.

Diagnosis.— (Fig. 224). Each elytral interspace with median row of erect acuminate ferruginous bristles and two lateral rows of recumbent, white scales.

Description.— With characters of *sibinioides* complex, and—*Length*: male 1.44–1.82 mm, female 1.64–1.75 mm. *Width*: male 0.76–0.95 mm, female 0.80–0.94 mm. *Head*: scales on vertex moderately broad, parallel sided, apically truncate. *Eye*: height ca. 1.5x length; in dorsal view feebly convex posteriorly, becoming flattened anteriorly; hind margin slightly raised by distance ca. equal to diameter of one ocular facet. *Frons*: distinctly narrower than base of rostrum, in lateral view feebly rounded, continuous with vertex of head. *Rostrum*: male 0.91–1.00x, female 0.97–1.05x pronotum length. In dorsal profile strongly rounded at base, broadly, evenly curved from just distad of base to tip. Dorsomedian carina feebly developed. Scales white and ferruginous, intermixed throughout. Distal portion in male 49–56%, in female 64–72% of total rostral length. *Pronotum*: subapical constriction distinct on dorsum. Scales on pronotum moderately broad, parallel sided, apically blunt, recumbent white scales and suberect ferruginous scales intermixed; scales on pleuron white, concave. *Elytra*: in dorsal view sides subparallel in basal 0.50; scales on interspaces elongate, slightly attenuate, apically truncate, scales in lateral rows white, recumbent, scales in median rows ferruginous, nearly completely erect, much longer and slightly wider than recumbent scales; sutural interspaces without oval white scales; striae scales white, about as wide as recumbent scales on interspaces. *Male genitalia*: as illustrated for *S. sibinioides* (Fig. 213), except internal sac with four or five small acute spines on extreme proximal portion.

Discussion.— A relatively small *Microtychius*, probably a bud predator; adults collected on *Mimosa lacerata*; known from the type-series from the states of Puebla and Oaxaca, Mexico (Fig. 245).

Specimens of *S. reburata* were taken at the type-locality on the host along with adults of *S. suturalis*, a seed predator.

63—*Sibinia (Microtychius) inermis* (Casey), new combination
(Figs. 165, 252)

Tychius inermis Casey 1897: 664. LECTOTYPE (HERE DESIGNATED), male, standing first in series of ten syntypes, labelled "Brownsville, Texas Wickham" "Casey bequest 1926" "Type USNM 36779" "*inermis*" (USNM).

Tychius (Microtychius) inermis: Casey 1910; Leng 1920; Klima 1934.

Diagnosis.— (Fig. 252). Fulvous and darker ferruginous scales interspersed in irregular pattern on pronotum and elytra; scales in median rows on elytral interspaces recumbent to very feebly raised.

Description.— With characters of *sibinioides* complex, and—*Length*: male 1.40–1.82 mm, female 1.40–1.44 mm. *Width*: male 0.66–0.89 mm, female 0.70–1.00 mm. *Head*: scales on vertex elongate, narrow, apically blunt to truncate, ferruginous. *Eye*: height ca. 1.4x length; in dorsal view feebly, nearly evenly convex; hind margin feebly raised by distance ca. equal to diameter of one ocular facet. *Frons*: distinctly narrower than base of rostrum, in lateral view broadly rounded, continuous with vertex of head. *Rostrum*: in dorsal profile slightly rounded at base in male, usually more strongly rounded at base in female, straight to broadly curved from just distad of base to tip. Dorsomedian carina obsolete. Distal portion in male 45–50%, in female 51–61% of total rostral length. Scales on sides whitish, replaced by pale to dark ferruginous scales on dorsum. *Prothorax*: subapical constriction distinct on dorsum. Scales on pronotum slightly to strongly attenuate, apically truncate to pointed, uniformly recumbent, white to fulvous scales and ferruginous scales interspersed in diffuse pattern, darker scales forming broad lateromedian vitta on each side; scales on pleuron white to pale ferruginous. *Elytra*: in dorsal view sides subparallel in basal 0.50. Scales on interspaces attenuate, narrowly truncate apically, fulvous and ferruginous scales intermixed, scales in lateral rows recumbent, scales in median rows not or only feebly raised; sutural interspaces with white, oval, flat scales in dense basal patch and forming uninterrupted row from base to apex adjacent to suture; striae scales indistinguishable from scales on interspaces. *Male genitalia*: as illustrated for *S. sibinioides* (cf. Fig. 213), except internal sac with four large and three or four smaller spines on extreme proximal portion. *Spiculum ventrale*: (Fig. 165).

Discussion.— A relatively small *Microtychius* bud predator of *Acacia farnesiana* and *A. schaffneri*, adults also collected on *A. conzattii* in southern Mexico; known from Texas, and eastern and southern Mexico as far south as the state of Chiapas (Fig. 146); 2,022 specimens examined.

Adults of *S. inermis* were reared from larvae which emerged from flower buds of each of these plants. Adults have been collected in January (4%), February (3%), March (28%), April (25%), May (14%), June (10%), July (6%), August (4%), September (1%), November (2%), December (1%). Their period of greatest abundance coincides with the later portion of the blooming periods of the host acacias which is mid-January to mid-April in South Texas. The adult is apparently the overwintering stage. Adults taken early in the spring are generally distinguished by the somewhat faded and worn condition of the scales, indicating that they have survived from the previous season. This undoubtedly is the "*Tychius* species" reported by Mitchell and Pierce (1911) as "breeding in flower heads of *A. farnesiana*" in Victoria County, Texas.

In the laboratory larvae remain in pupal cells for seven to 11 days before pupating. The duration of the pupal stage is 11 to 14 days. Adults emerge from cells ca. three days after emerging from the pupal skin, making a total of at least 31 days from larval emergence from buds to adult emergence.

Larvae of all three instars were observed in flower buds of *A. farnesiana*. Most had their heads directed toward the base of the bud. The entire bud contents are consumed by the feeding larva; a fecal mass accumulates in the buds apical portion. Apparently development is completed in a single bud; no larvae were observed moving to adjacent buds even though buds are contiguous in the globose, head-like inflorescence of *A. farnesiana*. Several larvae were observed

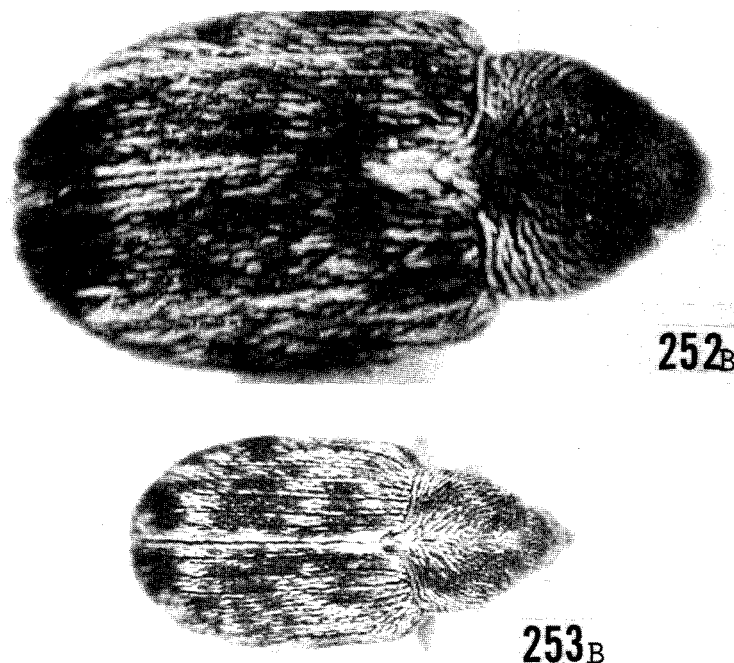


Fig. 252–253, *Sibinia* spp., habitus: 252, *S. inermis*, male, 5 mi N Harlingen, Cameron Co., Texas; 253, *S. errans*, male, 6 mi N Sinton, San Patricio Co., Texas (dorsal view).

tunneling into the tissue of the receptacle. Specimens tentatively identified as *S. inermis* collected in the Balsas Basin-Valley of Tehuacan regions of the states of Puebla and Oaxaca, Mexico, on *A. conzattii* have a larger number of dark scales on the elytra and pronotum than do specimens taken on the other *Acacia* hosts.

64—*Sibinia (Microtychius) errans* (Casey), new combination
(Figs. 228, 247, 253)

Tychius (Microtychius) errans Casey 1910: 142. Klima 1934; Blackwelder 1947; Champion 1910. LECTOTYPE (HERE DESIGNATED), female, standing first in a series of four, labelled "Saltillo Coah. Mex. Wickham" "Casey bequest 1925" "type USNM 36743" "*errans* Csy." (USNM).

Microtychius errans: Champion 1910.

Diagnosis.— (Fig. 253). Pronotum with dark ferruginous scales on all but posterolateral portions, without dorsomedian vitta or patch of light colored scales; internal sac without spines on extreme proximal portion; metatibia mucronate.

Description.— Characters of *S. inermis*, except—*Length*: male 1.61–1.75 mm, female 1.51–1.71 mm. *Width*: male 0.79–0.88 mm, female 0.75–0.88 mm. *Eye*: height ca. 1.3x length; in dorsal view distinctly, evenly convex. *Frons*: slightly narrowed posteriorly. *Rostrum*: male 0.95–1.00x, female 0.97–1.06x pronotum length. In dorsal profile rounded at base, broadly, evenly curved over antennal insertions in male, strongly rounded between base and antennal insertions in female. Dorsomedian carina obsolete. Distal portion of male moderately long, 44–51% of total rostral length, slender, in lateral view feebly tapered, lateral sulcus becoming obsolete just distad of antennal insertions; in female, rostrum abruptly narrowed distad of antennal insertions, distal portion long, 57–68% of total rostral length. Scales on sides fulvous, scales on dorsum ferruginous uniformly recumbent. *Prothorax*: in lateral view broadly, evenly convex, subapical constriction obsolete on dorsum. Scales on pronotum uniformly recumbent, white to pale fulvous, slightly darker ferruginous and darker lustrous ferruginous, scales on pleuron white, limited to lower 0.66 anteriorly, extending onto pronotum posteriorly. *Elytra*: in lateral view flat in basal 0.50. Scales in triple rows on each interspace, scales in lateral rows recumbent, scales in median rows very slightly raised above scales in lateral rows, light and dark scales intermixed in irregular pattern. *Tibiae*: pro- and mesotibiae with long curved mucrones; metatibia with shorter straight oblique mucro. *Male genitalia*: as illustrated for *S. sibirinoides* (cf. Fig. 213), except internal sac lacking spines on extreme proximal portion. *Spiculum ventrale*: as in *S. inermis* (cf. Fig. 165). *Spermatheca*: (Fig. 228).

Discussion.— A relatively small *Microtychius* bud predator of *Acacia rigidula*; known from southern Texas and northeastern Mexico (Fig. 247); 285 specimens examined.

Adults of *S. errans* were collected on the host at several localities in southern Texas in March, May, and July. Adults were also reared from larvae which emerged from flower buds of the host collected in March, 7 mi S Cuero, Dewitt County, Texas.

Adults closely resemble adults of *S. inermis*, a bud predator *Microtychius* with which they are frequently sympatric, but not microsympatric (*S. inermis* occurs on *A. farnesiana* and *A. schaffneri* in the portions of Texas inhabited by *S. errans*). The species can be distinguished by the characters listed in the diagnosis.

The pronotal scale pattern and mucronate metatibia of *S. errans* distinguish the species from all others assigned to the *sibirinoides* complex. It is placed in that group because of its close resemblance to *S. inermis* which has scales more nearly like those of the other *sibirinoides* complex members and has unarmed metatibiae. As mentioned under the discussion of the *sibirinoides* complex, however, both of these species may belong to some other group or groups, as indicated by their *Acacia* rather than *Mimosa* host association. Members of the *chichimeca* group and some members of the *pulcherrima* group have a pronotal scale pattern similar to that of *S. errans*.

65—*Sibinia (Microtychius) inermoides*, new species
(Figs. 214, 247)

Holotype.—Male, MEXICO: Durango, 25 mi W Durango, 7800', 18 August, 1974, C.W. & L. O'Brien & Marshall (CWO).

Diagnosis.—Metafemur broadly concave ventrally in distal 0.75, bearing a large, proximally directed tooth in proximal 0.25, internal sac bearing large blunt spines in distal 0.33, with two large tridentate plates in proximal 0.33 (Fig. 214).

Description.— As described for *S. inermis*, except—*Length*: 1.82 mm. *Width*: 0.89 mm. *Eye*: height ca. 1.3x length. *Rostrum*: in dorsal profile strongly rounded at extreme base, straight to just proximad of internal insertions, strongly rounded over insertions. Distal portion short, 28% of total rostral length, in lateral view strongly tapered, lateral sulcus obsolete in distal 0.75. *Abdomen*: sterna 3–5 narrowly, moderately deeply, continuously channeled, scales on channeled portion reduced, some fine suberect setae present. *Femora*: mesofemur slightly flattened ventrally in distal 0.33, metafemur with ventral margin broadly concave in distal 0.75, with large proximally directed tooth in proximal 0.25. *Tibiae*: protibia with short slender oblique apical mucro; mesotibia with much larger, stout, straight oblique mucro; metatibia with ventral margin broadly convex from base to distal 0.25, abruptly narrowed from there to apex, deeply concave ventrally in apical 0.25, with small, stout apical mucro. *Male genitalia*: (Fig. 214).

Discussion.— A relatively small *Microtychius*, probably a bud predator; host unknown; known only from the male holotype from the state of Durango, Mexico (Fig. 247).

S. inermoides closely resembles *S. inermis*, hence the name which is Latin for *inermis*-like. The modified femur and metatibia and the large plates on the proximal portion of the internal sac of *S. inermoides* males are unique among known *Sibinia*, however, and the two may not be closely related.

The *championi* Group

Diagnosis.— Body form elongate; narrow, parallel sided pale to very dark ferruginous scales, and round to oval, paler ferruginous or fulvous scales intermixed on pronotum, elytra, and femora; inner surface of article II of male protarsus unmodified.

Discussion.— The *championi* group includes four species, *S. championi*, *S. peniculata*, *S. foveolata*, and *S. conferta*; the first three are known only from Mexico, the last from Mexico and Central America. Members of the group occur on species of *Mimosa* which have pink flowers in a relatively large globose inflorescence. Relatively large size of the species indicates that they are seed predators, but larval habits are unknown. The species resemble members of the *aspersa* group in form and in structure and distribution of scales, but *aspersa* group members have article II of the male protarsus concave on the inner surface.

66—*Sibinia (Microtychius) championi*, new species (Figs. 166, 215, 216, 229, 248, 254)

Holotype.— Male, MEXICO: Oaxaca, 2.7 mi NW El Cameron, 21–22 July, 1974, Clark, Murray, Ashe, Schaffner (USNM #75415).

Allotype.— Female, same data as holotype (USNM).

Paratypes.— Same data as holotype (9); the same, except—14 July, 1971, Clark, Murray, Hart, Schaffner (106); total 115, distributed to various collections.

Diagnosis.— (Fig. 254). Elongate oval scales white to pale ferruginous, moderately to very dense and imbricated on elytra, forming complete row on elytral interspace 5; sternum 5 of male unmodified.

Description.— *Length*: male 2.05–2.41 (2.26) mm, female 1.82–3.49 (2.31) mm. *Width*: male 1.04–1.24 (1.16) mm, female 0.93–1.29 (1.18) mm. *Integument*: piceous to black; tibiae, tarsi antennae, and distal portion of rostrum rufopiceous. *Head*: scales on vertex short, narrow, apically bluntly rounded. *Eye*: height ca. 1.6x length; in dorsal view nearly flat; hind margin raised by distance ca. equal to diameter of one ocular facet. *Frons*: distinctly narrowed posteriorly, in lateral view flat, continuous with vertex of head. *Rostrum*: male 0.77–0.96 (0.90)x, female 0.89–0.96 (0.93)x pronotum length. In dorsal view sides feebly tapered to subparallel from base to antennal insertions, strongly tapered from insertions to tip; in dorsal profile feebly rounded at base, broadly curved over antennal insertions in male, broadly curved from base to insertions in female. Rostral carinae obsolete. Distal portion in male short, 30–40 (34)% of total rostral length, in lateral view strongly tapered, lateral sulcus distinct in basal 0.50; in female, distal portion more elongate, 38–45 (41)% of total rostral length,

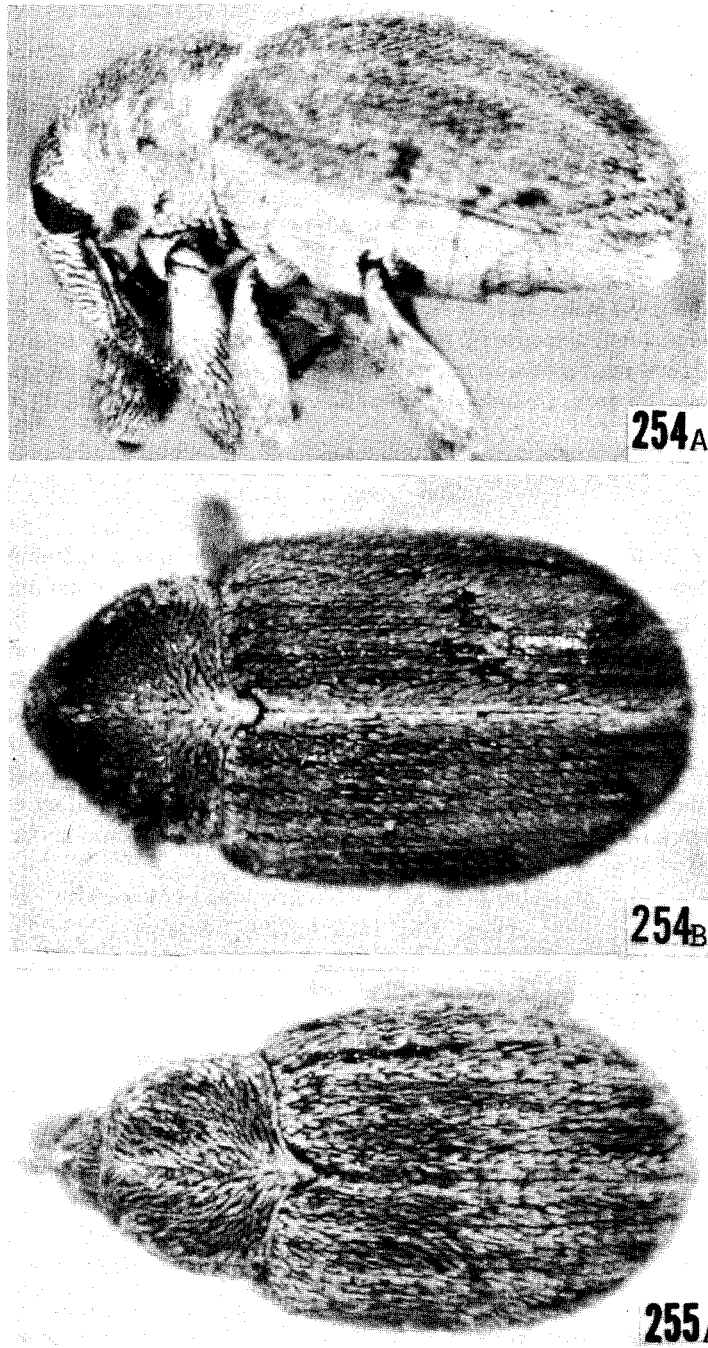


Fig. 254–255, *Sibinia* spp., habitus; 254, *S. championi*, male, 34 mi SW Cintalapa, Chiapas, Mexico; 255, *S. conferta*, 9 mi SE El Cameron, Oaxaca, Mexico (A, lateral view; B, dorsal view).

finely tapered to acute tip. Scales on sides ovate, fulvous, replaced dorsally by more elongate ferruginous scales which are fully erect over dorsal margin of eyes. *Prothorax*: in dorsal view sides distinctly, evenly rounded from base to feebly developed subapical constriction; in lateral view broadly, evenly convex, subapical constriction feebly developed on dorsum. Pronotum with elongate, narrow, feebly attenuate, apically narrowly truncate ferruginous scales, and oval, flat to shallowly impressed, white to pale ferruginous scales on dorsolateral portions and in diffuse dosomedian vitta; scales on pleuron indistinguishable from oval to oblong scales on pronotum, intermixed among elongate scales on upper portion. *Elytra*: in dorsal view sides subparallel in basal 0.66; in lateral view broadly, evenly convex in basal 0.66. Interspaces flat, shallowly impressed, subequal in width, apices of interspaces 4–6 feebly prominent. Scales on interspaces similar to scales on pronotum, in triple rows on each interspace, scales in lateral rows recumbent, oblong to oval scales dense, except on dorsomedian and dorsolateral portions and subapically, forming complete row on interspace 5, narrow darker ferruginous scales distributed elsewhere, each interspace also with median row of slightly raised decurved elongate ferruginous scales; sutural interspaces with basal cluster and complete sutural row of oblong white scales which are smaller than oblong to oval scales on other interspaces; striae scales slightly narrower than elongate scales on interspaces. *Pygidium*: moderately broadly exposed; in male feebly convex toward apex, distinctly narrowed to rounded apex; in female, smaller, flat, more strongly narrowed to rounded apex, oblique, produced slightly beyond elytral apices. *Abdomen*: in male sterna 3–5 feebly, broadly convex medially, scales unmodified, sternum 5 feebly constricted subapically, posterior margin of segment shallowly, narrowly concave; in female, sterna 3–4 and anterior portion of sternum 5 broadly convex, sternum 5 feebly constricted subapically, posteromedian portion of segment slightly prominent, posterior margin nearly straight. *Tibiae*: each with stout acute apical mucro, metatibial mucro small, oblique. *Male genitalia*: (Figs. 215, 216). *Spiculum ventrale*: (Fig. 166). *Spermatheca*: (Fig. 229).

Discussion.— A relatively large *Microtychius*, probably a seed predator; adults collected on *Mimosa goldmanii* (18 mi SE Tlacolula, 7.7 mi S Ejutla, and 2.8 mi E Matatlan, Oaxaca, Mexico), *M. xanti* (2.7 mi NW El Camaron, Oaxaca, Mexico), *M. mixteca* (4.4 mi SW Acatepec, Puebla, Mexico), and *M. nelsonii* (20 mi E Acapulco, Guerrero, Mexico); known from the type-series from the Mexican state of Oaxaca, and from specimens excluded from the type-series from the same state, and from the states of Puebla and Chiapas, Mexico (Fig. 248) (see appendix I); 130 specimens examined.

Adults of *S. championi* have been collected in June, July, and November, in most cases when host plants were in bloom. Adults were often taken in microsympatry with adults of the seed predator *S. vagabunda* and the bud predator *S. americana*.

S. championi differs from the closely allied *S. conferta* in its larger size, darker scales, and longer internal sac which when inverted extends well beyond the apices of the tegminal struts (Figs. 215, 216). It is distinguished from *S. foveolata* and *S. peniculata* by the unmodified abdominal sterna of the male.

S. championi is named for the British entomologist, George Charles Champion.

67—*Sibinia* (*Microtychius*) *peniculata*, new species
(Figs. 217, 230, 249, 257)

Holotype.— Male, MEXICO: Oaxaca, 2.7 mi NW El Cameron, 14 July, 1971, Clark, Murray, Hart, Schaffner (USNM #75416).

Allotype.— Female, same data as holotype (USNM).

Paratype.— Same data as holotype (2); the same, except— 2.1 mi NW Totolapan, July 21, 1974, Clark, Murray, Ashe, Schaffner (1); total three, distributed to various collections.

Diagnosis.— Sternum 5 in male bearing dense median brush of erect, attenuate scales (Fig. 257); sternum 5 in female with slightly raised, attenuate scales medially.

Description.— As described for *S. championi*, except—*Length*: male 2.18–2.38 (2.28) mm, female 2.31–2.36 (2.34) mm. *Width*: male 1.10–1.25 (1.18) mm, female 1.18 mm. *Rostrum*: male 0.86–0.96 (0.92) × female 0.87–0.93 (0.90) × pronotum length; distal portion in male 38%, in female 36–37% of total rostral length. *Abdomen*: in male, sterna 3–5 broadly, feebly concave medially, scales on sterna 3–4 unmodified, sternum 5 not at all constricted subapically, posterior margin of segment nearly straight; in female, sterna as in *S. championi* but all scales on posteromedian portion of sternum 5 attenuate and suberect. *Male genitalia*: (Fig. 217). *Spiculum ventrale*: as in *S. foveolata* (cf. Fig. 167). *Spermatheca*: (Fig. 230).

Discussion.— A relatively large *Microtychius*, probably a seed predator; adults collected on *Mimosa xanti* (?); known from the type-series from the state of Oaxaca, Mexico (Fig. 249).

Adults of *S. peniculata* were taken along with a much larger number of adults of *S. championi*

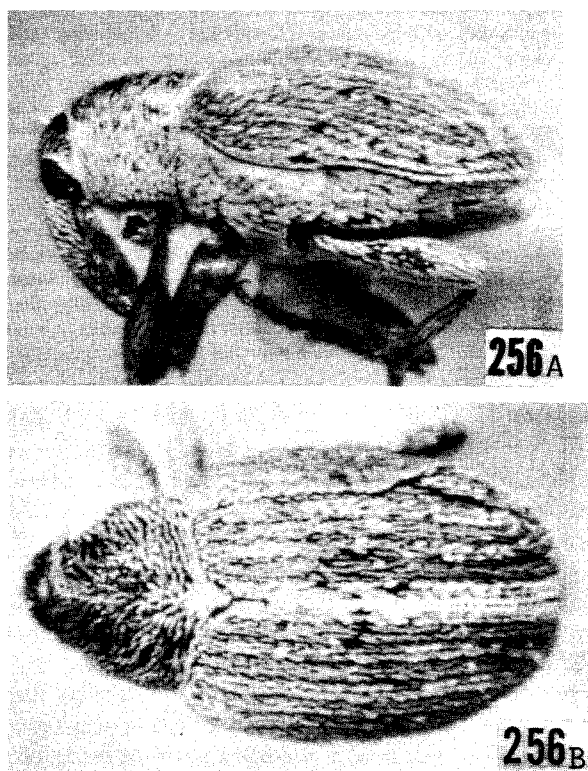


Fig. 256, habitus, *Sibinia aspersa*, male, 17 mi N Acayucan, Veracruz, Mexico (A, lateral view; B, dorsal view).

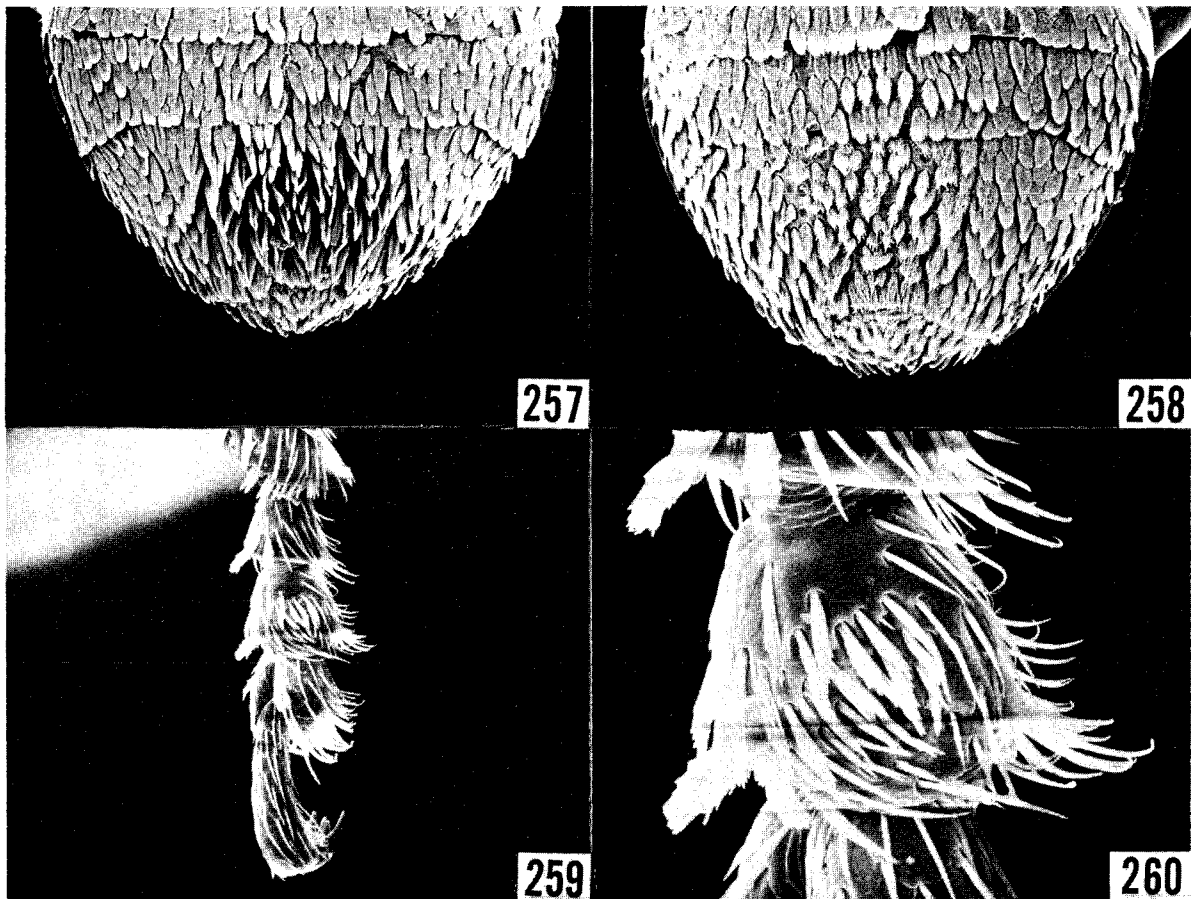


Fig. 257–260, *Sibinia* spp.: 257, *S. peniculata*, male, abdominal sterna 3–5, ventral view (50.2x); 258, *S. foveolata*, male, abdominal sterna 3–5, ventral view (62.7x); 259, *S. vagabunda*, male, right protarsus and tibial apex, lateral view (125.5x); 260, *S. vagabunda*, male, article II of right protarsus (407.8x).

at the type-locality, apparently on flowering *M. xanti*. These weevil species, both probable seed predators, closely resemble each other. They are distinguished by the characters listed in the diagnosis.

68—*Sibinia (Microtychius) foveolata*, new species

(Figs. 167, 231, 249, 258, 261)

Holotype.—Male, MEXICO: Oaxaca, 2.7 mi NW El Cameron, 14 July, 1971, Clark, Murray, Hart, Schaffner (USNM #75417).

Allotype.—Female, same data as holotype (USNM).

Paratypes.—Same data as holotype (3); MEXICO: Oaxaca, 7.7 mi S Ejutla, July 20, 1974, Clark, Murray, Ashe, Schaffner (8), 2.8 mi E. Matatlan, July 24, 1974, Clark, Murray, Ashe, Schaffner (3), 18 mi SE Tlacolula, 6500', 12 August, 1974, C.W. & L. O'Brien & Marshall, on *Mimosa goldmanii* (15), 2.1 mi NW Totolapan, July 21, 1974, Clark, Murray, Ashe, Schaffner (1), 18 mi NW Totolapan, 24 July, 1963, J. Doyen Collector (1); Puebla, 4.4 mi SW Acatepec, July 26, 1974, Clark, Murray, Ashe, Schaffner (1), 5.1 mi SW Tehuacan, July 27, 1974, Clark, Murray, Ashe, Schaffner (1), 12 mi SE Izucar de Matamoros, 21 July, 1974, R.L. Mangan & D.S. Chandler (1) total 36, distributed to various collections.

Diagnosis.—Oblong, to oval scales sparse, not forming complete row on elytral interspace 5; sternum 5 of male with deep median fovea (Fig. 258).

Description.—Characters of *S. championi*, except—*Length*: male 1.97–2.15 (2.07) mm, female 2.08–2.31 (2.16) mm. *Width*: male 0.96–1.07 (1.03) mm, female 1.04–1.17 (1.10) mm. *Eye*: height ca. 1.4x length; in dorsal view feebly, broadly convex. *Rostrum*: male 0.83–0.90 (0.87)x, female 0.94–0.98 (0.96)x pronotum length. In dorsal view sides tapered from base to antennal insertions, distal portion more strongly tapered, especially in female; in dorsal profile broadly curved from base to antennal insertions. Rostral carinae obsolete. Distal portion in male 38–42 (40)%, in female, 42–44 (43)% of total rostral length. *Prothorax*: in dorsal view sides broadly, evenly rounded from base to feebly developed subapical constriction. *Elytra*: oval scales on interspaces limited to broad, posteromedian transverse band and basally on interspaces 5–7, not forming complete row on interspace 5. *Abdomen*: sternum 5 in male (Fig. 258) with narrow longitudinal fovea with reduced and finely setose margined scales. *Male genitalia*: (Fig. 261). *Spiculum ventrale*: (Fig. 167). *Spermatheca*: (Fig. 231).

Discussion.—A relatively large *Microtychius*; probably a seed predator; adults collected on *Mimosa goldmanii* and apparently on *M. xanti*; known from the type-series from the states of Oaxaca and Puebla, Mexico (Fig. 249).

Adults of *S. foveolata* collected at the type-locality were among a much larger number of adults of *S. championi* and a few *S. peniculata*, and may not have been on *M. xanti*. The paratypes from 18 mi SE Tlacolula, Oaxaca, were apparently microsympatric with adults of *S. conferta*, another seed predator *Microtychius*. *S. foveolata* is distinguished from *S. championi* and *S. conferta* by the modification of the 5th abdominal sternum of the male (Fig. 258), and from *S. peniculata* by the different nature of the modification of that segment (cf. Figs. 257, 258).

69—*Sibinia (Microtychius) conferta*, new species

(Figs. 250, 255, 262)

Holotype.—Male, MEXICO: Oaxaca, 8.3 mi SE El Cameron, 24 July, 1974, Clark, Murray, Ashe, Schaffner (USNM #75418).

Allotype.—Female, same data as holotype (USNM).

Paratypes.—Same data as holotype (3); MEXICO: Mexico, 3 mi S Ixtapan de la Sal, 18 July, 1974, R.L. Mangan & D.S. Chandler (1); Oaxaca, 7.7 mi S Ejutla, 20 July, 1974, Clark, Murray, Ashe, Schaffner (1), 18 mi SE Tlacolula 6300', 2 June, 1974, O'Brien & Marshall (1), 18 mi SE Tlacolula, 6500' 12 Aug. 1974, C.W. & L. O'Brien & Marshall, on *Mimosa goldmanii* (4), 9 mi E El Cameron, 27 June, 1971, L. & C.W. O'Brien & Marshall (1); Puebla, 20 mi NE Villa A. Camacho, 28 December, 1963, C.W. & L.B. O'Brien (1), 15 mi SW Puebla, 6900', 1 June, 1974, C.W. & L. O'Brien & Marshall (2); Michoacan, (en el rio, entre el Mirador y el Lago), 30 May, 1963, F. Pacheco, M. (1); Nayarit, Tepic, 21–24 September, 1953, B. Malkin (1); San Luis Potosi, 3.4 mi W Xilitla, 23 August, 1974, W.E. Clark (6); Tamazunchale, 28 January, 1953, D.G. Kissinger (3); Veracruz, Mata Obscura, 4 June, 1961, F. Pacheco (1). GUATEMALA: Guat., Antigua, 2000', 20 June, 1973, Ginter Ekis (1), 6 mi NW Huehuetenango, 6200', O'Brien & Marshall (5), 3 mi SW Huehuetenango, 6300', 29 July, 1974, O'Brien & Marshall (2). EL SALVADOR: Usulután, 3 mi E El Triunfo, 1200', 9 June, 1974, O'Brien & Marshall (1). COSTA RICA: San Jose, Santa Maria de Dota, 26 December, 1925 – 3 March, 1926, P.C. Standley, 43414, *Mimosa albidia* var. *strigosa* (Willd.)

Robins, (1), S.J. 32 mi N San Isidro del General, 1800', 10 July, 1974, L. & C.W. O'Brien & G.B. Marshall (1); total 37, distributed to various collections.

Diagnosis.— (Fig. 255). Elongate scales on pronotum, elytra and femora brownish ochreous; scales in median rows on elytral interspaces feebly raised; oblong to oval scales white to pale ochreous, dense, forming complete median vitta on pronotum and covering most of elytra, except medially on dorsum in basal 0.33 and subapical median portions.

Description.— *Length*: male 1.84–2.39 (2.12) mm, female 1.94–2.43 (2.26) mm. *Width*: male 0.94–1.23 (1.10) mm, female 1.04–1.29 (1.20) mm. *Head*: scales on vertex uniformly elongate, apically truncate. *Eye*: hind margin raised by distance somewhat greater than diameter of one ocular facet. *Frons*: slightly narrower than rostrum at widest point, not narrowed posteriorly; in lateral view broadly curved, continuous with vertex of head. *Rostrum*: male 0.90–1.09 (1.00)x, female 0.99–1.06 (1.05)x pronotum length. In dorsal view slightly widened just distad of base, tapered to antennal insertions, more strongly tapered to tip; in dorsal profile distinctly rounded at base, broadly curved over antennal insertions. Distal portion in male short 31–38 (35)% of total rostral length, in lateral view strongly tapered, lateral sulcus distinct in basal 0.66; in female, distal portion longer, 40–43 (42)% of total rostral length, in lateral view feebly subulate, lateral sulcus distinct in basal 0.50. *Prothorax*: in dorsal view sides subparallel in basal 0.50, broadly rounded apically to feebly developed subapical constriction; in lateral view broadly, evenly convex, subapical constriction obsolete on dorsum. Pronotum with oval scales dense laterally, and forming complete broad median vittae. *Elytra*: scales in lateral rows on each interspace oval, white to pale ochreous except on interspaces 2–4 dorsomedially and 7 and 8 in small area medially, these areas bearing smaller, non-imbricated, oval brownish ochreous scales, each interspace also bearing median row of narrow, apically truncate slightly raised white to dark brownish ochreous scales. *Abdomen*: in male, sterna 3–5 flat medially, subapical constriction of sternum 5 obsolete, posterior margin of segment very broadly, shallowly concave; in female, sterna 3–4 and anterior portion of sternum 5 convex, sternum 5 feebly constricted subapically, posteromedian portion of segment feebly prominent, posterior margin nearly straight. *Male genitalia*: (Fig. 262).

Discussion.— A relatively large *Microtychius*, probably a seed predator; adults collected on *Mimosa albida* and *M. goldmanii*; known from the type-series from Mexico and Central America south to Costa Rica and from a series collected 3 mi NW Misantra, Veracruz, Mexico (TAM), members of which are excluded from the type-series (Fig. 250); 33 specimens examined.

Adults of *S. conferta* have been collected in January, May, June, July, August, and December, most when their hosts were in bloom.

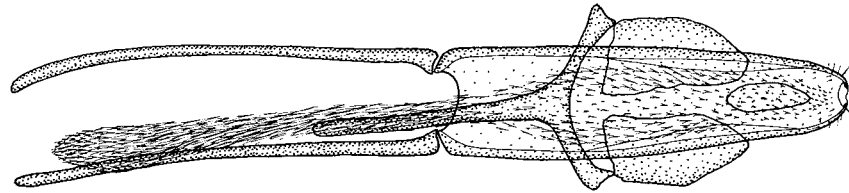
A small *Mimosa* pod attached to the pin with the paratype from Costa Rica has a small hole in the side which could be a larval exit hole (it is too small for the adult to have passed through). The head and profemur of a small *Apion* (Curculionidae) are visible inside the pod through the hole. The dates on the label (26 December, 1925 and 3 March, 1926) apparently refer separately to larval and adult emergence. There were at least two seeds in the pod. Possibly the *Sibinia* and the *Apion* developed in different seeds within the same pod.

Paratypes of *S. conferta* from the state of San Luis Potosi, Mexico, differ from the other paratypes by smaller size (S.L.P. specimens 1.84–2.10 (1.99) mm long, 0.95–1.09 (1.03) mm wide; all others 2.02–2.43 (2.27) mm long, 1.07–1.29 (1.19) mm wide), and sparser oval, apically rounded scales on elytra, and have sternum 5 of the female more distinctly constricted subapically, the posteromedian portion of that segment distinctly produced posteriorly. A series of 12 specimens collected 3 mi NW Misantra, Veracruz, Mexico, on *M. albida* are excluded from the type series. In their relatively small size (length 1.92–2.16 (2.05) mm, width: 0.96–1.08 (1.01) mm) these closely resemble the San Luis Potosi specimens, but differ by having paler scales on the pronotum and elytra. They also have the rostrum less strongly tapered distally and somewhat narrower at the base than other *S. conferta*. The male genitalia of the Misantra and San Luis Potosi series are indistinguishable.

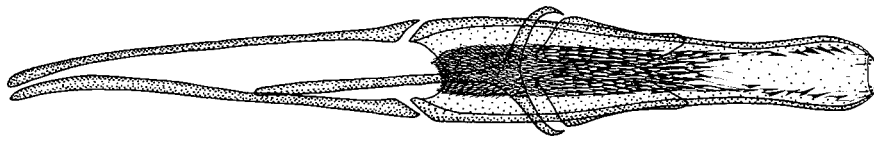
The *aspersa* Group

Diagnosis.— Body form elongate; pronotum, elytra, and femora with elongate, parallel sided ferruginous or greenish ochreous scales, and with sparsely interspersed paler whitish round to oval scales; article II of male protarsus concave on inner surface.

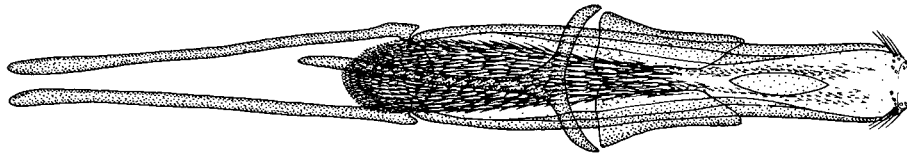
Discussion.— The *aspersa* group contains four species, *S. aspersa*, which is widespread from



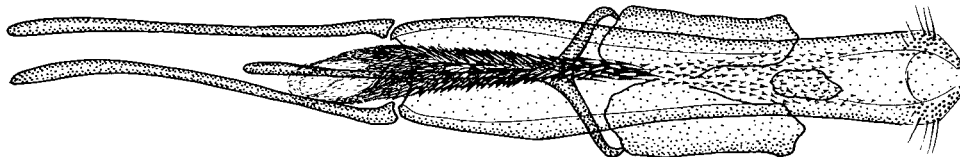
261



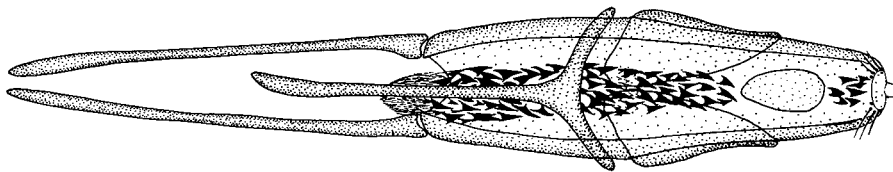
262



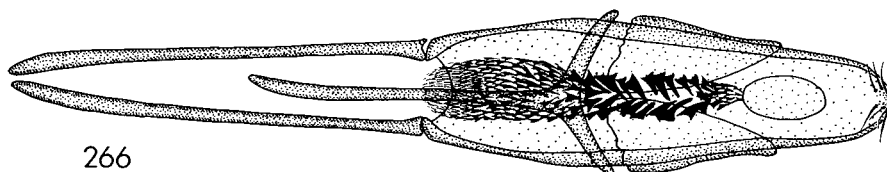
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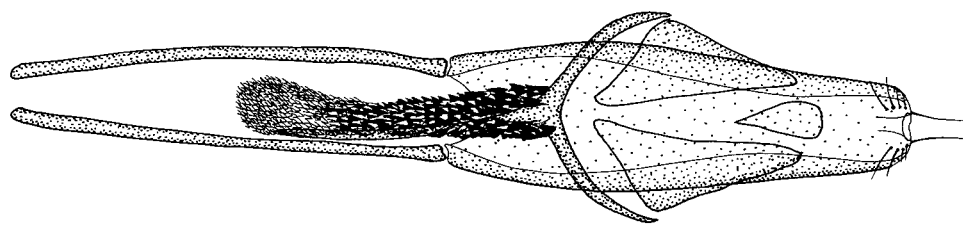


265

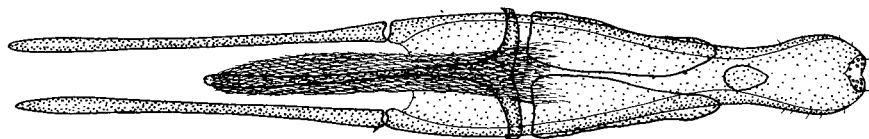


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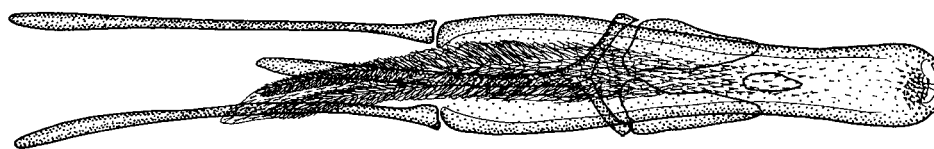
Fig. 261–266, *Sibinia* spp., male external genitalia: 261, *S. foveolata*; 262, *S. conferta*; 263, *S. aspersa*; 264, *S. ferruginosa*; 265, *S. americana*; 266, *S. nana*. (not to scale, all ventral views).



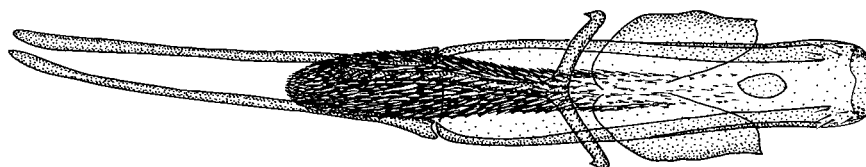
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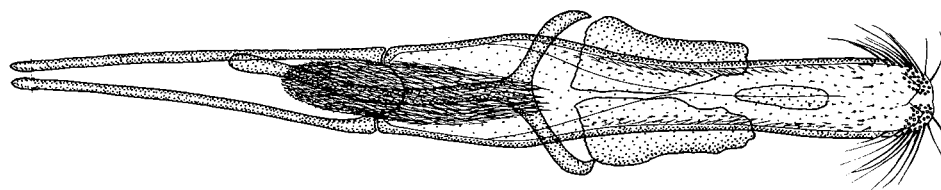
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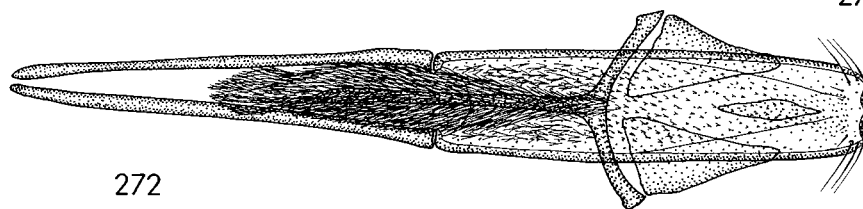


Fig. 267–272, *Sibinia* spp., male external genitalia: 267, *S. mendica*; 268, *S. zapoteca*; 269, *S. robusta*; 270, *S. vagabunda*; 271, *S. varga*; 272, *S. caatingensis* (not to scale, all ventral views)

Mexico to Argentina, *S. acicularis* of Brazil, *S. ferruginosa* of Argentina, and *S. picturata* of Guatemala. Hosts of members of the group are unknown, but may be expected to belong to the genus *Mimosa*, and are likely to be related to hosts of members of the *championi* group. Members of the latter group closely resemble *aspersa* group members, but are distinguished by the unmodified second article of the male protarsus.

70—*Sibinia (Microtychius) aspersa* Champion
(Figs. 168, 232, 250, 256, 263, 273)

Sibinia aspersa Champion 1903: 211. Champion 1910; Klima 1934; Blackwelder 1947; Janzen 1975. LECTOTYPE (HERE DESIGNATED), male, one of eight syntypes, mounted on left-hand side of card on which two male specimens are mounted, labelled "S. Geronimo, Guatemala, Champion" "Type" "B.C.A. Col. IV. 4, *Sibinia aspersa* Champ." (BMNH).

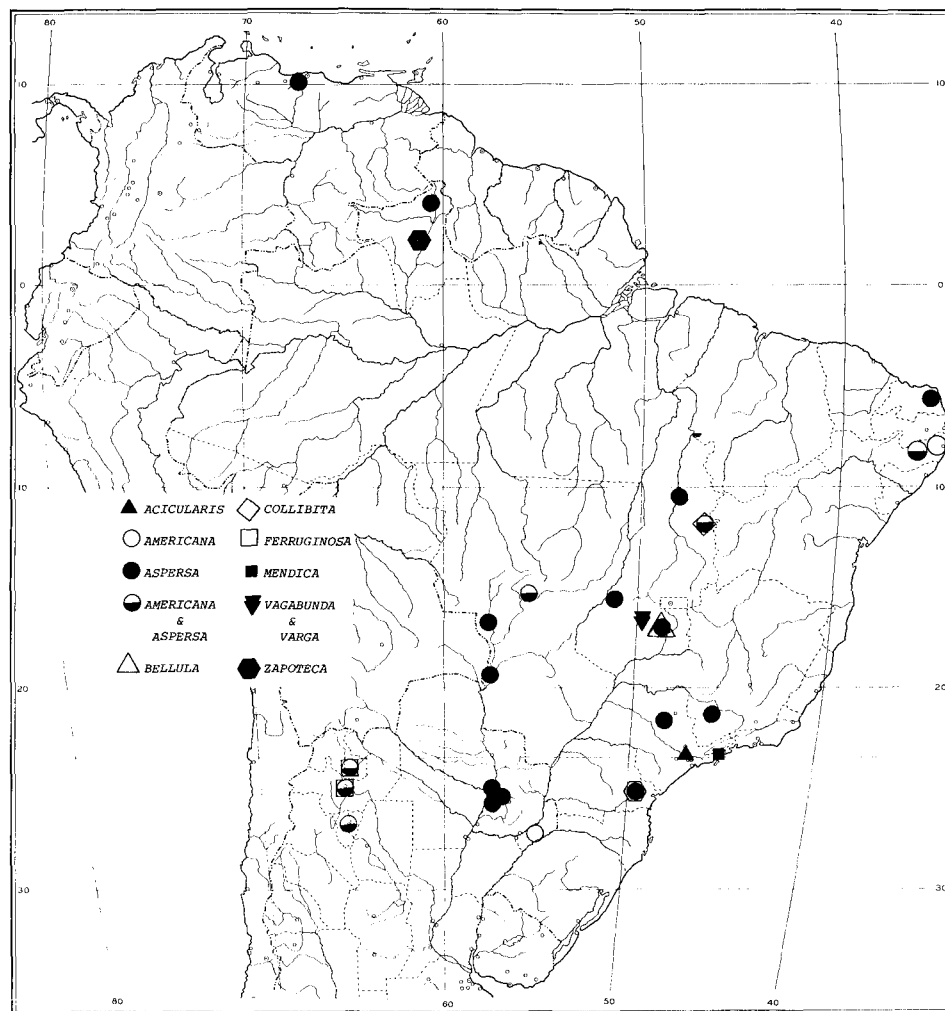
Diagnosis.— (Fig. 256). Pronotum and elytra with elongate greenish ochreous scales, and oblong to oval white to pale greenish ochreous scales, the latter sparse, not imbricated, not forming complete transverse bands on elytra; apical orifice of median lobe moderately large; internal sac extending barely beyond base of median lobe, spines on proximal portion moderately large, dense.

Description.— *Length:* male 1.59–2.33 (1.92) mm, female 1.71–2.23 (2.14) mm. *Width:* male 0.88–1.18 (1.00) mm, female 0.93–1.18 (1.08) mm. *Integument:* rufopiceous to black, legs and distal portion of rostrum rufous. *Eye:* height ca. 1.6x length; in dorsal view broadly, feebly convex; hind margin raised by distance ca. equal to diameter of one ocular facet. *Frons:* distinctly narrowed posteriorly, in lateral view flat, continuous with vertex of head. *Rostrum:* male 0.87–1.04 (0.96)x, female 0.91–1.10 (1.06)x pronotum length. In dorsal view tapered from base to antennal insertions, sides of distal portion subparallel; in dorsal profile feebly rounded somewhat distad of base, broadly curved over antennal insertions, more broadly so in female. Distal portion in male short, 0.31–0.42 (0.36)% of total rostral length, stout, feebly tapered; in female, distal portion longer, 0.33–0.48 (0.43)% of total rostral length, evenly tapered to subulate. Scales elongate, apically truncate those of dorsum recumbent to feebly raised. *Prothorax:* in dorsal view sides strongly, more or less evenly rounded from base to distinct subapical constriction; in lateral view convex posteriorly, flattened anteriorly, subapical constriction feebly developed on dorsum. Pronotum with recumbent, somewhat rounded, elongate scales and narrower, slightly raised, slightly darker apically truncate elongate scales intermixed, oval to oblong scales forming incomplete median vitta; scales on lower portion of pleuron round to oval, white to pale greenish ochreous, oval scales interspersed among elongate scales dorsally. *Elytra:* in dorsal view sides subparallel in basal 0.50; in lateral view flat on disc, convex on posterior 0.66. Interspaces flat, feebly impressed, odd interspaces slightly wider than even ones, apices of interspaces 4–6 feebly prominent. Elongate, oval, recumbent greenish ochreous scales forming lateral rows on each interspace, narrower scales slightly to distinctly raised, forming median rows on each interspace, large oval white scales sparsely interspersed throughout, forming complete sutural vitta. *Pygidium:* in male moderately broadly exposed, feebly convex, narrowed slightly to rounded apex; in female, pygidium flat, strongly narrowed to rounded apex, oblique, produced well beyond elytral apices. *Abdomen:* in male sterna 3–4 flat medially, scales on median portion unmodified, sternum 5 very feebly constricted subapically, posterior margin very shallowly, broadly concave; in female, sterna 3–4 and anterior portion of sternum 5 convex medially, sternum 5 broadly constricted, posteromedian portion of segment slightly prominent, posterior margin rounded, produced posteriorly beyond elytral apices. *Femora:* elongate, slender, narrow at base, slightly, gradually inflated distally, width of profemur 0.25–0.38 (0.29)x length, width of metafemur 0.23–0.34 (0.26)x length. *Tibiae:* each with slender acute horizontal apical mucro. *Male genitalia:* (Fig. 263). *Spiculum ventrale:* (Fig. 168). *Spermatheca:* (Fig. 232).

Discussion.— A relatively large *Microtychius*, probably a seed predator of *Mimosa quadrivalvis*; known from Mexico southward through Central America to Brazil and Argentina (Figs. 250, 273); 130 specimens examined.

Specimens of *S. aspersa* from Finca la Pacifica, Cañas, Guanacaste Province, Costa Rica, collected by D.H. Janzen, are labelled "reared from *Mimosa quadrivalvis*, 19 June, 1974" (presumably from the seeds). Adults were collected from May–September and in December in Mexico, in February in Venezuela, in January, May and September in northern Brazil, in January–April, July, September and December in southern Brazil, and in October in Argentina. Janzen (1975) reported that adults (identified as *Paragoges* sp., I have seen the specimens (USNM)) were found "hiding in partially opened dried fruit on *Bixa orellana* (Bixaceae)" in Costa Rica.

Most specimens on hand are readily distinguishable as *S. aspersa* by possession of greenish ochreous scales and sparsely distributed white oblong, scales on the elytra. Several members of



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Fig. 273, *Sibinia* spp., distribution records: some members of the *americana*, *aspersa*, *vagabunda*, and *zapoteca* groups.

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the type series as well as specimens from Chiapas, Mexico have pale elongate scales on the pronotum and elytra. Most of these are pale green, but some have a distinct brownish cast. The specimens from Argentina are distinguished by having the distal portion of the rostrum relatively long (male 31–42%, female 37–48% of total rostral length) and distinctly subulate in the female.

71—*Sibinia (Microtychius) acicularis*, new species
(Figs. 233, 273)

Holotype.— Female, BRAZIL: São Paulo, Fazenda Pau d'Alho, Itu, February, 1959, col. U. Martins (MZSP).

Paratype.— Same data as holotype (1 female, WEC).

Diagnosis.— Elongate, rostrum slender, distal portion acuminate; hind margin of eye distinctly raised; pronotum with lustrous ferruginous scales, and with mediobasal patch of oval white scales and narrow median vitta of oval pale ferruginous scales; elytra with narrow, slightly raised ferruginous scales forming median row between ovate, apically truncate, pale ferruginous scales, and sparser, larger oval white scales on each interspace.

Description.— *Length*: 2.23–2.44 mm. *Width*: 1.16–1.37 mm. *Integument*: piceous; tibiae, tarsi, antennae and distal portion of rostrum rufopiceous. *Frons*: narrower than rostrum at base, not narrowed posteriorly, in lateral view flat, continuous with vertex of head. *Eye*: height ca. 1.4 x length; in dorsal view feebly convex posteriorly, flattened anteriorly; hind margin distinctly raised by distance ca. equal to combined diameters of two ocular facets. *Rostrum*: 1.10–1.13x pronotum length. In dorsal view distinctly tapered from base to antennal insertions, distal portion acuminate, much narrower at extreme apex than width of frons, in dorsal profile broadly rounded in basal 0.25, straight to antennal insertions, rounded over insertions. Dorsomedian carina obsolete. Distal portion moderately long, 35–40% of total rostral length, in lateral view tapered in proximal 0.50, acuminate distally, lateral sulcus distinct in proximal 0.50. Scales elongate, apically truncate, slightly raised. *Prothorax*: in dorsal view sides subparallel in basal 0.50, strongly rounded apically to subapical constriction; in lateral view strongly, evenly convex from base to feebly developed subapical constriction. Scales on lower portion of pleuron oblong, feebly impressed, pale fulvous, interspersed among elongate scales on upper portion, narrowly visible from above. *Elytra*: in dorsal view sides subparallel in basal 0.66; in lateral view broadly, evenly convex in basal 0.75. Interspaces flat, feebly impressed, subequal in width, apices of interspaces 4–6 feebly prominent; sutural interspaces with prominent sutural row of oval white scales; striae scales narrower than scales in median rows on interspaces, ferruginous. *Pygidium*: small, oblique, extending posteriorly well beyond elytral apices, flat, narrowed to acutely rounded apex. *Abdomen*: sterna 3–5 and anterior portion of sternum 5 broadly convex medially, sternum 5 broadly constricted subapically, posteromedian portion of segment narrowed and produced posteriorly beyond elytral apices. *Femora*: narrow at base, profemur gradually inflated distally, metafemur slightly narrower, more gradually enlarged. *Tibiae*: each with small apical mucro. *Spermatheca*: (Fig. 233).

Discussion.— A relatively large *Microtychius*, probably a seed predator; host unknown; known only from the type-series from southern Brazil (Fig. 273).

S. acicularis closely resembles *S. aspersa*, but is distinguished by its somewhat larger size, longer, more slender, more finely acuminate rostrum, and ferruginous rather than greenish ochreous scales.

72—*Sibinia (Microtychius) ferruginosa*, new species
(Figs. 169, 232, 263, 273)

Holotype.— Male, ARGENTINA: San Salvador de Jujuy, 21 October, 1968, L. & C.W. O'Brien (CWO).

Allotype.— Female, same data as holotype (CWO).

Paratypes.— Same data as holotype (9); ARGENTINA: Salta, Salta, 22 October, 1968, L. & C.W. O'Brien (1); total 10, distributed to various collections.

Diagnosis.— Elongate scales ferruginous, oblong, white scales limited to sutural interspaces and extreme lateral portions of elytra; median lobe narrowed in distal 0.66, sides not constricted, apex entire.

Description.— *Length*: male 2.00–2.36 (2.22) mm, female 2.21–2.51 (2.36) mm. *Width*: male 0.99–1.20 (1.14) mm, female 1.14–1.26 (1.21) mm. *Integument*: piceous to black; legs, antennae and distal portion of rostrum rufopiceous to ferruginotestaceous. *Head*: scales on vertex elongate, attenuate. *Eye*: height ca. 1.6x length; in dorsal view nearly flat; hind margin distinctly raised by distance ca. equal to diameter of one ocular facet. *Rostrum*: male 0.87–1.00 (0.91)x, female 0.91–1.02 (0.97)x pronotum length. In dorsal view sides evenly tapered from base to antennal insertions, more strongly tapered from there to tip; in dorsal profile feebly rounded at extreme base, broadly curved over antennal insertions. Dorsomedian carina obsolete. Distal portion in male short, 38–41 (39)% of total rostral length, in lateral view evenly tapered to blunt tip, lateral sulcus obsolete in distal 0.50; in female, distal portion only slightly longer, 33–41 (39)% of total rostral length, more finely tapered to acute tip. Scales on sides broad, apically truncate, scales on dorsum more elongate, narrow, attenuate, slightly raised, a few short fully erect scales over dorsal margins of eyes. *Prothorax*: in dorsal view sides broadly, evenly curved from base to distinct subapical constriction; in lateral view broadly, evenly convex, subapical constriction obsolete on dorsum. Scales on pronotum elongate, slightly attenuate, apically blunt to truncate, recumbent fulvous to pale ferruginous scales and narrower, slightly raised, darker ferruginous scales intermixed, with larger, oblong to oval, pale whitish scales on lateral portions and in small mediobasal patch; scales on lower portion of pleuron short, oblong, flat, pale whitish, extending onto lateral portions of pronotum, elongate ferruginous scales intermixed on upper portion of pleuron. *Elytra*: in dorsal view sides subparallel in basal 0.50; in lateral view broadly, evenly, convex in basal 0.66. Interspaces flat, subequal in width, feebly impressed, apices of interspaces 4–6 feebly prominent. Scales in triple rows on each interspace, scales in lateral rows elongate-oval, recumbent, scales in median rows narrower, slightly raised and decurved, recumbent scales somewhat lighter, ferruginous, becoming pale ferruginous to fulvous on interspaces 5–10, these interspaces sometimes with a few oval whitish scales; sutural interspaces with complete sutural row of densely imbricated, oval, whitish scales; striae scales much narrower than recumbent scales on interspaces. *Pygidium*: in male broadly exposed, strongly convex, feebly narrowed to broadly rounded apex, slightly oblique; in female, pygidium flat, strongly narrowed to acutely rounded apex, oblique, produced posteriorly beyond elytral apices. *Abdomen*: in male sterna 3–4 broadly convex medially, sternum 5 not constricted subapically, posterior margin of segment broadly, shallowly concave; in female, sterna 3–4 and anterior portion of sternum 5 broadly convex, sternum 5 feebly constricted subapically, posteromedian portion narrowed, feebly prominent, slightly produced posteriorly. *Femora*: long, slender, gradually inflated distally, width of profemur 0.26–0.33 (0.30)x length, width of metafemur 0.24–0.28 (0.26)x length. *Tibiae*: each with stout acute horizontal apical mucro. *Male genitalia*: (Fig. 263). *Spiculum ventrale*: (Fig. 169). *Spermatheca*: (Fig. 232).

Discussion.— A relatively large *Microtychius*, probably a seed predator; host unknown; known only from the type-series from northern Argentina (Fig. 273).

The closely allied *S. aspersa* was taken in sympatry with *S. ferruginosa* at the type-locality of the latter. The two are distinguished by characters listed in the diagnosis.

73—*Sibinia (Microtychius) picturata* Champion (Fig. 250)

Sibinia picturata Champion 1903: 210, tab. 12, figs. 6, 6a. Blackwelder 1947; Klima 1934. Holotype, female: Coban, Guatemala (BMNH).

Diagnosis.— Elongate narrow fuscous scales forming broad lateromedian vittae on pronotum and interrupted vittae on elytra, remainder of pronotum with elongate oval, pale ochreous scales; each elytral interspace with median row of suberect fuscous scales; posteromedian portion of sternum 5 narrowed, slightly produced posteriorly.

Description.— *Length*: 2.16 mm. *Width*: 1.17 mm. *Integument*: ferruginotestaceous, head, sterna, and base of femora darker. *Head*: scales on vertex short, subparallel sided, apically bluntly rounded. *Frons*: slightly narrowed posteriorly, in lateral view flat, continuous with vertex of head. *Eye*: height ca. 1.5x length; in dorsal view convex; hind margin slightly raised by distance ca. equal to diameter of one ocular facet. *Rostrum*: 1.18x pronotum length. In dorsal view tapered slightly from base to antennal insertions, slightly more strongly tapered from there to tip; in dorsal profile broadly, evenly arcuate from base to tip. Dorsomedian carina distinct. Distal portion short, 45% of total rostral length, in lateral view feebly tapered, lateral sulcus obsolete just distad of antennal insertions. *Prothorax*: in dorsal view sides subparallel in basal 0.50, strongly rounded anteriorly to feebly developed subapical constriction; in lateral view moderately strongly, evenly convex from base to apex. Pronotum with elongate, moderately broad, apically bluntly rounded fuscous scales forming broad lateromedian vitta on each side, and shorter, elongate, oval apically rounded recumbent pale ochreous scales in narrow lateral vittae and narrow median vitta; scales on lower portion of pleuron round, whitish, replaced dorsally by elongate oval ochreous scales which extend onto lateral portions of pronotum. *Elytra*: in dorsal view sides subparallel in basal 0.50; in lateral view moderately strongly, evenly convex in basal 0.66. Interspaces flat, subequal in width, deeply, distinctly impressed, apices of interspaces 4–6 not prominent. Scales on interspaces similar to those on pronotum, in triple rows on each interspace, scales in lateral rows on basal 0.25 of interspaces 1, 2, 4 and 7 in broad, transverse posteromedian band and around apices recumbent, elongate oval, slightly imbricated, pale ochreous, these replaced elsewhere by narrower, pale fuscous scales, each interspace also with median row of

elongate, narrow, apically pointed, suberect pale fuscous scales. *Pygidium*: narrowly exposed, flat, narrowed to rounded apex, oblique, visible well beyond elytral apices. *Abdomen*: sterna 3–4 and anterior portion of sternum 5 feebly convex medially, sternum 5 broadly, distinctly constricted medially, posteromedian portions of segment slightly prominent and produced posteriorly. *Tibiae*: each with small, slender apical mucro.

Discussion.— A relatively large *Microtychius*, probably a seed predator; host unknown; known only from the female holotype from Guatemala (Fig. 250).

S. picturata is apparently closely allied to *S. aspersa*. The two resemble each other in general facies but are distinguished by the fuscous scales which form interrupted vittae on the elytra in *S. picturata* (Champion 1903, Tab. 12, Fig. 6).

The *americana* Group

Diagnosis.— Scales on pronotum and elytral interspaces elongate, narrow, recumbent, gray to green; internal sac with large spines.

Discussion.— The *americana* group includes three species, *S. americana*, which is widespread from Mexico to Argentina (Figs. 251, 273). *S. nana* of southern Mexico (Fig. 274), and *S. mendica* of Brazil (Fig. 273). The species are probably all bud predators, but larval habits of *S. mendica* are unknown. *S. americana* and *S. nana* have *Mimosa* hosts, but the host of *S. mendica* is unknown. *S. americana* shares hosts with certain members of each of the *championi*, *aspersa*, *zapoteca*, and *vagabunda* groups, and is generally taken in microsympatry with these. The hosts of *S. americana*, like hosts of members of each of the aforementioned groups, all have pink flowers in a large globose inflorescence. The *Mimosa* host of *S. nana* does not have this type of inflorescence, and *S. nana* and *S. americana* may not actually share a recent common ancestor. They are placed together in the *americana* group, along with *S. mendica*, because of general phenetic resemblance, and because there is no compelling evidence for assigning them to other groups.

74—*Sibinia (Microtychius) americana* (Champion) (Figs. 170, 235, 236, 251, 265, 273)

Sibinia americana Champion 1903: 212. Klima 1934; Blackwelder 1947. LECTOTYPE (HERE DESIGNATED), male, selected from series of 12 syntypes, one of two specimens (1 male, 1 female) mounted on a single card, labelled "S. Geronimo, Guatemala, Champion" "Type" "B.C.A. Col. IV. 4 *Sibinia americana*, Champ." "(an illegible handwritten inscription) Cotype", and "*Sibinia americana*, Ch." (on underside of "Cotype" label) (BMNH).

Diagnosis.— Elongate scales on pronotum and elytra recumbent, greenish ochreous or greenish gray, some with metallic edges in some specimens; hind margin of eye raised by distance ca. equal to diameter of two ocular facets; article II of male protarsus concave on interolateral surface, scales on concave portion larger and broader than other scales on tarsi; internal sac bearing large spines throughout (Fig. 265).

Description.— *Length*: male 1.40–1.95 (1.66) mm, female 1.58–2.13 (1.82) mm. *Width*: male 0.78–1.04 (0.87) mm, female 0.83–1.16 (0.96) mm. *Integument*: piceous to black; rufopiceous on legs, distal portion of rostrum and antennae. *Head*: scales on vertex narrow to fine and seta-like, apically blunt to pointed. *Eye*: height ca. 1.4–1.6x length, in dorsal view flat to slightly convex posteriorly; hind margin distinctly raised by distance ca. equal to combined diameters of two ocular facets. *Frons*: very slightly narrowed posteriorly, in lateral view flat, continuous with vertex of head. *Rostrum*: male 0.92–1.18 (1.05)x, female 0.88–1.40 (1.11)x pronotum length. In dorsal view feebly tapered to subparallel sided; in dorsal profile slightly to distinctly rounded distad of base in male, nearly straight at base in female. Distal portion in male short, 33–43 (39)% of total rostral length, moderately stout, feebly tapered, lateral sulcus distinct nearly to tip; in female, distal portion longer, 48–51 (44)% of total rostral length, narrower, feebly tapered, lateral sulcus obsolete in distal 0.25. *Pronotum*: in dorsal view sides subparallel in basal 0.25, feebly rounded to weakly developed subapical constriction; in lateral view broadly, evenly convex, subapical constriction obsolete on dorsum. Scales on pronotum elongate, ovate, attenuate, apically pointed to narrowly truncate; scales on lower portion of pleuron oval, white, flat, limited to lower 0.66 anteriorly, replaced dorsally by elongate scales. *Elytra*: in dorsal view sides subparallel in basal 0.50; in lateral view flat on disc. Interspaces flat, irregularly, shallowly impressed, odd interspaces slightly wider than even ones, interspaces 4–6 not prominent at apices.

Scales on interspaces similar to scales on pronotum but most slightly broader and more ovate, in triple rows on each interspace, in most specimens scales on interspaces 5 to 7 slightly broader and lighter than scales on other interspaces; sutural interspaces with flat, oval white scales in dense basal cluster and in uninterrupted sutural rows; striae scales narrower and more nearly parallel sided, but of same color as scales on interspaces. *Pygidium*: in male narrowly exposed, rounded at apex, very slightly oblique; in female, pygidium flat, narrowed to rounded apex, strongly oblique, produced well distad of elytral apices. *Abdomen*: in male sterna 3–4 and median portion of sternum 5 convex medially, sternum 5 strongly, broadly constricted medially, posteromedian portion of segment prominent, posterior margin slightly produced posteriorly. *Femora*: narrow at base, gradually inflated distally, profemur and metafemur subequal in width. *Tibiae*: pro- and mesotibiae with stout, conical to feebly curved mucrones, mucro on metatibia slightly more slender, feebly curved, oblique. *Male genitalia*: (Fig. 265). *Spiculum ventrale*: (Fig. 170). *Spermatheca*: (Figs. 235, 236).

Discussion.— A relatively small *Microtychius*, probably a bud predator; adults taken on *Mimosa albida* (3.4 mi W Xilitla, S.L.P., and 8.3 mi SE El Cameron, Oaxaca, Mexico), *M. goldmanii* (7.7 mi S Ejutla, and 18 mi SE Tlacolula, Oaxaca, Mexico), *M. mixtecana* (4.4 mi SE Acatepec, Puebla, Mexico), *M. xanti* (2.7 mi NE El Cameron, Oaxaca, Mexico), and *M. nelsonii* (20 mi E Acapulco, Guerrero, Mexico); known from Mexico and Central America (Fig. 251), and from Argentina and Brazil (Fig. 273); 299 specimens examined.

Adults of *S. americana* have been collected in January, March, April, June, July, August, September and October. Larvae, presumably those of *S. americana*, emerged from flower buds of *M. mixtecana* collected 4.4 mi SE Acatepec, Puebla, Mexico, but died before pupating.

Several more or less morphologically distinct forms are included in *S. americana*. These differ slightly in size, color of scales, rostrum length and relative length of the distal portion of the rostrum, but not in the male genitalia. A form with narrow metallic green scales on the pronotum and elytral interspaces occurs throughout Mexico and Central America. This form is intermediate in size (male 1.59–1.67 (1.62) mm, female 1.67–1.92 (1.81) mm in length). It has been collected on *Mimosa albida*. Other specimens from Mexico and Central America have greenish ochreous to greenish gray scales. These tend to be smaller (males 1.46–1.64 (1.54) mm, female 1.62–1.92 (1.79) mm in length) (very small individuals may be confused with *S. nana*). The non-metallic specimens have been taken on the other plants listed above. The Argentine specimens and specimens from the state of Mato Grosso, Brazil, also lack metallic scales but have the scales on interspaces 4–6 distinctly broader and lighter than those on the other interspaces. These are also relatively small in size (males 1.54–1.82 (1.68) mm, females 1.64–1.79 (1.76) mm in length). Specimens from eastern Brazil are larger (males 1.92–1.95 (1.94) mm, females 2.00–2.13 (2.05) mm in length) and have the rostrum very long and slender (in male, rostrum 1.10–1.14 (1.12)x, in female 1.13–1.40 (1.32)x pronotum length, distal portion in male 35–38 (37)%, in female 47–49 (48)% of total rostral length). The color and distribution of scales in these large individuals is similar to that in the Argentine series.

One member of the type-series of *S. americana*, labelled “Chontales Jason”, is *S. ochreosa*.

75—*Sibinia (Microtychius) nana*, new species
(Figs. 171, 237, 266, 274)

Holotype.— Male, MEXICO: Oaxaca, 1 mi SE Rio Hondo, 22 July, 1974, Clark, Murray, Ashe, Schaffner (USNM #75419).

Allotype.— Female, same data as holotype (USNM).

Paratypes.— Same data as holotype (66); MEXICO: Oaxaca, 2.7 mi NW El Cameron, 21–22 July, 1974, Clark, Murray, Ashe, Schaffner (9); total 75, distributed to various collections.

Diagnosis.— Rostrum not abruptly narrowed distad of antennal insertions; scales on pronotum and elytra recumbent uniformly gray to pale olivaceous; hind margin of eye raised by distance somewhat greater than diameter of one ocular facet; internal sac bearing large spines throughout its entire length.

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Description.— *Length:* male 1.34–1.51 mm, female 1.34–1.54 mm. *Width:* male 0.64–0.75 mm, female 0.66–0.78 mm. *Integument:* black; tibiae, tarsi and distal portion of rostrum piceous, antennae ferruginotestaceous. *Head:* scales on vertex elongate, narrow, apically blunt to truncate, uniformly gray to olivaceous. *Eye:* height ca. 1.6x length; in dorsal view feebly convex posteriorly, flattened anteriorly; hind margin raised by distance somewhat greater than diameter of one ocular facet. *Frons:* narrowed posteriorly, in lateral view nearly flat, continuous with vertex of head. *Rostrum:* male 0.66–0.78x, female 0.91–1.10x pronotum length. In dorsal view feebly tapered to antennal insertions, more strongly tapered to tip; in dorsal profile feebly to strongly rounded at extreme base, broadly curved over antennal insertions. Distal portion in male short 38–41% of total rostral length, in lateral view slightly tapered, lateral sulcus obsolete about halfway to tip; in female, distal portion longer, 40–43% of total rostral length, more strongly tapered, lateral sulcus giving way to row of punctures which extend about halfway to tip. Dorsomedian carina feebly developed. Scales feebly raised on dorsolateral portions of rostrum and laterally on frons. *Prothorax:* in dorsal view sides feebly rounded at base; in lateral view evenly, broadly convex, subapical constriction obsolete on dorsum. Scales on pronotum elongate, attenuate, apically blunt, scales on lower portion of pleuron elongate oval, flat, white, replaced dorsally by more elongate scales. *Elytra:* in dorsal view sides subparallel distad of humeri; in lateral view flat on disc. Interspaces flat, shallowly, irregularly impressed, apices of interspaces 4–6 not prominent. Scales on interspaces longer and more slender than scales on pronotum; in triple rows on each interspace, scales in lateral rows recumbent, scales in median rows slightly broader and very feebly raised; striae scales narrower and more nearly linear than scales on interspaces; sutural interspaces with small white oval scales forming basal patch and complete sutural row. *Pygidium:* narrowly exposed, in male convex, subtruncately rounded at apex; in female, pygidium feebly narrowed to rounded apex, very slightly oblique, not produced beyond elytral apices. *Abdomen:* sternum 5 in male feebly, broadly concave medially, scales on median portion unmodified, subapical constriction feebly developed laterally, posterior margin of segment narrowly, evenly concave; in female, sternum 5 broadly constricted, posteromedian portion of segment prominent, posterior margin slightly produced posteriorly. *Femora:* narrow at base, moderately stout, rapidly inflated in basal 0.25. *Tibiae:* pro- and mesotibiae with stout, curved mucrones; metatibial mucro oblique. *Male genitalia:* (Fig. 266). *Spiculum ventrale:* (Fig. 171). *Spermatheca:* (Fig. 237).

Discussion.— A minute *Microtychius* bud predator of *Mimosa eurycarpa*; known from the type-series from the state of Oaxaca, and from specimens excluded from the type-series from the states of Nayarit, Sinaloa, and Oaxaca, Mexico (Fig. 274); 202 specimens examined.

Adults of *S. nana* were collected on the host at several localities in the state of Oaxaca in July and August. They were reared from larvae which emerged from flower buds of the host collected 2.7 mi NW El Cameron, Oaxaca. Adults were noted in pupal cells between 3 and 16 August, 1974.

Adults of *S. nana* resemble those of *S. americana*, but are distinguished by their smaller size, more convex eyes which have the hind margins less distinctly raised, uniformly gray to olivaceous scales on the pronotum and elytra and by the male genitalia (cf. Figs. 265, 266).

76—*Sibinia* (*Microtychius*) *mendica*, new species

(Figs. 172, 238, 267, 273)

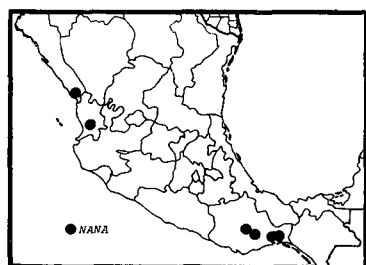
Holotype.— Male, BRAZIL: São Paulo, Ilha dos Buzios, 16 October–4 November, 1963, Exp. Dep. Zool. (MZSP).

Allotype.— Female, same data as holotype (MZSP).

Paratypes.— Same data as holotype (2, USNM, WEC).

Diagnosis.— Scales on pronotum and elytra uniformly elongate, narrow, attenuate, pale, aeneous, recumbent; distal portion of rostrum in female short, fine, strongly attenuate; sternum 5 of male shallowly concave; internal sac unarmed in proximal 0.50 (Fig. 267).

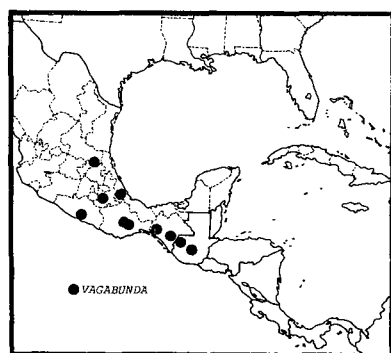
Description.— *Length:* male, 1.62–1.72 mm, female 1.74 mm. *Width:* male 0.86–0.91 mm, female 0.97 mm. *Integument:* black; legs and rostrum rufopiceous, antennae ferruginotestaceous. *Head:* scales on vertex narrow, acuminate, aeneous. *Frons:* slightly narrower than rostrum at base, not narrowed posteriorly, in lateral view flat, continuous with vertex of head. *Eye:* small, height ca. 1.6x length; in dorsal view feebly convex; hind margin distinctly raised by distance ca. equal to combined diameters of two ocular facets. *Rostrum:* male 1.03–1.14x, female 1.05–1.22x pronotum length. In dorsal view sides feebly tapered from base to somewhat basad of antennal insertions, narrowed distad of insertions, sides of distal portion subparallel; in dorsal profile broadly, nearly evenly arcuate from base to tip in male, more strongly curved in basal 0.33 in female. Dorsomedian carina distinct. Distal portion in male short, 36–37% of total rostral length, in lateral view distinctly tapered to tip, lateral sulcus distinct almost to tip; in female, distal portion somewhat longer, 42–44% of total rostral length, in lateral view more finely tapered, lateral sulcus becoming obsolete in distal 0.75. *Prothorax:* in dorsal view sides subparallel in basal 0.50, strongly rounded apically to feebly developed subapical constriction; in lateral view



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Fig. 274–279, *Sibinia* spp. distribution records: 274, *S. nana*; 275, *S. robusta* and *S. zapoteca*; 276, *S. vagabunda*; 277, *S. fastigiata* and *S. seminicola*; 278, *S. ochreosa*; 279, *S. peruana*.

slightly convex in posterior 0.25, flattened anteriorly subapical constriction obsolete on dorsum. Scales on lower portion of pleuron oblong, flat, whitish, limited to lower 0.75 anteriorly, replaced dorsally by elongate scales. *Elytra*: in dorsal view sides broadly, feebly curved in basal 0.66, more strongly rounded apically; in lateral view moderately strongly, evenly convex in basal 0.75. Interspaces flat, moderately deeply impressed, subequal in width, apices of interspaces 4–6 not prominent. Scales in triple rows on each interspace; sutural interspaces with oval white scales in basal cluster and in incomplete row adjacent to suture which is interrupted medially on disc and subapically; striae scales much narrower than scales on interspaces. *Pygidium*: narrowly exposed, in male feebly convex, broadly, evenly rounded apically; in female, pygidium about as in male except slightly more narrowly rounded apically, slightly oblique. *Abdomen*: in male, sterna 3–4 flat medially, sternum 5 shallowly but distinctly concave medially, scales unmodified, not subapically constricted, posterior margin broadly, shallowly concave; in female, sterna 3–4 and anterior portion of sternum 5 convex medially, sternum 5 distinctly constricted subapically, posteromedian portion of segment slightly prominent, posterior margin slightly produced posteriorly. *Femora*: narrow at base, profemur gradually but distinctly inflated distally, metafemur more elongate but subequal to profemur in width. *Tibiae*: each with small acute horizontal apical mucro, protibial mucro smaller. *Male genitalia*: (Fig. 267). *Spiculum ventrale*: (Fig. 172). *Spermatheca*: (Fig. 238).

Discussion.— A relatively small *Microtychius*, probably a bud predator; host unknown; known only from the type-series from the state of São Paulo, Brazil (Fig. 273).

S. mendica resembles and is possibly related to *S. americana* from which it is distinguished by the characters listed in the diagnoses of the two species.

The zapoteca Group

Diagnosis.— Eye oblong, flat, hind margin not at all raised; rostrum elongate, slender, strongly acuminate in female; article II of male protarsus concave on inner surface (but *S. bellula* and *S. collibita* known from females only).

Discussion.— Like the *aspersa* group, the *zapoteca* group includes one widespread species *S. zapoteca* of Mexico, Central America, and Brazil (Figs. 273, 275), and three apparently more restricted species, *S. robusta* of Panama (Fig. 275), and *S. bellula* and *S. collibita* of Brazil (Fig. 273). The relatively large size of the adults indicates that they are seed predators. *S. zapoteca* has hosts in the genus *Mimosa* which resemble and are apparently related to the hosts of some *championi*, *aspersa*, *americana*, *vagabunda*, and *seminicola* group members, and *S. zapoteca* occurs in microsympatry with some of these. Hosts of the other three *zapoteca* group members are unknown.

77—*Sibinia (Microtychius) zapoteca*, new species (Figs. 173, 243, 268, 273, 275, 280)

Holotype.— Male, MEXICO: Oaxaca, 8.3 mi SE El Cameron, July 24, 1974, Clark, Murray, Ashe, Schaffner (USNM #75420).

Allotype.— Female, same data as holotype (USNM).

Paratypes.— Same data as holotype (1); MEXICO: Oaxaca, 11.3 mi SE Totolapan, July 21, 1974, Clark, Murray, Ashe, Schaffner (1); Morelos, Cuautla, VII-27-1961, F. Pacheco M. (1). GUATEMALA: Antigua, X-1965, N.L.H. Krauss (1); 3 mi N Panajachel, 6400', VII-28-1974, C.W. & L.B. O'Brien & Marshall (1), 6 mi NE Huehuetenango, 6200' VII-30-1974, O'Briens & Marshall (1). EL SALVADOR: Cab., 3 mi SE Ilobasco, 2100', VI-9-1974, C.W. & L.B. O'Brien & Marshall (1), HONDURAS: S.C.Y., Lago Yojoa, VII-21-1974, C.W. & L. O'Brien & Marshall (1). BRAZIL: Territorio Rio Branco, Boa Vista, 27 July, 1957, Moacir Alvarenga, ex. coleção M. Alvarenga (1); total 9, distributed to various collection.

Diagnosis.— (Fig. 280). Elytra evenly rounded, apices of interspaces 4–6 not prominent; elongate fulvous scales, and darker, narrower ferruginous scales intermixed on pronotum, elytra and femora; scales in median row on each elytral interspace elongate, narrow, suberect.

Description.— *Length*: male 2.23–2.56 (2.41) mm, female 2.05–2.62 (2.40) mm. *Width*: male 1.18–1.49 (1.34) mm, female 1.12–1.39 (1.30) mm. *Integument*: rufopiceous, sterna slightly darker, *Head*: scales on vertex elongate, apically truncate. *Eye*: height ca. 1.3x length; in dorsal view flat to distinctly convex; hind margin feebly raised by distance ca. equal to diameter of one ocular facet. *Frons*: distinctly narrowed posteriorly, in lateral view nearly flat, continuous with vertex of head. *Rostrum*: male 0.96–1.13 (1.02)x, female, 0.93–1.07 (1.03)x pronotum length. In dorsal view distinctly tapered from base to antennal insertions, sides of distal portion subparallel; in dorsal profile not rounded at base, curved over antennal

insertions. Dorsomedian carina obsolete. Scales elongate, parallel sided or attenuate, apically truncate, feebly raised throughout. Distal portion in male moderately long, 37–53 (44)% of total rostral length, feebly tapered, lateral sulcus distinct in proximal 0.50; in female, distal portion not longer, 37–49 (45)% of total rostral length, feebly tapered, lateral sulcus becoming obsolete just distad of antennal insertions. *Prothorax*: in dorsal view sides subparallel at base; in lateral view distinctly evenly convex, subapical constriction feebly developed on dorsum; scales on pronotum elongate, parallel sided to attenuate, apically truncate, striate recumbent scales laterally and in dorsomedian vitta white to fulvous, scales in broad lateromedian vitta ferruginous, distinctly narrower than fulvous scales; scales on lower portion of pleuron oblong, pale fulvous, extending onto lateral portions of pronotum anteriorly and posteriorly, elongate ferruginous scales interspersed among oblong scales medially on upper portion. *Elytra*: in dorsal view sides feebly rounded in basal 0.50; in lateral view broadly, evenly convex. Interspaces flat, feebly impressed, subequal in width, apices of interspaces 4–6 not prominent. Scales in irregular triple or quadruple rows on each interspace; scales in median rows suberect, slightly decurved, attenuate, pale to dark ferruginous; scales in lateral rows recumbent, imbricated, oblong, apically truncate; fulvous and ferruginous scales forming diffuse pattern; sutural interspaces with slightly broader, apically rounded pale fulvous scales at base; striae scales much narrower than recumbent scales on interspaces, ferruginous. *Pygidium*: in male broadly convex, narrowed slightly to rounded apex, perpendicular; in female, pygidium flat, strongly oblique, strongly narrowed to rounded apex, extending well beyond elytral apices. *Abdomen*: sternum 5 in male feebly concave medially, scales unmodified, extreme posterior portion of segment feebly constricted, posteromedian portion not prominent, posterior margin feebly concave; in female, sternum 5 broadly constricted subapically, posteromedian portion prominent, posterior margin distinctly produced posteriorly. *Femora*: narrow at base, profemur gradually, moderately strongly inflated in distal 0.66, metafemur slightly more elongate and slightly wider than profemur. *Tibiae*: pro- and mesotibiae with short, slender curved horizontal mucrones, metatibia with shorter, straight, nearly perpendicular mucro. *Male genitalia*: (Fig. 268). *Spiculum ventrale*: (Fig. 173). *Spermatheca*: (Fig. 243).

Discussion.— A relatively large *Microtychius*, probably a seed predator; adults collected on *Mimosa albida*; known from the type-series from the states of Morelos and Oaxaca, Mexico, Guatemala, El Salvador, Honduras, and Brazil (Figs. 273, 275); two males from Vila Velha, Paraná, Brazil (CWO) excluded from the type-series.

Adults of *S. zapoteca* have been collected in July, August, and October. The holotype and allotype were collected by sweeping *M. albida* and were microsympatric with adults of *S. conferta* and *S. americana* at the type-locality.

The paratype from Morelos, Mexico, differs slightly from the holotype in the distinctly convex eyes and paler scales. The paratype from Guatemala is larger than the holotype, and has paler scales in a more discrete pattern. The Brazilian paratype also has pale scales which are more strongly differentiated into flat elongate-oval, and narrow forms than are the corresponding scales in the holotype. The range of variation among these specimens is somewhat greater than that observed within populations of other *Sibinia*, and more than one species may be involved. The two males from Vila Velha, Paraná, Brazil, are larger than the types (2.72 mm long), have longer, more fully erect seta-like scales on the elytral interspaces, and have the first abdominal sternum somewhat prominent and glabrous.

78—*Sibinia (Microtychius) robusta*, new species
(Figs. 269, 275)

Holotype.— Male, PANAMA: Canal Zone, Summit, November, 1943, N.L.H. Krauss, Pres. by Com. Inst. Ent. B.M. 1948–503 (BMNH).

Diagnosis.— Pronotum with large mediobasal patch of round white scales; sutural elytral interspaces with alternating patches of white and ferruginous scales; scales in median rows on elytral interspaces slightly longer and more distinctly raised than scales in lateral rows.

Description.— *Length*: 2.23 mm. *Width*: 1.32 mm. *Integument*: piceous; shading to rufopiceous on femora, testaceous distally on tibiae, tarsi, antennae and distal portion of rostrum. *Head*: scales on vertex elongate, slightly attenuate, apically truncate, fulvous. *Eye*: height ca. 1.5x length; in dorsal view flat; hind margin feebly raised by distance ca. equal to diameter of one ocular facet. *Frons*: narrowed posteriorly, in lateral view nearly flat, continuous with vertex of head. *Rostrum*: 0.86x pronotum length. In dorsal view tapered from base to antennal insertions, more strongly tapered from there to tip; in dorsal profile broadly rounded at base, very feebly curved over antennal insertions. Distal portion short, 40% of total rostral length, tapered, lateral sulcus distinct about halfway to tip. Dorsomedian carina obsolete. Scales on sides broad, parallel sided, apically truncate, white, scales on dorsum narrower, attenuate, feebly raised, not prominent over eyes. *Prothorax*: in dorsal view sides strongly rounded from base to subapical constriction; in lateral view broadly,

evenly convex from base to apex, subapical constriction feebly developed on dorsum. Pronotum with oblong, apically rounded, white nonstriate scales on extreme lateral portions and in large mediobasal patch, and with elongate, attenuate, apically truncate, uniformly feebly raised, white scales, pale fulvous scales, and darker fulvous scales, dark scales intermixed among lighter ones; scales on lower portion of pleuron similar to oblong white scales on pronotum, extending onto dorso-lateral portions, there interspersed among elongate scales. *Elytra*: in dorsal view humeri prominent, sides subparallel in basal 0.50; in lateral view convex medially. Interspaces flat, deeply impressed, odd interspaces not distinctly wider than even ones, apices of interspaces 4–6 not prominent. Interspaces with short, oval apically rounded scales and much longer, attenuate, apically truncate scales intermixed; oval scales white, elongate scales darker shades of fulvous according to width with narrower scales darkest and most distinctly striate, light and dark scales forming diffuse tessellate pattern; scales in triple rows on each interspace, scales in lateral rows recumbent to feebly raised but each interspace with median row of more distinctly raised, longer scales; striae scales narrower than scales on interspaces; sutural interspaces with oblong, white, flat, scales forming dense basal patch, also dense throughout length of interspaces except where interrupted by band of narrower fulvous scales medially and toward apices. *Pygidium*: narrowly exposed, feebly convex, feebly narrowed to rounded apex. *Abdomen*: sternum 5 feebly convex medially, subapical constriction obsolete, posterior margin of segment not emarginate. *Tibiae*: pro- and mesotibiae with slender curved mucrones; metatibial mucro stouter, straight, oblique. *Male genitalia*: (Fig. 269).

Discussion.— A relatively large *Microtychius*, probably a seed predator; host unknown, known only from the male holotype from the Panama Canal Zone (Fig. 275).

79—*Sibinia (Microtychius) bellula*, new species
(Fig. 273)

Holotype.— female, BRAZIL: Goias, Paraíso, 8–14 February, 1962, J. Bechyné col. (MZSP).

Diagnosis.— Elongate, rostrum long, distal portion acuminate; elytral interspaces with large subrectangular pale fulvous scales, smaller oblong ferruginous scales, and narrower, lustrous rufopiceous scales in irregular pattern; each interspace with median row of narrow, suberect scales.

Description.— *Length*: 2.59 mm. *Width*: 1.49 mm. *Integument*: black; tarsi, antennae and distal portion of rostrum rufopiceous. *Head*: scales on vertex elongate, broad, subparallel sided, apically bluntly rounded. *Frons*: distinctly narrowed posteriorly, in lateral view rounded continuously with base of rostrum but separate from vertex of head. *Eye*: small, height ca. 1.7x length. *Rostrum*: long, slender, 1.14x pronotum length. In dorsal view distinctly tapered from base to antennal insertions, distal portion attenuate; in dorsal profile feebly rounded at base, straight to antennal insertions, broadly curved over insertions. Dorsomedian carina obsolete, lateral and dorsolateral carinae prominent. Distal portion moderately long, 47% of total rostral length, in lateral view slender, acuminate, lateral sulcus deep in proximal 0.50, feebly indicated distally by row of shallow punctures. Scales uniformly elongate, subparallel sided, apically truncate, recumbent, those on dorsum slightly raised. *Prothorax*: in dorsal view sides subparallel in basal 0.50, strongly rounded anteriorly to feebly developed subapical constriction; in lateral view strongly, nearly evenly convex from base to apex. Scales on pronotum elongate, subparallel sided, apically truncate, broad pale fulvous scales forming complete median vitta and interspersed sparsely among narrower, lustrous ferruginous, slightly raised scales on lateral portions; lower portion of pleuron with oblong to subrectangular pale scales, similar scales sparsely interspersed among elongate scales on upper 0.33. *Elytra*: in dorsal view sides subparallel in basal 0.66; in lateral view flat at base, broadly, evenly convex in posterior 0.66. Interspaces flat, subequal in width, apices of interspaces 4–6 feebly prominent. Scales in triple rows on each interspace, lateral rows with large subrectangular pale fulvous scales, smaller oblong pale ferruginous scales, and narrower, linear, lustrous rufopiceous scales which form irregular pattern throughout, scales in median row on each interspace narrow, attenuate, suberect, matching adjacent scales in lateral rows in color; striae scales narrower than recumbent scales in lateral rows, uniformly pale fulvous. *Pygidium*: broadly, exposed strongly oblique, flat, strongly narrowed to acutely rounded apex. *Abdomen*: sterna 3–4 flat medially, posteromedian portion of sternum 5 broadly flared downward, narrowed and produced posteriorly beyond elytral apices. *Femora*: narrow at base, gradually, moderately strongly inflated distally, profemur slightly wider than metafemur. *Tibiae*: each with short, acute apical mucro.

Discussion.— A relatively large *Microtychius*, probably a seed predator; host unknown; known only from the female holotype from the state of Goias, Brazil (Fig. 273).

80—*Sibinia (Microtychius) collibita*, new species
(Figs. 242, 273)

Holotype.— Female, BRAZIL: Goias, Dianópolis, 16–22 January, 1962, J. Bechyné col. (MZSP).

Diagnosis.— Scales on pronotum uniformly elongate, narrow, fulvoferruginous, recumbent,

pronotum also with mediobasal patch of white oval scales; scales on elytral interspaces uniformly recumbent, elongate, narrow, pale whitish scales and fulvo ferruginous scales forming irregular pattern.

Description.— *Length:* 2.21 mm. *Width:* 1.30 mm. *Integument:* piceous, tarsi, antennae and distal portion of rostrum ferrugineo-testaceous. *Head:* scales on vertex elongate, narrow, apically bluntly rounded. *Frons:* narrower than base of rostrum, but not narrowed posteriorly, in lateral view flat, continuous with vertex of head. *Eye:* moderately large, height ca. 1.5x length, in dorsal view broadly, feebly convex; hind margin feebly raised by distance ca. equal to diameter of one ocular facet. *Rostrum:* 1.06x pronotum length. In dorsal view slightly tapered from base to antennal insertions, more strongly tapered from there to narrow tip; in dorsal profile feebly rounded at base, broadly, evenly arcuate from just distad of base to tip. Dorsomedian carina distinct. Distal portion moderately long, 40% of total rostral length, in lateral view acuminate, lateral sulcus obsolete in distal 0.66. Scales uniformly elongate, narrow, apically bluntly rounded, recumbent. *Prothorax:* in dorsal view sides subparallel in basal 0.33, strongly rounded anteriorly to feebly developed subapical constriction; in lateral view strongly, evenly convex from base to apex. Scales on lower portion of pleuron oblong, feebly impressed, white, limited to lower 0.66 medially, but extending onto extreme anterolateral and posterolateral portions of pronotum, replaced dorsally by elongate scales. *Elytra:* in dorsal view widest just behind humeri, sides slightly convergent in basal 0.66, broadly rounded from there to apices; in lateral view broadly, evenly convex from base to apices. Interspaces flat, subequal in width, moderately deeply, irregularly impressed; apices of interspaces 4–6 feebly prominent. Scales in triple rows on each interspace, sutural interspaces with row of oval white scales, this interrupted by narrow fulvous scales in basal 0.25 and subapically; striae scales narrower than scales on interspaces. *Pygidium:* broadly exposed, oblique, nearly flat, strongly narrowed posteriorly to acutely rounded apex. *Abdomen:* sterna 3–4 and anterior portion of sternum 5 broadly convex medially, sternum 5 broadly, strongly constricted medially, posteromedian portion of segment narrow, prominent, produced posteriorly beyond elytral apices. *Femora:* narrow at base, gradually, not strongly inflated distally. *Tibiae:* each with minute acute apical mucro. *Spermatheca:* (Fig. 242).

Discussion.— A relatively large *Microtychius*, probably a seed predator; host unknown; known only from the female holotype from the state of Goiás, Brazil (Fig. 273).

The *vagabunda* Group

Diagnosis.— Moderately large, elongate; rostrum nearly straight, strongly tapered distally in male, acuminate in female; with elongate, linear scales, and broader, rounded scales; linear scales in median row on each elytral interspace slightly raised to suberect; all scales uniformly gray to pale fulvous; apical orifice of median lobe large.

Discussion.— The *vagabunda* group contains two species, *S. vagabunda*, which occurs in Mexico, Central America, and Brazil, and *S. varga* of Brazil (Fig. 273, 276). The species are probably seed predators, but habits of larvae are unknown. *S. vagabunda* has hosts in the genus *Mimosa* which closely resemble hosts of some *championi*, *aspersa*, *americana*, *zapoteca*, and *seminicola* group members, and occurs in microsympatry with some of these. The host of *S. varga* is unknown.

81—*Sibinia (Microtychius) vagabunda*, Champion (Figs. 174, 259, 260, 270, 281)

Sibinia vagabunda Champion 1903: 211. Klima 1934; Blackwelder 1947. Holotype, male: Capetillo, Guatemala (BMNH).

Sibinia fuscipes Champion 1910: 211. Klima 1934; Blackwelder 1947. Holotype, male: San Jerónimo, Guatemala (BMNH),
NEW SYNONYMY.

Diagnosis.— (Fig. 281). Rostrum nearly straight, strongly tapered distally in male, acuminate in female; apical orifice of median lobe large (Fig. 270); in male, second article of protarsus concave on inner lateral surface (Figs. 259, 260).

Description.— *Length:* male 1.82–2.40 mm, female 2.09–2.43 mm. *Width:* male 0.92–1.20 mm, female 1.06–1.27 mm. *Integument:* Piceous to black; legs, antennae and distal portion of rostrum rufopiceous. *Head:* scales on vertex elongate, narrow, apically truncate. *Eye:* height 1.6x width; in dorsal view broadly, evenly convex; hind margin slightly raised by distance ca. equal to diameter of one ocular facet. *Frons:* distinctly narrower than base of rostrum, in lateral view nearly flat, continuous with vertex of head. *Rostrum:* male 0.74–0.89x, female 0.72–0.84x pronotum length. In dorsal view tapered from base to antennal insertions, abruptly narrowed distad of insertions, strongly so in female, sides of distal portion subparallel; in dorsal profile feebly rounded at base, straight to broadly, evenly curved to tip. Dorsomedian carina obsolete. Distal portion in male short, 45–52% of total rostral length, in lateral view slightly tapered, lateral sulcus distinct in basal 0.66; in

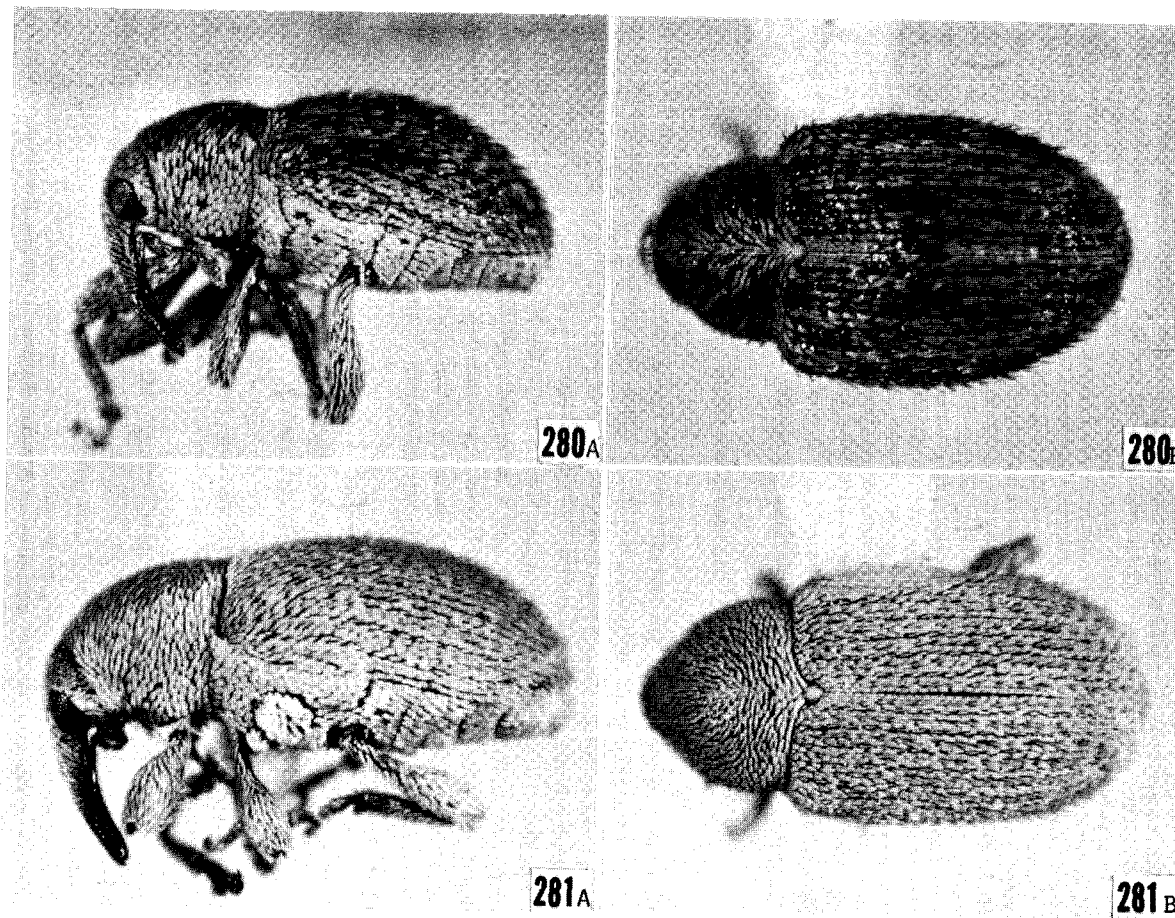


Fig. 280–281, *Sibinia* spp., habitus: 280, *S. zapoteca*, female, 8.3 mi SE El Camaron, Oaxaca, Mexico; 281, *S. vagabunda*, male, 10 mi E Acapulco, Guerrero, Mexico (A, lateral view; B, dorsal view).

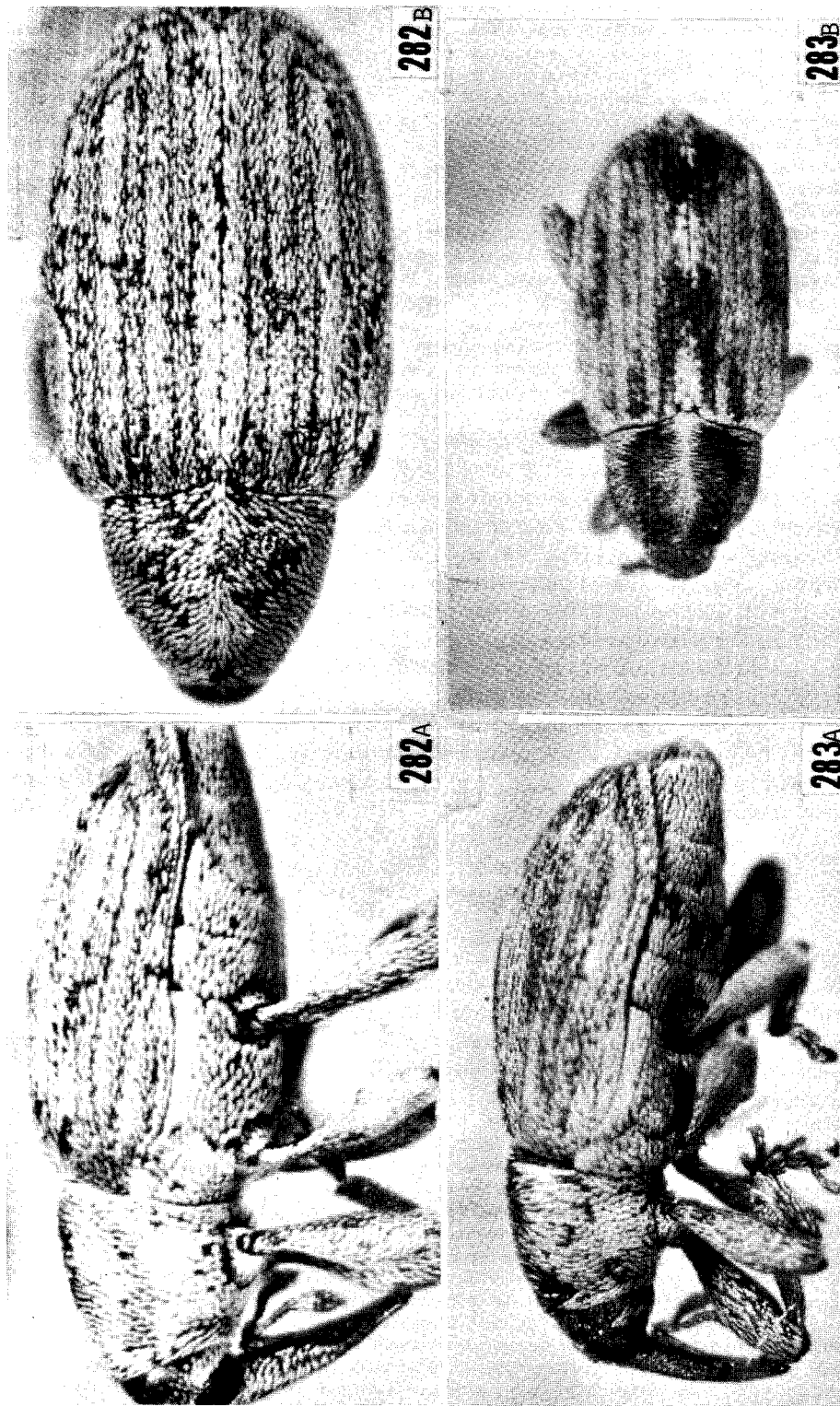


Fig. 282-283. *Sibinia* spp., habitus: 282, *S. seminitola*, male, Brownsville, Cameron Co., Texas, (A, lateral view; B, dorsal view).

female, distal portion longer, 46–56% of total rostral length, strongly tapered to acuminate, lateral sulcus becoming obsolete just distad of antennal insertions. *Prothorax*: in dorsal view strongly rounded in basal 0.50, more broadly rounded apically; in lateral view strongly convex in posterior 0.66, subapical constriction obsolete on dorsum. Pronotum and upper portion of pleuron with oblong to ovate recumbent scales and elongate narrow, recumbent, to suberect scales intermixed; scales on lower portion of pleuron round, flat, these replaced by elongate scales dorsally. *Elytra*: in dorsal view sides subparallel in basal 0.66, in lateral view strongly convex medially. Interspaces flat, feebly impressed, surface minutely rugulose, odd interspaces not wider than even ones, apices of interspaces 4–6 feebly prominent. Scales in triple rows on each interspace, scales in median rows slightly raised to suberect, lateral rows with round to oval scales and elongate, narrow scales, the latter more abundant in most specimens; sutural interspaces with smaller, more dense scales which are about the same shape and color as scales on other interspaces; striae scales shorter and narrower than scales in median rows on interspaces. *Pygidium*: broadly exposed, in male slightly convex, broadly rounded apically, perpendicular, in female narrowed to acutely rounded apex, flat, oblique, extending slightly beyond elytral apices. *Abdomen*: in male sterna 3–4 and anterior portion of sternum 5 flat medially, scales unmodified, sternum 5 feebly constricted subapically, posterior margin of segment feebly, shallowly concave; in female, sterna 3–5 and anterior portion of sternum 5 feebly convex medially; sternum 5 feebly constricted subapically posteromedian portion broad, not prominent, posterior margin of segment nearly straight. *Femora*: narrow at base, profemur stout, abruptly inflated in basal 0.33, metafemur more slender, more gradually enlarged. *Tibiae*: pro- and mesotibiae with stout, curved apical mucrones (Fig. 259); metatibial mucro more slender, straight, oblique. *Male genitalia*: (Fig. 270). *Spiculum ventrale*: (Fig. 174). *Spermatheca*: (Fig. 241).

Discussion.— A relatively large *Microtychius*, probably a seed predator; adults collected on *Mimosa albida* (3.4 mi W Xilitla, S.L.P., Mexico), *M. goldmanii* (7.7 mi S Ejutla and 2.8 mi E Matatlan, Oaxaca, Mexico), *M. mixteca* (4.4 mi SW Acatepec, Puebla, Mexico), *M. xanti* (2.7 mi NW El Cameron), and *M. nelsonii* (20 mi E Acapulco, Guerrero, Mexico); known from Mexico, Central America (Fig. 276), and from Brazil (Fig. 273); 90 specimens examined.

Adults of *S. vagabunda* have been collected in June, July, and August. They were microsympatric on *M. goldmanii* with *S. conferta* and on the other *Mimosa* spp. with *S. championi*. Both of these weevils are probable seed predators like *S. vagabunda*.

There is considerable interpopulation variation in size of individuals of *S. vagabunda*, and the scales in the median row on each elytral interspace are either slightly raised or nearly fully erect. The types of *S. vagabunda* and *S. fuscipes* differ in this respect; specimens of the latter have nearly fully erect scales. The Brazilian specimens examined do not differ significantly in external characters from Mexican and Central American ones, but the median lobe is slightly different, resembling that of *S. varga* (Fig. 271).

82—*Sibinia (Microtychius) varga*, new species
(Figs. 175, 240, 271, 273)

Holotype.— Male, BRAZIL: Goiás, Paraiso, 12 February, 1962, J. Bechyné col. (MZSP).

Allotype.— Female, same data as holotype, except — 8–14 February (MZSP).

Paratypes.— Same data as allotype (5); distributed to various collections.

Diagnosis.— Protibia of male without concavity on inner lateral surface of article II; median lobe slender, constricted with long apical setae (Fig. 271).

Description.— Characters of *S. vagabunda*, except—*Length*: male 2.69–2.95 (2.85) mm, female 2.90–3.08 (2.98) mm. *Width*: male 1.33–1.54 (1.41) mm, female 1.47–1.58 (1.52) mm. *Frons*: strongly narrowed posteriorly, in lateral view flat, continuous with vertex of head. *Eye*: height ca. 1.5x length; hind margin feebly raised by distance somewhat less than diameter of one ocular facet. *Rostrum*: male 0.96–1.00 (0.98)x, female 1.09–1.16 (1.13)x pronotum length. In dorsal view feebly tapered from base to antennal insertions, subparallel sided from there to tip, abruptly narrowed distad of insertions, especially in female; in dorsal profile not or feebly rounded at base, broadly curved over antennal insertions, especially in male. Dorsomedian carina distinct. Distal portion in male short, 39–42 (41)% of total rostral length; in female, distal portion longer, 47–50 (48)% of total rostral length, feebly tapered but not acuminate, lateral sulcus indicated almost to tip by row of punctures. *Prothorax*: in dorsal view sides subparallel in basal 0.50, broadly curved anteriorly to feebly developed subapical constriction; in lateral view broadly, evenly convex, subapical constriction not developed on dorsum. Scales on pronotum uniformly fulvous, elongate scales distinctly raised. *Elytra*: in dorsal view sides subparallel in basal 0.66; in lateral view flat in basal 0.50. Suture interspaces with complete lateral rows of oval scales which are more broadly imbricated but not smaller than oval scales on other interspaces. *Pygidium*: oblique, produced strongly beyond elytral apices, especially in female. *Abdomen*: in male, sterna 3–5 flat medially, scales unmodified, sternum 5 constricted subapically, posterior margin of segment straight; in female, sterna 3–4 and anterior portion of sternum 5 feebly convex, sternum 5 distinctly

constricted subapically, posteromedian portion of segment slightly prominent, posterior margin straight. *Male genitalia*: (Fig. 271). *Spiculum ventrale*: (Fig. 175). *Spermatheca*: (Fig. 240).

Discussion.— A relatively large *Microtychius*, probably a seed predator; host unknown; known only from the type-series from Brazil (Fig. 273).

S. varga closely resembles another seed predator, *S. vagabunda*, and the two occur in the same general area of central Brazil. Adults of the two species are distinguished from each other by the characters listed in the diagnosis of *S. varga*.

The *seminicola* Group

Diagnosis.— Pygidium of male strongly convex (except in bud predators, *S. ochreosa* and *S. geminata*).

Discussion.— The *seminicola* group contains 10 species, *S. caatingensis*, *S. hirritus*, *S. fastidiosa*, and *S. vatricosa* of Brazil (Fig. 284), *S. seminicola* of Texas and Mexico (Fig. 277), *S. fastigiata* of Mexico and Central America (Fig. 277), *S. subulirostris*, *S. prolata*, and *S. geminata* of Argentina (Fig. 284), and *S. ochreosa* which is widespread from southern Texas to Brazil (Fig. 278, 284). Three of the species, *S. fastigiata*, *S. seminicola*, and *S. ochreosa*, have *Mimosa pigra* as host; hosts of the other species are unknown. The group contains seed predators and bud predators. It is heterogeneous, possibly not monophyletic; there is no apparent diagnostic feature common to all species assigned to the group. The seed predators, *S. fastigiata*, *S. fastidiosa*, *S. seminicola*, *S. subulirostris*, and *S. vatricosa*, resemble each other very closely, especially in body form and in the shape of the eye, which is somewhat more prominent and convex than in other *Sibinia* which have the hind margin not or only feebly raised. *S. caatingensis* and *S. hirritus* also closely resemble each other, but these are less similar to other *seminicola* group members. *S. prolata*, with its raised eye, resembles the bud predator, *S. geminata*, and the two appear to be a bud-seed predator microsympatric pair. *S. ochreosa* is assigned to the group with reservation because it is microsympatric with *S. seminicola*.

83—*Sibinia (Microtychius) caatingensis*, new species (Figs. 176, 239, 284)

Holotype.— Male, BRAZIL: Rio Grande do Norte, Macaiba, 28 December, 1951, M. Alvarenga legit., ex coleção M. Alvarenga (MZSP).

Allotype.— Female, BRAZIL: Bonito, Pernambuco, February, 1883, col. on cotton (USNM).

Paratypes.— Same data as holotype, except—24 February, 1952 (1): the same, except—Natal, July, 1951, M. Alvarenga leg. (1); the same, except—February, 1952, Alvarenga col. (1); total three, distributed to various collections.

Diagnosis.— Pronotum with fulvous scales in broad lateral and median vittae, and ferruginous scales forming lateromedian vittae; elytra with broad, apically truncate, striate, recumbent pale and dark fulvous scales and a median row of suberect, narrower, ferruginous scales on each interspace; protibia minutely mucronate, male protarsus with article II strongly concave dorsally and interlaterally, article III and acute cusp on internal lobe.

Description.— *Length*: male 2.37–2.46 mm, female 2.15–2.54 (2.37) mm. *Width*: male 1.22–1.43 mm, female 1.13–1.34 (1.26) mm. *Head*: scales on vertex elongate. *Eye*: large, height ca. 1.3x length; in dorsal view strongly, convex; hind margin feebly raised by distance somewhat less than diameter of one ocular facet. *Frons*: slightly narrower than rostrum at base, not narrowed posteriorly, in lateral view distinctly rounded, continuous with vertex of head. *Rostrum*: 0.84x pronotum length. In dorsal view tapered from base, antennal insertions more strongly tapered to tip; in dorsal profile slightly abruptly rounded at base, broadly curved over antennal insertions. Distal portion in male short, 36% of total rostral length, in lateral view strongly tapered to acute tip, lateral sulcus distinct in basal 0.25; in female, distal portion slightly longer, 42–49 (45)% of total rostral length, acuminate. Scales elongate, apically truncate, slightly raised, a few short erect scales

over dorsal margins of eyes. *Prothorax*: in dorsal view sides strongly rounded from base to subapical constriction; in lateral view broadly, feebly convex from base to feebly developed subapical constriction. Pleuron with oblong white concave densely imbricated scales which extend onto extreme antero- and posterolateral portions of pronotum, concave scales replaced on remainder of pronotum by admixture of broad, parallel sided, apically truncate recumbent imbricated scales and narrower apically truncate slightly raised scales. *Elytra*: in dorsal view sides subparallel behind humeri; in lateral view flat, distinctly impressed, subequal in width, apices of interspaces 4–6 not prominent. Scales in triple rows on each interspace, with broad, apically rounded to subquadrate recumbent scales in lateral rows, and with median row of narrower, short, slightly attenuate, pale to dark ferruginous, suberect scales on each interspace, pale fulvous and slightly darker ferruginous scales interspersed throughout on most of elytra, replaced by darker ferruginous scales on dorsomedian patches or bands on each side and in transverse subapical band; sutural interspaces with uninterrupted sutural row of oblong imbricated white scales; striae scales much narrower than recumbent scales on interspaces. *Pygidium*: in male strongly convex, apically subquadrate, slightly oblique, broadly visible beyond elytral apices from above; in female, pygidium small, more distinctly narrowed to rounded apex, oblique, extending posteriorly well beyond elytral apices. *Abdomen*: in male sterna 3–4 flat medially, sternum 5 shallowly but distinctly concave subapically, scales unmodified, segment not constricted subapically, posteromedian portion of segment feebly prominent, posterior margin nearly straight. *Femora*: moderately stout, moderately broad at base, ventral margin feebly rounded in distal 0.66. *Tibiae*: each with small apical mucro, protibia minutely mucronate. *Male genitalia*: (Fig. 272). *Spiculum ventrale*: (Fig. 176). *Spermatheca*: (Fig. 239).

Discussion.— A relatively large *Microtychius*, probably a seed predator; host unknown; known only from the type-series from northeastern Brazil (Fig. 284).

The occurrence of a specimen of *S. caatingensis* on cotton indicated by the label data on the allotype was probably accidental. Members of this species are distinguished from all other known *Sibinia* by the modification of the male protarsus.

84—*Sibinia (Microtychius) hirritus*, new species
(Figs. 284, 285, 305)

Holotype.— Male, BRAZIL: Bahia, Encruzilhada, 960 m, November, 1972, M. Alvarenga (MPB).

Allotype.— Female, same data as holotype, except—980 m (CWO).

Paratype.— BRAZIL: Rio Grande do Norte, Natal, February, 1952, Alvarenga Col. Ex. coleção, M. Alvarenga (MZSP).

Diagnosis.— Apices of interspaces 4–6 prominent; male protarsus unmodified; median lobe narrowed distally, sides broadly constricted (Fig. 285).

Description.— As described for *S. caatingensis*, except, —*Length*: male 1.59–1.77 (1.68) mm, female 1.64–1.77 (1.68) mm. *Width*: male 0.82–0.92 (0.86) mm, female 0.82–0.93 (0.87) mm. *Integument*: rufopiceous throughout. *Head*: scales on vertex uniformly elongate, fulvous. *Rostrum*: male 0.89–1.13 (0.96)x, female 0.92–1.08 (0.99)x pronotum length. Distal portion short, in male 53–61 (56)%, in female 59–66 (63)% of total rostral length. *Prothorax*: in dorsal view sides subparallel in basal 0.50, rounded strongly to distinct subapical constriction anteriorly. *Elytra*: in dorsal view sides subparallel in basal 0.75, in lateral view flat in basal 0.66. *Male genitalia*: (Fig. 285). *Spiculum ventrale*: as in *S. caatingensis* (cf. Fig. 176). *Spermatheca*: (Fig. 305).

Discussion.— A relatively large *Microtychius*, probably a seed predator; host unknown; known from the type-series from the state of Bahia, Brazil (Fig. 284).

S. hirritus closely resembles the seed predator *S. caatingensis* which also occurs in northeastern Brazil, but is distinguished by the characters listed in the diagnosis.

85—*Sibinia (Microtychius) fastigiata*, new species
(Figs. 177, 244, 277, 282, 286)

Holotype.— Male, MEXICO: Veracruz, Coyame, 4 July, 1971, W.E. Clark, on *Mimosa pigra* var *pigra* (USNM # 75421).

Allotype.— Female, same data as holotype (USNM).

Paratypes.— Same data as holotype (72); MEXICO: Oaxaca, 11 mi N Matias Romero, 23 July, 1974, Clark, Murray, Ashe, Schaffner, on *Mimosa pigra* (1); Veracruz, 7 mi NE Mata Espino, 1 July, 1971, Clark, Murray, Hart, Schaffner (1); Coyame, Catemaco, June, 1954, D.G. Kissinger (1). HONDURAS, Com. Lago Yojoa, July 19, 1974, C.W. & L.B. O'Brien



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Fig. 284, *Sibinia* spp., distribution records: some members of the *seminicola* group, and some of the species *incertae sedis*.

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& Marshall (3); the same, except—VI-11-1970, O'Briens & Marshall (2); S.C.Y. Lago Yojoa, VII-21-1974, C.W. & L.B. O'Brien & Marshall (1); Cor. Omoa, VII-23-1974, C.W. & L. O'Brien & Marshall (3); Cop. 4 mi S Nueva Arcadia, 2100', VII-24-1974, O'Briens & Marshall (2). PANAMA, Panamá, 12 April, 1911, A.H. Jennings (2); Canal Zone, Ancon, 13 April, 1911, A.H. Jennings (1), Canal Zone, Paraiso, 18 April, 1911, E.A. Schwarz (1), Punta Vacamonte, 8° 52' N, 79° 40' W, May 12, 1973, P.D. Ashlock (1); total 91, distributed to various collections.

Diagnosis.— (Fig. 282). Scales on pronotum and elytra uniformly recumbent, pale greenish ochreous; rostrum nearly straight, strongly attenuate; pygidium in female nearly horizontal, flat, strongly narrowed to acutely rounded apex and strongly produced posterior to elytral apices: male protarsus with article II strongly concave laterally.

Description.— *Length*: male 3.25–3.45 mm, female 2.84–3.42 mm. *Width*: male 1.64–1.75 mm, female 1.47–1.75 mm. *Integument*: rufopiceous; piceous to black on prothorax and sterna. *Head*: scales on vertex broad, apically truncate, pale greenish ochreous. *Eye*: height ca. 1.4x length; in dorsal view strongly, evenly convex; hind margin feebly raised by distance ca. equal to diameter of one ocular facet. *Frons*: narrower than base of rostrum, in lateral view broadly rounded, continuous with vertex of head. *Rostrum*: male 0.87–0.94x, female 0.90–1.02x pronotum length. In dorsal view slightly, evenly tapered from base to antennal insertions, more strongly tapered from there to acute tip; in dorsal profile not rounded at base, straight to antennal insertions. Dorsomedian carina obsolete. Distal portion in male short, 41–46% of total rostral length, in lateral view strongly tapered, lateral sulcus distinct nearly to tip; in female, distal portion slightly longer, 43–49% of total rostral length, acuminate. Scales broad, apically truncate, greenish ochreous, uniformly recumbent. *Prothorax*: in dorsal view subrectangular, narrower at anterior than at posterior angles; in lateral view broadly, evenly convex, subapical constriction obsolete on dorsum. Scales on pronotum elongate, sides slightly rounded to parallel sided, apically broadly truncate, scales on lower 0.33 of pleuron round, flat, white, these replaced dorsally by elongate scales. *Elytra*: in dorsal view sides subparallel in basal 0.66; in lateral view feebly, broadly convex in basal 0.33. Interspaces flat, irregularly rugose, odd interspaces distinctly wider than even ones, especially on disc; apices of interspaces 4–6 strongly prominent. Scales on interspaces similar to scales on pronotum, in triple rows on each interspace, four or five rows on odd interspaces, uniformly recumbent; sutural interspaces with flat oval white scales in dense basal patch and scattered along suture to apices; striae scales narrower than scales on interspaces. *Pygidium*: broadly exposed, in male distal portion strongly convex, broadly rounded at apex, nearly perpendicular; in female, pygidium feebly convex distally, strongly narrowed to acutely rounded apex, nearly horizontal extending posteriorly well beyond elytral apices. *Abdomen*: in male sterna 3–4 and anterior portion of sternum 5 feebly convex medially, sternum 5 broad, strongly rounded laterally, concave posteromedially, posterior margin of segment nearly straight; in female, sternum 5 broadly constricted subapically, posteromedian portion of segment strongly narrowed and produced posteriorly well beyond elytral apices. *Femora*: narrow at base; profemur stout, gradually widened, dorsal margin broadly, evenly curved in distal 0.66; metafemur more elongate, more abruptly widened in distal 0.25. *Tibiae*: pro- and mesotibiae with stout curved mucrones, metatibial mucro slender, oblique. *Male genitalia*: (Fig. 286). *Spiculum ventrale*: (Fig. 177). *Spermatheca*: (Fig. 244).

Discussion.— A relatively large *Microtychius*, probably a seed predator; adults collected on *Mimosa pigra* var. *pigra*; known from the type-series from the lowlands of Mexico north on the east coast to central Veracruz and southward at least to Panama (Fig. 277).

Adults of *S. fastigiata* have been collected in April, June, and July. On 4 July, 1971, adults were collected on flowers of *M. pigra* at Coyame, Veracruz, Mexico. Adults of two bud predator *Microtychius*, *S. ochreosa* and *S. peruana* were also present on the plants at this locality.

S. fastigiata closely resembles and is closely related to *S. seminicola* which replaces the species as a seed predator of *M. pigra* in northeastern Mexico and in Texas.

86—*Sibinia (Microtychius) fastidiosa*, new species (Figs. 284, 297)

Holotype.— Female, BRAZIL: Estado do Rio de Janeiro, Barra de São Joao, 7 February, 1961, M. Alvarenga leg., ex coleção M. Alvarenga (MZSP).

Diagnosis.— Scales on pronotum and elytra uniformly small, elongate, apically blunt to truncate, recumbent, ferruginous; elytra with prominent sutural vitta of white oval scales; rostrum short, nearly straight, distal portion short, stout, not acuminate.

Description.— *Length*: 2.51 mm. *Width*: 1.36 mm. *Integument*: rufopiceous throughout. *Head*: scales on vertex very small, narrow. *Frons*: distinctly narrowed posteriorly, in lateral view flat, continuous with vertex of head. *Eye*: nearly round; height ca. 1.2x length; in dorsal view convex posteriorly, somewhat flattened anteriorly; hind margin feebly raised by distance less than diameter of one ocular facet. *Rostrum*: 0.95x pronotum length. In dorsal view feebly tapered from base to antennal insertions, slightly more strongly tapered from there to tip; in dorsal profile not rounded at base, broadly, evenly curved over antennal insertions. Dorsomedian carina distinct. Distal portion short, 38% of total rostral length, in

lateral view tapered; lateral sulcus feebly developed in proximal 0.50, indicated by row of shallow punctures to tip. *Prothorax*: in dorsal view sides subparallel in basal 0.50, strongly, evenly rounded anteriorly to feebly developed subapical constriction; in lateral view strongly, evenly convex from base to apex. Pronotum with small mediobasal patch of white scales; scales on pleuron round to oblong, flat, whitish, extending onto extreme posterolateral portions of pronotum, replaced dorsally by ferruginous scales. *Elytra*: in dorsal view broad, sides feebly, broadly curved in basal 0.50; in lateral view broadly, evenly convex from base to apices. Interspaces flat, shallowly impressed, subequal in width, apices of interspaces 4–6 prominent. Scales in irregular triple to quadruple rows on each interspace; sutural interspaces with complete prominent sutural row of oval white scales; striae slightly narrower than scales on interspaces. *Pygidium*: small, nearly horizontal, extending well distad of elytral apices, convex distally, strongly narrowed to acutely rounded apex. *Abdomen*: sterna 3–4 and anterior portion of sternum 5 broadly convex medially, sternum 5 broadly constricted subapically, posteromedian portion of segment narrowed and produced posteriorly well distad of elytral apices. *Femora*: narrow at base, gradually enlarged, but not distinctly inflated distally; profemur slightly wider than metafemur. *Spermatheca*: (Fig. 297).

Discussion.— A relatively large *Microtychius*, probably a seed predator; host unknown; known only from the female holotype from southern Brazil (Fig. 284).

S. fastidiosa may have *Mimosa pigra* as a host. The species closely resembles and is probably the sister-species of *S. fastigiata* of Mexico and Central America which is associated with *M. pigra*. The lowland coastal region of Brazil where *S. fastidiosa* occurs is likely to support populations of *M. pigra*.

S. fastidiosa is distinguished from *S. fastigiata* by the shorter, stouter rostrum, rounded rather than subquadrate pronotum, and ferruginous rather than greenish ochreous scales.

87—*Sibinia (Microtychius) seminicola*, new species

(Figs. 178, 277, 283, 287, 298, 317–320)

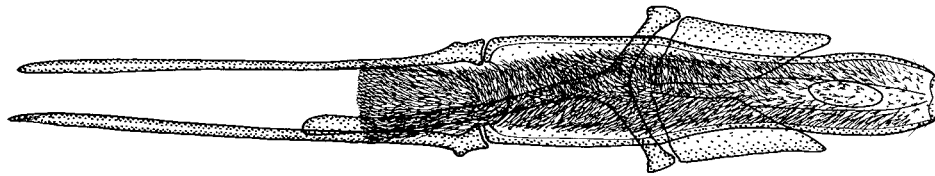
Holotype.— Male, TEXAS: Cameron Co., Brownsville, 28 July, 1971, W.E. Clark, from pods of *Mimosa pigra* var. *berlandieri* (USNM #75422).

Allotype.— Female, same data as holotype (USNM).

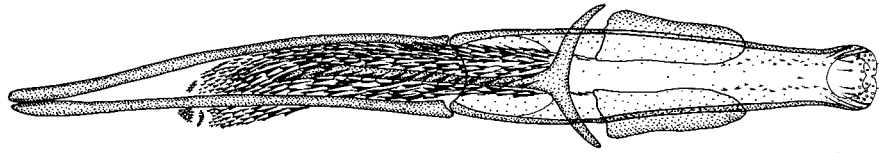
Paratypes.— Same data as holotype (43); the same, except—11 August, 1971, W.E. Clark, from pods *Mimosa pigra* var. *berlandieri* (229); the same, except—28 August, 1971 (3); the same, except—26 August, 1971 (22), 13 January, 1972 (26); the same, except—14 March, 1972 (1); the same, except—11 April, 1972 (6); the same, except—30 March, 1972, taken on *Mimosa pigra* var. *berlandieri* (6); the same, except—26 August, 1971 (3), the same, except—11 June, 1971 (16), the same, except—9–10 April, 1971 (2); the same, except—26 May, 1971, H.R. Burke, V.V. Board, W.E. Clark (151); the same, except—March, 1921, J.C. Bridwell, ex pods *Mimosa pigra* (13); the same, except—13 October, 1973, G.C. Gaumer, W.E. Clark (1). MEXICO: San Luis Potosí, 2 mi S Pedro Montoya, Murray, Hart, Schaffner, Phelps, reared from pods *Mimosa pigra* var. *pigra* (5); 2 mi S. Pedro Montoya, 27–28 July, 1970, Murray, Hart, Schaffner, at light (8); Tamaulipas, Metamoros, 18 March, 1942, Bibby and Moreno, ex *Mimosa pigra* (1); Veracruz, 29 June, 1971, Clark, Murray, Hart, Schaffner, taken on *Mimosa pigra* var. *pigra* (8); total 544, distributed to various collections.

Diagnosis.— (Fig. 283). Fulvous and ferruginous scales forming pattern on elytra; sutural vitta of light scales interrupted; eyes prominent, convex; rostrum in dorsal profile broadly concave in basal 0.33 (Fig. 318); article II of male protarsus feebly concave on inner surface.

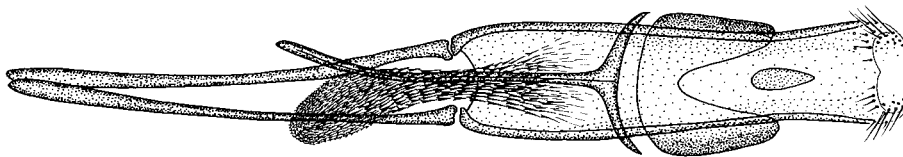
Description.— *Length*: male 2.19–2.71 mm, female 2.53–2.81 mm. *Width*: male 0.99–1.23 mm, female 1.13–1.29 mm. *Integument*: rufous to rufopiceous throughout. *Head*: scales on vertex uniformly elongate (Fig. 317), fulvous. *Eye*: (Figs. 317, 319) prominent; height ca. 1.4x length; in dorsal view strongly convex; hind margin feebly raised by distance ca. equal to diameter of one ocular facet. *Frons*: narrower than base of rostrum (Fig. 319); in lateral view rounded, continuous with vertex of head (Fig. 318). *Rostrum*: male 0.85–0.90x, female 0.88–0.89x pronotum length. In dorsal view (Fig. 317) feebly tapered from base to antennal insertions, abruptly narrowed distad of insertions, sides subparallel. Dorsomedian carina obsolete. Scales elongate, narrowly truncate apically, fulvous, uniformly feebly raised. Distal portion in male (Fig. 318) short, 38–50% of total rostral length, in lateral view tapered, shallowly punctate almost to tip; in female, distal portion slightly longer, 47–52% of total rostral length, more strongly tapered, shallowly punctate. *Prothorax*: in dorsal view parallel sided at base, rounded anteriorly to subapical constriction; in lateral view nearly flat, subapical constriction feebly developed on dorsum. Scales on pronotum elongate, parallel sided to slightly rounded, apically truncate, narrow scales ferruginous to rufopiceous, broader, more rounded, pale to dark fulvous scales forming broad lateral and dorsomedian vittae; scales on pleuron oblong, fulvous, intermixed on upper portion of pleuron and lateral portion of pronotum with elongate scales. *Elytra*: in dorsal view sides subparallel in basal 0.66; in lateral view feebly convex in basal 0.33. Interspaces flat, distinctly irregularly rugose, subequal in width, apices of interspaces 4–6 slightly prominent. Scales on interspaces uniformly recumbent, in 3–4 irregular rows on each interspace; oblong apically rounded non-striate pale fulvous scales, and narrower, subparallel sided apically truncate dark ferruginous to rufopiceous scales intermixed; oblong scales dense on sutural interspaces in basal



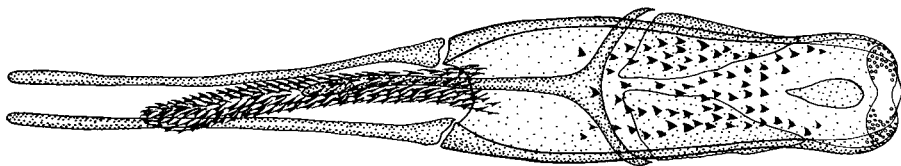
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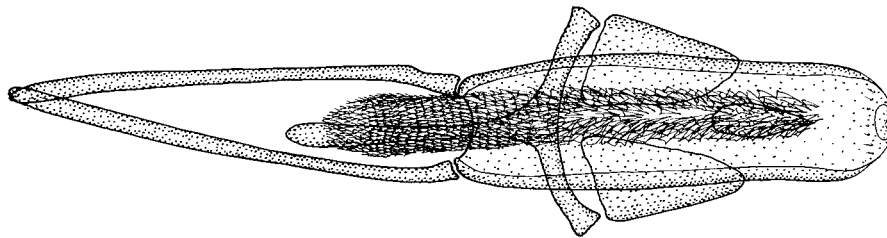
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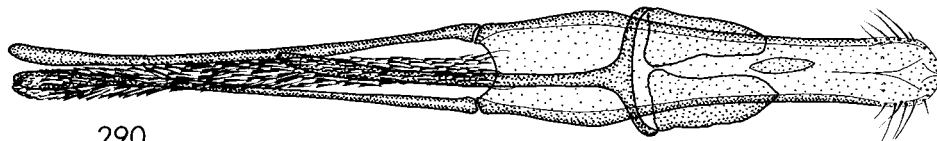
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Fig. 285–290, *Sibinia* spp., male external genitalia: 285, *S. hirritus*; 286, *S. fastigiata*; 287, *S. seminicola*; 288, *S. ochreosa*; 289, *S. vatricosa*; 290, *S. prolata*, (not to scale, all ventral views).

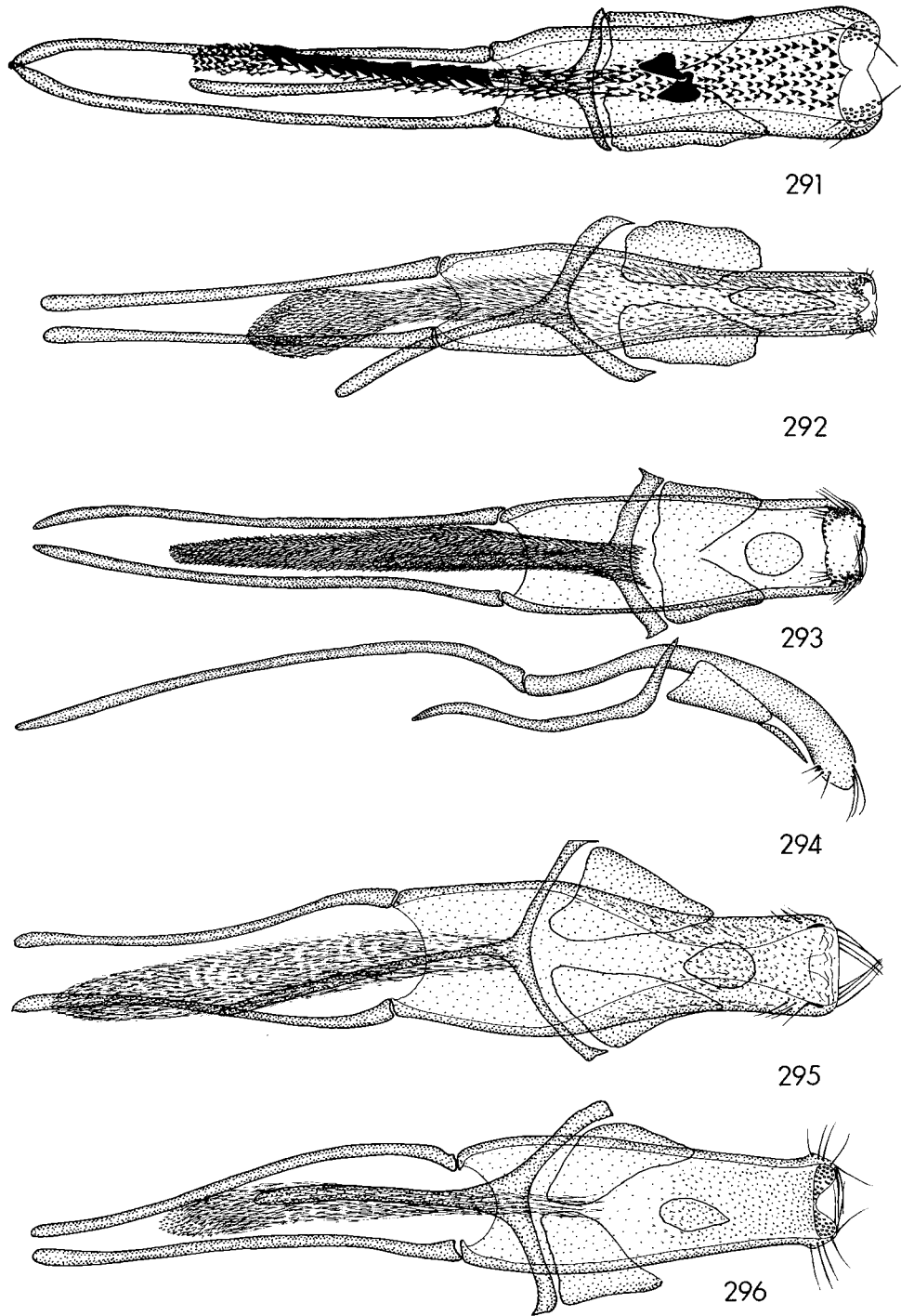


Fig. 291–296, *Sibinia* spp., male external genitalia: 291, *S. geminata*; 292, *S. latissima*; 293, *S. peruana*; 294, *S. peruana*; 295, *S. ignota*; 296, *S. hirticus* (not to scale; 291–293, and 295–296 ventral views, 294 lateral view).

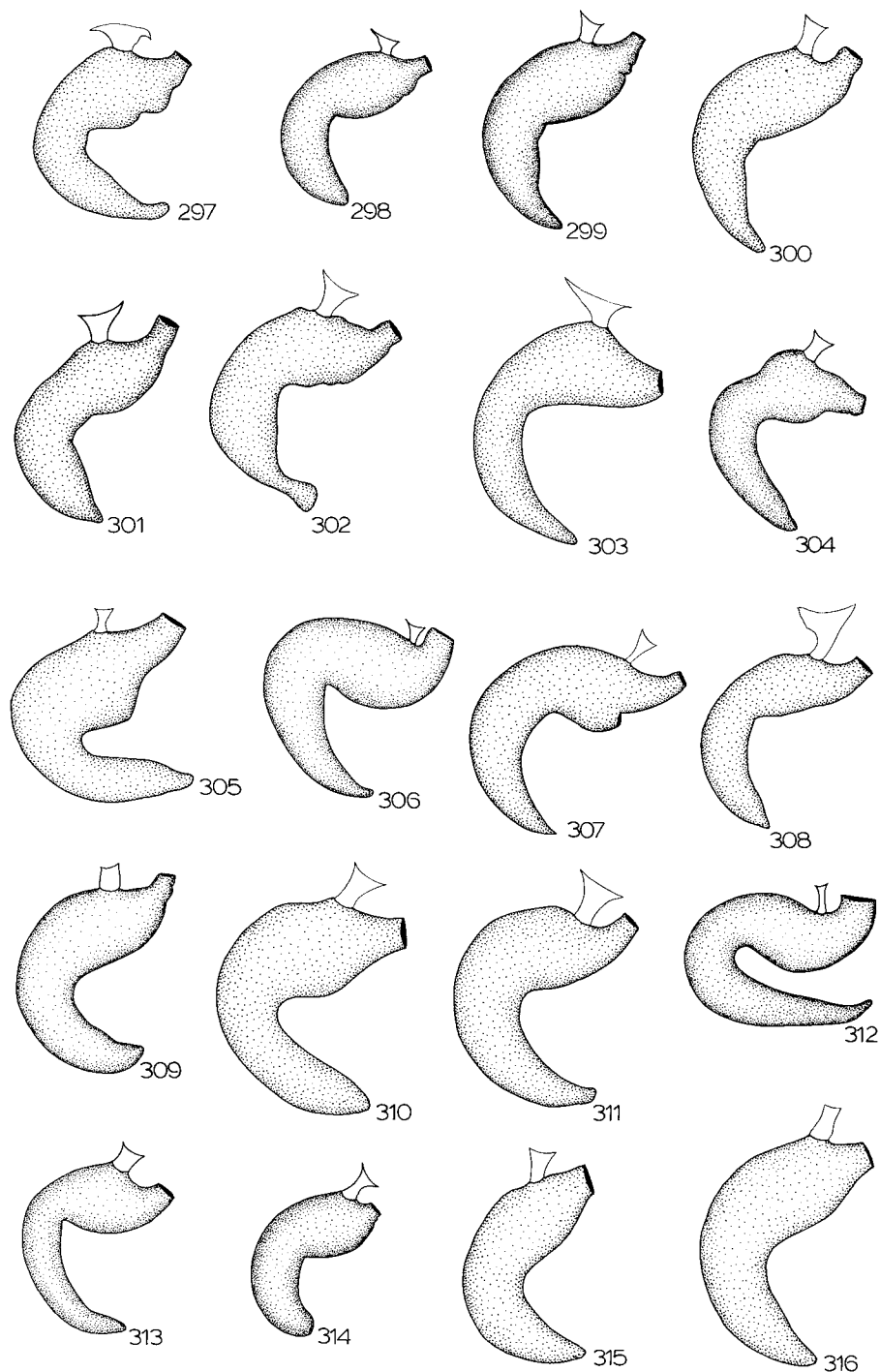


Fig. 297–316, *Sibiria* spp., spermathecae: 297, *S. fastidiosa*; 298, *S. seminicola*; 299, *S. ochreosa*; 300, *S. geminata*; 301, *S. acuminata*; 302, *S. latissima*; 303, *S. quinquemembrata*; 304, *S. peruana*; 305, *S. hirritus*; 306, *S. pulcherrima*; 307, *S. hispaniolae*; 308, *S. sparsa*; 309, *S. pallida*; 310, *S. prorsa*; 311, *S. muricata*; 312, *S. valenciana*; 313, *S. viridula*; 314, *S. chichimeca*; 315, *S. azteca*; 316, *S. earina* (not to scale).

0.25, in apical 0.66 and in extreme apical 0.25, usually also with a few oblong scales on apices of interspaces 4–6; darker scales dense on basal 0.33 of interspace 3 and on sutural interspaces behind basal patch of oval pale fulvous scales; also dense basally on interspace 4 and in apical 0.66 on interspace 5 and forming broad, subapical transverse band on interspaces 1–4; striae scales narrower than scales on interspaces, especially toward apices. *Pygidium*: in male nearly perpendicular; apical portion strongly convex, apex broadly rounded; in female, pygidium not so strongly convex, more strongly narrowed to rounded apex, oblique, extending posteriorly well beyond elytral apices. *Abdomen*: sternum 5 in male distinctly concave medially, subapical portion of segment distinctly constricted laterally but not medially, posterior margin nearly straight; in female, sternum 5 broadly constricted subapically, posteromedian portion of segment produced posteriorly beyond elytral apices. *Tibiae*: pro- and mesotibiae with stout, curved mucrones; metatibia with slender oblique mucro. *Male genitalia*: (Fig. 287). *Spiculum ventrale*: (Fig. 178). *Spermatheca*: (Fig. 298).

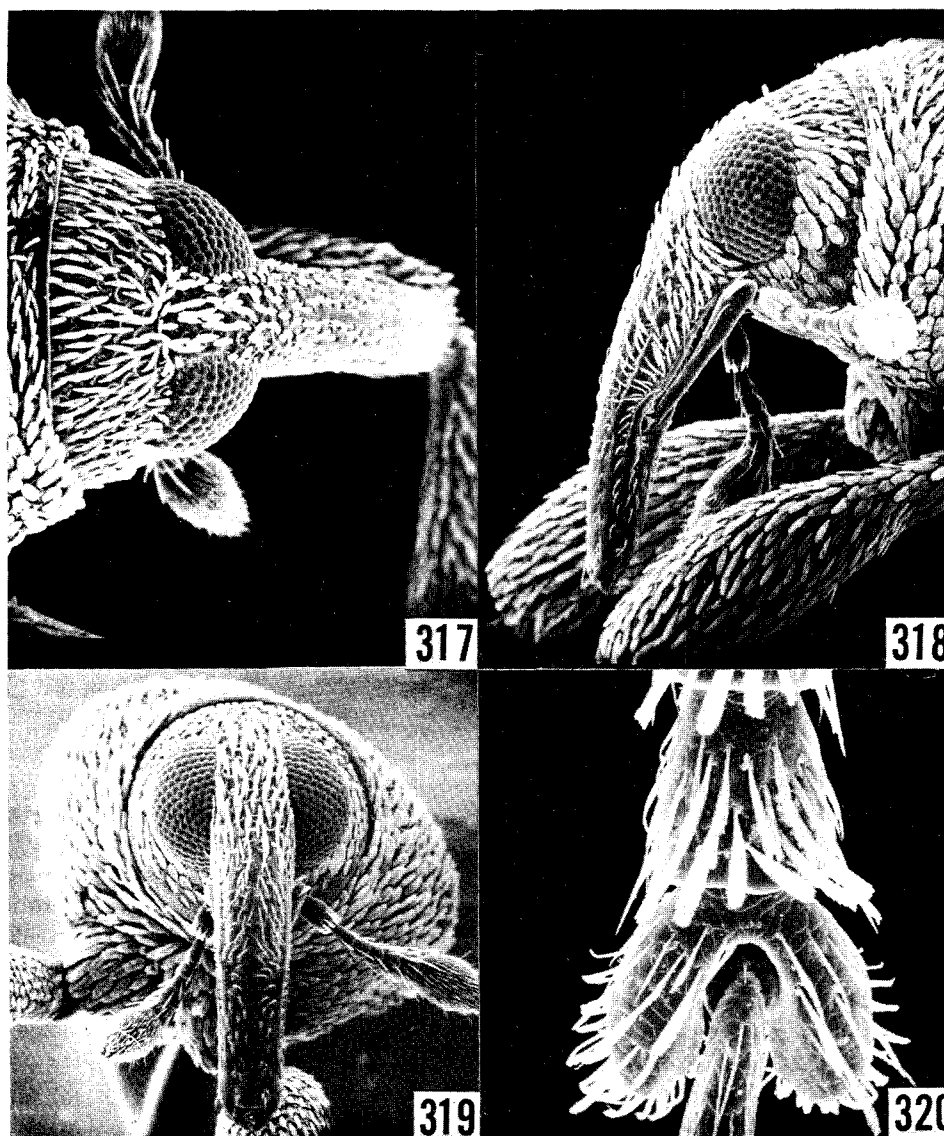


Fig. 317–320, *Sibinia seminicola*, male: 317, head, dorsal view (102.1x); 318, head and anterior portion of pronotum, lateral view (78.5x); 319, head and pronotum, front view (78.5x); 320, articles II and III of right protarsus, dorsal view (298.4x).

Discussion.— A relatively large *Microtychius* seed predator of *Mimosa pigra* var. *berlandieri* (in Texas) and *M. pigra* var. *pigra* (in Mexico); known from the Lower Rio Grande Valley of Texas and from northeastern Mexico (Fig. 277).

Larvae of *S. seminicola* develop in seeds of the host, feeding externally on the seeds within the pod. Pupation takes place in pods on the plant. Adults have been collected in January (5%), March (21%), April (11%), May (5%), June (11%), July (21%), August (25%), and October (1%).

Weevils were observed at Brownsville, Cameron County, Texas at intervals between July, 1971 and April, 1972. On 28 July, 1971 and on 13 August, 1971, eggs, larvae in all three instars, pupae and adult weevils were present in pods. On 11 April, 1972, eggs and larvae were found in pods and 15 days later eggs, larvae and pupae were found. Dry pods examined in January, February, and March were not infested although a few adults were found on the plants during those months.

Attempts to observe oviposition behaviour in the laboratory were unsuccessful. Pods of *M. pigra* are divided into 4–11 segments. Each segment is limited by a constriction in the immature pod, by a septum in the mature pod. When the pods mature, the segments separate from each other and the surrounding rim and fall to the ground. What appeared to be oviposition holes extended through the rim and into the pod segments. Frequently eggs or young larvae were noted inside pods adjacent to these holes. As many as 21 eggs or very small larvae were noted in pods collected on 26 April, 1972 but normally pods contained fewer weevils. Pods were not abundant on the latter date and this large number of eggs per pod may have been a result of an abundance of weevils in the area before the fruit crop was fully developed. Eggs and early instar larvae were found in very small immature pods and in full size, nearly mature pods indicating that oviposition may occur in pods in an advanced stage of development.

Larvae feed on the edges of the seeds. Seeds infested with from two to six first instar larvae were observed. However, by the time larvae reach the last instar, only one or two larvae occupy each seed. Partially eaten larvae, evidence of cannibalism among early instar larvae, were observed where several larvae occupied a single seed. When two larvae occupy a single seed, they feed on opposite ends of the seed and usually remain separated from each other by a narrow uneaten portion in the middle of the seed. When a seed is infested by a single larva the weevil confines itself to one end as though the other end were occupied, and apparently does not eat a greater portion of the seed than it would if it were sharing it with another larva. Frequently larvae of different ages were found in different segments of the same pod, but when two larvae were in the same seed they were of the same age.

By the time the larva is ready to pupate it has enclosed itself in a cell formed by uneaten portions of the seed, compacted fecal material and the wall of the pod itself. Pupation occurs within this cell. The adult weevil chews a hole in the side of the pod through which it emerges.

Durations of the egg and larval stages have not been determined. The pupal stage lasts ca. twelve days in the laboratory.

Pods infested by weevils are easily distinguished externally from uninfested pods. Partitions between the seeds in uninfested pods are complete and the sides of each segment are evenly rounded. Sides of infested pods are irregular and usually partitions between infested seeds are not distinguishable. Evidently when the weevils oviposit in an immature pod the partitions between the infested seeds do not develop. However, infested seeds were frequently noted adjacent to infested or uninfested seeds and separated from them by a normal partition suggesting that oviposition in these had occurred after the partition had formed. Generally when more than one seed in a pod is infested all of the infested seeds are adjacent to each other. In some pods all seeds were infested by weevils.

Distribution of infested plants in the area was spotty. Plants with heavily infested pods were more widely spaced and occupied slightly higher ground than the main population.

This is the only known *Sibinia* seed predator whose larvae do not leave the pod to pupate.

The larvae also differ from other tychiine larvae in that they do not actively crawl when removed from the pods. The habit of completing development in pods is probably an adaptation to the hydric environment occupied by the host plants. These plants stand in several inches of water at the Brownsville locality during much of the year and weevil larvae which leave the pods may not be able to survive these conditions. *Sibinia ochreosa* which develops in flower buds of *M. pigra* at this locality, also remains on the plant to pupate.

Seeds of *M. pigra* are also attacked by a seed beetle, *Acanthoscelides quadridentatus* (Schaeffer) (Bruchidae), in Texas. Forty-two percent of pods examined which were infested by weevils also contained one or more seeds infested by this bruchid. Weevil and bruchid larvae were never observed infesting the same seed. Bruchid larvae develop internally within the seed, whereas weevil larvae feed externally around the edges. Bruchids were much more abundant than weevils at the Brownsville locality.

Weevil larvae were infested with hymenopterous parasitoids of three species, *Zatropis incertus* (Ashmead) (Pteromalidae), *Eupelmus* sp. (Eupelmidae) and *Horismenus* sp. (Eulophidae).

S. subulirostris of Argentina resembles *S. seminicola* very closely and the two are probably sister species. Their adults are distinguished by characters listed below in the diagnosis of the former.

88—*Sibinia* (*Microtychius*) *ochreosa* Casey
(Figs. 179, 278, 284, 288, 299, 321, 322, 326)

Sibinia ochreosa Casey 1897: 666. Champion 1903; Klima 1934. LECTOTYPE (HERE DESIGNATED), female, standing first in series of six syntypes, labelled "Brownsville Texas Wickham" "Casey bequest 1925" "Type USNM 36744" "*ochreosus* (sic)", (USNM).

Tychius ochreosus: Leng 1920.

Diagnosis.— (Fig. 326). Scales on pronotum and elytra elongate, narrow, uniformly recumbent (Fig. 321), ochreous or with lateromedian vittae of darker brown scales on pronotum; in female, rostrum abruptly narrowed distad of antennal insertions, distal portion long, fine; in female, pygidium (Fig. 321) strongly narrowed toward apex, extending well beyond elytral apices.

Description.— *Length*: male 1.58–1.88 mm, female 1.64–2.05 mm. *Width*: male 0.78–0.98 mm, female 0.83–1.04 mm. *Integument*: rufous, legs and distal portion of rostrum somewhat paler; *Head*: scales on vertex oblong, pale ochreous. *Frons*: strongly narrowed posteriorly, in lateral view flat, continuous with vertex of head. *Eye*: height ca. 1.3x length; in dorsal view convex posteriorly, slightly flattened anteriorly; hind margin feebly raised by distance distinctly less than diameter of one ocular facet. *Rostrum*: male 0.93–1.09x, female 1.00–1.28x pronotum length. In dorsal view tapered from base to antennal insertions, slightly widened at extreme apex; in dorsal profile curved from distad of base to tip in male, to antennal insertions in female. Dorsomedian carina distinct. Scales elongate, narrow, uniformly recumbent. Distal portion in male short, 42–47% of total rostral length, narrow, feebly tapered, lateral sulcus distinct in basal 0.66; in female, distal portion long, 51–61% of total rostral length, subcylindrical, with row of shallow punctures in basal 0.66. *Prothorax*: in dorsal view sides subparallel in basal 0.50, more strongly rounded apically to distinct subapical constriction; in lateral view slightly broadly convex, subapical constriction obsolete on dorsum. Scales on pronotum apically blunt to narrowly truncate; scales on lower pleuron ovate, flat, yellowish white. *Elytra*: in dorsal view sides feebly rounded in basal 0.50; in lateral view flat in basal 0.50. Interspaces flat; apices of interspaces 4–6 feebly raised. Scales (Fig. 321) in triple rows on each interspace, scales in lateral rows recumbent, scales in median rows very slightly raised, dark scales, if present, limited to dorsomedian portion on interspaces 2–4; sutural interspaces with small oval yellowish white scales at base, scales in row adjacent to suture smaller and more broadly imbricated; striae slightly narrower than scales on interspaces. *Pygidium*: in male slightly narrowed to rounded apex, feebly convex distally, nearly perpendicular; in female (Fig. 321), pygidium more strongly narrowed to acutely rounded apex, oblique, produced well distad of elytral apices. *Abdomen*: sternum 5 in male nearly flat anteromedially, with small shallow posteromedian fovea, scales unmodified, subapical constriction feebly developed laterally; posterior margin of segment narrowly concave medially; in female (Fig. 322), sternum 5 broadly constricted medially, posteromedian portion of segment strongly narrowed to acutely rounded apex and produced posteriorly well beyond elytral apices. *Femora*: narrow at base, gradually inflated in distal 0.75. *Tibiae*: protibia with short, slender mucro, meso- and metatibia with longer, more slender oblique mucrones. *Male genitalia*: (Fig. 288). *Spiculum ventrale*: (Fig. 179). *Spermatheca*: (Fig. 299).

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Discussion.— A relatively small *Microtychius* bud predator of *Mimosa pigra*; known from the Lower Rio Grande Valley of Texas, Mexico, Central America (Fig. 278), and Brazil (Fig. 284); 792 specimens examined.

Adults of *S. ochreosa* have been collected in January (2%), March (17%), April (20%), May (10%), June (17%), July (22%), August (7%), November (2%) and December (2%). They are most abundant when the host is in bloom. In Texas the weevils probably have several consecutive generations each year, except perhaps in winter. Isolated *M. pigra* plants bloom there sporadically in response to rainfall throughout the year but the major blooming periods are in the spring and summer. In Mexico, *M. pigra* has been observed in full bloom in March and July at several localities.

Larvae develop in flower buds of *M. pigra* var. *berlandieri* in Texas and *M. pigra* var. *pigra* in Mexico. Early instar larvae occur singly in buds; they are usually found with their heads directed toward the base of the bud. A larva consumes the contents of a bud, then chews a hole through the side at the base and enters an adjacent bud in the globose head-like inflorescence. It consumes the contents of four or five buds. When full grown it lies with its body extending through the bases of a row of two or three buds. A mass of excrement accumulates in the apical portion of the first few buds in which it fed. From one to five larvae per inflorescence have been observed. Infested buds can be detected in a mature inflorescence when they fail to open along with uninfested buds.

Pupation may take place within the last bud in which the larva fed or in the soil. Adult weevils, pupae, and full grown larvae were found in flower buds in the field in March. The weevils all had their heads directed towards the apex of the buds which were capped in silk and small pieces of plant material. Larvae emerge from flower buds when these are removed from the plant. In the laboratory these behave in typical tychiine fashion, burrowing into a sand-peat moss substrate where they form a pupal cell. Pupae and adults were recovered from pupal cells 17–25 days after the larvae had emerged from flower buds. The significance of the habit of remaining on the host for pupation observed in this species and in *S. seminicola* was considered in the discussion of that species.

S. ochreosa closely resembles *S. peruana* with which it is microsympatric on *M. pigra* over much of its known range. It is easily distinguished from that species by the much longer, more slender distal portion of the rostrum in the male and female, and the narrower pygidium in the female (cf. Figs. 326, 327), the ochreous rather than lemon yellow scales on the pronotum and elytra, and absence of the concave second article of the male protarsus, and apical, ventrolateral denticles on the median lobe.

The phylogenetic relationships of *S. ochreosa* are uncertain. It is placed in the *seminicola* group because it shares its host with other members of that group, but it bears little resemblance to these, all of which are seed predators.

89—*Sibinia (Microtychius) subulirostris* Hustache (Fig. 284)

Sibinia subulirostris Hustache 1928: 236. Holotype, female: ARGENTINA, Buenos Aires "III-1915" (MNHP).

Diagnosis.— Rostrum very finely subulate, distal portion completely smooth; ferruginous scales distinct in median rows on elytral interspaces, in broad triangular basal patch, along interspace 2 and in transverse apical band; femora very narrow at base, distinctly, abruptly inflated.

Description.— As described for *S. seminicola* except—Length: 2.36 mm. Width: 1.13 mm. Eye: height ca. 1.3x length. Frons: rounded separately from vertex of head. Rostrum: 1.06x pronotum length. In dorsal view distal portion finely subulate. In dorsal profile distinctly, broadly concave from just distad of base to antennal insertions. Distal portion

long, 56% of total rostral length, shining. *Prothorax*: in lateral view feebly convex posteriorly, broadly flattened anteriorly. Scales on pronotum narrow, bright ferruginous, oval fulvous scales intermixed laterally and in basomedian patch. *Elytra*: scales in median rows on interspaces narrow, distinct from broader fulvous scales in lateral rows, except on broad triangular portion at base, on interspace 2, and subapically with scales in lateral rows also ferruginous; sutural interspaces with continuous vitta of oval pale fulvous scales. *Femora*: distinctly, abruptly inflated from narrow base.

Discussion.— A relatively large *Microtychius*, probably a seed predator; host unknown; known only from the female holotype from Argentina (Fig. 284).

S. subulirostris closely resembles and probably is sister to *S. seminicola* of Texas and Mexico, a seed predator of *Mimosa pigra*. It may also have that widespread plant as host.

90—*Sibinia (Microtychius) vatricosa*, new species
(Figs. 284, 289)

Holotype.— Male, BRAZIL: Nova Teutônia, 27° 11' S, 52° 23' W, 7 November, 1949, Fritz Plaumann, 300 bis 500 m (MZSP).

Paratype.— BRAZIL: Minas Gerais, Serra do Caraca (Caracol?), 27 November–5 December, 1972, Exp. Mus. Zool. (1 male, WEC).

Diagnosis.— Scales on pronotum and elytra white, elytra with oblong scales in lateral rows, linear scales in median rows on interspaces; rostrum straight, in lateral view broadly concave from base to antennal insertions; elytra narrow, subparallel sided in basal 0.75; article II of protarsus laterally compressed and expanded dorsally into large lobe.

Description.— *Length*: 1.69–1.74 mm. *Width*: 0.75–0.79 mm. *Integument*: venter black, elsewhere rufous except tarsi, antennae and distal portion of rostrum ferruginotestaceous. *Head*: scales on vertex elongate, apically truncate, *Frons*: slightly narrowed posteriorly, in lateral view feebly rounded, continuous with vertex of head. *Eye*: moderately large, height ca. 1.5x length; in dorsal view strongly, evenly convex; hind margin not raised. *Rostrum*: short, 0.83x pronotum length. In dorsal view feebly, evenly tapered from base to antennal insertions, not narrowed distad of insertions, sides of distal portion subparallel. Dorsomedian carina obsolete. Distal portion short, 31% of total rostral length, in lateral view strongly tapered to acute tip, lateral sulcus obsolete. Scales elongate, moderately broad, apically truncate, white, becoming slightly raised towards base, suberect over dorsal margins of eyes. *Prothorax*: in dorsal view elongate, sides broadly, evenly rounded from base to feebly developed subapical constriction; in lateral view very slightly, evenly convex from base to apex, not constricted subapically on dorsum. Scales on pronotum short, subparallel sided, apically truncate and oblong, apically rounded scales intermixed, all scales recumbent; scales on lower 0.33 of pleuron nearly round, flat, white, replaced by elongate scales dorsally. *Elytra*: in dorsal view elongate, sides subparallel in basal 0.75. Interspaces flat, feebly impressed, subequal in width; apices of interspaces 4–6 feebly prominent; striae very shallow. Scales in triple rows on each interspace, scales in lateral rows oblong, flat, scales on median rows elongate, linear, apically blunt, very slightly raised; scales on sutural interspaces denser but of same shape and color as scales on other interspaces; striae scales narrower than scales in median rows of interspaces. *Pygidium*: moderately broadly exposed, strongly convex, apex evenly rounded. *Abdomen*: sternum 3–4 flat, sternum 5 feebly concave medially, sternum 5 not constricted subapically, posterior margin of segment straight. *Femora*: narrow at base, gradually, strongly enlarged distally. *Tibiae*: each with slender acute horizontal mucro. *Male genitalia*: (Fig. 289).

Discussion.— A relatively small *Microtychius*, but with general facies of a seed predator; host unknown; known only from the type series from southern Brazil (Fig. 284).

The strongly convex pygidium, prominently convex eyes, and shallowly concave proximal portion of the rostrum indicate that *S. vatricosa* is allied to *S. seminicola*, a seed predator of *Mimosa pigra* which occurs in Mexico and in Texas. The modification of the male protarsus of *S. vatricosa* is unique among known *Sibinia*.

91—*Sibinia (Microtychius) prolata*, new species
(Figs. 180, 284, 290)

Holotype.— Male, ARGENTINA: Santa Fe, Estancia la Noria, Rio San Javier, 23 December, 1911, G.E. Bryant, G. Bryant Coll., 1919–147 (BMNH).

Allotype.— Female, same data as holotype (BMNH).

Paratypes.— Same data as holotype, except—11 December, 1911 (1 female, WEC); ARGENTINA: Santa Fe. S. tome, 21 October, 1932 (1, MLP).

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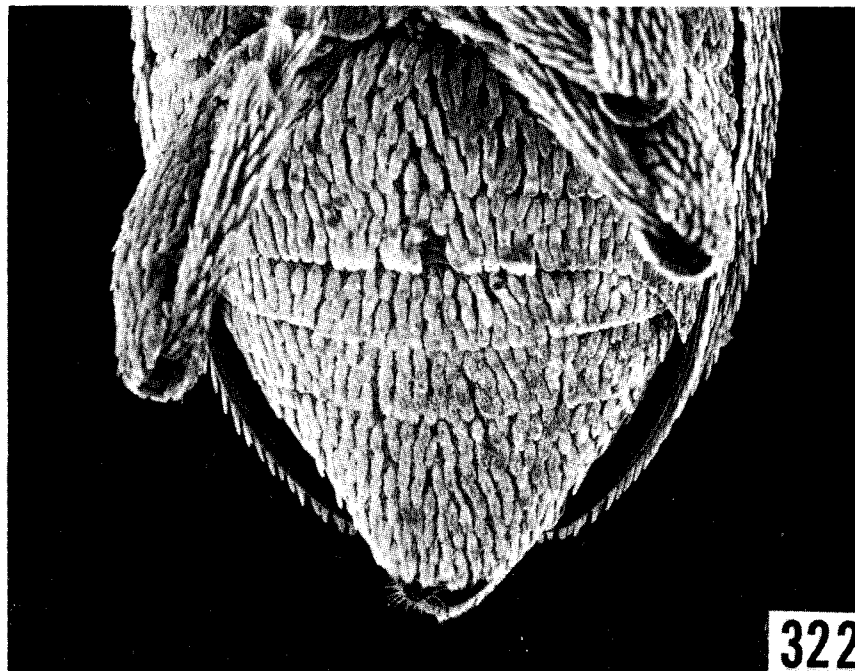
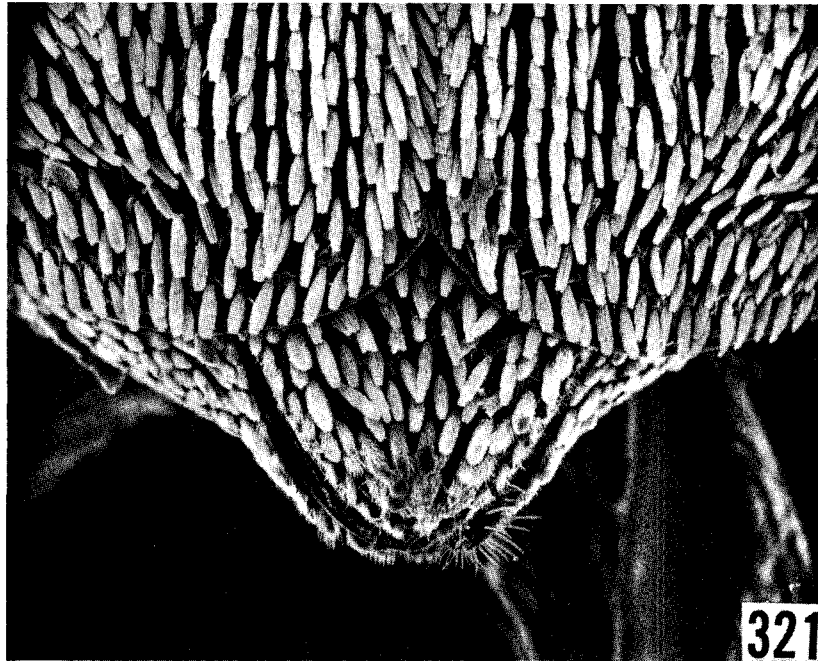


Fig. 321–322, *Sibiria ochreosa*, female: 321, elytral apices and pygidium, dorsal view (103.8x); 322, abdominal sterna, ventral view (49.0x).

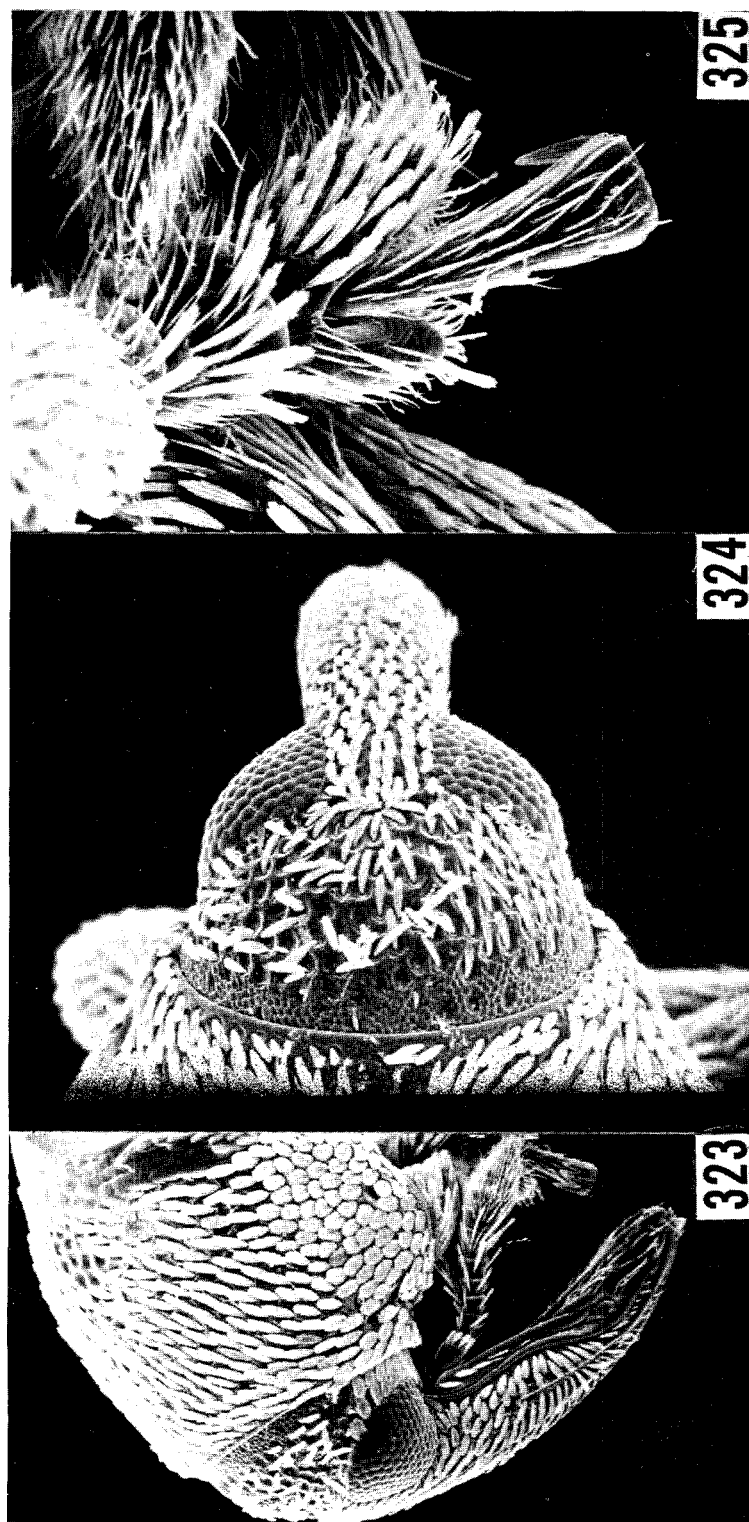


Fig. 323—325, *Sibinia peruana*, male: 323, head and pronotum, lateral view (57.7x); 324, head, dorsal view (106.7x); 325, right protarsus (213.2x).

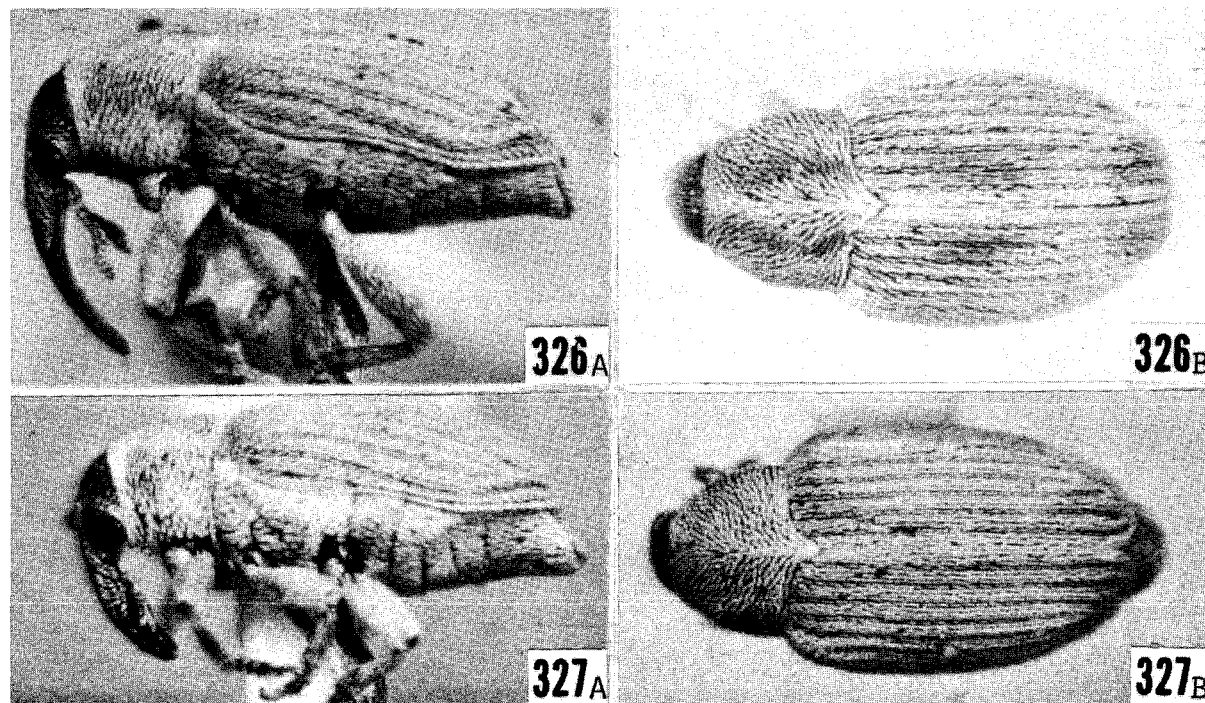


Fig. 326–327, *Sibinia* spp., habitus: 326, *S. ochreosa*, female, Coyame, Veracruz, Mexico; 327, *S. peruana*, female, Coyame, Veracruz, Mexico. (A, lateral view, B; dorsal view).

Diagnosis.— Apices of interspaces 4–6 prominent; eye strongly convex, hind margin distinctly raised by distance ca. equal to combined diameters of two ocular facets; scales on pronotum and elytra uniformly recumbent pale fulvous scales, darker fulvoaeneous scales and ferruginous to rufopiceous scales in distinct pattern; elytra with posteromedian macula of light fulvous scales.

Description.— *Length:* 2.44–2.46 mm, female 2.49–2.54 mm. *Width:* male 1.22–1.24 mm, female 1.26–1.28 mm. *Integument:* rufopiceous; black on venter, rufous to ferruginotestaceous on tarsi, antennae and distal portion of rostrum. *Head:* scales on vertex short, apically truncate, dark fulvescent. *Eye:* height ca. 1.5x length; in dorsal view strongly convex. *Frons:* slightly narrower than rostrum at base; in lateral view feebly rounded, slightly separated from vertex of head. *Rostrum:* male 0.78–0.86x, female 0.83–0.84x pronotum length. In dorsal view tapered evenly from base to tip in male, distal portion attenuate in female; in dorsal profile distinctly rounded at base, nearly straight to just distad of antennal insertions in female, broadly, nearly evenly curved from summit of frons to tip in male. Dorsomedian carina obsolete. Distal portion in male short, 32–37% of total rostral length, stout, in lateral view evenly, strongly tapered to acute tip, lateral sulcus becoming obsolete about halfway to tip; in female, distal portion slightly longer, 33–44% of total rostral length in lateral view, finely acuminate, finely punctate, lateral sulcus obsolete just distad of antennal insertions. Scales on sides short, apically rounded, fulvous, these replaced dorsally by slightly narrower, apically truncate, recumbent broadly imbricated darker fulvescent scales. *Prothorax:* in dorsal view sides subparallel in basal 0.66, strongly rounded in apical 0.33 to distinct subapical constriction; in lateral view feebly, broadly convex from base to apex, subapical constriction obsolete on dorsum. Pronotum with short, broad, apically truncate to subtruncate, striate, ferruginous to rufopiceous scales, and with broad, apically rounded, densely imbricated, fulvous scales forming narrow median vitta from base to apex; fulvous scales narrowly visible on sides in dorsal view. *Elytra* in dorsal view sides subparallel in basal 0.66; in lateral view broadly, evenly convex in basal 0.75. Interspaces flat, shallowly impressed, surface rugose, odd interspaces slightly wider than even ones. Interspaces with oblong, apically rounded, non-striate, pale fulvous scales, slightly narrower, apically truncate to subtruncate, striate, fulvoaeneous scales and narrower, subparallel sided, apically truncate, dark rufopiceous scales; fulvous scales dense on sutural interspaces in basal 0.66, in form of broad transverse macula in apical 0.75, broad on interspaces 1–3, limited to extreme apices of interspaces 4–6, also sparsely distributed singly or in groups of two or three throughout all interspaces; rufopiceous scales dense on basal 0.50 of interspace 2, present on extreme base of interspace 3 and present but less conspicuous on interspace 4, especially in apical 0.50, forming subapical transverse band posterior to macula of fulvous scales; remainder of interspaces with light to dark fulvoaeneous scales, arranged in three or four irregular rows on each interspace; striae narrower than scales on interspaces. *Pygidium:* in male apicomedian portion convex, broadly rounded at apex, distinctly oblique, produced clearly distad of elytral apices, in female, pygidium strongly narrowed to rounded apex, posteromedian portion convex, strongly oblique and projected well distad of elytral apices. *Abdomen:* in male sterna 3–4 flat medially, sternum 5 convex medially, feebly constricted subapically, posteromedian margin of segment narrowly, shallowly concave; in female, sternum 5 broadly constricted laterally and medially, strongly narrowed apically, posteromedian portion of segment strongly narrowed and produced posteriorly well beyond elytral apices. *Femora:* stout, broad at base, only slightly widened distally. *Tibiae:* pro- and mesotibiae with stout curved mucrones, metatibial mucro slender, oblique. *Male genitalia:* (Fig. 290). *Spiculum ventrale:* (Fig. 180).

Discussion.— A relatively large *Microtychius*, probably a seed predator; host unknown; known only from the type-series from the state of Santa Fe, northern Argentina (Fig. 284).

The resemblance of *S. prolata* and *S. seminicola*, a North American seed predator of *Mimosa pigra* is slight, but great enough to arouse suspicion that both species have *M. pigra* or a related *Mimosa* as host. The South American *S. prolata* is known only from the Entre Rios Parkland region of northern Argentina, a lowland area where *M. pigra* is known to occur. Like *S. seminicola*, *S. prolata* is apparently microsympatric with a bud predator; label data indicate that the type-series of *S. prolata* and that of the bud predator *S. geminata* were collected at the same time and place, and I strongly suspect that the two will be found to share a host. The resemblance of *S. geminata* to *S. ochreosa*, the North American species commonly microsympatric with *S. seminicola* on *M. pigra* is about as strong as the resemblance of *S. prolata* to *S. seminicola*.

92—*Sibinia (Microtychius) geminata*, new species

(Figs. 181, 284, 291, 300)

Holotype.— Male, ARGENTINA: Santa Fe, Estancia la Noria, Rio San Javier, 23 December, 1911, G.E. Bryant (BMNH).

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Allotype.— Female, same data as holotype (BMNH).

Paratypes.— Same data as holotype (4); the same, except—18 December, 1911 (1); the same, except—San Joaquin, Rio San Javier, 5 January, 1912 (1); ARGENTINA: Villa Ana, 16–31 October, 1–7 November, 1933, K.J. Hayward, B.M. 1934–519(1); total seven, distributed to various collections.

Diagnosis.— Scales on pronotum uniformly recumbent, fulvous scales forming broad dorso-lateral and dorsomedian vittae between ferruginous scales; rostrum narrowed distad of antennal insertions in female; pygidium narrowed to rounded apex, vertical, not producted posteriorly in female; hind margin of eye raised by distance ca. equal to combined diameters of two ocular facets; median lobe with large apical orifice (Fig. 291).

Description.— *Length*: male 1.49–1.62 mm, female 1.56–1.77 (1.65) mm. *Width*: male 0.78–0.79 mm, female 0.82–0.93 (0.88) mm. *Integument*: rufous to rufopiceous, legs and rostrum slightly lighter. *Eye*: height ca. 1.3x length; in dorsal view convex posteriorly, slightly flattened anteriorly. *Frons*: strongly narrowed posteriorly, in lateral view nearly flat, continuous with vertex of head. *Rostrum*: male 0.88–0.94x, female 0.95–1.13 (1.01)x pronotum length. In dorsal view slightly widened to somewhat distad of eye, tapered from there to antennal insertions; in dorsal profile broadly curved from distad of base to tip in male, more strongly curved in basal 0.25 in female. Dorsomedian carina distinct. Distal portion in male short, 45–48% of total rostral length, narrow, feebly tapered, sulcate almost to tip; in female, distal portion slightly longer, 51–58 (53)% of total rostral length, subcylindrical, smooth, shining, glabrous. Scales elongate, apically truncate, pale fulvous, uniformly recumbent; scales on frons broader and lighter than scales on vertex of head. *Prothorax*: in dorsal view sides subparallel in basal 0.50; in lateral view broadly, evenly convex, subapical constriction obsolete on dorsum. Scales on pronotum elongate, with broadly rounded sides, apically blunt; pale fulvous scales forming narrow lateral and median vittae; scales in broad lateromedian vittae narrower, more nearly parallel sided, light ferruginous; scales on lower portion of pleuron round to ovate, flat, white, replaced by elongate scales on upper 0.25. *Elytra*: in dorsal view sides subparallel in basal 0.50; in lateral view flat in basal 0.33; broadly curved to apices. Interspaces flat, apices of interspaces 4–6 not distinctly raised. Scales on interspaces as on pronotum but slightly narrower, in triple rows on each interspace, broad pale fulvous scales predominant on sutural interspaces and on interspaces 5–10; sutural interspaces with small oval white scales in basal cluster and interspersed along suture; striae scales narrower than scales on interspaces. *Pygidium*: in male slightly narrowed to rounded apex, convex; in female, pygidium more strongly narrowed to rounded apex, less strongly convex, very slightly oblique. *Abdomen*: in male sternum 5 flat anteromedially, with very broad, shallow, posteromedian concavity, subapical constriction obsolete, posterior margin of segment broadly emarginate; in female, anteromedian portion of sternum 5 convex, very feebly broadly constricted medially, posteromedian portion of segment feebly prominent but not producted posteriorly, posterior margin of segment not emarginate. *Femora*: narrow at base, profemur rapidly inflated in basal 0.25, rounded ventrally; metafemur more gradually inflated, slightly narrower than profemur. *Tibiae*: each with small slender apical mucro. *Male genitalia*: (Fig. 291). *Spiculum ventrale*: (Fig. 181). *Spermatheca*: (Fig. 300).

Discussion.— A relatively small *Microtychius*, probably a bud predator; host unknown; known only from the type-series from the state of Santa Fe, northern Argentina (Fig. 284).

The suspected relationship of *S. geminata* and *S. prolata*, a seed predator *Microtychius*, and *Mimosa pigra* was considered in the discussion of *S. prolata*. The general resemblance of *S. geminata* and *S. prolata* and the probably shared host are considered sufficient evidence that the two are sister species.

The *latissima* Group

Diagnosis.— Form broad; posteroventral portion of propleuron strongly concave; pronotum and elytra with dense fulvous scales, some scales with metallic margins; article III of male protarsus with dense brush of wide scales on inner surface (but *S. acuminata* and *S. quinquemembrata* known from females only).

Discussion.— The *latissima* group contains three species, *S. acuminata* of Brazil and Paraguay, and *S. latissima* and *S. quinquemembrata* of Brazil (Fig. 328). The first two appear to be seed predators, the third a bud predator, but hosts and larval habits are unknown. The group is probably sister to the *peruana* group, members of which have similarly modified male protarsi.

93—*Sibinia (Microtychius) acuminata*, new species
(Figs. 182, 301, 328)

Holotype.— Female, PARAGUAY: Sapucay, Feb., W.T. Foster collector (USNM #75423).

Paratypes.— Same data as holotype (1 female, WEC). BRAZIL: Mato Grosso, Faz. Sta. Blanca, Corumba, December, 1960, K. Lenko col. (1 female, MZSP).

Diagnosis.— Rostrum short, distal portion strongly acuminate; pronotum broad, subrectangular, scales broadly imbricated, uniformly recumbent; elytral interspaces except 3 and 7 with broadly imbricated oblong, apically rounded pale fulvous scales, 3 and 7 with narrower, darker fulvous scales; sternum 5 broadly visible lateral to pygidium in dorsal view.

Description.— *Length*: 2.62–2.67 (2.64) mm. *Width*: 1.37–1.38 mm. *Integument*: piceous; rufopiceous on legs and tarsi, antennae and distal portion of rostrum ferruginotestaceous. *Head*: scales on vertex elongate, feebly striate, apically truncate. *Eye*: small, height ca. 1.6x length; in dorsal view nearly flat; hind margin feebly raised by distance ca. equal to diameter of one ocular facet. *Frons*: becoming slightly wider than base of rostrum posteriorly; in lateral view feebly rounded, continuous with vertex of head. *Rostrum*: short, 0.65–0.71 (0.69)x pronotum length. In dorsal view tapered from base to antennal insertions, abruptly narrowed distad of insertions; in dorsal profile feebly, broadly curved basad of antennal insertions, shallowly separated from frons. Distal portion short; 44–64 (54)% of total rostral length, lateral sulcus deep in basal 0.25, distal 0.75 smooth, shining. Dorsomedian carina narrow just over antennal insertions, becoming obsolete toward base. Scales on sides oblong, apically rounded, densely imbricated; these replaced on dorsum by narrower apically truncate scales. *Prothorax*: in dorsal view subapical constriction obsolete; in lateral view broadly, evenly convex from base to apex, subapical constriction not developed on dorsum. Pronotum with oblong apically rounded, scales covering lateral portions and forming large mediobasal patch, remainder of dorsum with elongate, striate, apically truncate darker fulvous scales with metallic edges; scales on pleuron identical to scales on lateral portions of pronotum, those on lower portion shorter, broader and more whitish. *Elytra*: in dorsal view broadest at humeri sides convergent from there to rounded apices; in lateral view nearly flat in basal 0.50, broadly, evenly curved in distal 0.50. Interspaces flat, shallowly punctate, surface densely minutely rugulose, odd interspaces slightly wider than even ones, apices of interspaces 4–6 not prominent; scales on each interspace, except 3 and 7, in three or four irregular rows, each with median row of narrower scales but these not darker than oblong scales and not raised or conspicuous; striae scales more dense than on other interspaces. *Pygidium*: flat anteriorly, distinctly convex posteriorly, strongly narrowed to rounded apex, nearly horizontal, produced posteriorly well beyond elytral apices. *Abdomen*: sterna 3–4 and anteromedian portion of sternum 5 feebly concave medially, sternum 5 feebly constricted subapically, broad posterior margin of segment broadly rounded. *Femora*: narrow at base, profemur stout, abruptly, strongly inflated in basal 0.25, broadly concave on anterior surface in basal 0.25; metafemur less abruptly widened. *Tibiae*: pro- and mesotibiae with large curved acuminate mucrones; metatibial mucro slightly shorter, oblique. *Spiculum ventrale*: (Fig. 182). *Spermatheca*: (Fig. 301).

Discussion.— A relatively large *Microtychius*, probably a seed predator; host unknown; known only from members of the type-series, all females, from Paraguay and southern Brazil (Fig. 328).

I expect the male of *S. acuminata* to have a dense brush of wide scales on the inner surface of article III of the protarsus as does *S. latissima*. The species resemble each other in general facies, but are distinguished by the presence in *S. acuminata* of vittae of metallic scales on the pronotum and elytra, and of narrow scales in median rows on each elytral interspace.

94—*Sibinia (Microtychius) latissima*, new species
(Figs. 292, 302, 328)

Holotype.— Male, BRAZIL: São Paulo, Barueri, 8 November, 1960, K. Lenko Col. (MZSP).

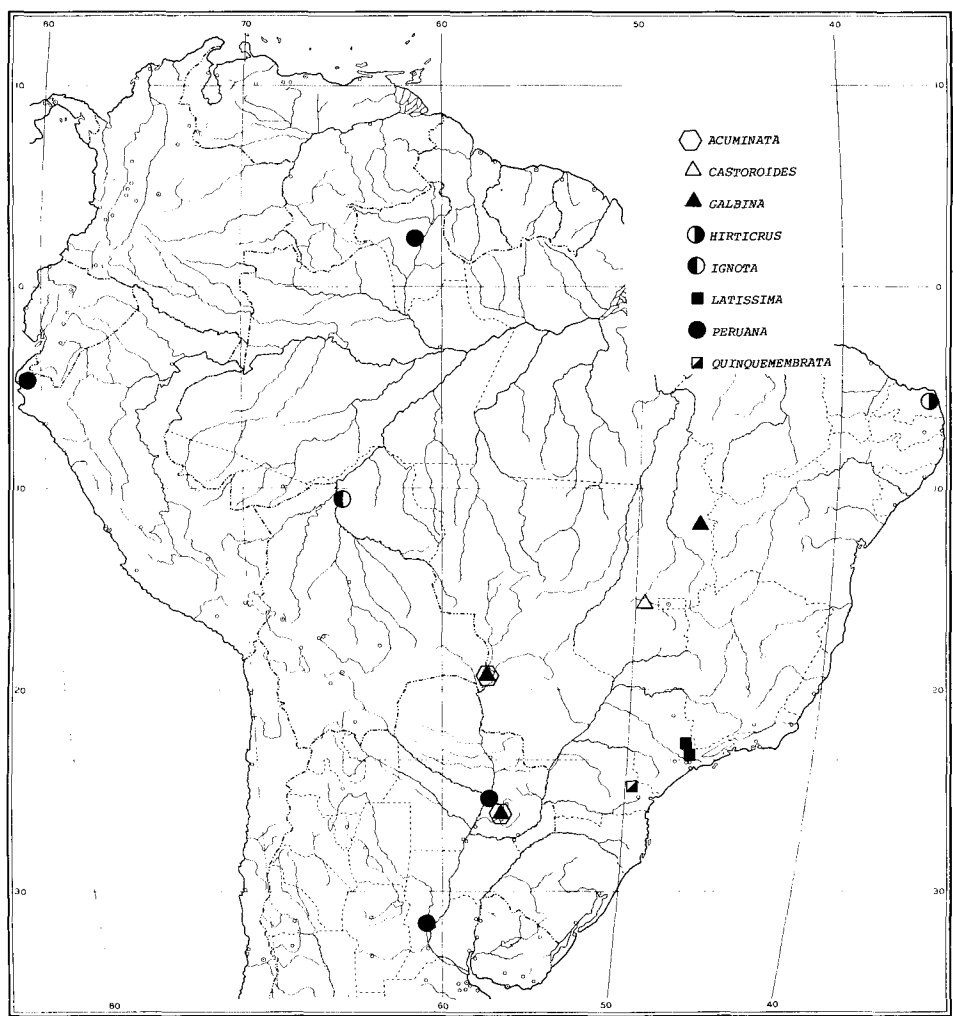
Allotype.— Female, same data as holotype (MZSP).

Paratypes.— Same data as holotype (3); the same, except—S. Bernardo Campo, February, 1960, W. Bockermann leg., ex. coleção M. Alvarenga (1); total four, distributed to various collections.

Diagnosis.— Rostrum short, distal portion acuminate in female; scales on pronotum and elytra uniformly elongate, parallel sided, apically truncate, fulvous, recumbent, densely imbricated; hind margin of eye not raised; tibial mucrones small, slender, acute; median lobe with large apical orifice (Fig. 292).

Description.— *Length*: male 3.52–3.60 mm, female 3.40–3.60 (3.52) mm. *Width*: male 1.98–2.02 mm, female 1.88–1.98 (1.95) mm. *Integument*: black; legs, antennae and distal portion of rostrum rufous. *Head*: scales on vertex elongate, narrow, attenuate. *Frons*: narrower than base of rostrum medially, widened slightly posteriorly; in lateral view flat, continuous with base of rostrum. *Eye*: moderately large, height ca. 1.5x length; in dorsal view strongly convex, especially anteriorly. *Rostrum*: short, male 0.70–0.75x, female 0.70–0.74 (0.72)x pronotum length. In dorsal view feebly tapered from base to antennal insertions in male, more strongly tapered from there to tip; in dorsal profile not rounded at base.

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Fig. 328, *Sibinia* spp., distribution records: members of the *latissima* and *peruana* groups, and some members of the "Itychus" stock.

broadly, more or less evenly arcuate from base to apex. Dorsomedian carina obsolete, lateral and dorsolateral carinae feebly developed. Distal portion in male short, 45–47% of total rostral length, in lateral view conical, lateral sulcus obsolete but entire proximal 0.66 with deep, elongate punctures; in female, distal portion slightly longer, 49–55 (52)% of total rostral length, slender, in lateral view subcylindrical, densely, shallowly punctate in proximal 0.66. Scales uniformly elongate, narrow to moderately broad, attenuate to broadly truncate apically, recumbent, dense in proximal 0.50 of distal portion in male. *Prothorax*: in dorsal view broad, sides rounded at base, more strongly rounded in anterior 0.33 to feebly developed subapical constriction; in lateral view nearly flat, subapical constriction feebly developed dorsally; lateral margins acute, pleuron deeply, broadly concave posteriorly; lower portion of pleuron with pale whitish fulvous oblong scales, upper portion with more elongate scales, these replaced on dorsum by more nearly parallel sided scales. *Elytra*: in dorsal view broad, sides subparallel in basal 0.50; in lateral view broadly, nearly evenly convex from base to apices. Interspaces flat, subequal in width, apices of interspaces 4–6 not prominent. Scales in four or five irregular rows on each interspace; scales on sutural interspaces indistinguishable from scales on other interspaces; striae scales narrower than scales on interspaces. *Pygidium*: in male broadly exposed, narrow but not tapered toward apex, broadly, evenly convex, evenly rounded at apex; in female, pygidium more narrowly exposed, strongly narrowed to acutely rounded apex, flat, oblique, broadly visible from above beyond elytral apices. *Abdomen*: in male sterna 3–4 flat, sternum 5 feebly concave medially, scales unmodified, posteromedian portion of segment slightly flared downward, posterior margin nearly straight; in female, sterna 3–4 broadly concave medially, sternum 5 narrowly, shallowly concave medially, extreme subapical portion constricted, posteromedian portion not prominent, posterior margin narrowly rounded, produced slightly beyond elytral apices. *Femora*: narrow at base, gradually, strongly inflated distally. *Tibiae*: each with short slender acute apical mucro. *Male genitalia*: (Fig. 292). *Spermatheca*: (Fig. 302).

Discussion.— A relatively large *Microtychius*, probably a seed predator; host unknown; known only from the type-series from southern Brazil (Fig. 328).

Large body size and broad form characterize *S. latissima* adults. These closely resemble adults of *S. acuminata*, probable seed predators from Paraguay and southern Brazil, but the two groups are distinguished by the characters listed in the diagnosis and in the discussion of *S. acuminata*. Adults of the bud predator *S. quinquemembrata* also bear a general resemblance to those of *S. latissima* and may share a host with the species, although there is no indication as to what the host of either species may be.

95—*Sibinia (Microtychius) quinquemembrata*, new species

(Figs. 183, 303, 328)

Holotype.— Female, BRAZIL: Paraná, S.L. Puruna (Serra do Puruna), 20 January, 1968, Moure-Giacome. 1, Depto. Zool. UF—Paraná (UPB).

Diagnosis.— Antennal funiculus with five articles, each article wider than long; hind margin of eye not raised; pronotum subrectangular; scales on pronotum and elytra uniformly short, ovate, pale fulvous, recumbent; femora short, very stout.

Description.— *Length*: 2.33 mm. *Width*: 1.25 mm. *Integument*: pronotum and elytra pale rufous, head and venter black, legs and rostrum rufous, antennae piceous. *Head*: scales on vertex very short, narrow, acuminate. *Eye*: height ca. 1.3x length; in dorsal view strongly, evenly convex. *Frons*: distinctly narrowed posteriorly; in lateral view feebly curved, continuous with vertex of head. *Rostrum*: short, 0.78x pronotum length. In dorsal view tapered slightly from base to antennal insertions, abruptly narrowed distad of insertions, sides of distal portion subparallel; in dorsal profile broadly, evenly curved from base to tip. Distal portion long, 67% of total rostral length, slender but not abruptly narrowed, not tapered, shallowly, finely punctate. Dorsomedian carina obsolete. Scales very small, inconspicuous, integument broadly visible. *Prothorax*: not constricted subapically, in lateral view broadly, evenly convex, subapical constriction not developed. Scales on lower 0.66 of pleuron small, oval, white, flat, these replaced dorsally by ovate scales. *Elytra*: in dorsal view humeri rounded, sides broadly rounded in basal 0.66, in lateral view broadly, evenly convex from base to apices. Interspaces flat, feebly, shallowly impressed, subequal in width; apices of interspaces 4–6 not prominent. Scales in irregular triple rows on each interspace; striae scales very small, absent on some portions; sutural interspaces without oval white scales. *Pygidium*: broadly exposed, flat, strongly narrowed to rounded apex, oblique, produced posteriorly beyond elytral apices. *Abdomen*: sterna 3–4 flat medially, sternum 5 feebly, narrowly concave medially, feebly, broadly constricted subapically, posteromedian portion of segment not prominent, produced posteriorly well beyond elytral apices, posterior margin narrowly rounded. *Femora*: narrow at base, abruptly strongly inflated. *Tibiae*: short, stout, strongly widened apically; pro- and mesotibiae with short stout oblique mucrones; metatibial mucro much shorter. *Spiculum ventrale*: (Fig. 183). *Spermatheca*: (Fig. 303).

Discussion.— A relatively small *Microtychius*, probably a bud predator; host unknown; known only from the female holotype from southern Brazil (Fig. 328).

Adults of this species seem in many respect to be miniature versions of the seed predator

S. latissima, also known only from southern Brazil. It is not unlikely that the two are a bud-seed predator microsympatric pair, but the host of *S. latissima* is also unknown. Adults of *S. quinquemembrata* are easily distinguished from those of *S. latissima* by the characters listed in the diagnosis.

The *peruana* Group

Diagnosis.— Distal portion of rostrum short, stout, feebly sexually dimorphic (Fig. 327); pronotum and elytra with uniformly recumbent, pale ochreous to lemon yellow scales; apex of median lobe with large orifice, with paired acute lateroventral denticles (Fig. 293).

Discussion.— The *peruana* group includes three species, *S. ignota* and *S. hirticrus* of Brazil (Fig. 328), and *S. peruana*, which is known from Mexico and Central America (Fig. 279), Peru, and Brazil (Figs. 328). The species are all bud predators; *S. peruana* has *Mimosa pigra* as host, as do some members of the *seminicola* group with which *S. peruana* is microsympatric, at least in Mexico and Central America.

96—*Sibinia (Microtychius) peruana* Pierce (Figs. 184, 279, 293, 294, 304, 323-325, 328)

Sibinia peruana Pierce 1915: 13. Klima 1934; Blackwelder 1947. Holotype, male: Piura, Peru (USNM).

Diagnosis.— Distal portion of rostrum short, stout, deeply sulcate almost to tip in male and female (Figs. 323, 324); scales on pronotum and elytra uniformly elongate, narrow, pale ochreous to lemon yellow; pygidium in female large, flat, broadly rounded at apex and extending well beyond elytral apices; article III of male protarsus with dense brush of broad scales on inner lobe (Fig. 325); median lobe with large apical orifice, with small ventrolateral tooth on apical margin (Fig. 293).

Description.— *Length:* male 1.61–1.82 mm, female 1.68–1.99 mm. *Width:* male 0.76–0.93 mm, female 0.85–0.95 mm. *Integument:* rufopiceous, shading to lighter rufous on legs and distally on rostrum. *Head:* scales on vertex narrow, linear, apically blunt (Fig. 324). *Frons:* narrower than base of rostrum (Fig. 324); in lateral view continuous with vertex of head (Fig. 323). *Eye:* height ca. 1.3x length; in dorsal view strongly convex posteriorly, less convex anteriorly (Fig. 324). hind margin feebly raised by distance less than diameter of one ocular facet. *Rostrum:* male 0.91–1.03x, female 0.93–1.05x pronotum length. In dorsal view widened from base, then slightly tapered to antennal insertions, distal portion subparallel sided; in dorsal profile not rounded at base, broadly curved over antennal insertions. Dorsomedian carina well developed. Distal portion in male short, 32–38% of total rostral length, stout, in lateral view feebly tapered (Fig. 323); in female, distal portion slightly longer, 34–40% of total rostral length, less strongly tapered, lateral sulcus distinct almost to tip. Scales linear, broader than scales on vertex of head, recumbent. *Prothorax:* in dorsal view sides subparallel in basal 0.50; feebly curved anteriorly to shallow subapical constriction; in lateral view evenly, broadly convex, subapical constriction obsolete on dorsum. Scales on pronotum moderately broad, apically rounded to truncate, recumbent; scales on lower portion of pleuron oblong, slightly concave, white, limited to lower 0.25 medially, replaced dorsally by elongate scales. *Elytra:* in dorsal view humeri prominent, sides in basal 0.50 slightly convergent; in lateral view flat on disc. Interspaces flat, feebly impressed, apices of interspaces 4–6 not prominent. Scales in triple rows on each interspace, scales in lateral rows recumbent, scales in median row very slightly but distinctly raised; sutural interspaces usually with basal cluster of small white oval scales; stria scales slightly narrower than scales on interspaces. *Pygidium:* broadly exposed, in male rounded at apex, slightly convex, slightly oblique. *Abdomen:* in male sterna 3–4 flat, sternum 5 very shallowly, narrowly concave medially, scales unmodified, sternum 5 not constricted subapically, posterior margin of segment shallowly, roundly concave; in female, sterna 3–4 and anterior portion of sternum 5 broadly convex medially, sternum 5 broadly constricted medially, postero-medial portion of segment produced prominently distad of elytral apices. *Femora:* slender, narrow at base, gradually, feebly expanded but not inflated distally. *Tibiae:* protibia with minute oblique mucro, meso- and metatibiae with minute mucrones which project parallel to long axis of tibia. *Male genitalia:* (Figs. 293, 294). *Spiculum ventrale:* (Fig. 184). *Spermatheca:* (Fig. 304).

Discussion.— A relatively small *Microtychius* bud predator of *Mimosa pigra*; known from southern Tamaulipas, Mexico, southward to Argentina (Figs. 279, 328).

Adults of *S. peruana* were reared from larvae which emerged from flower buds of *M. pigra* var. *pigra*, collected 24 August, 1974, 3 mi S Tamuin, San Luis Potosi, Mexico. Larvae formed

pupal cells in a sand-peat moss substrate. Pupae and teneral adults were noted in cells on 3 September, 1974, 10 days after larvae were collected. Some adults were still in pupal cells ten days later on 13 September. Adults have been collected in June, July, and August.

Adults of *S. peruana* are generally microsympatric on *M. pigra* with the bud predator *S. ochreosa* and with the seed predators *S. seminicola* or *S. fastigiata* in Mexico. Larvae of both bud predators emerged from flower buds from the same *M. pigra* plants collected at the same time 3 mi S Tamuin. Adults of the two species resemble each other in coloration, but are easily distinguished by the characters listed in the diagnoses.

97—*Sibinia (Microtychius) ignota*, new species
(Figs. 295, 328)

Holotype.— Male, BRAZIL: Territorio de Rondonia, Guajara-Mirim, 8 January, 1953, M. Alvarenga (MZSP).

Diagnosis.— Eye moderately large, hind margin not raised; scales on pronotum and elytra uniformly elongate, narrow, pale ochreous, recumbent; profemur enlarged, broadly, deeply, concave ventrally.

Description.— As described for *S. peruana*, except—*Length*: 1.72 mm. *Width*: 0.87 mm. *Integument*: legs, antennae and distal portion of rostrum testaceous. *Frons*: strongly narrowed posteriorly. *Eye*: moderately large, height ca. 1.6x length. *Rostrum*: 0.97x pronotum length. In dorsal view, sides subparallel from base to antennal insertions, slightly narrowed distad of insertions; in dorsal profile broadly, feebly arcuate from base to antennal insertions, more strongly curved over insertions. Distal portion short, 32% of total rostral length, in lateral view conical, scales uniformly elongate, narrow, apically blunt to truncate, recumbent. *Prothorax*: Scales on pronotum subparallel sided to feebly attenuate, apically bluntly pointed. *Elytra*: in dorsal view sides subparallel in basal 0.66; in lateral view nearly flat in basal 0.33. Scales on interspaces uniformly recumbent; sutural interspaces without oval white scales. *Pygidium*: small, not produced beyond elytral apices, convex, distally, vertical, apex strongly, evenly rounded. *Femora*: narrow at base, profemur gradually inflated distally, broadly, very deeply concave ventrally from base to just proximad of apex; mesofemur narrower, metafemur even narrower. *Tibiae*: protibia narrow, strongly arcuate in proximal 0.33, broader and straighter distally with short acute apical mucro; meso- and metatibiae straighter, with somewhat longer, more slender apical mucrones. *Male genitalia*: (Fig. 295).

Discussion.— A relatively small *Microtychius*, probably a bud predator; host unknown; known only from the male holotype from Brazil (Fig. 328).

S. ignota closely resembles *S. peruana*, a bud predator of *Mimosa pigra*. Adults of the two species are easily distinguished from one another, however, by the modified profemur and protibia of *S. ignota* (see diagnosis).

98—*Sibinia (Microtychius) hirticrus*, new species
(Figs. 185, 296, 328)

Holotype.— Male, BRAZIL: Rio Grande do Norte, Natal, January, 1951, Alvarenga col. ex coleção M. Alvarenga (MZSP).

Allotype.— Female, same data as holotype, except—December, 1951 (MZSP).

Paratypes.— Same data as holotype (3); same data as allotype (1); total four, distributed to various collections.

Diagnosis.— Scales on pronotum and elytra pale ochreous and whitish yellow, uniformly recumbent; scales on pleuron, femora and tibiae elongate, attenuate, apically pointed, white; tibiae unarmed; distal portion of rostrum short, stout, beset with long white setae in male and female; female pygidium perpendicular.

Description.— *Length*: male 1.67–1.85 (1.75) mm, female 1.79–1.92 mm. *Width*: male 0.89–0.95 (0.92) mm, female 0.95–0.97 mm. *Integument*: rufous throughout, venter slightly darker. *Head*: scales on vertex elongate, narrow, slightly attenuate. *Frons*: slightly narrower than base of rostrum, slightly narrowed posteriorly, in lateral view nearly flat, continuous with vertex of head. *Eye*: small, height ca. 1.3x length; in dorsal view feebly, evenly convex; hind margin not raised. *Rostrum*: male 1.00–1.06 (1.03)x, female 0.95–1.05x pronotum length. In dorsal view sides subparallel from base

to antennal insertions, distal portion slightly narrower, sides subparallel; in dorsal profile not rounded at base, strongly, almost evenly arcuate from base to tip. Dorsomedian carina distinct. Distal portion in male short, 38–41 (40)% of total rostral length, in lateral view feebly tapered to blunt tip, sulci obsolete but punctures moderately deep and moderately dense; in female, distal portion not much longer, 41–45% of total rostral length, otherwise as in male. Scales on sides small, replaced dorsally by elongate, attenuate, apically pointed, suberect scales. *Prothorax*: in dorsal view sides markedly rounded from base to feebly developed subapical constriction; in lateral view broadly feebly, evenly convex, subapical constriction obsolete on dorsum. Scales on pronotum elongate, narrow, feebly to distinctly attenuate, apically blunt to truncate; ochreous and broader, pale yellowish white scales present, pale scales predominant on posterolateral portions; scales on pleuron elongate, narrow, attenuate, smaller and narrower than scales on pronotum. *Elytra*: in dorsal view sides subparallel behind humeri in basal 0.50; in lateral view flat in basal 0.50, strongly, evenly rounded posteriorly. Interspaces flat, feebly impressed, subequal in width; apices of interspaces 4–6 not prominent. Scales in dense triple rows on each interspace, lighter scales predominant on sutural interspaces, laterally, and toward apices; sutural interspaces without white oval scales; striae scales almost as broad as scales on interspaces. *Pygidium*: broadly exposed, in male strongly convex just beyond elytral apices, curved anteriorly, apical portion broadly visible in ventral view, apex strongly, evenly rounded; in female, pygidium smaller, more broadly, evenly convex, not broadly visible from beneath, apically rounded. *Abdomen*: in male sternum 3–5 convex medially, sternum 5 very feebly, broadly constricted, posteromedian portion of segment feebly prominent, posterior margin deeply, roundly concave; in female, sternum about as in male except sternum 5 more distinctly constricted medially and posterior margin of segment not concave. *Femora*: elongate, narrow at base, gradually widened but not inflated distally. *Median lobe*: (Fig. 296). *Spiculum ventrale*: (Fig. 185).

Discussion.— A relatively small *Microtychius*, probably a bud predator; host unknown; known only from the type-series from northeastern Brazil (Fig. 328).

The small acuminate scales on the venter and femora distinguish adults of *S. hirticus* from those of the other *peruana* group members. The host may be *Mimosa pigra*, host of the closely related *S. peruana*.

The *pulcherrima* Group

Diagnosis.— Species are assigned to the *pulcherrima* group on the basis of possession of one or more of apotypic states 62–67 (see appendix II, p. 368). None of the species have all of the apotypic states inferred in the group ancestor, and no single feature can be cited as diagnostic of the group. Many of the species do, however, have the eye oblong in shape, the hind margin strongly raised, the flat lateral surface directed almost straight forward (Figs. 375, 376, 377), and most have various plates or clusters of large sclerotized plates on the internal sac.

Discussion.— The *pulcherrima* group contains 15 species: *S. pulcherrima*, *S. fessa*, *S. hispaniolae*, *S. sparsa*, *S. ingenua*, *S. megalops*, *S. pallida*, *S. planocula*, *S. prorsa*, *S. muricata*, *S. valenciana*, *S. dissipata*, *S. anfracta*, *S. anfractoides*, and *S. viridula*. These occur throughout Mexico, the West Indies, and Central and South America. Hosts of four of the species, *S. pulcherrima*, *S. pallida*, *S. valenciana*, and *S. dissipata*, belong to the mimosoid genus *Pithecellobium*; hosts of the other species are unknown. The group contains bud and seed predators. The group ancestor probably resembled *S. pulcherrima*, a seed predator with some “*Itychus* characters”, but evolution in the group, as in other groups in the subgenus *Microtychius*, appears to have resulted in reduction and eventual loss of these plesiotypic features in many of the species.

99—*Sibinia* (*Microtychius*) *pulcherrima* Champion (Figs. 82, 306, 329, 333, 358, 359, 375–377)

Sibinia pulcherrima Champion 1910: 191, Tab. 9, Figs. 12, 12a. Klima 1934; Blackwelder 1947. LECTOTYPE (HERE DESIGNATED), male, one of two syntypes, labelled “Sp figured” “Type” “Corinto Nicaragua Solari” “B.C.A. Col. IV. 7. *Sibinia pulcherrima* Champ.” and (handwritten) “*Sibinia pulcherrima* Ch.” (BMNH).
Sibinia sp. Wolcott 1936.

Diagnosis.— (Fig. 329). Pronotum with large mediobasal patch of white scales; sternum 5 rounded apically, with no trace of subapical constriction, pygidium not visible beyond elytral apices from above; median lobe (Fig. 358) broad, apex entire, with deep narrow apical emargination; internal sac with large plates formed by congested large spines (Fig. 358).

Description. — *Length*: male 1.94–2.12 mm, female 2.12–2.33 mm. *Width*: 0.98–1.08 mm, female 1.09–1.23 mm. *Integument*: rufopiceous to piceous, in most specimens darkest on pronotum, lateromedian triangular portion of elytra, sterna, and femoral bases. *Head*: scales on vertex elongate, narrow, apically blunt to pointed (Fig. 375), ferruginous. *Frons*: feebly narrowed posteriorly (Fig. 376); in lateral view flat, continuous with vertex of head (Fig. 377). *Eye*: oblong; height ca. 1.8x length; in dorsal view flat, tilted forward (Fig. 375); hind margin strongly raised by distance ca. equal to 0.25 length of eye. *Rostrum*: male 0.83–0.91x, female 0.83–0.98x pronotum length. In dorsal view (Fig. 375) slightly swollen at extreme base, distinctly tapered to antennal insertions, sides of distal portion subparallel; in dorsal profile strongly rounded at extreme base, feebly curved over antennal insertions (Fig. 377). Distal portion in male short, 29–37% of total rostral length, stout, in lateral view feebly tapered, lateral sulcus distinct almost to tip (Fig. 377); in female, distal portion slightly longer, 37–44% of total rostral length, not tapered, shallowly sulcate to tip. Scales narrow, linear, apically blunt to truncate, recumbent, pale fulvous to ferruginous laterally, replaced dorsally by white scales in some specimens. *Prothorax*: in dorsal view sides evenly rounded from base to feebly developed subapical constriction; in lateral view strongly, evenly convex, subapical constriction obsolete on dorsum. Pronotum with elongate, parallel sided to slightly attenuate, apically truncate, uniformly recumbent, fulvous and ferruginous to dark fuscopiceous scales; light and dark scales admixed, darker scales when present narrower than lighter ones; scales on lower portion of pleuron round to oblong, flat, white to pale ferruginous, limited to lower 0.66 anteriorly, extending onto dorsum posteriorly, there replaced by elongate scales. *Elytra*: sides subparallel in basal 0.50, flat on disc. Interspaces flat, deeply, distinctly impressed; odd interspaces distinctly wider than even ones; apices of interspaces 4–6 not prominent. Scales in triple rows on each interspace, uniformly recumbent, white scales fulvous scales, and darker ferruginous to fuscopiceous scales forming diffuse pattern of broad transverse bands; sutural interspaces with clusters of white scales at base and in basal 0.66, forming uniform single row adjacent to suture in apical 0.33; striae scales indistinguishable from scales on interspaces. *Pygidium*: broadly exposed, in male strongly convex, broadly rounded at apex; in female, pygidium slightly less convex, slightly narrowed to rounded apex. *Abdomen*: in male sterna 3–4 feebly concave medially, anteromedian portion of sternum 5 slightly concave, scales unmodified, sides strongly, evenly rounded laterally, posterior margin of segment deeply subquadrately emarginate; in female, sternum 3–4 and anteromedian portion of sternum 5 flat medially, sternum 5 feebly constricted medially but posteromedian portion of segment not prominent, posterior margin shallowly, subquadrately emarginate. *Femora*: narrow at base, gradually widened but not inflated, profemur slightly wider than metafemur. *Tibiae*: mesotibia with stout curved mucro, protibia and metatibia with very short stout mucrones. *Male genitalia*: (Figs. 358, 359). *Spiculum ventrale*: (Fig. 333). *Spermatheca*: (Fig. 306).

Discussion. — A relatively large *Microtychius*, probably a seed predator; adults collected on *Pithecellobium unguis-cati*; known from the states of Tamaulipas and San Luis Potosi, Mexico, from Nicaragua, and from Puerto Rico (Fig. 82); 48 specimens examined.

Adults of *S. pulcherrima* were collected on *P. unguis-cati*, March 18, 1975, 7 mi S Antigua Morelos, Tamaulipas, Mexico, with adults of the bud predator *S. valenciana*. Adults of *S. pulcherrima* have been collected during December at Tampico, Tamaulipas.

Puerto Rican specimens of *S. pulcherrima* examined are labelled “on *Randia mitis*” (Rubiaceae), but it is unlikely that the species actually utilizes this non-legume as a host. The Puerto Rican specimens differ from specimens from Mexico and Central America in having the eye more convex, the hind margin less distinctly raised.

100—*Sibinia* (*Microtychius*) *fessa*, new species
(Figs. 360, 369)

Holotype. — Male, BRAZIL: Bahia, Encruzilhada, 960 m. November, 1972, Alvarenga & Seabra (MPB).

Allotype. — Female, same data as holotype (MPB).

Paratypes. — Same data as holotype (14); the same except—M. Alvarenga only (3); total seven, distributed to various collections.

Diagnosis. — Pronotum and elytra with short, oblong fulvous, variably sized recumbent scales, and erect white attenuate bristles; pygidium strongly convex in male and female, abdominal sterna 1–5 of male broadly, feebly concave medially.

Description. — *Length*: male 1.56–1.82 (1.66) mm, female 1.46–1.56 (1.53) mm. *Width*: male 0.76–0.91 (0.82) mm, female 0.71–0.78 (0.75) mm. *Integument*: rufous to rufopiceous throughout, in some specimens darker piceous on dorsomedian portion of elytra. *Head*: scales on vertex short, narrow. *Frons*: slightly wider than base of rostrum, in lateral view broadly, evenly rounded. *Eye*: moderately large, height ca. 1.4x length; in dorsal view prominently, evenly convex; hind margin not distinctly raised. *Rostrum*: in male 0.80–0.89 (0.86)x, female 0.94–1.03 (1.00)x pronotum length. In dorsal view sides distinctly narrowed to antennal insertions, slightly more strongly narrowed to just distad of insertions,

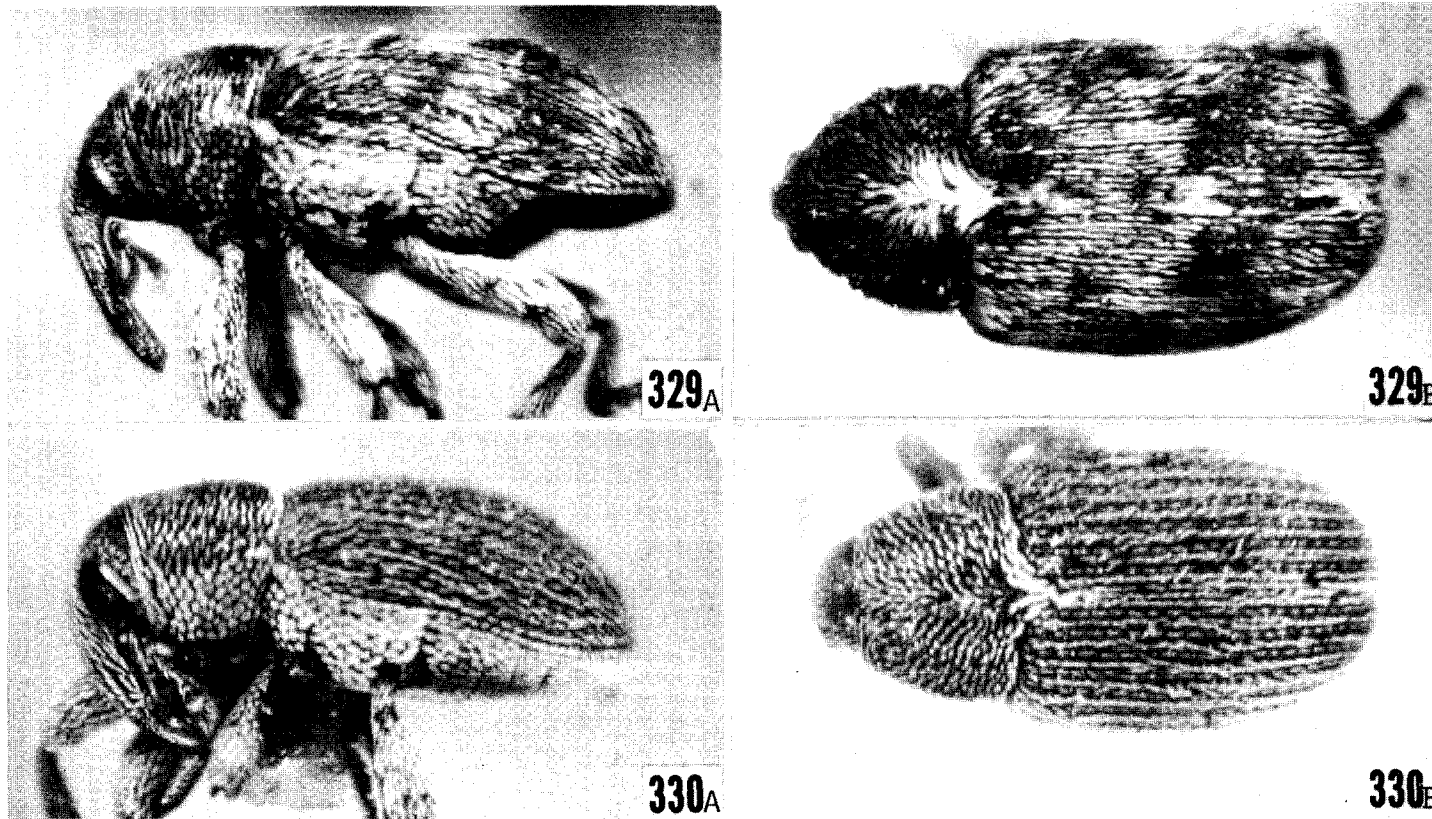


Fig. 329–330, *Sibinia* spp., habitus: 329, *S. pulcherrima*, female, Tampico, Tamaulipas, Mexico; 330, *S. valenciana*, male, Izamal, Yucatan, Mexico (A, lateral view; B, dorsal view).

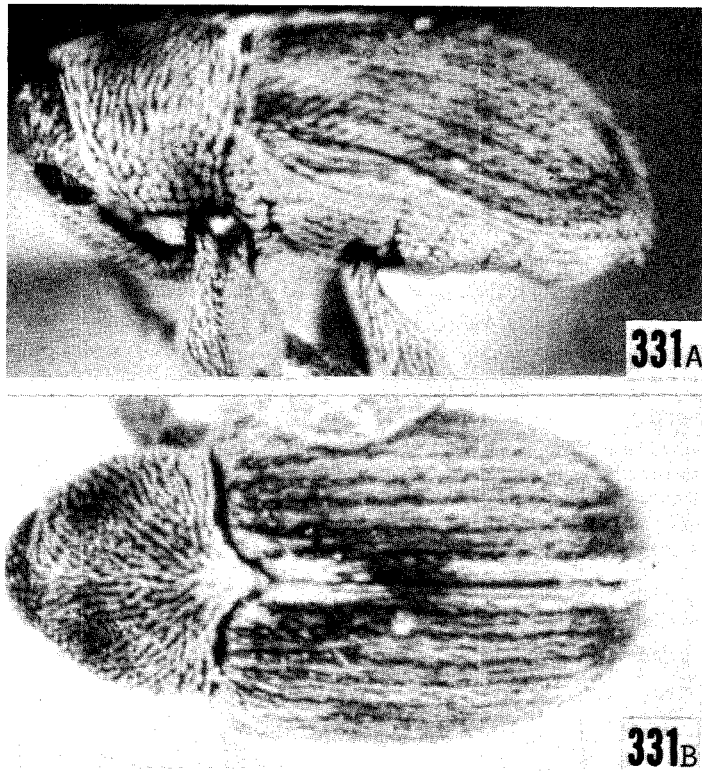


Fig. 331, habitus, *Sibinia dissipata*, male, Villa Robles, Sinaloa, Mexico (A, lateral view; B, dorsal view).

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subparallel sided from there to tip; in dorsal profile broadly, nearly evenly curved from base to tip but more strongly rounded at base in some specimens. Dorsomedian carina obsolete. Distal portion in male long, 45–54 (49)% of total rostral length, in lateral view not tapered, finely punctulate but sulci obsolete; in female, distal portion slightly longer 61–70 (66)% of total rostral length, otherwise as in male. Scales on sides oblong, white, recumbent, replaced dorsally by narrow white scales, with dorsolateral row of erect bristles. *Prothorax*: in dorsal view subparallel sided in basal 0.66, strongly rounded anteriorly to subapical constriction; in lateral view feebly, broadly convex, subapical constriction feebly developed. Scales on pronotum short, narrow, apically blunt, recumbent, scales laterally and in distinct median vitta larger, oblong, all scales pale fulvoaeneous; pronotum also with stout acuminate erect whitish bristles interspersed throughout; pleuron with round whitish scales on lower portion. *Elytra*: in dorsal view sides parallel in basal 0.66, in lateral view flat in basal 0.66. Interspaces flat, feebly impressed, subequal in width, apices of interspaces 4–6 not prominent. Scales on interspaces similar to those on pronotum; larger scales and smaller narrower scales in irregular clusters throughout, each interspace also with erect bristles similar to those on pronotum. *Pygidium*: in male strongly convex, broadly, evenly rounded at apex; in female, pygidium smaller, otherwise as in male. *Abdomen*: in male, sterna 1–5 broadly, feebly concave medially, scales unmodified, sides of sternum 5 distinctly constricted subapically, posterior margin of segment broadly, feebly concave, sternum 5 with erect bristles; in female, sterna 1–5 broadly, feebly convex medially, sternum 5 more strongly convex, distinctly constricted subapically, posteromedian portion of segment not prominent, posterior margin narrowly, shallowly concave. *Femora*: moderately stout, narrow at base, subequal in width. *Tibiae*: each with small curved acute apical mucro. *Male genitalia*: (Fig. 360).

Discussion.— A relatively small *Microtychius*, probably a bud predator; host unknown; known only from the type-series from the state of Bahia, Brazil (Fig. 369).

S. fessa does not strongly resemble any of the other *pulcherrima* group members in external characters, but the structure of the median lobe is strikingly similar to that in *S. pulcherrima* (cf. Fig. 358, 360). The two are inferred to be sister species on the basis of this resemblance.

101—*Sibinia (Microtychius) hispaniolae*, new species
(Figs. 82, 307, 334)

Holotype.— Female, HAITI: Port au Prince, Oct. 1926, Acc. 60-6, G.N. Wolcott Coll. (BMNH).

Diagnosis.— Eye flat in dorsal view, hind margin raised and flat portion directed forward; sternum 5 concave medially, posteromedian portion not prominent; scales on pronotum and elytra elongate, ferruginous, white oval scales forming distinct median and dorsolateral vittae on pronotum and prominent sutural vitta on elytra.

Description.— *Length*: 2.67 mm. *Width*: 1.53 mm. *Integument*: black; posterolateral portions of elytra and femora piceous; tibiae, tarsi and distal portion of rostrum rufopiceous. *Eye*: height ca. 1.5x length; hind margin distinctly raised by distance ca. equal to combined diameters of three ocular facets. *Frons*: distinctly narrowed posteriorly; in lateral view flat, continuous with vertex of head. *Rostrum*: 1.00 x pronotum length. In dorsal view sides subparallel to antennal insertions, tapered from there to tip; in dorsal profile rounded just distad of base, more broadly curved over antennal insertions. Dorsomedian carina absent. Distal portion short, 43% of total rostral length, feebly tapered in lateral view, lateral sulcus becoming obsolete in basal 0.25, distal 0.75 shallowly, densely punctate. Scales short, narrow, apically blunt, uniformly recumbent. *Prothorax*: in dorsal view slightly wider at base than at middle, subapical constriction distinct; in lateral view broadly, evenly



Fig. 332, *Sibinia pallida*, female, 8 mi SW Woodsboro, Refugio Co., Texas (B, dorsal view).

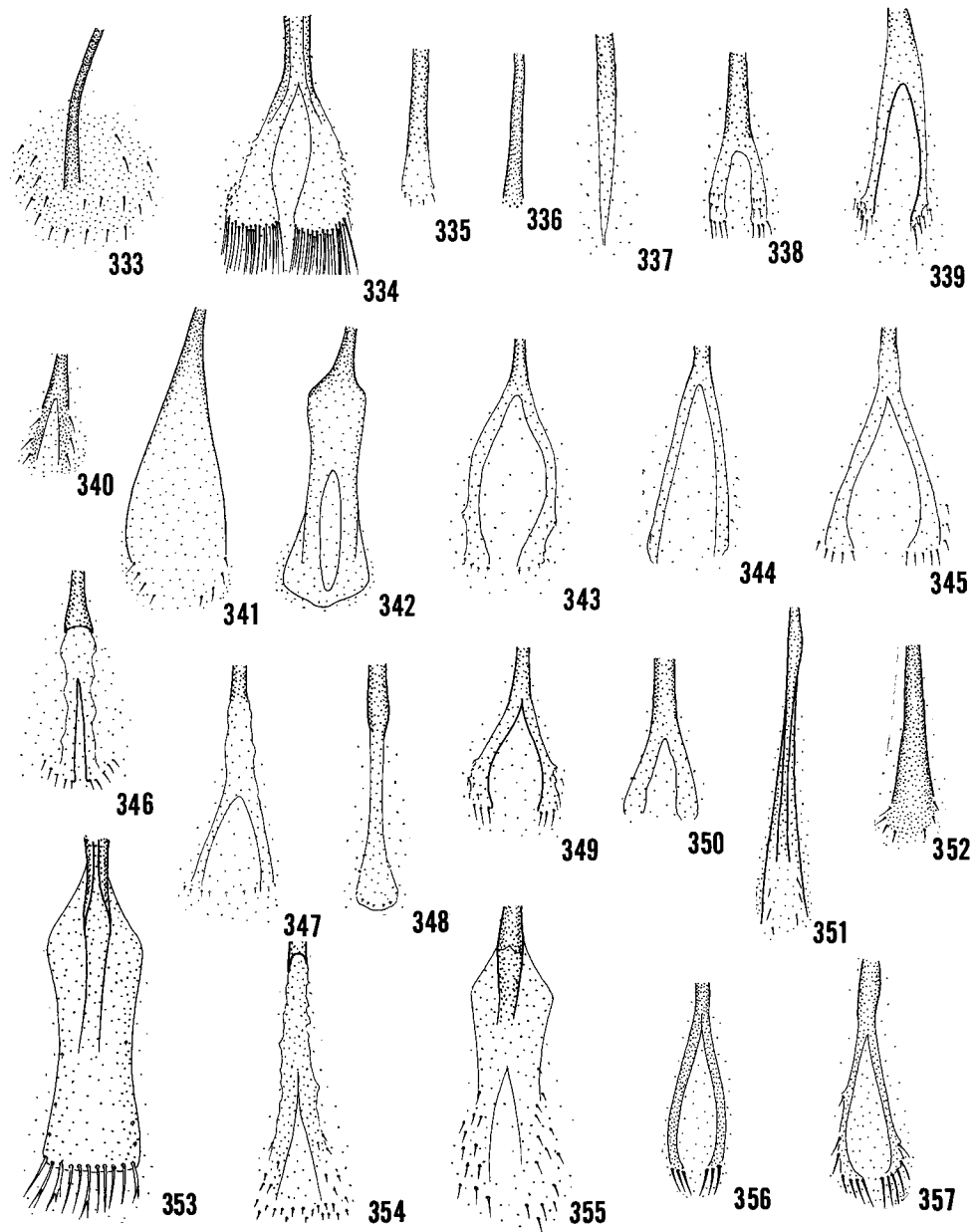


Fig. 333–357, *Sibinia* spp., spiculi ventrali: 333, *S. pulcherrima*; 334, *S. hispaniolae*; 335, *S. sparsa*; 336, *S. pallida*; 337, *S. planocula*; 338, *S. prorsa*; 339, *S. muricata*; 340, *S. valenciana*; 341, *S. viridula*; 342, *S. chichimeca*; 343, *S. azteca*; 344, *S. earina*; 345, *S. laticauda*; 346, *S. melina*; 347, *S. aliquantula*; 348, *S. aculeola*; 349, *S. inornata*; 350, *S. muscula*; 351, *S. tanneri*; 352, *S. texana*; 353, *S. sellata*; 354, *S. argentinensis*; 355, *S. albovittata*; 356, *S. mica*; 357, *S. maculata*.

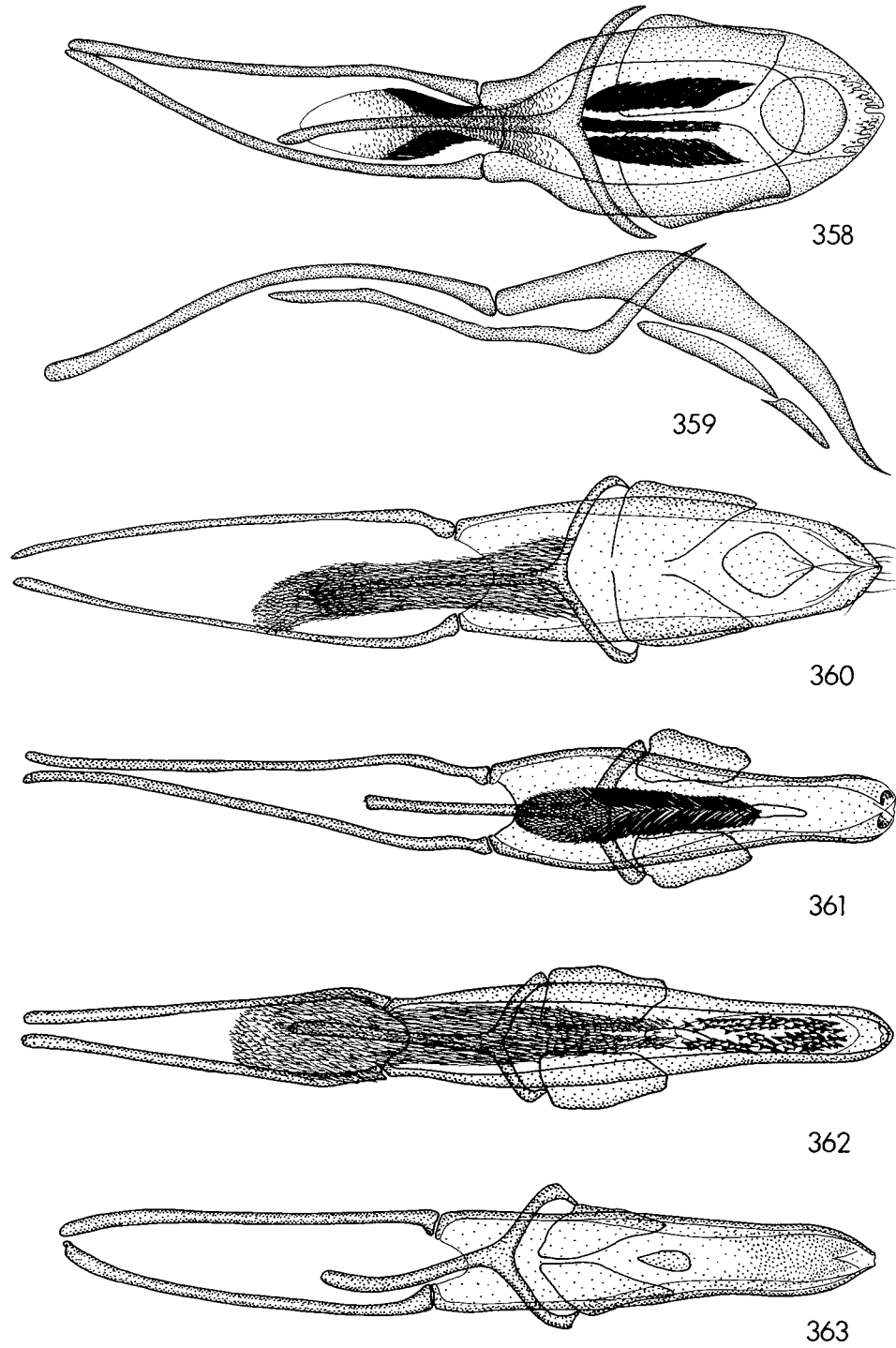
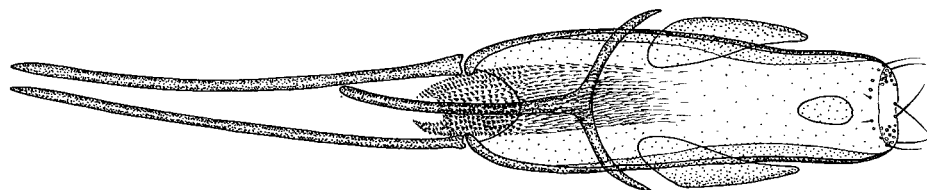
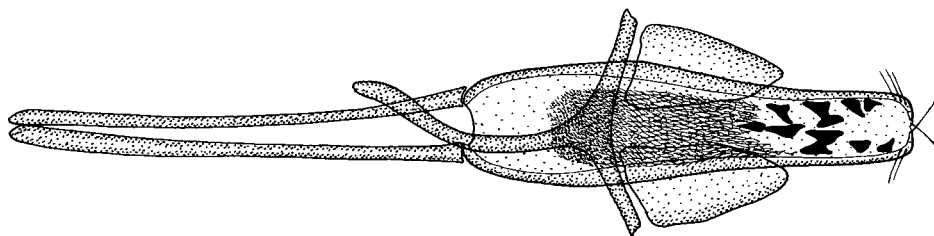


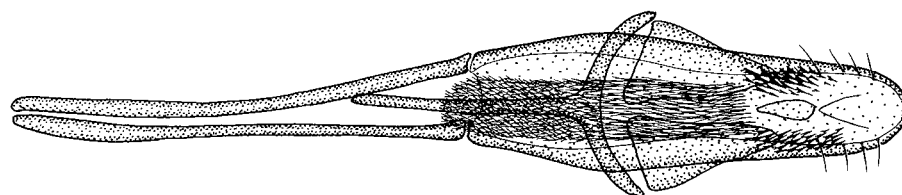
Fig. 358–363, *Sibinia* spp., male external genitalia: 358, *S. pulcherrima*; 359, *S. pulcherrima*; 360, *S. fessa*; 361, *S. sparsa*; 362, *S. ingenua*; 363, *S. megalops*; 364, *S. pallida*; 365, *S. planocula*; 366, *S. prorsa*; 367, *S. muricata*; 368, *S. valenciana* (not to scale; 358, 360–368, ventral views, 359, lateral view).



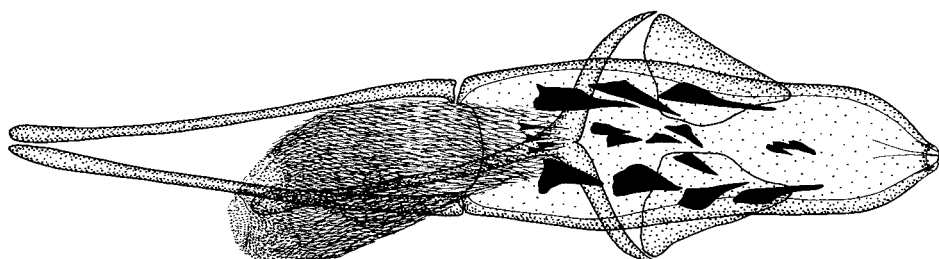
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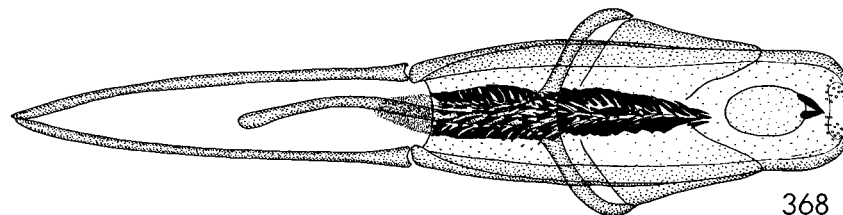
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Fig. 364–368, *Sibinia* spp., male external genitalia: 364, *S. pallida*; 365, *S. planocula*; 366, *S. prorsa*; 367, *S. muricata*; 368, *S. valenciana* (not to scale; ventral views).

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convex from base to feebly developed subapical constriction. Pronotum with elongate, narrow, slightly attenuate, apically blunt to truncate, recumbent, ferruginous scales, and oval, flat to feebly concave white scales; scales on pleuron indistinguishable from white scales on pronotum. *Elytra*: in dorsal view humeri slightly prominent, sides feebly convergent posteriorly behind humeri; in lateral view nearly flat in basal 0.66. Interspaces broad, flat, moderately deeply, distinctly impressed; apices of interspaces 4–6 feebly prominent. Scales on all but sutural interspaces similar in shape and color to ferruginous scales on pronotum but slightly smaller, in irregular triple to quadruple rows, uniformly recumbent; interspaces 2–5 with a few white oval scales at extreme base; interspace 6 with large patch of such scales at base. Sutural interspaces densely covered with oval white scales, with a few narrower ferruginous scales interspersed in basal 0.75, white scales limited to sutural row in apical 0.25. Strial scales distinctly narrower and most of them lighter ferruginous than scales on interspaces. *Pygidium*: broadly exposed, feebly convex, distinctly narrowed to rounded apex, nearly vertical. *Abdomen*: sterna 3–4 feebly, broadly concave medially, sternum 5 more strongly concave, subapical constriction obsolete laterally, posteromedian portion of segment not at all prominent, posterior margin broadly, evenly concave. *Femora*: moderately broad at base, gradually, evenly widened but not distinctly inflated distally. *Tibiae*: each with short curved acute mucro. *Spiculum ventrale*: (Fig. 334). *Spermatheca*: (Fig. 307).

Discussion.— A relatively large *Microtychius*, probably a seed predator; host unknown; known only from the female holotype from Haiti (Fig. 82).

Adults of *S. hispaniolae* resemble those of *S. pulcherrima*, a seed predator of *Pithecellobium unguis-cati*, which occurs in Mexico, Central America, and Puerto Rico. *S. hispaniolae* may be expected also to have a host in the plant genus *Pithecellobium*.

102—*Sibinia (Microtychius) sparsa*, new species
(Figs. 308, 335, 361, 369)

Holotype.— Male, BRAZIL: Rio de Janeiro, S. Maria Magdalena (S. Antonio Imbe), July 1960, M. Alvarenga col., ex coleção M. Alvarenga (MZSP).

Allotype.— Female, same data as holotype, except—Duque de Caxias (Embarie), November, 1961 (MZSP).

Paratypes.— BRAZIL: São Paulo, 19 February, 1912, G.E. Bryant (1, BMNH); the same, except—Santos, 6 March, 1911, (1, WEC); Guanabara, Represado Rio Grande, November, 1972, F.M. Oliveira (1, CWO).

Diagnosis.— Pronotum with moderately broad, apically truncate, dark ferruginous scales and complete median vitta of broader, fulvous and white scales; elytra with oval white scales scattered sparsely throughout; internal sac with paired series of large congested spines (Fig. 361).

Description.— *Length*: male 2.10–2.36 (2.26) mm, female 2.31 mm. *Width*: male 1.24–1.29 (1.27) mm, female 1.30 mm. *Integument*: piceous; sterna black, tarsi and antennae testaceous. *Head*: scales on vertex narrow, linear, apically truncate. *Eye*: large, nearly round, height ca. 1.4x length; in dorsal view convex posteriorly, flattened anteriorly; hind margin raised by distance ca. equal to diameter of one ocular facet. *Frons*: narrowed posteriorly; in lateral view nearly flat, continuous with vertex of head. *Rostrum*: male 0.82–0.92 (0.86)x, female 0.89x pronotum length. In dorsal view sides feebly tapered to antennal insertions, abruptly narrowed distad of insertions, sides of distal portion subparallel; in dorsal profile flat at base, rounded in basal 0.25, nearly straight to antennal insertions. Dorsomedian carina obsolete. Distal portion in male short, 38–42 (40)% of total rostral length, in lateral view strongly tapered to acute apex, lateral sulcus distinct in proximal 0.50; in female, distal portion not longer, 42% of rostral length, finely acuminate, smooth throughout. Scales elongate, broadly truncate apically, becoming narrower on dorsum, feebly raised. *Prothorax*: in dorsal view sides broadly, evenly rounded from base to feebly developed subapical constriction; in lateral view strongly, evenly convex from base to apex, subapical constriction obsolete on dorsum. Scales on pronotum elongate, nearly linear, apically truncate, recumbent, dark ferruginous; scales on lower portion of pleuron round to oblong, concave, pale yellowish white, limited to lower 0.66 anteriorly, replaced dorsally by elongate scales. *Elytra*: in dorsal view sides subparallel in basal 0.50; in lateral view broadly, evenly convex in basal 0.66. Interspaces flat, deeply impressed, subequal in width; apices of interspaces 4–6 not prominent. Scales on interspaces slightly smaller but about the same shape and color as scales on pronotum; in three or four irregular rows on each interspace; uniformly recumbent, pale fulvous, ferruginous and darker rufopiceous scales intermixed, darker scales predominant on basal portions of interspaces 2 and 3 and on declivities, fulvous and ferruginous scales forming irregular mottled pattern throughout; sutural interspaces with basal cluster of oval white scales; strial scales much narrower than elongate scales on interspaces. *Pygidium*: in male broadly exposed, strongly narrowed to subquadrate apex, produced posteriorly well beyond elytral apices; in female, pygidium smaller, flat, strongly narrowed to acutely rounded apex, convex in distal 0.33, vertical. *Abdomen*: in male sterna 3–4 flat medially, sternum 5 shallowly concave subapically, scales unmodified, segment not constricted subapically, posterior margin distinctly, subquadrately emarginate; in female, sterna 3–4 and anterior portion

of sternum 5 convex medially, segment feebly, broadly constricted subapically, posteromedian portion of segment not prominent, posterior margin nearly straight. *Femora*: narrow at base; profemur rapidly inflated in distal 0.75; metafemur more gradually inflated. *Tibiae*: pro- and mesotibiae with moderately large curved mucrones, metatibial mucro shorter, more oblique. *Male genitalia*: (Fig. 361). *Spiculum ventrale*: (Fig. 335). *Spermatheca*: (Fig. 308).

Discussion.— A relatively large *Microtychius*, probably a seed predator; host unknown; known only from the type-series from southeastern Brazil (Fig. 369).

Adults of *S. sparsa* resemble those of *S. pulcherrima* in form, vestiture of uniformly elongate linear scales on the pronotum and elytra, the mediobasal patch of white scales on the pronotum, and in the armature of the internal sac of the male genitalia (cf. Figs. 358, 361), and although the shape of the apex is unlike that in most other *pulcherrima* group members, it is tentatively placed in the group on the basis of this general resemblance.

103—*Sibinia (Microtychius) ingenua*, new species
(Figs. 58, 362)

Holotype.— Male, BRAZIL: Bahia, Encruzilhada, 980 m, November, 1974, M. Alvarenga (MPB).

Allotype.— Female, label data as holotype (MPB).

Paratypes.— Same data as holotype (16); the same, except—960 m, Alvarenga & Seabra (9), the same, except—M. Alvarenga (1); the same, except—Malaise trap (1); Minas Gerais, Pedra Azul, November, 1972, M. Alvarenga (1); total 28, distributed to various collections.

Diagnosis.— Eye large, convex, nearly round; elytra with uniformly recumbent, elongate, slender, pale and very dark ferruginous scales in triple rows on each interspace, different colored scales in variegate clusters; pronotum and elytra with sparse flat oblong white scales; internal sac (Fig. 362) without large congested spines.

Description.— As for *S. sparsa*, except—*Length*: male 2.31–2.59 (2.51) mm, female 2.21–1.79 (2.37) mm. *Width*: male 1.29–1.45 (1.35) mm, female 1.17–1.45 (1.37) mm. *Integument*: black; legs, antennae and distal portion of rostrum rufopiceous. *Head*: scales on vertex elongate, slender, attenuate; *Frons*: distinctly narrowed posteriorly, in lateral view strongly, evenly rounded, continuous with vertex of head and base of rostrum. *Eye*: height ca. 1.3x length; in dorsal view strongly convex, especially posteriorly; hind margin raised by distance ca. equal to diameter of one ocular facet. *Rostrum*: in male 0.76–0.92 (0.82)x, in female 0.78–0.90 (0.83)x pronotum length. In dorsal view feebly tapered from base to antennal insertions, sides of distal portion subparallel; in dorsal profile moderately strongly rounded at base, broadly, nearly evenly curved from just distad of base to tip. Dorsomedian carina obsolete. Distal portion in male short, 35–43 (39)% of total rostral length, in lateral view feebly tapered, lateral sulcus distinct in proximal 0.66; in female, distal portion only slightly longer, 38–46 (40)% of total rostral length, more finely tapered, otherwise as in male. Scales uniformly elongate, recumbent, pale whitish and ferruginous scales intermixed. *Prothorax*: pronotum with elongate, slender, attenuate, dark ferruginous scales and with wider, pale whitish scales which form distinct median vitta and encroach upon posterolateral portions, a few large, oblong, flat white scales interspersed throughout; pleuron with flat oblong white scales which extend onto posterolateral portions and more sparsely onto anterolateral portions of pronotum. *Elytra*: scales on interspaces similar to scales on pronotum but slightly narrower, in triple rows on each interspace; scales on sutural interspaces indistinguishable from scales on other interspaces; striae narrower than scales on interspaces, white. *Pygidium*: in male feebly convex, apex narrowly evenly rounded, perpendicular; in female, more strongly narrowed to rounded apex, slightly oblique. *Abdomen*: posterior margin evenly, roundly concave, sternum 5 distinctly produced posteriorly in female. *Male genitalia*: (Fig. 362). *Spiculum ventrale*: as in *S. sparsa* (cf. Fig. 335). *Spermatheca*: as in *S. sparsa* (cf. Fig. 308).

Discussion.— A relatively large *Microtychius*, probably a seed predator; host unknown; known only from the type-series from northeastern Brazil (Fig. 58).

Adults of *S. ingenua* closely resemble those of *S. sparsa* of southern Brazil. The two are distinguished by the characters listed in the diagnoses.

104—*Sibinia (Microtychius) megalops*, new species
(Figs. 58, 363)

Holotype.— Male, BRAZIL: Goiás, Paraíso, 8–14, February, 1962, J. Bechyné col. (MZSP).

Paratypes.— Same data as holotype (13); the same, except—Rib. Vaozinho, 12 February,

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1962 (1); total 14, distributed to various collections.

Diagnosis.— Scales on pronotum and elytra fulvous; recumbent, elongate oval scales and slightly raised, narrower, parallel sided scales intermixed on pronotum; elongate scales forming single median row on each elytral interspace; eye large, nearly round, convex, hind margin not distinctly raised.

Description.— *Length:* 2.08–2.36 (2.22) mm. *Width:* 1.08–1.30 (1.17) mm. *Integument:* black; legs and distal portion of rostrum rufous, antennae ferruginotestaceous. *Head:* scales on vertex elongate, narrow, parallel sided, apically truncate, fulvous. *Frons:* distinctly narrowed posteriorly, in lateral view feebly, broadly curved, continuous with vertex of head. *Eye:* large, height ca. 1.4x length; in dorsal view strongly convex posteriorly, more flattened anteriorly; hind margin feebly raised by distance less than diameter of one ocular facet. *Rostrum:* 0.77–0.94 (0.87)x pronotum length. In dorsal view feebly tapered from base to antennal insertions, narrowed distad of insertions, sides of distal portion subparallel; in dorsal profile distinctly rounded at base, straight to antennal insertions, strongly rounded over insertions. Dorsomedian carina obsolete. Distal portion short, 33–42 (38)% of total rostral length, in lateral view strongly tapered to acute tip, lateral sulcus distinct in basal 0.75. Scales on sides oblong; these replaced by narrow, apically truncate, slightly raised scales on dorsum. *Prothorax:* in dorsal view sides subparallel in basal 0.50, feebly rounded anteriorly to weakly developed subapical constriction; in lateral view broadly, evenly convex from base to apex, subapical constriction obsolete on dorsum. Pronotum with intermixed recumbent scales and narrower, nearly parallel sided, slightly raised scales, and with mediobasal patch of oblong, white scales; scales on lower portion of pleuron round to oblong, flat, whitish, becoming more oblong dorsally, extending dorsally onto extreme lateral portion of pronotum, a few narrower, slightly raised fulvous scales intermixed on upper 0.25. *Elytra:* in dorsal view sides subparallel in basal 0.66; in lateral view flat in basal 0.50, broadly rounded apically. Interspaces flat, subequal in width, shallowly, irregularly impressed; apices of interspaces 4–6 not prominent. Scales in triple rows on each interspace, scales in lateral rows elongate, oval, recumbent, scales in median rows narrower, parallel sided, slightly but distinctly raised; sutural interspaces with complete sutural rows of oval white scales; striae scales narrower but of same color as scales on interspaces. *Pygidium:* broadly exposed, narrow, subquadrate at apex, broadly convex, oblique, produced well beyond elytral interspaces. *Abdomen:* sterna 3–4 flat; sternum 5 broadly, feebly concave medially, scales on concave portion unmodified; sternum 5 not constricted subapically, posteromedian portion of segment slightly prominent, posterior margin narrowly, shallowly emarginate. *Femora:* moderately stout, narrow at base, gradually, widened but not inflated distally. *Tibiae:* each with short, slender acute apical mucro. *Male genitalia:* (Fig. 363).

Discussion.— A relatively large, elongate *Microtychius*; probably a seed predator; host unknown; known only from the type-series (all males) from the state of Goiás, Brazil (Fig. 58).

Adults *S. megalops* resemble *S. sparsa* and *S. ingenua* somewhat in the large round convex eye and elongate body form, and are not very similar to most *pulcherrima* group members. Its placement in that group is considered tentative.

105—*Sibinia (Microtychius) pallida* Schaeffer
(Figs. 309, 332, 336, 364, 370)

Tychius pallidus Schaeffer 1908: 218. Leng 1920. LECTOTYPE (HERE DESIGNATED), female, one of two syntypes (1, USNM, 1 BYU), labelled "Brownsville E.R. VI. 12 Tex" "Brooklyn Museum Coll 1925" "Cotype No. 43477 U.S. N.M." and "*Tychius pallidus* Schaeff." (USNM).

Sibinia pallida: Klima 1934.

Diagnosis.— (Fig. 332). Scales on pronotum and elytra round to oblong or subquadrate, concave, recumbent, densely imbricated; white scales, pale scales, and fulvous and darker fulvoaeous scales forming dorsal pattern; pronotum and elytral interspaces with interspersed suberect, acuminate fulvoaeous bristles.

Description.— *Length:* male 1.44–1.75 mm, female 1.47–1.71 mm. *Width:* Male 0.78–0.91 mm, female 0.75–0.91 mm. *Integument:* piceous to black; legs and distal portion of rostrum rufopiceous, antennae ferruginotestaceous. *Head:* scales on vertex oblong, concave, imbricated. *Eye:* oblong, height ca. 1.8x length; in dorsal view flat, tilted forward; hind margin distinctly raised by distance ca. equal to combined diameters of two ocular facets. *Frons:* not narrowed posteriorly; in lateral view rounded, continuous with vertex of head. *Rostrum:* male 0.78–0.92x, female 0.83–0.98x pronotum length. In dorsal view distinctly tapered from base to antennal insertions, sides of distal portion subparallel; in dorsal profile feebly rounded at extreme base, broadly curved over antennal insertions. Dorsomedian carina distinct. Distal portion in male long, 47–56% of total rostral length, tapered, shallowly punctate but not sulcate; in female, distal portion slightly longer, 47–56% of total rostral length, smooth or shallowly punctate. With oblong, concave, feebly raised, white and pale fulvoaeous scales and erect, acuminate, fulvoaeous bristles. *Prothorax:* in dorsal view sides subparallel at base; feebly rounded anteriorly to strongly developed subapical constriction; in lateral view broadly, evenly convex, subapical constriction feebly developed medially on dorsum. Scales on pronotum completely concealing integument, darker scales forming broad dorsomedian vitta, scales on lower portion of pleuron white, replaced by concave pale fulvoaeous scales on upper 0.33 anteriorly. *Elytra:* in dorsal view sides

subparallel in basal 0.50; in lateral view flat on disc. Interspaces rounded, irregularly impressed, odd interspaces slightly wider than even ones; apices of interspaces 4–6 feebly prominent. Scales in triple rows on each interspace, each interspace except 4th and frequently also 2nd towards base with median row of suberect bristles; striae scales very narrow, concealed by large scales on interspaces. *Pygidium*: in male, sterna 3–4 flat, sternum 5 feebly concave medially, scales unmodified, subapical constriction feebly developed, posterior margin of segment narrowly, subquadrately emarginate; in female, subapical constriction of sternum 5 distinct laterally and medially, posteromedian portion of segment slightly prominent but posterior margin nearly straight. *Femora*: narrow at base, profemur stout, slightly wider than metafemur, gradually inflated in distal 0.66; metafemur slightly more elongate. *Tibiae*: pro- and mesotibiae with stout strongly curved mucrones, metatibia with minute straight mucro. *Male genitalia*: (Fig. 364). *Spiculum ventrale*: (Fig. 336). *Spermatheca*: (Fig. 309).

Discussion.— A relatively small *Microtychius* bud predator of *Pithecellobium flexicaule*; known only from southern Texas and from the Mexican states of Tamaulipas and Nuevo Leon (Fig. 370).

Adults of *S. pallida* are most abundant when the host bears flower buds. Adult weevils have been collected in January (3%), February (3%), March (20%), April (25%), May (10%), June (25%), and August (10%). Larvae emerged from flower buds of the host collected in June and August in Refugio and Kleberg Counties, Texas. In June trees were sampled on two consecutive days. On the first day immediately after a heavy rain, unopened flower buds were abundant on trees and larvae emerged in large numbers. The following day most buds had opened and the number of larvae recovered from a comparable number of flowers from the same trees was much lower. In the laboratory 13 to 14 days elapsed between the time larvae emerged from buds to pupation. The pupal stage lasted another 13 to 14 days. The number of generations probably varies from year to year depending upon the blooming pattern of the host, which in turn is dependant upon rainfall. Overwintering is probably in the adult stage. One adult was recovered from ground cover taken 7 February, 1974, from beneath the host in Refugio County, Texas.

Larvae of *S. pallida* were parasitized by *Zatropis* sp. (Pteromalidae) which emerged after larvae formed pupal cells.

S. pallida is tentatively assigned to the *pulcherrima* group because of its *Pithecellobium* host and vague resemblance to *S. pulcherrima* and *S. valenciana*.

106—*Sibinia (Microtychius) planocula*, new species
(Figs. 337, 365, 369)

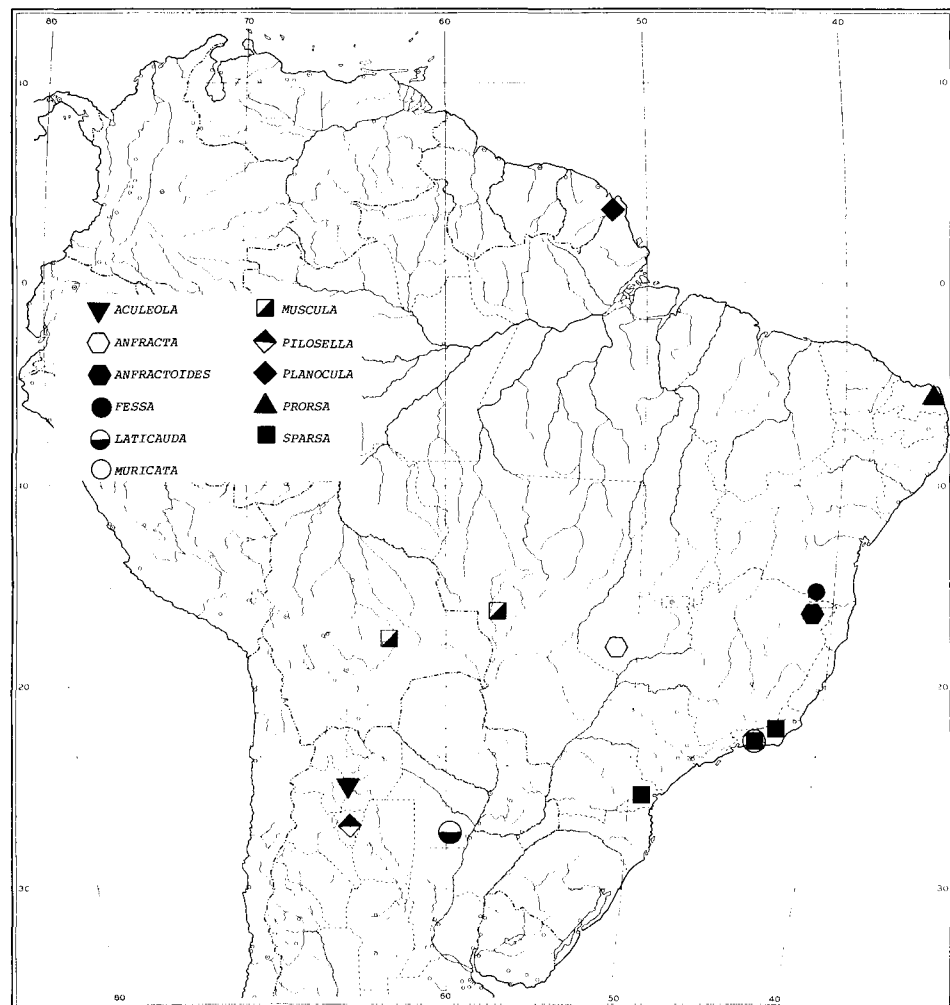
Holotype.— Male, BRAZIL: Amapa, Oiapoque, May, 1959, M. Alvarenga col. (MZSP).

Allotype.— Female, same data as holotype (MZSP).

Paratypes.— Same data as holotype (5), “Amazonas” 75–8 (1); total six, distributed to various collections.

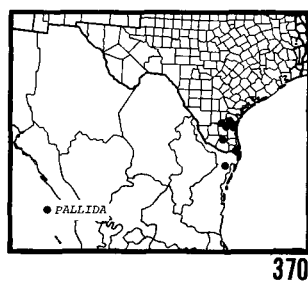
Diagnosis.— Eye oblong, flat, hind margin strongly raised, flat portion tilted forward; scales on pronotum and elytra elongate, feebly to strongly attenuate, pale aeneous, in single median rows on even elytral interspaces, diffuse triple rows on odd interspaces; sutural interspaces with complete row of oval white scales; internal sac with large blunt spines proximally (Fig. 365).

Description.— *Length*: male 1.38–1.49 (1.44), female 1.41–1.54 (1.50) mm. *Width*: male 0.74–0.79 (0.77) mm, female 0.78–0.84 (0.80) mm. *Integument*: rufopiceous to piceous; legs and rostrum rufous, antennae testaceous. *Head*: scales on vertex elongate, narrow, attenuate, aeneous. *Frons*: narrowed slightly posteriorly; in lateral view nearly flat, continuous with vertex of head. *Eye*: moderately large, ca. 1.5x length; hind margin raised by distance ca. equal to combined diameters of three ocular facets. *Rostrum*: male 0.97–1.00 (0.98)x, female 1.03–1.12 (1.07)x pronotum length. In dorsal view feebly tapered from base to antennal insertions, more strongly tapered from there to tip, especially in female; in dorsal profile not rounded at base, broadly, evenly arcuate from base to tip. Dorsomedian carina obsolete in male, distinct in female. Distal portion in male short, 39–45 (42)% of total rostral length, in lateral view tapered, lateral sulcus obsolete in distal 0.33; in female, distal portion longer, 46–50 (48)% of total rostral length, slender, feebly tapered, lateral sulcus obsolete in distal 0.66. Scales uniformly elongate, narrow, recumbent. *Prothorax*: in dorsal view sides subparallel in basal 0.50, feebly rounded anteriorly to weakly developed subapical constriction; in lateral view broadly, evenly convex from base to

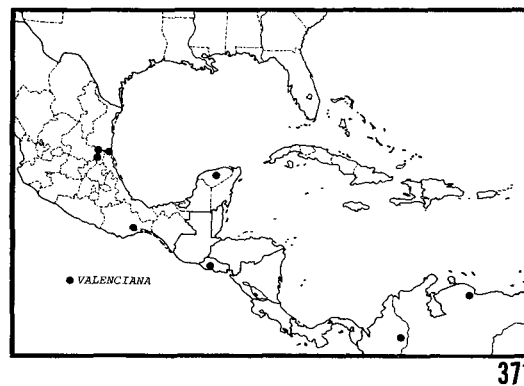


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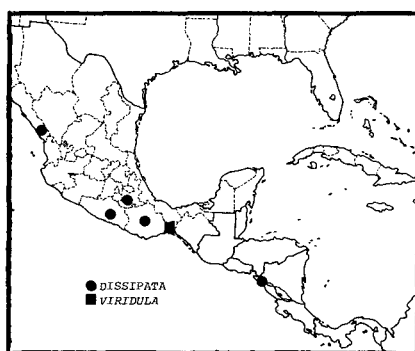
Fig. 369, *Sibinia* spp., distribution records; some members of the *chichimeca*, *melina*, and *pulcherrima* groups, and some species *incertae sedis*.



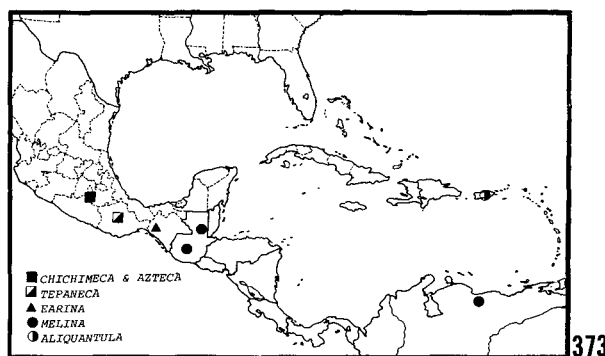
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Fig. 370–373, *Sibinia* spp., distribution records: 370, *S. pallida*; 371, *S. valenciana*; 372, *S. dissipata* and *S. viridula*; 373, *S. chichimeca*, *S. azteca*, *S. tepaneca*, *S. earina*, *S. melina*, and *S. aliquantula*.

apex. Scales on lower portion of pleuron oblong, flat, white, replaced by elongate scales on upper 0.33. *Elytra*: in dorsal view sides feebly, broadly curved in basal 0.66; in lateral view flat in basal 0.50. Interspaces flat, subequal in width, moderately deeply, irregularly impressed; apices of interspaces 4–6 not prominent. Sutural interspaces with complete sutural row of oval white scales; striae slightly narrower than scales on interspaces. *Pygidium*: narrowly exposed; in male flat, apex evenly rounded; in female, pygidium flat, strongly narrowed to acutely rounded apex, oblique, visible well beyond elytral apices from above. *Abdomen*: in male sterna 3–5 feebly convex medially, sternum 5 not constricted subapically, posterior margin of segment nearly straight; in female, sterna more strongly convex medially, sternum 5 broadly constricted medially, posteromedian portion of segment narrowed and slightly produced posteriorly. *Femora*: narrow at base, gradually distinctly widened but not strongly inflated distally, profemur and metafemur subequal in width. *Tibiae*: each with short acute horizontal apical mucro. *Male genitalia*: (Fig. 365). *Spiculum ventrale*: (Fig. 337).

Discussion.— A relatively small *Microtychius*, probably a bud predator; host unknown; known only from the type-series from northeastern Brazil (Fig. 369).

Adults of *S. planocula* closely resemble those of *S. americana*, but are distinguished from the latter probably unrelated species by the much more strongly raised eyes, the sparse vestiture on the elytral interspaces, and by the male genitalia (cf. Figs. 265, 365). It is tentatively assigned to the *pulcherrima* group because in the structure of the eye it closely resembles some of the members of that group, especially *S. pulcherrima* and *S. valenciana*.

107—*Sibinia (Microtychius) prorsa*, new species
(Figs. 310, 338, 366, 369)

Holotype.— Male, BRAZIL: Rio Grande do Norte, Natal, January, 1951. Alvarenga col., ex coleção M. Alvarenga (MZSP).

Allotype.— Female, same data as holotype, except—March, 1952 (MZSP).

Diagnosis.— Eye oblong, hind margin distinctly raised, flat lateral surface faces nearly straight forward; scales on elytral interspaces uniformly elongate, narrow, suberect, white, some with faint fulvoaeneous tinge; in uniform single median row on each interspace.

Description.— *Length*: male 1.56 mm, female 1.51 mm. *Width*: male 0.87 mm, female 0.82 mm. *Integument*: pronotum and venter black, elsewhere rufopiceous to rufous. *Head*: scales on vertex elongate, parallel sided, apically truncate. *Frons*: narrower than rostrum at base but not narrowed posteriorly, in lateral view feebly curved, continuous with vertex of head. *Eye*: small, height ca. 1.8x length; hind margin raised by distance ca. equal to combined diameters of two ocular facets. *Rostrum*: 1.09x pronotum length. In dorsal view sides tapered to antennal insertions, narrowed distad of insertions, sides of distal portion subparallel; in dorsal profile feebly rounded at base and broadly curved over antennal insertions in male, more evenly arcuate from base to tip in female. Dorsomedian carina distinct, especially in male. Distal portion in male moderately long, 44% of total rostral length, in lateral view not tapered, lateral sulcus distinct in proximal 0.33; in female, distal portion longer, 57% of total rostral length, not tapered, lateral sulcus represented by row of shallow punctures in proximal 0.33, otherwise smooth. Scales similar to those on vertex of head, uniformly feebly raised. *Prothorax*: in dorsal view sides broadly, evenly rounded from base to distinctly developed subapical constriction; in lateral view broadly but distinctly convex from base to apex. Scales on pronotum elongate, narrow, each scale slightly widened from base to truncate apex, uniformly recumbent, pale fulvoaeneous, with white scales laterally and in narrow median vitta; scales on lower portion of pleuron oblong, flat, white, replaced on upper 0.25 by elongate scales. *Elytra*: in dorsal view sides broadly, feebly, curved in basal 0.75; in lateral view broadly curved from base to apices but more strongly curved posteriorly. Interspaces flat, subequal in width, feebly impressed; apices of interspaces 4–6 not prominent. Sutural interspaces with sutural rows of small recumbent white scales in addition to median row of suberect scales; striae much narrower than scales on interspaces. *Pygidium*: narrowly exposed, in male nearly flat, broadly, evenly rounded apically; in female, pygidium as in male but smaller, more narrowly rounded apically. *Abdomen*: in male sterna 3–5 broadly, shallowly concave medially, scales unmodified, sternum 5 not constricted subapically, posterior margin of segment nearly straight; in female, sterna 3–5 flat medially, sternum 5 broadly, distinctly constricted medially, posteromedian portion of segment slightly narrowed, posterior margin nearly straight. *Femora*: narrow at base, gradually widened but not strongly inflated distally; profemur slightly wider than metafemur. *Tibiae*: each with short acute oblique apical mucro. *Male genitalia*: (Fig. 366). *Spiculum ventrale*: (Fig. 338). *Spermatheca*: (Fig. 310).

Discussion.— A relatively small *Microtychius*, probably a bud predator; host unknown; known only from the type-series from northeastern Brazil (Fig. 369).

Adults of *S. prorsa* closely resemble those of *S. planocula* in eye structure, and the species is tentatively assigned to the *pulcherrima* group because of this resemblance.

108—*Sibinia (Microtychius) muricata*, new species
(Figs. 311, 339, 367, 369)

Holotype.— Male, BRAZIL: Guanabara, Corcovado, October, 1967, Alvarenga & Seabra, Coleção M. Alvarenga (MPB).

Allotype.— Female, same data as holotype (MPB).

Paratypes.— Same data as holotype, except— January 1967, (1, WEC); the same, except— Repesado Rio Grande, November, 1972, F.M. Oliveira (1, CWO).

Diagnosis.— Scales on pronotum and elytra uniformly elongate, narrow, finely attenuate, lustrous ferruginous; eye oblong, directed forward, hind margin strongly raised; internal sac with large spines in proximal 0.50, fine, dense spines distally (Fig. 367).

Description.— *Length*: male 2.00 mm, female 1.92–1.97 mm. *Width*: male 1.01 mm, female 1.01–1.05 mm. *Integument*: black, except piceous on posterolateral portions of elytra, legs and distal portion of rostrum. *Head*: scales on vertex narrow, attenuate, ferruginous. *Eye*: height ca. 1.7x length, in dorsal view feebly, evenly convex; hind margin distinctly raised by distance ca. equal to combined diameters of two ocular facets. *Frons*: much narrower than base of rostrum, narrowed posteriorly; in lateral view flat, continuous with vertex of head. *Rostrum*: male 1.02x, female 1.08–1.15x pronotum length. In dorsal view sides subparallel from base to antennal insertions, feebly expanded at insertions, sides of distal portion subparallel; in dorsal profile feebly rounded at base, broadly, evenly curved over antennal insertions. Dorsomedian carina distinct. Distal portion in male short, 43% of total rostral length, stout, in lateral view feebly tapered, lateral sulcus distinct almost to tip; in female, distal portion 40–41% of total rostral length, otherwise indistinguishable from that of male. Scales narrow, recumbent, integument broadly visible. *Prothorax*: in dorsal view sides distinctly, evenly rounded from base to subapical constrictions; in lateral view broadly, evenly convex, subapical constriction feebly developed on dorsum. Scales on pronotum uniformly recumbent, replaced by elongate scales dorsally. *Elytra*: in dorsal view sides subparallel in basal 0.50, in lateral view broadly, evenly convex in basal 0.66. Interspaces flat, subequal in width shallowly, irregularly impressed; apices of interspaces 4–6 not prominent. Scales on interspaces identical in size, shape and color to scales on pronotum, in triple rows on each interspace; striae scales slightly narrower than scales on interspaces; sutural interspaces with complete row of oval white scales. *Pygidium*: narrowly exposed, in male convex, broadly, evenly rounded at apex; in female, pygidium flat but not distinctly narrowed, broadly rounded at apex, oblique, extended very slightly posteriorly. *Abdomen*: in male, sterna 3–4 slightly, sternum 5 more distinctly concave medially, scales on concave portions unmodified, sternum 5 not constricted subapically, posterior margin of segment shallowly, subquadrately emarginate; in female, sterna 3–4 and anterior portion of sternum 5 flat medially, sternum 5 broadly, shallowly constricted subapically, posteromedian portion of segment not prominent, posterior margin nearly straight. *Femora*: narrow at base; profemur abruptly, strongly inflated; metafemur slightly wider than profemur, more gradually inflated. *Tibiae*: each with stout acute horizontal mucro; metatibial mucro slightly shorter. *Male genitalia*: (Fig. 367). *Spiculum ventrale*: (Fig. 339). *Spermatheca*: (Fig. 311).

Discussion.— A relatively small *Microtychius*, probably a bud predator; host unknown; known only from the type-series from southeastern Brazil (Fig. 369).

S. muricata is placed in the *pulcherrima* group because of resemblance of its adults to adults of bud predators *S. planocula* and *S. prorsa*, two species also known only from Brazil.

109—*Sibinia (Microtychius) valenciana* Faust
(Figs. 312, 330, 340, 368, 371)

Sibinia valenciana Faust 1893: 341. Klima 1934; Blackwelder 1947. LECTOTYPE (HERE DESIGNATED), male, uppermost on pin bearing two specimens labelled with small square of gold foil and “*valenciana* Fst.” “Valencia E.S.” (Venezuela) “Coll. J. Faust Ankauf 1900” “Type” “Staatl. Museum für Tierkunde Dresden” (SMTD).

Diagnosis.— (Fig. 330). Eye oblong, flat, hind margin strongly raised, flat lateral surface directed forward; scales on pronotum and elytra slender, acuminate, aeneous, uniformly recumbent; sternum 5 in male short, broadly rounded apically, without subapical constriction.

Description.— *Length*: male 1.32–1.50 (1.41) mm, female 1.46–1.65 (1.54) mm. *Width*: male 0.67–0.76 (0.73) mm, female 0.71–0.83 (0.78) mm. *Integument*: rufous to piceous, in most specimens darkest medially on elytra and on sterna. *Head*: scales on vertex very narrow, attenuate, apically pointed, aeneous. *Eye*: oblong, height ca. 1.8x length; hind margin raised by distance greater than combined diameters of two ocular facets. *Frons*: narrower than base of rostrum but not narrowed posteriorly; in lateral view flat, continuous with vertex of head. *Rostrum*: male 0.84–1.05 (0.94)x, female 0.96–1.09 (1.01)x pronotum length. In dorsal view tapered from base to antennal insertions, sides of distal portion subparallel in male, tapered in female; in dorsal profile distinctly rounded at base. Distal portion in male short, 31–38 (34)% of total rostral length, stout, in lateral view tapered, lateral sulcus distinct almost to tip; in female, distal portion longer,

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33–46 (39)% of total rostral length, attenuate, smooth distally. Dorsomedian carina distinct. Scales narrow, linear to attenuate, apically bluntly rounded to pointed, recumbent, scales on sides white, scales on dorsum pale aeneous. *Prothorax*: in dorsal view feebly to strongly rounded from base to feebly developed subapical constriction; in lateral view convex basally, flattened toward apex. Scales on lower portion of pleuron round, flat, white, limited to lower 0.66 anteriorly, replaced by elongate scales dorsally. *Elytra*: in dorsal view parallel sided base in basal 0.50; in lateral view flat in basal 0.50. Interspaces flat, shallowly, irregularly impressed, odd interspaces not wider than even ones; apices of interspaces 4–6 not prominent. Scales in single to triple rows on each interspace; sutural interspaces with small oval white scales in dense basal cluster and in complete sutural row; striae scales indistinguishable from scales on interspaces. *Pygidium*: in male narrowly exposed, not visible from above, strongly convex, apex broadly rounded; in female, pygidium more broadly exposed, flat, distinctly narrowed to rounded apex, oblique, extending slightly beyond elytral apices. *Abdomen*: in male sterna 3–5 feebly convex medially, sternum 5 not constricted subapically, strongly rounded, posterior margin slightly, subquadrately emarginate; in female, sterna 3–4 and anterior portion of sternum 5 feebly convex medially, sternum 5 with feebly developed subapical constriction medially, posteromedian portion of segment not prominent, posterior margin broadly, shallowly concave. *Femora*: narrow at base, gradually widened from just distad of base, profemur slightly wider than metafemur. *Tibiae*: pro- and mesotibiae with stout conical mucrones, metatibial mucro short, oblique. *Male genitalia*: (Fig. 368). *Spiculum ventrale*: (Fig. 340). *Spermatheca*: (Fig. 312).

Discussion.—A minute *Microtychius* bud predator of *Pithecellobium unguis-cati*; known from the Mexican states of Tamaulipas, Oaxaca, and Yucatan, and from El Salvador, Colombia, and Venezuela (Fig. 371); 35 specimens examined.

Adults of *S. valenciana* were collected on the host on 18 March, 1975, 7 mi S. Antigua Morelos, Tamaulipas, Mexico. Additional adults were reared from larvae which emerged from flower buds from the same plants collected at the same time. Adults have been collected in March, April, July, and December. They were microsympatric with adults of the seed predator *S. pulcherrima* at the above cited locality. Like *S. pulcherrima*, and *S. dissipata* (Fig. 374), *S. valenciana* has the 5th abdominal sternum of the male strongly emarginate, the apical portion of the pygidium broadly visible from beneath. The large apical orifice of the median lobe of *S. valenciana* is similar to that in *S. anfracta*, *S. anfractoides*, and *S. viridula*, probably indicating that these form a monophyletic assemblage within the *pulcherrima* group (which probably also includes *S. dissipata*).

110—*Sibinia (Microtychius) dissipata* Champion (Figs. 331, 372, 374, 378–380)

Sibinia dissipata Champion 1910: 192, Tab. 9, Figs. 13, 13a. Klima 1934; Blackwelder 1947. LECTOTYPE (HERE DESIGNATED) male, one of three syntypes, labelled "Sp. figured" "Type" "Corinto, Nicaragua Solari" "B.C.A. Col. IV. V. 7. *Sibinia dissipata* Champ." (BMNH).

Diagnosis.— (Fig. 331). With fulvous and darker fulvoaeneous scales on pronotum and elytra and with suberect setae on elytral interspaces; pygidium very large, convex, fitting into deep apical emargination of sternum 5 and broadly visible in ventral view, especially in male (Fig. 374); median lobe with large, widely separated lateral plates which bear long, dense apical and ventral setae (Fig. 378–380).

Description.— *Length*: male 1.47–1.68 mm, female 1.47–1.58 mm. *Width*: male 0.73–0.88 mm, female 0.78–0.83 mm. *Integument*: rufous to testaceous; with piceous to black T-shaped macula on mediobasal portion of elytra. *Head*: scales on vertex narrow, linear, apically blunt, fulvoaeneous. *Eye*: height ca. 1.8x length; in dorsal view flat to feebly convex, flat lateral surface tilted forward; hind margin strongly raised by distance slightly greater than combined diameters of two ocular facets. *Frons*: slightly narrower than base of rostrum, in lateral view flat, continuous with vertex of head. *Rostrum*: male 1.87–1.00x, female 0.95–1.06x pronotum length. In dorsal view feebly tapered to antennal insertions, abruptly narrowed distad of insertions, especially in female, sides of distal portion subparallel in male, acuminate in female; in dorsal profile rounded at base, broadly curved over antennal insertions. Dorsomedian carina distinct. Scales elongate, parallel sided, apically blunt to truncate, scales on sides pale fulvous, scales on dorsum fulvoaeneous, scales on lateral portion of frons slightly raised. Distal portion in male short, 33–39% of total rostral length, in lateral view strongly tapered, lateral sulcus obsolete just distad of antennal insertions; in female, distal portion slightly longer, 44–51% of total rostral length, acuminate, lateral sulcus as in male. *Prothorax*: in dorsal view sides subparallel in basal 0.66, strongly rounded anteriorly to subapical constriction; in lateral view nearly flat, subapical constriction obsolete on dorsum. Scales on pronotum elongate, narrow, parallel sided to feebly attenuate, apically blunt to truncate, scales on median portion fulvoaeneous, replaced by ochreous scales anteriorly and on posterolateral portions; with single or double basal marginal row and prominent basal medial patch of elongate

oval white scales; scales on lower portion of pleuron oblong, oval whitish, flat, similar scales also interspersed among elongate scales on posterolateral portions of pronotum. *Elytra*: in dorsal view sides subparallel in basal 0.50; in lateral view flat on disc. Interspaces flat, odd interspaces distinctly wider than even ones; apices of interspaces 4–6 feebly raised. Scales in triple rows on each interspace, scales in lateral rows recumbent, elongate oval, narrowly truncate apically, pale ochreous; scales in median row on odd interspaces and towards apices on even interspaces suberect, linear, fulvoaeneous; sutural interspaces with oval, white scales in basal patch and in sutural row which is interrupted medially by band of dark narrow scales; striae narrow, inconspicuous. *Pygidium*: broadly exposed, in male not visible from above, strongly convex, exposed portion rounded so that apex lies anterior to elytral apices, broadly truncate at apex; in female, pygidium not so strongly convex, nearly vertical, narrowed to subtruncate apex. *Abdomen*: in male sterna 3–5 broadly, shallowly, continuously concave medially, scales on concave portions slightly reduced (Fig. 374); in female, sterna 3–4 flat medially, anteromedian portion of sternum 5 feebly concave, posteromedian portion slightly prominent, not constricted subapically, posterior margin of segment broadly, subquadrately emarginate. *Femora*: narrow at base, stout, dorsal margin markedly rounded from just distad of base to apex, ventral margin nearly straight, metafemur slightly more elongate, slightly narrower than profemur. *Tibiae*: mesotibia with small conical mucrones, protibia and metatibia unarmed. *Male genitalia*: (Fig. 378–380).

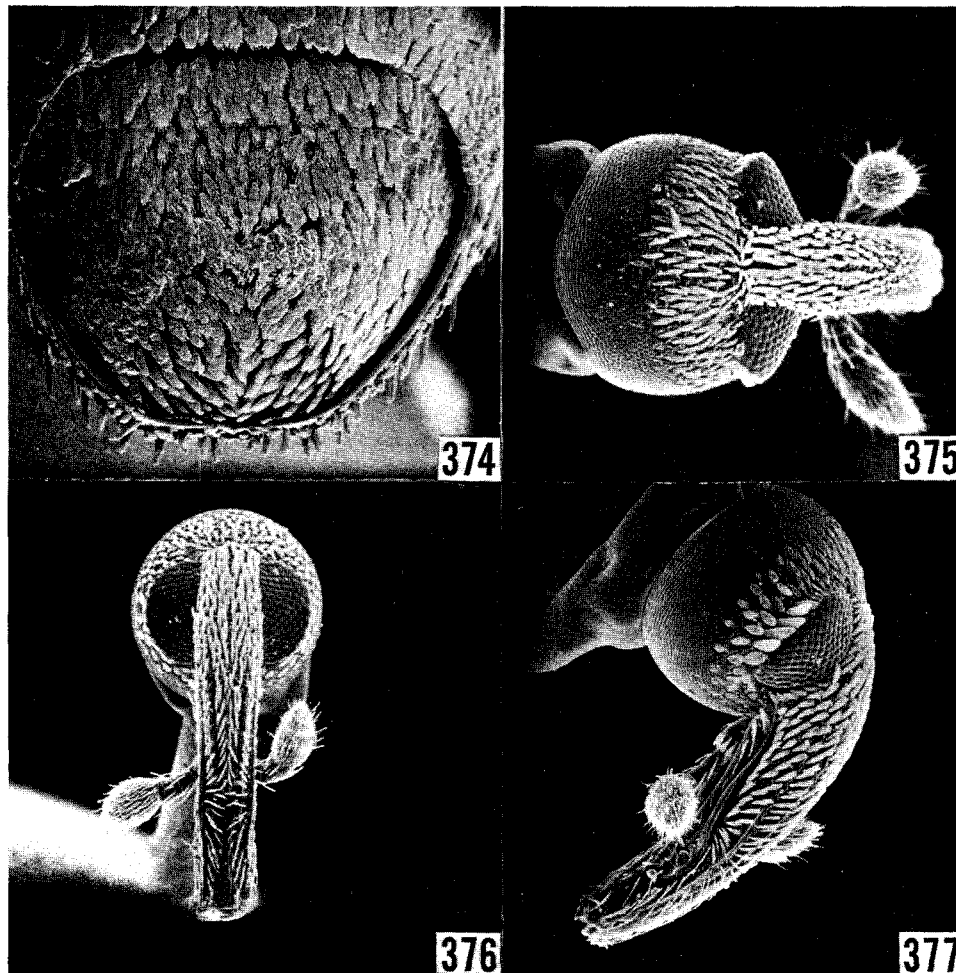


Fig. 374–377, *Sibinia* spp.: 374, *S. dissipata*, male, abdominal sterna 2–5, ventral view (88.4x); 375, *S. pulcherrima*, male, head, dorsal view (91.9x); 376, the same, front view (70.7x); 377, the same, lateral view (81.3x).

Discussion.— A relatively small *Microtychius*, probably a bud predator; adults collected on *Pithecellobium dulce*; known from the Mexican states of Guerrero, Puebla, Oaxaca, and Sinaloa, and from Nicaragua (Fig. 372); 76 specimens examined.

Adults of *S. dissipata* were collected on *P. dulce* at several localities in the states of Guerrero, Puebla, and Oaxaca, Mexico, in July, when the plants were in the late fruit stage.

The strongly rounded, deeply emarginate 5th abdominal sternum indicates that *S. dissipata* is closely allied to *S. pulcherrima* and *S. valenciana*. The hosts of the three species (*P. unguiscati* and *P. dulce*) are also closely related. The elaborately modified male genitalia of *S. dissipata* (Fig. 378-380) do not resemble those of any other examined *Sibinia*.

111—*Sibinia (Microtychius) anfracta*, new species
(Figs. 369, 381, 382)

Holotype.— Male, BRAZIL: Goias, Paraiso, 8–14, February, 1962, J. Bechyné col. (MZSP).

Paratype.— Same data as holotype (1 male, WEC).

Diagnosis.— Scales on pronotum and elytra uniformly pale greenish gray; scales in median rows on elytral interspaces suberect; distal portion of rostrum slender, lateral sulcus obsolete in distal 0.66; article II of male protarsus unmodified; median lobe strongly bent in basal 0.25, with large apical orifice; internal sac with large crescent shaped bars (Figs. 381, 382).

Description.— *Length:* 1.82–1.90 mm. *Width:* 0.89–0.96 mm. *Integument:* prothorax, elytra and venter black; head and rostrum piceous; legs rufous; distal portion of rostrum and antennae ferruginotestaceous. *Head:* scales on vertex small, elongate, apically bluntly rounded. *Frons:* strongly narrowed posteriorly, in lateral view feebly curved, continuous with vertex of head. *Eye:* moderately large, height ca. 1.4x length; in dorsal view broadly, evenly convex; hind margin raised by distance ca. equal to combined diameters of two ocular facets. *Rostrum:* 1.05x pronotum length. In dorsal view sides feebly tapered from base to antennal insertions, narrowed abruptly distad of insertions, sides of distal portion subparallel; in dorsal profile rounded at base, broadly curved over antennal insertions. Dorsomedian carina obsolete. Distal portion moderately long, 42–44% of total rostral length, slender, in lateral view feebly tapered, lateral sulcus obsolete in distal 0.75; scales elongate, narrow, apically blunt, recumbent. *Prothorax:* in dorsal view sides subparallel in basal 0.50, broadly rounded anteriorly to feebly developed subapical constriction; in lateral view broadly, evenly convex from base to apex, subapical constriction obsolete on dorsum. Scales on pronotum elongate, linear, apically blunt, uniformly recumbent; scales on lower portion of pleuron oblong, flat, whitish, limited to lower 0.50, replaced by elongate scales dorsally. *Elytra:* in dorsal view sides subparallel in basal 0.50; in lateral view flat in basal 0.50, strongly rounded distally. Interspaces flat, feebly impressed, subequal in width; apices of interspaces 4–6 not prominent. Scales in triple rows on each interspace, scales in lateral rows recumbent, scales in median rows alternating one recumbent and one suberect, decurved; sutural interspaces without oval white scales; striae almost as wide as scales on interspaces. *Pygidium:* sterna 3–5 flat medially; sternum 5 not constricted subapically, posterior margin of segment narrowly, shallowly, subquadrately emarginate. *Femora:* stout, narrow at base, gradually, strongly widened distally, profemur and metafemur subequal in width. *Tibiae:* each with stout acute apical mucro. *Male genitalia:* (Figs. 381, 382).

Discussion.— A relatively small *Microtychius*, probably a bud predator; host unknown; known only from the type-series (two males) from the state of Goias, Brazil (Fig. 369).

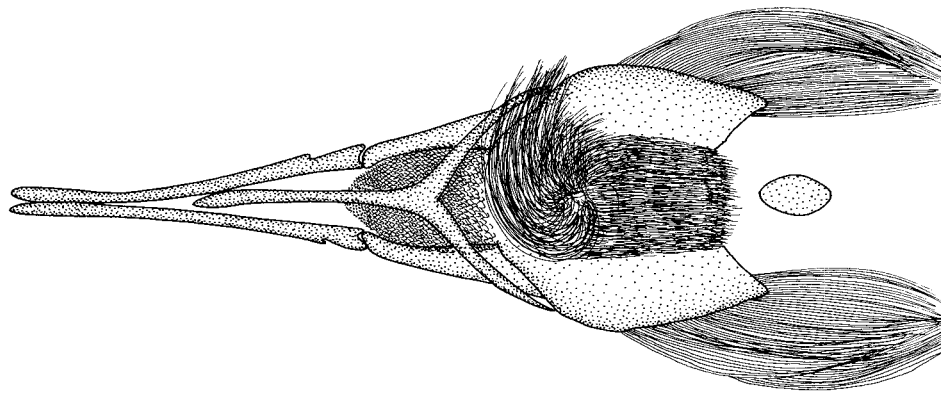
This species most closely resembles *S. anfractoides*, another Brazilian bud predator *Microtychius*. Its relationship to that species and to the other *pulcherrima* group members is considered in the discussion of *S. anfractoides*.

112—*Sibinia (Microtychius) anfractoides*, new species
(Figs. 369, 383)

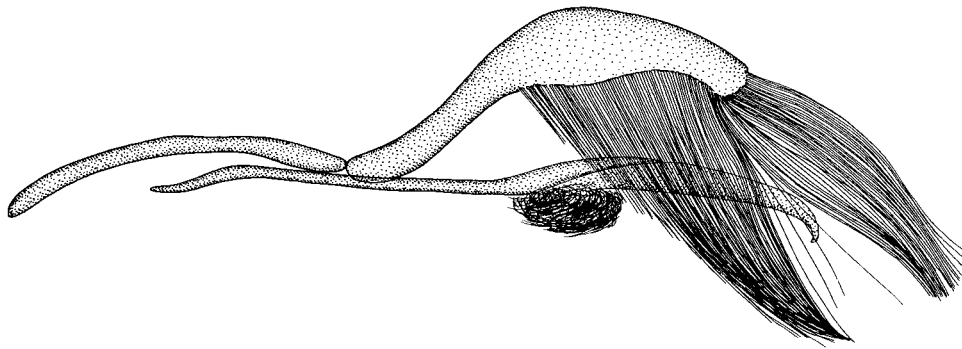
Holotype.— Male, BRAZIL: Minas Gerais, Pedra Azul, November, 1972, M. Alvarenga (MPB).

Allotype.— Female, same label data as holotype (CWO).

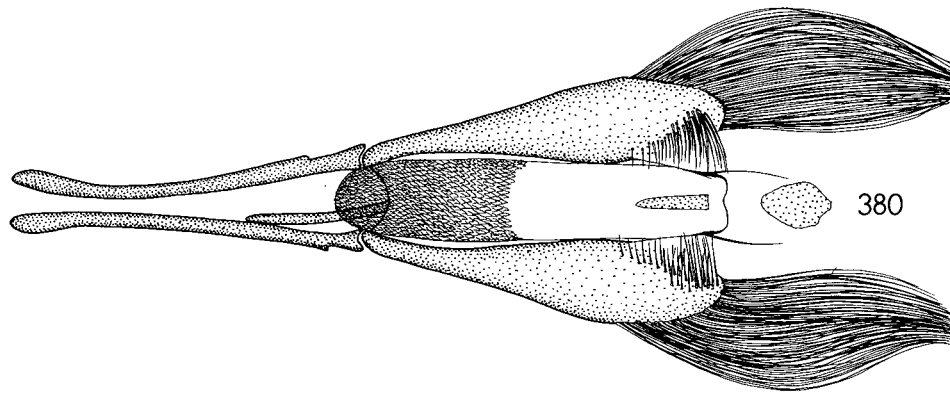
Diagnosis.— Hind margin of eye strongly raised; distal portion of male rostrum short, tapered; femora slender; article II of male protarsus prominent laterally, prominence with large, deep lateral concavity; median lobe weakly bent in lateral view (Fig. 383); apical orifice not as wide as apex; large spines of internal sac not crescent shaped.



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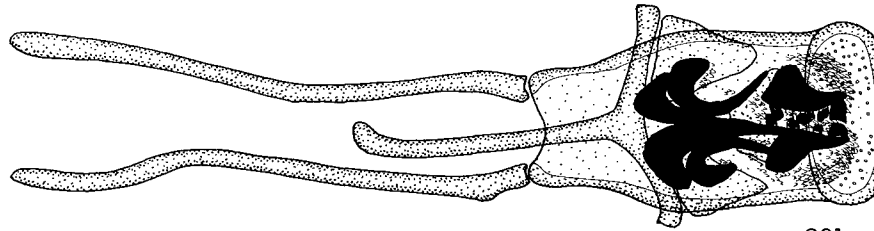


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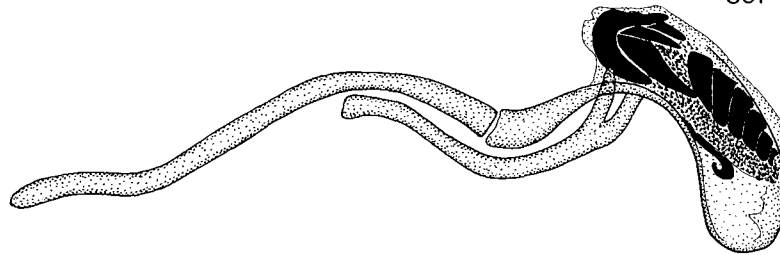


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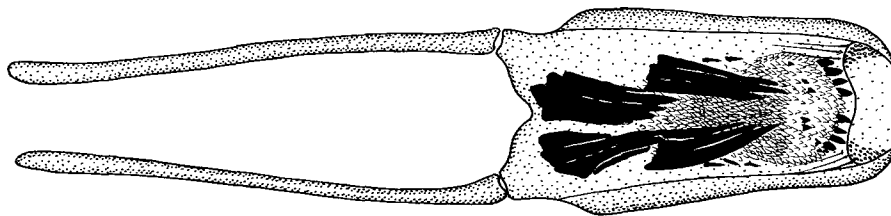
Fig. 378–380, *Sibinia* spp., male external genitalia; 378, *S. dissipata* (ventral view); 379, *S. dissipata* (lateral view); 380, *S. dissipata* (dorsal view), (not to scale).



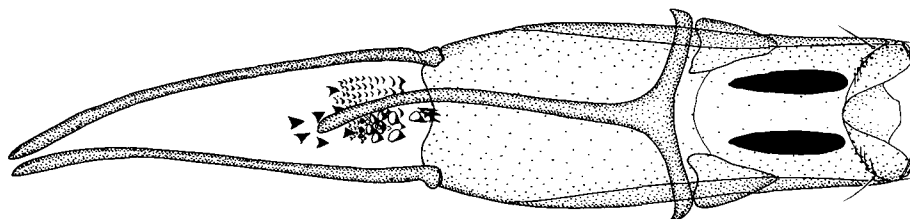
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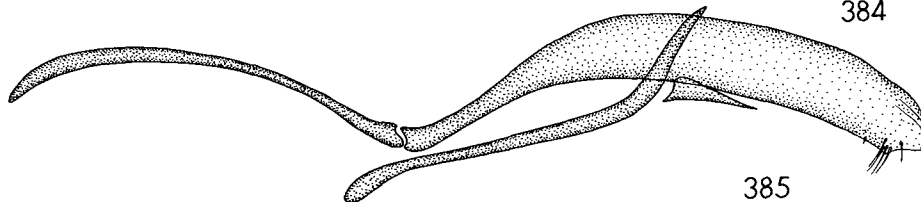
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Fig. 381–385, *Sibinia* spp., male external genitalia: 381, *S. anfracta*; 382, *S. anfracta*; 383, *S. anfractoides*; 384, *S. viridula*; 385, *S. viridula* (not to scale; 381, 383, 384 ventral views, 382, 385 lateral views).

Description.— As described for *S. anfracta*, except—*Length*: male 1.69mm, female 1.79mm. *Width*: male 0.86 mm, female 0.86 mm. *Frons*: not narrowed posteriorly. *Eye*: in dorsal view convex, especially posteriorly; hind margin raised by distance ca. equal to combined diameters of two ocular facets. *Rostrum*: male 0.88x, female 1.08x pronotum length. Distal portion in male moderately long, 43% of total rostral length, in lateral view strongly tapered; in female, distal portion longer, 56% of total rostral length, slender, cylindrical, smooth. *Elytra*: alternate scales in median row on each interspace suberect, nearly straight. *Male genitalia*: (Fig. 383).

Discussion.— A relatively small *Microtychius*, probably a bud predator; host unknown; known only from the type-series from the state of Minas Gerais, Brazil (Fig. 369).

S. anfractoides is intermediate in expression of several characters between *S. valenciana* and *S. anfracta*. These include the eye which has the hind margin more strongly raised and flatter in *S. valenciana*, less elevated and more convex in *S. anfracta*, and shape of the median lobe and armature of the internal sac which are progressively more strongly modified in *S. valenciana* (Fig. 368), *S. anfractoides* (Fig. 383), and *S. anfracta* (Figs. 381, 382). Together with *S. viridula* and *S. dissipata*, these three species appear to form a monophyletic subgroup of the *pulcherrima* group.

113—*Sibinia (Microtychius) viridula*, new species
(Figs. 313, 341, 372, 384, 385)

Holotype.— Male, MEXICO: Oaxaca, 14 mi W Niltpec, 7 July, 1971, Clark, Murray, Hart, Schaffner (USNM #75424).

Allotype.— Female, same data as holotype (USNM).

Paratypes.— Same data as holotype (11); the same, except—27 mi E Juchitan, 22 July, 1973, V. Mastro, J.C. Schaffner (1), 7 mi E Juchitan, 3 June, 1974, C.W. & L. O'Brien & Marshall (1); 21 mi W Zanatepec, 3 June, 1974, C.W. & L. O'Brien & Marshall (1); total 14, distributed to various collections.

Diagnosis.— Female rostrum abruptly narrowed distad of antennal insertions, slender, smooth; scales on pronotum and elytra uniformly yellowish to greenish gray; median lobe with very large apical orifice; internal sac with pair of large heavily sclerotized rods (Fig. 384); tibial mucrones large, black.

Description.— *Length*: male 1.30–1.51 mm, female 1.44–1.58 mm. *Width*: male 0.69–0.79 mm, female 0.76–0.85 mm. *Integument*: black; tibiae, tarsi, antennae and distal portion of rostrum piceous to ferruginotestaceous. *Head*: scales on vertex narrow, seta-like. *Frons*: strongly narrowed posteriorly; in lateral view flat, continuous with vertex of head, *Eye*: large, height ca. 1.4x length; in dorsal view convex posteriorly, becoming flattened anteriorly; hind margin feebly raised by distance somewhat less than diameter of one ocular facet. *Rostrum*: male 0.97–1.03x, female 1.08–1.25x pronotum length. In dorsal view tapered to antennal insertions, parallel sided from there to tip; in dorsal profile feebly or not at all rounded at base, broadly, evenly curved over antennal insertions. Dorsomedian carina distinct. Scales recumbent throughout. Distal portion in male moderately long, 46–53% of total rostral length, tapered in distal 0.50, lateral sulcus becoming obsolete over antennal insertions; in female, distal portion long, 61–66% of total rostral length, slender, cylindrical, smooth, shining. *Prothorax*: in dorsal view parallel sided at base; in lateral view slightly, evenly convex, subapical constriction feebly developed on dorsum. Scales on pronotum elongate, attenuate, narrowly truncate apically, uniformly recumbent; scales on lower portion of pleuron round, flat, white, limited to lower 0.66 anteriorly, replaced toward dorsum by oval scales. *Elytra*: in dorsal view sides subparallel in basal 0.50; in lateral view flat in basal 0.50. Interspaces flat, subequal in width, shallowly impressed; apices of interspaces 4–6 not prominent. Scales on interspaces indistinguishable from scales on pronotum. in triple rows on each interspace, uniformly recumbent; sutural interspaces with small basal cluster of oval white scales; striae scales about as wide as but more nearly parallel sided than scales on interspaces. *Pygidium*: in male small, feebly convex, broadly rounded apically, perpendicular; in female, pygidium slightly more strongly narrowed to rounded apex, nearly flat, very slightly oblique, not produced beyond elytral apices. *Abdomen*: in male sterna 1–4 and anteromedian portion of sternum 5 flat, posteromedian portion of sternum 5 very slightly prominent, subapical constrictions obsolete, posterior margin of segment slightly concave medially, scales on flat median portion of each sternum reduced, sterna 1–4 each with a transverse row of fine setae, scales on median portion of sternum 5 suberect, seta-like; in female, sternum 5 minutely constricted; posteromedian portion of segment slightly prominent, posterior margin feebly produced posteriorly. *Femora*: narrow at base, profemur rather abruptly inflated in distal 0.66, dorsal margin strongly, evenly rounded, metafemur subequal in width to profemur, more gradually inflated, dorsal margin most strongly rounded at about middle. *Male genitalia*: (Figs. 384, 385). *Spiculum ventrale*: (Fig. 341). *Spermatheca*: (Fig. 313).

Discussion.— A relatively small *Microtychius*, probably a bud predator; host unknown,

known only from the type-series from the Mexican state of Oaxaca (Fig. 372).

The relationship of *S. viridula* to *S. anfracta*, *S. anfractoides*, *S. valenciana*, and *S. dissipata* was considered in the discussion of *S. anfractoides*. *S. viridula* lacks the oblong flat elevated eye common to most other *pulcherrima* group members.

The *chichimeca* Group

Diagnosis.— Eye large, round, evenly convex; tibial mucrones large, black; median lobe with medioventral cluster of posteriorly directed setae, as in *S. chichimeca* (Fig. 386).

Discussion.— The *chichimeca* group contains five species, *S. chichimeca*, *S. tepaneca*, and *S. azteca* of Mexico (Fig. 373), *S. earina*, known from Mexico and Brazil (Fig. 373), and *S. laticauda* of Argentina (Fig. 369). All five are bud predators; their hosts are unknown. The medioventral setae on the median lobe appear to be homologous to the similar but larger and more complex complements of setae borne on medioventral prominences of the median lobes of *S. vosei*, *S. fulva*, and other “*Itychus*” stock members (cf. Figs. 93, 94, 109, 110, 386). Evolution within the *chichimeca* group appears to have resulted in reduction of “*Itychus* characters”, rudiments of several of which are apparent in all group members. Progressive reduction of plesiotypic genitalic features can be traced through *S. chichimeca* which has “*Itychus*”-like male genitalia (Fig. 386), to *S. tepaneca* (Fig. 387) in which “*Itychus*” features are less pronounced, to *S. azteca* (Fig. 388), in which they are even less apparent.

114—*Sibinia (Microtychius) chichimeca*, new species (Figs. 314, 342, 373, 386, 399)

Holotype.— Male, MEXICO: (Morelos), 37 mi S Mexico (City), 15 March, 1953, D.G. Kissinger (USNM #75425).

Allotype.— Female, same data as holotype (USNM).

Paratype.— Same data as holotype (1 female, WEC).

Diagnosis.— (Fig. 399). Scales on pronotum and elytra mostly ferruginous; abdominal sterna 3–5 concave in male; median lobe abruptly bent downward at extreme apex, medioventral setae long, dense; metafemur only slightly wider than profemur.

Description.— *Length*: male 1.58 mm, female 1.61–1.64 mm. *Width*: male 0.75 mm, female 0.79 mm. *Integument*: prothorax and venter black; elytra, head and proximal portion of rostrum rufous; legs, distal portion of rostrum, and antennae rufous to ferruginotestaceous. *Head*: scales on vertex very narrow, parallel sided, ferruginous. *Frons*: strongly narrowed posteriorly; in lateral view broadly rounded, continuous with vertex of head. *Eye*: large, nearly round, height ca. 1.3x length, in dorsal view broadly convex, especially posteriorly; hind margin feebly raised by distance somewhat less than diameter of one ocular facet. *Rostrum*: male 0.97x, female 1.00x pronotum length. In dorsal view feebly tapered from base to antennal insertions, abruptly narrowed distad of insertions, especially in female, sides of distal portion subparallel; in dorsal profile rounded at base and over antennal insertions. Dorsomedian carina distinct. Distal portion in male moderately long, 35% of total rostral length, slender, in lateral view strongly tapered to acute tip, lateral sulcus not developed distad of antennal insertions; in female, distal portion slightly longer, 42% of total rostral length, somewhat more finely tapered. Scales elongate, narrow, apically truncate, uniformly recumbent. *Prothorax*: in dorsal view sides subparallel in basal 0.50, strongly rounded anteriorly to well developed subapical constriction; in lateral view broadly convex posteriorly, becoming flattened anteriorly. Scales on pronotum elongate, ovate to feebly attenuate, apically bluntly pointed, uniformly recumbent, lateral and posterolateral scales ochreous, scales on median portion slightly narrower, ferruginous; scales on lower portion of pleuron ovate, flat, white, limited to lower 0.33 medially, replaced by elongate scales dorsally. *Elytra*: in dorsal view sides subparallel in basal 0.66; in lateral view flat in basal 0.50, broadly curved to apices. Interspaces flat, narrow, distinctly, moderately deeply impressed; apices of interspaces 4–6 not prominent. Scales on interspaces similar to those on pronotum but somewhat more elongate and narrower, arranged in diffuse triple rows on each interspace, uniformly recumbent, ochreous scales sparsely interspersed among ferruginous scales throughout, especially dense on humeri, on interspaces 5 and 6, and in broad, diffuse subapical transverse band; sutural interspaces with nearly complete sutural row of oval, white scales; striae scales narrower than scales on interspaces. *Pygidium*: moderately broadly exposed, in male broadly convex, apex subquadrate; in female, pygidium nearly flat, narrowed to rounded apex, perpendicular. *Abdomen*: in male sterna 3–4 narrowly, sternum 5 more deeply and broadly concave medially, some scales on concave portions reduced, with finely setose margins,

some completely reduced to erect setae, sternum 5 not constricted subapically, posterior margin of segment broadly, shallowly, subquadrately emarginate; in female, sterna 3–5 and anterior portion of sternum 5 feebly convex medially, sternum 5 broadly, feebly constricted subapically, posteromedian portion of segment feebly, broadly prominent, posterior margin nearly straight. *Femora*: narrow at base; profemur gradually, distinctly widened in distal 0.75, slightly wider than metafemur; metafemur more gradually widened. *Tibiae*: pro- and mesotibiae with long conical oblique mucrones, metatibia with longer, more slender mucro, each mucro with short basal cusp. *Male genitalia*: (Fig. 386). *Spiculum ventrale*: (Fig. 342). *Spermatheca*: (Fig. 314).

Discussion.— A relatively small *Microtychius*, probably a bud predator; host unknown; known only from the type-series from the state of Morelos, Mexico (Fig. 373).

S. chichimeca is more “*Itychus*”-like than the other *chichimeca* group members and appears to have diverged less from the “*Itychus*” ancestral stock than have the other *chichimeca* group members (see discussion of *chichimeca* group and phylogeny section).

The name *chichimeca* is that of the Nahuatl tribe which occupied the Valley of Mexico prior to the ascendancy of the Aztecs in that region.

115—*Sibinia (Microtychius) tepaneca*, new species
(Figs. 373, 387, 398)

Holotype.— Male, MEXICO: Oaxaca, 2.8 mi E Matatlan, 24 July, 1974, Clark, Murray, Ashe, Schaffner (USNM #75426).

Diagnosis.— (Fig. 398). Metafemur greatly enlarged, ca. 1.3x as wide as profemur; median lobe not abruptly bent downward at apex (Fig. 387).

Description.— As described for *S. chichimeca*, except—*Length*: 1.75 mm. *Width*: 0.84 mm. *Rostrum*: 0.90x pronotum length. Distal portion short, 36% of total rostral length, in lateral view tapered, lateral sulcus distinct almost to tip. *Femora*: stout, narrow at base, profemur abruptly widened just distad of base, dorsal margin strongly, evenly rounded from just distad of base to apex; mesofemur slightly wider than profemur; metafemur much wider, ca. 1.3x as wide as profemur, abruptly widened from narrow base, dorsal and ventral margins strongly rounded. *Male genitalia*: (Fig. 387).

Discussion.— A relatively small *Microtychius*, probably a bud predator; host unknown; known only from the male holotype from the Mexican state of Oaxaca (Fig. 373).

S. tepaneca closely resembles *S. chichimeca*, but is distinguished by the characters listed in the diagnosis. Some of the differences between the two appear to reflect further reduction of “*Itychus* characters” in *S. tepaneca* (see discussion of *S. chichimeca*).

The epithet *tepaneca* is that of a Nahuatl tribe which, like the Chichimecas, preceded the Aztecs in the Valley of Mexico.

116—*Sibinia (Microtychius) azteca*, new species
(Figs. 315, 343, 373, 388, 400)

Holotype.— Male, MEXICO: (Morelos), 37 mi S Mexico (City), 15 March, 1953, D.G. Kissinger, (USNM #75427).

Allotype.— Female, MEXICO: Oaxaca, 8 mi SE Huajuapán de León, 22 July, 1974, R.L. Mangan & D.S. Chandler (CWO).

Paratype.— Same data as holotype (1 male, WEC).

Diagnosis.— Small (Fig. 400); scales on pronotum and elytra ochreous, a few ferruginous scales in median patch on pronotum and laterally on elytra; abdominal sterna not concave medially; pygidium of male rounded at apex; median lobe not abruptly bent downward at extreme apex, medioventral setae sparse; anterolateral plates of spiculum gastrale small (Fig. 388).

Description.— As described for *S. chichimeca*, except—*Length*: male 1.58–1.63 mm, female 1.38 mm. *Width*: male 0.80–0.85 mm, female 0.84 mm. *Integument*: rufous, except black on sterna and ferruginotestaceous on tibiae, tarsi, antennae and distal portion of rostrum. *Rostrum*: male 0.97–1.00x, female 1.03x pronotum length. In dorsal profile broadly curved from base to tip in male and female. Distal portion in male short, 43–44% of total rostral length, in lateral view tapered, lateral sulcus distinct almost to tip; in female, distal portion longer, 42% of total rostral length, more strongly tapered to acute tip, lateral sulcus distinct in basal 0.50. Scales pale ochreous. *Elytra*: scales on interspaces elongate, ovate, apically bluntly to finely pointed, uniformly ochreous or with ferruginous scales intermixed laterally and around apices; sutural

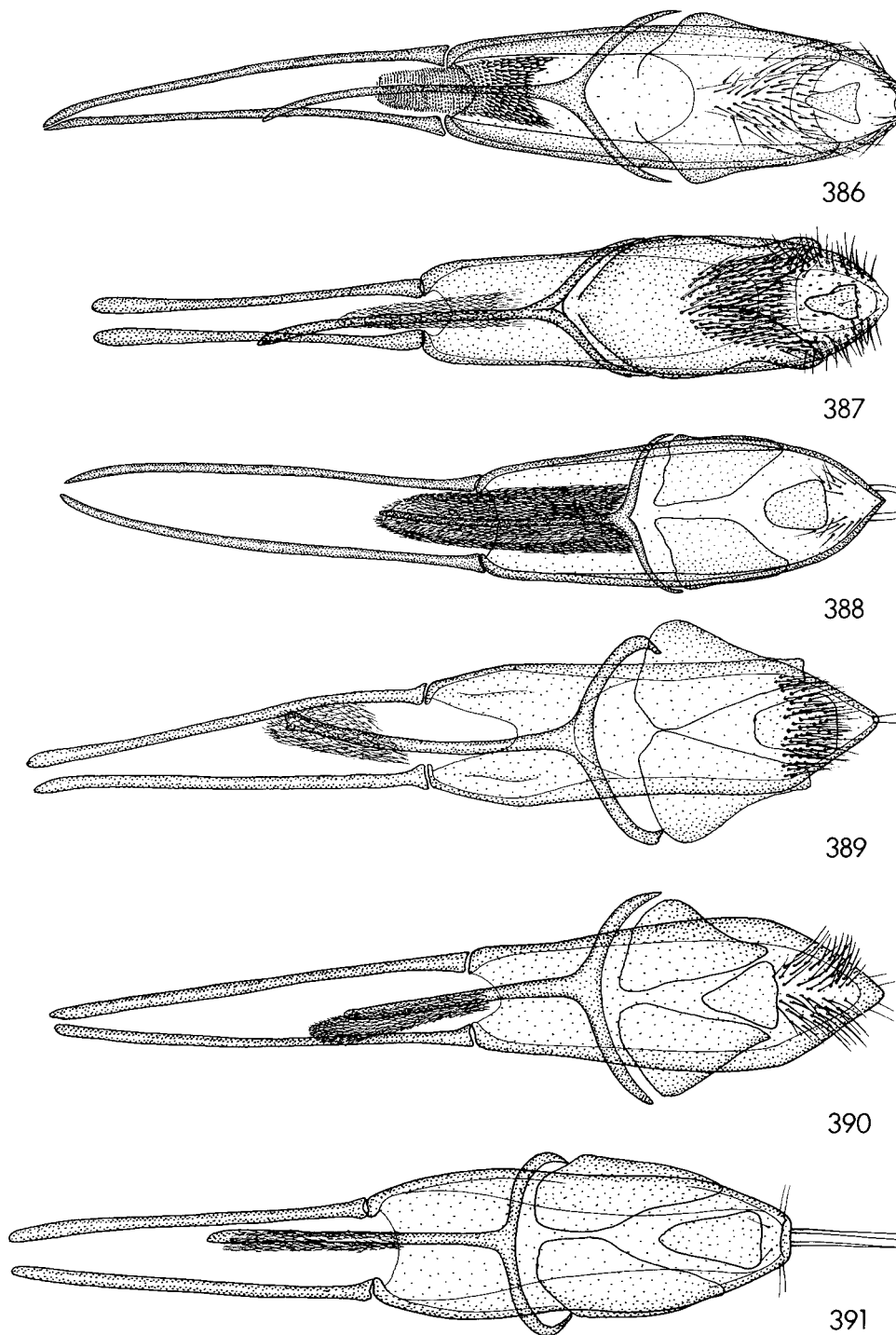


Fig. 386–391, *Sibinia* spp., male external genitalia; 386, *S. chichimeca*; 387, *S. tepaneca*; 388, *S. azteca*; 389, *S. earina*; 390, *S. laticauda*; 391, *S. melina*, (not to scale, all ventral views).

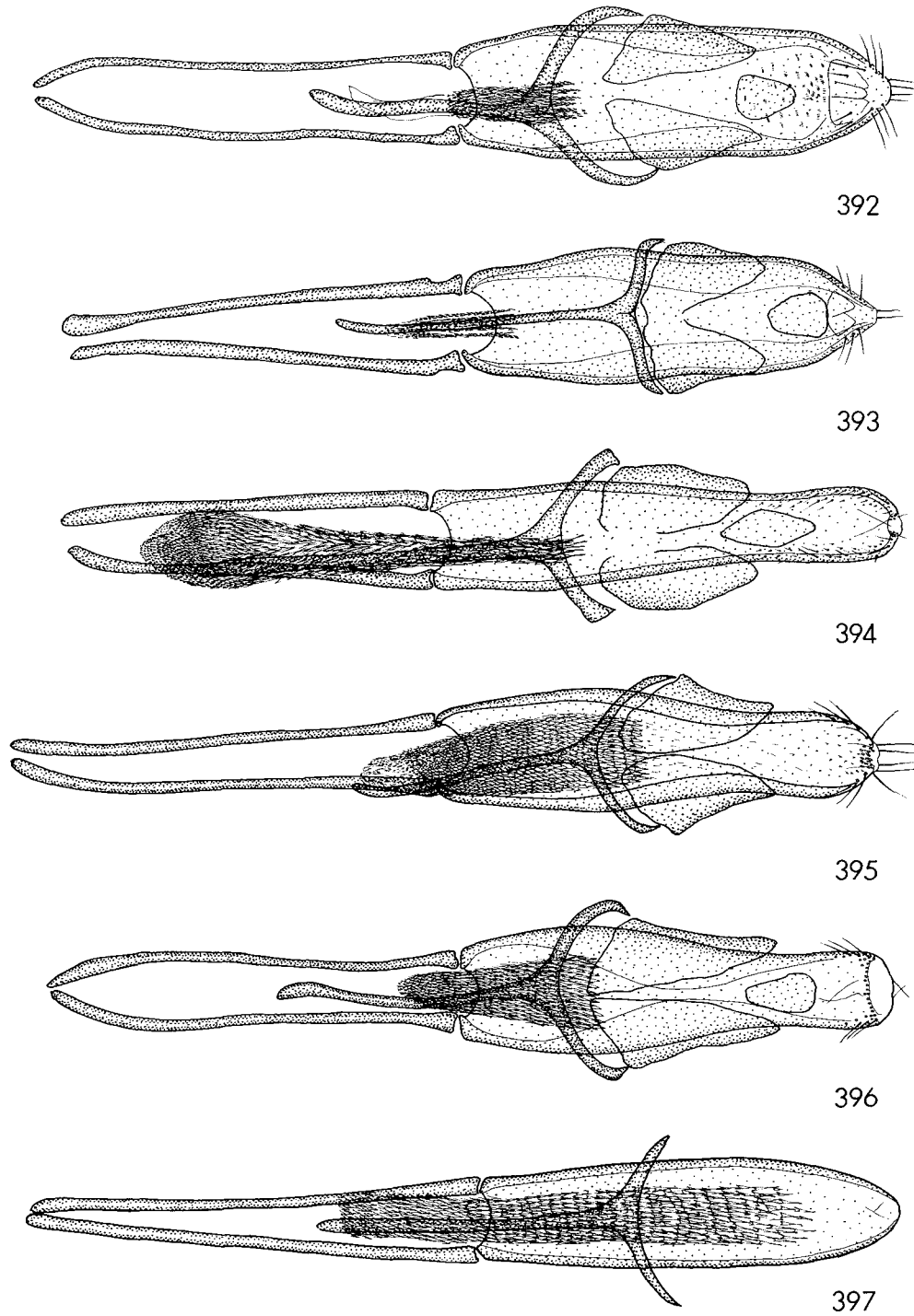


Fig. 392–397, *Sibinia* spp., male external genitalia: 392, *S. aliquantula*; 393, *S. aculeola*; 394, *S. aspersoides*; 395, *S. glabrirostris*; 396, *S. inornata*; 397, *S. muscula* (not to scale, all ventral views).

interspaces without oval white scales. *Abdomen*: sterna 3–5 broadly, shallowly concave medially, scales on concave portions unmodified. *Femora*: profemur stouter than metafemur. *Tibiae*: mucrones lacking cusps. *Male genitalia*: (Fig. 388). *Spiculum ventrale*: (Fig. 343). *Spermatheca*: (Fig. 315).

Discussion.— A relatively small *Microtychius*, probably a bud predator; host unknown; known only from the type-series from the Mexican states of Morelos and Oaxaca (Figs. 373).

The holotype of *S. azteca* and specimens of the closely related *S. chichimeca* bear identical label data and were probably collected in sympatry, possibly on the same host. Adults of the two species are easily distinguished by the characters listed in their diagnoses. *S. azteca* appears to have lost most of the resemblance to members of the plesiotypic “*Itychus*” stock exhibited by *S. chichimeca* and to a lesser extent by *S. tepaneca* (see discussion of *S. chichimeca*).

The name *azteca* refers to the Aztec overlords of the Valley of Mexico at the time of the Spanish conquest of Mexico.

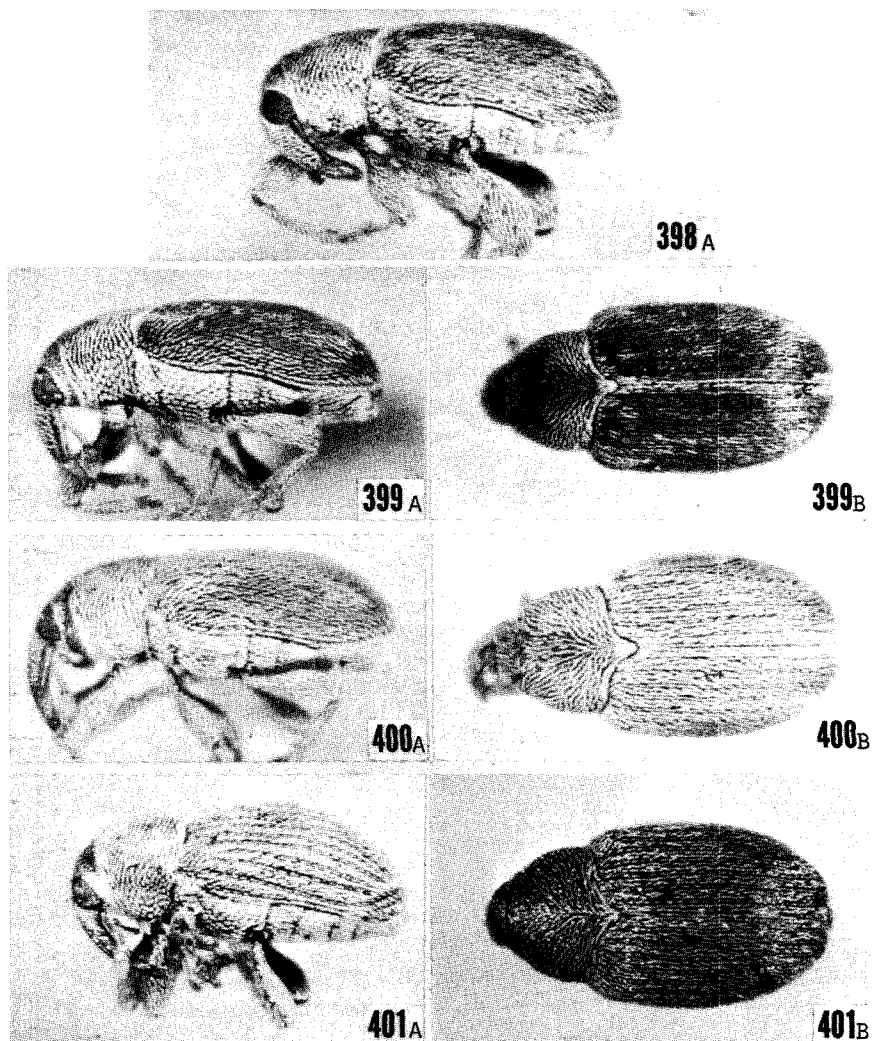


Fig. 398–401, *Sibinia* spp., habitus: 398, *S. tepaneca*, holotype male, 2.8 mi E Matatlan, Oaxaca, Mexico; 399, *S. chichimeca*, female, 37 mi S Mexico City, Mexico; 400, *S. azteca*, male, 37 mi S Mexico City, Mexico; 401, *S. melina*, female, El Valle, Venezuela. (A, lateral view; B, dorsal view).

117—*Sibinia (Microtychius) earina*, new species
(Figs. 316, 344, 369, 373, 389)

Holotype.— Male, BRAZIL: Minas Gerais, Pedra Azul, November, 1972, M. Alvarenga (MPB).

Allotype.— Female, same data as holotype (MPB).

Paratypes.— Same data as holotype (107); (BRAZIL), (Mato Grosso), Chapada Forest (Chapada dos Guimaraes), Nov., Casey Bequest, 1925 (1 male, 1 female). MEXICO, Chiapas, 35 mi SE Cintalapa, 11 July, 1971, Clark, Murray, Hart, Schaffner (1); total 110, distributed to various collections.

Diagnosis.— Scales on pronotum and elytra uniformly recumbent, greenish yellow, no white or pale colored oblong or oval scales; sterna 3–5 in male shallowly, continuously, narrowly, concave, some scales on concavity reduced to fine setae; distal portion of rostrum short, stout, not tapered in male or female.

Description.— *Length*: male 1.33–1.49 (1.38) mm, female 1.31–1.54 (1.43) mm. *Width*: male 0.74–0.80 (0.76) mm, female 0.74–0.83 (0.79) mm. *Integument*: piceous to black; rufopiceous on legs; tarsi and antennae rufous. *Head*: scales on vertex narrow, parallel sided, apically pointed. *Eye*: height ca. 1.3x length; in dorsal view broadly, evenly convex; hind margin feebly raised by distance somewhat less than diameter of one ocular facet. *Frons*: distinctly narrowed posteriorly, in lateral view feebly rounded, continuous with vertex of head. *Rostrum*: male 0.94–1.03 (1.00)x, female 0.97–1.11 (1.03)x pronotum length. In dorsal view sides feebly tapered from base to antennal insertions, sides subparallel from there to tip; in dorsal profile feebly rounded at extreme base, feebly broadly curved over antennal insertions. Dorsomedian carina distinct. Distal portion in male short, 32–42 (38)% of total rostral length, lateral sulcus distinct almost to tip; in female, distal portion only slightly longer, 31–45 (40)% of total rostral length, more cylindrical, otherwise as in male. Scales elongate, subparallel sided, apically truncate, uniformly recumbent. *Prothorax*: in dorsal view slightly wider at base than at middle; in lateral view broadly convex, flattened in anterior 0.25, subapical constriction obsolete on dorsum. Scales on pronotum uniformly elongate, attenuate to narrowly truncate apices; scales on lower portion of pleuron ovate, flat, white, limited to lower 0.75 anteriorly, replaced by elongate scales dorsally. *Elytra*: in dorsal view sides subparallel in basal 0.66; in lateral view flat in basal 0.50. Interspaces flat, distinctly, moderately deeply punctate; apices of interspaces 4–6 not at all prominent. Scales on interspaces uniform in size, shape and color, similar to scales on pronotum but slightly shorter, in irregular triple rows on each interspace; sutural interspaces without white oval scales; striae scales distinctly narrower than scales on interspaces. *Pygidium*: in male moderately broadly exposed, convex apically, narrowed to rounded apex; in female, pygidium as in male but slightly more strongly narrowed to rounded apex. *Abdomen*: in male subapical constriction of sternum 5 obsolete, posteromedian portion of segment not prominent; posterior margin slightly emarginate; in female, sterna 3–4 flat but scales unmodified, posteromedian portion of sternum 5 slightly prominent, very slightly producted posteriorly, nearly straight medially. *Femora*: narrow at base, profemur gradually inflated in distal 0.66, metafemur slightly more gradually enlarged, about as wide as profemur. *Tibiae*: profemur and mesotibia with moderately large stout curved acute mucrones, metatibial mucro not oblique. *Male genitalia*: (Fig. 389). *Spiculum ventrale*: (Fig. 344). *Spermatheca*: (Fig. 316).

Discussion.— A relatively small *Microtychius*, probably a bud predator; host unknown; known only from the type-series from the state of Chiapas, Mexico, and from Brazil (Figs. 373, 369).

Brazilian specimens of *S. earina* have the spiculum gastrale somewhat larger, the apex of the median lobe more strongly bent downward than does the Mexican specimen (Fig. 389), and are in these respects more “*Itychus*”-like.

118—*Sibinia (Microtychius) laticauda*, new species
(Figs. 345, 369, 390, 402)

Holotype.— Male, (ARGENTINA): Chaco, Vilela, 20 September, 1936, col. Denier (MZLP).

Allotype.— Female, same label data as holotype (WEC).

Paratypes.— Same data as holotype (3, MZLP).

Diagnosis.— Pronotum and elytra with pale aeneous scales; scales in median rows on elytral interspaces feebly raised; eye large, nearly round, hind margin not distinctly raised; sterna 3–5 in male shallowly, broadly concave, scales on concave portion unmodified.

Description.— *Length*: male 1.33–1.46 mm, female 1.46–1.72 mm. *Width*: male 0.71–0.79 mm, female 0.79–0.92 mm. *Integument*: rufous, sterna darker, tarsi and antennae ferruginotestaceous. *Head*: scales on vertex narrow, acuminate;

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integument broadly visible between scales. *Frons*: distinctly narrowed posteriorly, broadly curved, continuous with vertex of head. *Eye*: large, height ca. 1.2x length, in dorsal view broadly, evenly convex; hind margin feebly raised by distance somewhat less than diameter of one ocular facet. *Rostrum*: male 0.96–1.07x, female 0.97–1.06x pronotum length. In dorsal view sides feebly tapered from base to antennal insertions, slightly narrowed distally, sides subparallel; in dorsal profile broadly, nearly evenly arcuate from base to tip in male, more strongly rounded at base and over antennal insertions in female. Dorsomedian carina distinct. Distal portion in male short, stout, 41–44% of total rostral length, in lateral view tapered, lateral sulcus distinct almost to tip; in female, distal portion only slightly longer, 45–49% of total rostral length otherwise as in male. Scales uniformly elongate, narrow, apically truncate, recumbent. *Prothorax*: in dorsal view sides subparallel in basal 0.50, broadly rounded anteriorly to distinct subapical constriction; in lateral view broadly, feebly convex from base to apex. Scales on pronotum uniformly elongate, distinctly attenuate to bluntly pointed apices, slightly raised; scales on lower portion of pleuron round to oblong, flat, white, replaced dorsally by elongate scales. *Elytra*: in dorsal view sides subparallel in basal 0.50; in lateral view broadly, feebly convex in basal 0.50. Interspaces flat, subequal in width, moderately deeply, irregularly impressed; apices of interspaces 4–6 not prominent. Scales on interspaces slightly narrower than scales on pronotum, in diffuse triple rows on each interspace; sutural interspaces without oval white scales; striae scales much narrower than scales on interspaces. *Pygidium*: moderately broadly exposed, in male slightly convex, narrowed slightly to subtruncate apex; in female, pygidium flat, evenly rounded apically, nearly vertical. *Abdomen*: in male sterna 3–5 broadly, shallowly but distinctly concave medially, scales on concave portion not reduced, sternum 5 not constricted subapically, posterior margin of segment broadly, shallowly, subquadrately emarginate; in female, sterna 3–4 and anterior portion of sternum 5 nearly flat medially, sternum 5 broadly, shallowly constricted subapically, posteromedian portion of segment feebly, broadly prominent, posterior margin nearly straight. *Femora*: narrow at base, strongly inflated distally, profemur and metafemur subequal in width. *Tibiae*: each with distinct, acute, horizontal mucro. *Male genitalia*: (Fig. 390). *Spiculum ventrale*: (Fig. 345). *Spermatheca*: (Fig. 402).

Discussion.— A relatively small *Microtychius*, probably a bud predator; host unknown; known only from the type-series from the Chaco region of northern Argentina (Fig. 369).

S. laticauda closely resembles and is probably related to *S. earina*, a bud predator *Microtychius* which occurs in Mexico and in Brazil. The two are distinguished by the characters listed in the diagnosis of *S. earina* and by the broader median lobe in *S. laticauda* (cf. Figs. 389, 390).

The *melina* Group

Diagnosis.— Small, robust; pronotum and elytra with uniformly elongate, gray or greenish gray scales.

Discussion.— The *melina* group contains three bud predators, *S. aliquantula* of Puerto Rico (Fig. 373), *S. aculeola* of Argentina (Fig. 369), and *S. melina* from Guatemala, Venezuela, and Brazil (Fig. 373). *S. aliquantula* is reported from *Acacia* (*Senegalia*), *S. melina* from *Mimosa*. If the latter record is valid, it probably represents a shift from the *Acacia* (*Senegalia*) host associated inferred in the “*Itychus*” stock from which the *melina* group, like the related *chichimeca* group, appears to have arisen. The median lobe and spiculum gastrale of *S. melina* (Fig. 391) resemble those of some *chichimeca* group members (Figs. 386, 387, 388), and are “*Itychus*”-like in these respects. The other *melina* group members, like most *chichimeca* group members, appear to have become further modified by reduction and eventual loss of plesio-typic “*Itychus*” characters.

119—*Sibinia* (*Microtychius*) *melina* Faust (Figs. 346, 369, 373, 391, 401, 403)

Sibinia melina Faust 1893: 340. Champion 1903, 1910; Blackwelder 1947. LECTOTYPE (HERE DESIGNATED), female, uppermost on pin bearing two females, labelled with a small square of gold foil and “*melina* Faust” “Colonia Tovar E Simon 1.11.88” “Col. J. Faust Ankauf 1900” “Type” “Staatl. Museum für Tierkunde Dresden” (SMTD).

Diagnosis.— Fig. 401. Scales pale green, recumbent; distal portion of rostrum in male short, tapered, that in female slightly longer, acuminate; abdominal sterna 3–5 in male flat medially, scales unmodified; median lobe with apex entire, with four very long apicodorsal setae (Fig. 391).

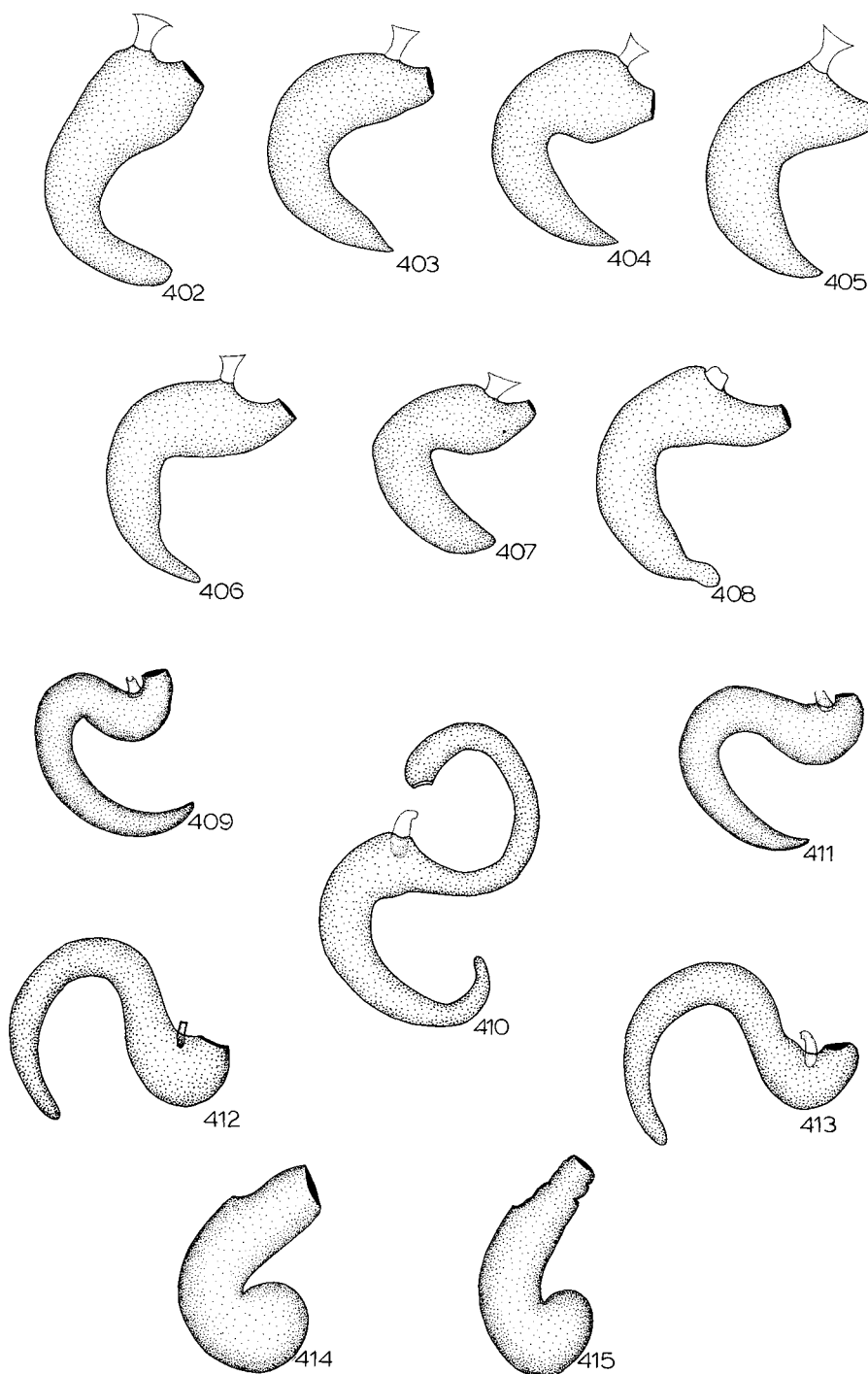


Fig. 402–415, *Sibinia* spp., spermathecae: 402, *S. laticauda*; 403, *S. melina*; 404, *S. aliquantula*; 405, *S. aculeola*; 406, *S. inornata*; 407, *S. muscula*; 408, *S. pilosella*; 409, *S. tanneri*; 410, *S. sellata*; 411, *S. texana*; 412, *S. argentinensis*; 413, *A. alhovittata*; 414, *S. mica*; 415, *S. maculata* (not to scale).

Description.— *Length*: 1.38–1.59 (1.49) mm, female 1.46–1.62 (1.56) mm. *Width*: male 0.70–0.88 (0.80) mm, female 0.79–0.92 (0.85) mm. *Integument*: black; femora, tibiae and distal portion of rostrum piceous; tarsi and antennae rufous to ferruginotestaceous. *Head*: scales on vertex narrow, acuminate, reduced to fine setae medially. *Eye*: moderately large, height ca. 1.45x length. In dorsal view strongly convex, especially posteriorly; hind margin raised by distance ca. equal to diameter of one ocular facet. *Frons*: narrowed slightly posteriorly; in lateral view distinctly rounded, continuous with vertex of head. *Rostrum*: male 0.85–1.07 (1.01)x, female 0.97–1.13 (1.03)x pronotum length. In dorsal view tapered from base to antennal insertions, parallel sided from there to tip in male, tapered slightly in female; in dorsal profile feebly to strongly rounded at base, curved over antennal insertions. Dorsomedian carina distinct. Distal portion in male 33–43 (39)% of total rostral length, lateral sulcus distinct almost to tip; in female, distal portion 41–48 (45)% of total rostral length, sulcate about halfway to tip. Scales narrower, linear, apically truncate. *Prothorax*: in dorsal view sides subparallel in basal 0.50; in lateral view broadly, evenly convex, subapical constriction obsolete medially on dorsum. Scales on pronotum elongate, parallel sided to slightly attenuate, apically blunt to truncate; scales on lower portion of pleuron round ventrally, becoming ovate toward dorsum, flat, white, limited to ventral 0.66 anteriorly, replaced by elongate scales dorsally. *Elytra*: in dorsal view sides subparallel in basal 0.50, in lateral view feebly convex in basal 0.50. Interspaces flat, distinctly, moderately deeply impressed, subequal in width; apices of interspaces 4–6 not prominent. Scales on interspaces uniform in size, shape and color, similar to scales on pronotum, in triple rows on each interspace; sutural interspaces with small basal cluster of small white scales; striae slightly narrower and more nearly parallel sided than scales on interspaces. *Pygidium*: in male narrowly exposed, feebly convex, broadly rounded at apex; in female, pygidium slightly larger, feebly convex, very slightly narrowed to rounded apex, oblique, produced posteriorly beyond elytral apices. *Abdomen*: in male sternum 5 with subapical constriction obsolete, posteromedian portion of segment not prominent, posterior margin feebly, broadly emarginate; in female, sterna 3 and 4 and anteromedian portion of sternum 5 feebly convex, median portion of sternum 5 very feebly constricted, posteromedian portion of segment not prominent, posterior margin rounded, not produced posteriorly. *Femora*: narrow at base, profemur gradually, strongly inflated in basal 0.33; metafemur subequal in width to profemur slightly more gradually inflated. *Tibiae*: pro- and mesotibiae with large stout acute mucrones, metatibial mucro more slender, oblique. *Male genitalia*: (Fig. 391). *Spiculum ventrale*: (Fig. 346). *Spermatheca*: (Fig. 403).

Discussion.— A relatively small *Microtychius*, probably a bud predator; adults reportedly collected on *Mimosa arenosa*, but record in question (see discussion of *melina* group); known from Guatemala, Venezuela, and Brazil (Figs. 369, 373); 112 specimens examined.

S. melina males are easily distinguished from other *melina* group members by the very long apicodorsal setae on the median lobe (Fig. 391). It is uncertain whether the taxon *S. melina* is a single variable species or a species complex. Specimens from Guatemala differ from those from Venezuela and Brazil in having the median lobe narrower in the distal 0.33, the extreme apex more strongly curved downward, and have the anterolateral plates of the spiculum ventrale larger (Fig. 391). In these respects these resemble *S. chichimeca* of the *chichimeca* group (cf. Figs. 386, 391) and are more “*Itychus*”-like than the other forms examined. Males from Minas Gerais, Brazil, have the apex of the median lobe much less strongly curved, the apicodorsal setae shorter and more widely spaced than do specimens from Guatemala and Venezuela. In addition, the median portion of the median lobe in these Brazilian specimens is lightly sclerotized dorsally in the distal 0.33.

120—*Sibinia (Microtychius) aliquantula*, new species
(Figs. 347, 373, 392, 404)

Holotype.— Male, PUERTO RICO: Ponce, 17 August, 1933, R.G. Oakley, San Juan 4445. on flowers of *Senegalia* sp. (USNM #75428).

Allotype.— Female, same data as holotype (USNM).

Paratypes.— Same data as holotype (7); distributed to various collections.

Diagnosis.— Similar to *S. melina*, but female with shorter distal portion of rostrum, male with narrower median lobe which has much shorter apicodorsal setae (Fig. 392).

Description.— As described for *S. melina*, except—*Length*: male 1.45–1.51 (1.49) mm, female 1.36–1.51 (1.45) mm. *Width*: male 0.78–0.83 (0.80) mm, female 0.76–0.84 (0.80) mm. *Rostrum*: male 0.88–0.91 (0.90)x, female 0.91–1.10 (0.97)x pronotum length. Distal portion in male short, 33–40 (38)% of total rostral length, feebly tapered, lateral sulcus distinct almost to tip; in female, distal portion only slightly longer, 35–46 (40)% of total rostral length, more strongly tapered, lateral sulcus obsolete in distal 0.66. *Male genitalia*: (Fig. 392). *Spiculum ventrale*: (Fig. 347). *Spermatheca*: (Fig. 404).

Discussion.— A relatively small *Microtychius*, probably a bud predator; reportedly collected on *Senegalia* sp. (*Senegalia* is a segregate of the genus *Acacia*); known only from the type-series from Puerto Rico (Fig. 373).

S. aliquantula closely resembles *S. melina*, and may merely be a geographic race of that species (*S. melina* itself is a variable taxon, possibly a species complex). The *Acacia* host association of *S. aliquantula* is to be expected if the *melina* group is indeed derived from the “*Itychus*” ancestral stock as discussed in the phylogeny section. Several species assigned herein to the “*Itychus*” stock have hosts in the *Acacia* segregate *Senegalia* (Table 1, p. 99).

121—*Sibinia (Microtychius) aculeola*, new species
(Figs. 348, 369, 393, 405)

Holotype.— Male, ARGENTINA: Salta, Salta, 22 October, 1968, L. & C.W. O'Brien, at night (CWO).

Allotype.— Female, same data as holotype (CWO).

Paratypes.— Same data as holotype (27); the same, except—23 October, 1968 (2); the same, except—23 October, 1968, and without “at night” designation (2); total 31, distributed to various collections.

Diagnosis.— Distal portion of rostrum short, stout about half way to tip, tapered or acuminate distally; mesotibial mucro larger than mucrones on pro- and metatibiae, metatibial mucro short, slender; median lobe without long apicodorsal setae (Fig. 393).

Description.— As described for *S. melina*, except—*Length*: male 1.21–1.44 (1.32) mm, female 1.15–1.38 (1.31) mm. *Width*: male 0.64–0.82 (0.73) mm, female 0.67–0.79 (0.73) mm. *Head*: scales on vertex narrow, attenuate, minutely truncate apically. *Eye*: height ca. 1.4x length; hind margin feebly raised by distance ca. equal to diameter of one ocular facet. *Rostrum*: male 0.87–1.12 (0.99)x, female 0.90–1.11 (1.03)x pronotum length. In dorsal view evenly tapered from base to antennal insertions, more strongly tapered to acute tip beyond insertions in female, not so strongly tapered in male. Distal portion in male 42–54 (49)% total rostral length, lateral sulcus feebly developed in proximal 0.50; in female, distal portion slightly longer, 48–57 (53)% of total rostral length, lateral sulcus becoming obsolete in distal 0.66. Scales on sides elongate, parallel sided, apically truncate, those on dorsum narrower, more attenuate, uniformly recumbent. *Prothorax*: in dorsal view sides subparallel in basal 0.50. Scales on pronotum elongate, parallel sided in basal 0.66, attenuate, apically pointed, uniformly recumbent, greenish gray to greenish yellow. *Elytra*: in dorsal view sides subparallel in basal 0.66. Scales on interspaces reduced to double and single rows in some places. *Pygidium*: in male rounded at apex, in female as in male but more strongly narrowed to rounded apex, oblique. *Abdomen*: in female posteromedian portion of sternum 5 distinctly prominent but not produced posteriorly, posterior margin narrowly concave medially, feebly constricted subapically. *Male genitalia*: (Fig. 393). *Spiculum ventrale*: (Fig. 348). *Spermatheca*: (Fig. 405).

Discussion.— A relatively small *Microtychius*, probably a bud predator; host unknown; known only from the type-series from northern Argentina (Fig. 369).

The shape of the distal portion of the rostrum of *S. aculeola* is unique among known *Sibinia*, and readily distinguishes the species from other *melina* group members.

Species incertae sedis

These are species which cannot with confidence be assigned to any recognized groups within the subgenus *Microtychius*. Determination of host relationships, discovery of members of the opposite sex of some of the species, and discovery of heretofore unknown species which may exhibit intermediate expression of pertinent character states may help indicate their relationships. In the meantime, intuitive placement of the species is indicated in the reconstructed phylogenies (Figs. 442–448) by dotted lines. The arrangement in the following section is based on the tentative placement of each species in the phylogenies.

122—*Sibinia (Microtychius) aspersoides*, new species
(Figs. 284, 394)

Holotype.— Male, BRAZIL: Paraná, Ponta Grossa, Vila Velha, 19 January, 1969, Pe. J.S. Moure leg. (MPB).

Paratype.— Same data as holotype, except—12 January, 1969, L. & C.W. O'Brien (CWO).

Diagnosis.— Rostrum straight; scales on pronotum and elytra greenish ochreous, scales in median rows on interspaces narrower and slightly raised above recumbent, elongate oval scales in lateral rows; sternum 5 narrowly concave medially, scales on concave portion setose margined.

Description.— *Length*: 2.21–2.44 mm. *Width*: 1.14–1.29 mm. *Integument*: rufopiceous, black on venter, tarsi and antennae testaceous. *Head*: scales on vertex elongate, apically blunt. *Eye*: height ca. 1.4x length; in dorsal view strongly convex posteriorly, flattened anteriorly; hind margin feebly raised by distance somewhat less than diameter of one ocular facet. *Frons*: narrower than base of rostrum, narrowed posteriorly; in lateral view flat, continuous with vertex of head. *Rostrum*: 0.89–0.99x pronotum length. In dorsal view distinctly tapered from base, broadly constricted proximad of antennal insertions, sides of distal portion subparallel; in dorsal profile slightly rounded at base, straight from distad of base to tip. Dorsomedian and dorsolateral carinae obsolete. Distal portion short, 38–40% of total rostral length, stout, in lateral view strongly tapered, shallowly punctate but not sulcate. Scales on sides oblong, apically rounded, these replaced dorsally by elongate linear scales which are slightly raised on dorsolateral portions. *Prothorax*: in dorsal view broadly, feebly curved from base to feebly developed subapical constrictions; in lateral view broadly, evenly convex, subapical constriction not developed on dorsum. Scales on pronotum uniformly elongate, feebly attenuate to bluntly rounded apices; scales on lower portion of pleuron oblong, feebly impressed, white, limited to lower 0.66 medially, extending dorsally anteriorly and posteriorly but not present on dorsum, replaced by elongate scales. *Elytra*: in dorsal view sides subparallel in basal 0.50, in lateral view flat in basal 0.50. *Interspaces* flat, shallowly impressed, odd interspaces slightly wider than even ones; apices of interspaces 4–6 feebly prominent. Scales in triple rows on each interspace, scales in lateral rows elongate-oval, bluntly rounded to truncate apically, recumbent, scales in median rows about the same shape but narrower, darker, slightly raised; sutural interspaces with basal cluster of oval white scales; striae scales narrower but of same color as scales on interspaces. *Pygidium*: broadly exposed, convex, apically rounded. *Abdomen*: sterna 3–4 flat medially, sternum 5 not constricted subapically, posterior margin shallowly, subquadrately emarginate. *Femora*: elongate, narrow at base, gradually inflated in distal 0.50. *Tibiae*: each with slender curved apical mucro, metatibial mucro short. *Male genitalia*: (Fig. 394).

Discussion.— A relatively large, elongate *Microtychius*, probably a seed predator; host unknown; known only from the type-series (two males) from southern Brazil (Fig. 284).

S. aspersoides resembles *S. aspersa* in general facies, and the male genitalia are similar to those of that species (cf. Fig. 263, 394) and other members of the *aspersa* group, as well as those of members of the *zapoteca* group (cf. Figs. 264, 268, 269). In the possession of relatively large round eyes, *S. aspersoides* is similar to the Brazilian *S. megalops*, a species assigned tentatively to the *pulcherrima* group.

123—*Sibinia (Microtychius) glabrirostris*, new species
(Figs. 284, 395)

Holotype.— Male, BRAZIL: Guanabara, Represado do Rio Grande, August, 1972, F.M. Oliveira, coleção M. Alvarenga (MZSP).

Allotype.— Female, same data as holotype (MZSP).

Paratypes.— BRAZIL: Belem Novo, April 1963, F.D. Bennett, CIE Coll. 19074, on *Baccharis spicata*, Pres. by Com. Inst. Ent. BM 1964–3 (6); São Paulo, G.E. Bryant, 23 February, 1912, G. Bryant Coll. 1919–147 (1); the same except—Fry coll. 1905–100 (3); São Paulo, 84–38 (2); Rio de Janeiro Miguel Couto, August 1960, A. Alvarenga col., ex coleção M. Alvarenga (1); the same except—Silva Jardim, March 1974, F.M. Oliveira (7); total 20, distributed to various collections.

Diagnosis.— Scales on pronotum and elytra uniformly elongate, attenuate, fulvoaeneous; rostrum in female strongly, abruptly narrowed distad of antennal insertions; metatibia mucronate; median lobe with long apical setae (Fig. 395).

Description.— *Length*: male 1.33–1.49 (1.39) mm, female 1.49–1.67 (1.57) mm. *Width*: male 0.68–0.79 (0.76) mm, female 0.80–0.88 (0.85) mm. *Integument*: piceous to black, becoming piceous to rufopiceous posteriorly on pronotum and on posterolateral portion of elytra, legs and distal portion of rostrum rufous, antennae testaceous. *Head*: scales on vertex

narrow, fulvoaeneous. *Eye*: height ca. 1.6x length; in dorsal view broadly, evenly convex; hind margin feebly raised by distance somewhat greater than diameter of one ocular facet. *Frons*: distinctly narrowed posteriorly, in lateral view nearly flat, continuous with vertex of head. *Rostrum*: male 0.88–1.11 (0.98)x, female 0.97–1.13 (1.04)x pronotum length. In dorsal view slightly tapered from base to antennal insertions, sides of distal portion subparallel; in dorsal profile rounded just distad of base, broadly, evenly curved to tip in male, strongly, nearly evenly rounded from base to antennal insertions in female. Distal portion in male moderately long, 39–55 (47)% of total rostral length, tapered, lateral sulcus becoming obsolete just distad of antennal insertions; in female, distal portion long, 63–71 (66)% of total rostral length, cylindrical, smooth. Scales on sides elongate, apically truncate, scales on dorsum narrower, seta-like in distal 0.75. *Prothorax*: in dorsal view sides rounded from base to feebly developed subapical constriction; in lateral view broadly, evenly convex; subapical constriction obsolete on dorsum. Scales on pronotum pointed to narrowly truncate apically, recumbent; scales on lower portion of pleuron oblong, flat, white, limited to lower 0.66 anteriorly, replaced by elongate scales dorsally. *Elytra*: in dorsal view sides feebly rounded in basal 0.50; in lateral view flat in basal 0.33. Interspaces flat, shallowly impressed, subequal in width; apices of interspaces 4–6 not prominent. Scales on interspaces similar in size, shape and color to scales on pronotum; in triple rows on each interspace but reduced to double or single rows in some places; scales in median rows not raised; sutural interspaces without white oval scales; striae scales much narrower than scales on interspaces. *Pygidium*: narrowly exposed, feebly convex apically; in male apex broadly rounded, nearly perpendicular; in female, slightly narrowed to rounded apex, slightly oblique. *Abdomen*: in male, sterna 3 and 4 flat medially, sternum 5 feebly, broadly concave, scales unmodified, subapical constriction obsolete, posterior margin narrowly, shallowly concave; in female, sterna 3 and 4 flat medially, sternum 5 feebly concave medially, posteromedian portion of segment slightly prominent but not produced posteriorly. *Femora*: slender, narrow at base; profemur gradually, feebly inflated in basal 0.50; metafemur slightly longer and slightly more strongly inflated. *Tibiae*: pro- and mesotibiae with stout, curved mucrones; metatibial mucro slender, curved. *Male genitalia*: (Fig. 395).

Discussion.— A relatively small *Microtychius*, probably a bud predator; host unknown (the association with *Baccharis* (Compositae) reported on labels of some of the paratypes was probably accidental); known from the type-series from the states of Guanabara and São Paulo, Brazil (Fig. 284).

The very abruptly narrowed female rostrum with the very long, slender, smooth distal portion is diagnostic, but *S. glabrirostris* exhibits no characters indicating relationship to any other known *Sibinia*. Perhaps host data will indicate relationship to some seed predator which will make group placement possible.

124—*Sibinia (Microtychius) inornata*, new species
(Figs. 81, 349, 396, 406)

Holotype.— Male, MEXICO: Nuevo Leon, 23.6 mi SW Linares, 3 July, 1974, Clark, Murray, Ashe, Schaffner (USNM #75429).

Allotype.— Female, MEXICO: Chihuahua, La Polvosa, 25 February, 62, J.H. Russell colr., with Bromeliads, Douglas, Arizona, 16, 449, 62-9986 (USNM).

Paratypes.— Same data as holotype (2), same data as allotype (11); MEXICO: San Luis Potosi, Orchid plants, Huichihuayan, 25 January, 1957, Kumabe Colr., Laredo, Texas, 57237, lot 57-2161 (3); Sinaloa, 14 August, 1957, D. Lauck, J.M. Kingsolver collection, 1953 (1); 1 mi W San Blas, Uv light, 11 July, 1974, R.L. Mangan & D.S. Chandler (1); Valle de Culiacan, 13 June, 1973, F. Pacheco 719 (2); nr. Santa Teresa, 3 July, 1976, Raul L. Leon L. 711, 30.0 mi E Ures, UV 12 August, 1969, B.S. Cheary & A. Hardy (5); total 23, distributed to various collections.

Diagnosis.— Scales on pronotum and elytra uniformly elongate, feebly to distinctly attenuate, recumbent, yellowish green; eye moderately large, strongly convex; rostrum abruptly narrowed distad of antennal insertions in female, distal portion smooth; metatibia minutely mucronate.

Description.— *Length*: male 1.46–1.69 (1.58) mm, female 1.59–1.74 (1.66) mm. *Width*: male 0.78–0.89 (0.83) mm, female 0.87–0.93 (0.91) mm. *Integument*: black, becoming testaceous on tibiae, tarsi, antennae and distal portion of rostrum. *Head*: scales on vertex elongate, apically pointed. *Eye*: large, height ca. 1.5x length; hind margin distinctly raised by distance somewhat greater than diameter of one ocular facet. *Frons*: narrowed posteriorly, in lateral view feebly rounded, continuous with vertex of head. *Rostrum*: male 0.76–0.94 (0.85)x, female 0.86–0.92 (0.89)x pronotum length. In dorsal view slightly tapered from base to antennal insertions, sides of distal portion subparallel; in dorsal profile feebly rounded distad of base, broadly curved to tip. Distal portion in male moderately long, 43–57 (50)% of total rostral length, in lateral view distinctly tapered, lateral sulcus distinct in proximal 0.25; in female, distal portion longer, 61–64 (62)% of total rostral length, slender, subcylindrical, lateral sulcus obsolete. Scales uniformly elongate, apically truncate, recumbent. *Prothorax*: in dorsal view sides broadly rounded from base to feebly developed subapical constriction; in lateral view broadly, evenly convex, subapical constriction feebly developed on dorsum. Scales on lower portion of pleuron oblong to oval, concave, white, limited to lower

0.66 anteriorly, replaced by elongate scales dorsally. *Elytra*: in dorsal view sides subparallel in basal 0.66, in lateral view flat in basal 0.50. Interspaces flat, distinctly impressed, subequal in width; apices of interspaces 4–6 not prominent. Scales in triple rows on each interspace but reduced to single rows on some portions; sutural interspaces with sutural row of small oval white scales in basal 0.50; striae scales slightly narrower than scales on interspaces. *Pygidium*: narrowly exposed, flat, perpendicular, broadly rounded apically in male and in female. *Abdomen*: in male sterna 3–5 slightly, broadly concave, scales on concave portion unmodified, sternum 5 feebly constricted subapically, posteromedian portion of segment not prominent, posterior margin broadly, distinctly concave; in female, sterna 3–4 flat medially, sternum 5 feebly constricted laterally, slightly concave medially, posteromedian portion of segment not prominent, posterior margin distinctly emarginate. *Femora*: narrow at base; profemur moderately stout, gradually inflated in basal 0.33; metafemur slightly narrower, more gradually inflated. *Male genitalia*: (Fig. 396). *Spiculum ventrale*: (Fig. 349). *Spermatheca*: (Fig. 406).

Discussion.— A relatively small *Microtychius*, probably a bud predator; adults collected on *Acacia micrantha* (at the type locality); known from the type-series from the Mexican states of Nuevo Leon, Sonora, and Sinaloa (Fig. 81).

S. inornata adults were collected on blooming *A. micrantha* at the type-locality, but no larvae emerged from a large sample of flower buds taken from the trees at the time the adults were collected. In addition to the Mexican states listed above, *S. inornata* may also occur in the state of San Luis Potosi; specimens labelled as coming from there were intercepted in quarantine at the U.S.—Mexican border, but the place of origin of this material cannot be stated with certainty.

S. inornata does not appear closely related to any other known *Sibinia*. It is small, and like many other bud predators has no distinctive features which could provide firm evidence of relationships. It is possibly allied to the seed predator “*Itychus*” *S. fulva* which is known from *A. roemeriana* in southwestern United States. The convex, moderately large eye and related hosts are the only things it has in common with that species, however.

125—*Sibinia (Microtychius) muscula*, new species
(Figs. 350, 369, 397, 407)

Holotype.— Male, BRAZIL: Mato Grosso, Cáceres, December, 1955, M. Alvargenga col. (MZSP).

Allotype.— Female, same data as holotype (MZSP).

Paratypes.— Same data as holotype (14); BOLIVIA: Santa Cruz de la Sierra, 26 September, 1953, M. Alvarenga, ex coleção M. Alvarenga (1); total 15, distributed to various collections.

Diagnosis.— Scales on pronotum and elytra uniformly elongate, narrow, parallel sided and apically truncate, pale fulvoaeneous; scales in median rows on elytral interspaces short, suberect; sterna 3–5 distinctly concave medially in male but scales unmodified; eye convex in dorsal view, hind margin feebly raised.

Description.— *Length*: male 1.48–1.71 (1.58) mm, female 1.59–1.77 (1.66) mm. *Width*: male 0.79–0.87 (0.84) mm, female 0.91–0.93 (0.92) mm. *Integument*: rufopiceous, venter black, legs, antennae and distal portion of rostrum rufous. *Head*: scales on vertex elongate, narrow, apically blunt. *Frons*: slightly narrowed posteriorly. *Eye*: hind margin slightly raised by distance ca. equal to diameter of one ocular facet. *Rostrum*: male 0.84–0.92 (0.89)x, female 0.95–1.03 (0.99)x pronotum length. In dorsal view tapered slightly from base to antennal insertions, sides of distal portion subparallel in male, somewhat expanded distally in female; in dorsal profile broadly, nearly evenly curved from base to tip in male, slightly more strongly rounded at base in female. Dorsomedian carina feebly developed in male, obsolete in female. Distal portion in male moderately long, 41–47 (44)% of total rostral length, slender, in lateral view very feebly tapered, lateral sulcus obsolete; in female, distal portion longer, 50–56 (52)% of total rostral length, more slender, subcylindrical, very shallowly punctate, surface smooth, shining. Scales on sides elongate, widened from narrow bases, apically truncate, replaced on dorsum by narrower recumbent scales. *Prothorax*: in dorsal view sides moderately strongly, evenly rounded from base to subapical constriction; in lateral view broadly, feebly convex from base to feebly developed subapical constriction. Scales on lower portion of pleuron oblong, flat, pale whitish, replaced on upper 0.25 by elongate scales. *Elytra*: in dorsal view sides subparallel in basal 0.50; in lateral view flat in basal 0.50, broadly curved posteriorly. Interspaces flat, distinctly, moderately deeply impressed, subequal in width; apices of interspaces 4–6 not prominent. Scales in triple rows on each interspace, scales in lateral rows recumbent, scales on median rows suberect, strongly decurved; sutural interspaces without oval white scales striae scales narrower than scales on interspaces. *Pygidium*: narrowly exposed; in male flat, slightly narrowed to rounded apex, oblique, in female more strongly narrowed to rounded apex. *Abdomen*: in male sternum 5 not constricted subapically, posterior margin of segment shallowly, narrowly, roundly concave; in female, sterna 3–4 flat medially, sternum 5 distinctly

constricted subapically, posteromedian portion of segment not prominent, posterior margin not concave medially. *Femora*: narrow at base, gradually, evenly widened but not distinctly inflated distally; profemur and metafemur subequal in width. *Tibiae*: each with small acute oblique apical mucro. *Tarsi*: in male segment II of protarsus feebly concave laterally, scales arising from concavity broader than other scales on tarsal segments. *Male genitalia*: (Fig. 397). *Spiculum ventrale*: (Fig. 350). *Spermatheca*: (Fig. 407).

Discussion.— A relatively small *Microtychius*, probably a bud predator; host unknown; known only from the type-series from Bolivia and the state of Mato Grosso, Brazil (Fig. 369).

The feebly concave second article of the male protarsus of *S. muscula* may indicate that the species belongs to the *championi* lineage; if so, it exhibits no characters to indicate its position therein.

126—*Sibinia (Microtychius) pilosella* Hustache (Figs. 369, 408)

Sibinia pilosella Hustache 1928: 235. Holotype, female, (ARGENTINA) "Prov. Tucuman, 15-VIII-27, C. Bruch" (MNHP).

Diagnosis.— Eye oblong, feebly raised, convex; distal portion of rostrum short, stout; scales on pronotum uniformly elongate, linear, ferruginous; scales on elytral interspaces in triple rows, scales in lateral rows elongate, recumbent ferruginous, scales in median rows suberect, short, attenuate, white; striae narrow, white.

Description.— *Length*: 1.95 mm. *Width*: 1.01 mm. *Integument*: dark rufous tarsi and antennae ferruginotestaceous. *Head*: scales on vertex elongate, moderately wide, ferruginous. *Frons*: slightly narrower than rostrum at base, broadly curved, continuous with head and rostrum. *Eye*: height ca. 1.7x length; hind margin raised by distance ca. equal to diameter of one ocular facet. *Rostrum*: 0.86x pronotum length. In dorsal view sides subparallel to antennal insertions, feebly tapered distally; in dorsal profile nearly straight to antennal insertions, broadly curved distally. Dorsomedian carina obsolete. Distal portion 42% of total rostral length, in lateral view feebly tapered at extreme apex. Scales uniformly elongate, parallel sided, recumbent, white on sides, narrower and ferruginous dorsally; distal portion with fine setae almost to tip. *Prothorax*: in dorsal view sides strongly rounded from base to distinct subapical constriction; in lateral view broadly, feebly convex, subapical constriction obsolete. Pleuron with oval flat white scales, these replaced in upper 0.25 by elongate scales. *Elytra*: in dorsal view sides subparallel in basal 0.66; in lateral view flat in basal 0.66. Interspaces flat, subequal, apices of 4–6 not prominent. Sutureal interspaces with row of wider recumbent white scales. *Pygidium*: small, nearly flat, nearly evenly rounded apically, slightly oblique. *Abdomen*: sterna 2–3 flat, sternum 5 moderately deeply, transversely concave medially, sternum 5 not produced, posterior margin of segment nearly straight. *Femora*: profemur distinctly shorter and stouter than metafemur. *Tibiae*: each with small acute curved apical mucro. *Spiculum ventrale*: broadly forked. *Spermatheca*: (Fig. 408).

Discussion.— A relatively small *Microtychius*, probably a bud predator; host unknown; known only from the female holotype from Argentina (Fig. 369).

The short rostrum, small pygidium, and short abdominal sternum 5 suggest a relationship between *S. pilosella* and members of the *chichimeca* group. Perhaps male genitalia and host relationships will make assignment of the species possible.

Subgenus *Sibinia*

Sibinia Germar 1817: 340.

Sibynes Schönherr 1825: 583. (Type species, *Rhynchaenus viscaria* Gyllenhal, by original designation). LeConte 1876.

Paragoges LeConte 1876: 219. (Type species, *Paragoges maculatus* LeConte, by original designation). Kissinger 1962, 1964; Hatch, 1971. NEW SYNONYMY.

Dichotychius Bedel 1885: 89. (Type species, *Ceutorhynchus cupulifer* Brisout, by monotypy). NEW SYNONYMY.

Mecynopyga Pierce 1908: 179. (Type species, *Mecynopyga texana* Pierce, by original designation). Leng 1920; Burke 1960; Kissinger 1962, 1964. NEW SYNONYMY.

Diagnosis.— Spermatheca without cup-shaped structure at point of origin of spermathecal gland (Figs. 409–415); hosts in non-legume families (Table 2, p. 102).

Discussion.— This subgenus contains ca. 126 species, most of them Palearctic; 15 species are known from sub-Saharan Africa, seven from the New World. The group appears to be monophyletic and probably represents a major radiation that took place after its ancestral stock

became associated with a non-legume host (see phylogeny section, p. 321).

New World subgenus *Sibinia* members are assigned to four groups, the *texana*, *tanneri*, *sellata*, and *viscaria* groups. The *texana* group contains only *S. texana*, which was originally assigned to the monotypic genus *Mecynopyga*. This species is markedly distinct from other *Sibinia*, but is not, in my opinion, more deserving of generic rank than its probable sister group, the *tanneri* group. That group contains a single uniquely modified species from southern California, *S. tanneri*. *S. maculata*, type species of *Paragoges*, is very similar to some Palearctic *Sibinia* and is apparently an extrelimital member of the primarily Eurasian *viscaria* group. Inclusion of the Palearctic *Dichotychius* in *Sibinia* brings together all tychiines which have the spiculum gastrale of the male genitalia like that of *S. viscaria*, type-species of *Sibinia* (see Clark *et al.* 1977, Figs. 44 and 45, Figs. 46-57, 84-95, 109-120, 144-155, 206-217, 261-272, 285-296, 358-368, 378-385, 386-397, 419-426 herein, and diagnosis of the genus *Sibinia*, p. 109).

The *tanneri* Group

Diagnosis.— (Fig. 416, 417). Scales on pronotum and elytra recumbent, white and ochreous scales intermixed; mandibles prominent, with acute external cusp; rostral carinae absent, dorsal margin of scrobe not carinate; punctures on body and legs minute or absent, integument finely punctulate; antennal funiculus with five articles; elytral apices very broadly, separately rounded, leaving pygidium broadly exposed; articles I and II of tarsi long, slender, each much longer than article III which is feebly bilobed and only slightly wider than article II; tarsal claws slender, strongly divergent, basal process short, less than 0.25 length of claw.

Discussion.— The *tanneri* group contains a single species, *S. tanneri* of southern California. As indicated by the long list of diagnostic features, the species is markedly distinct from all other *Sibinia*. It is similar to *S. texana* of Texas in the structure of the eye which is large, round, and convex in both species, the rostrum which is expanded at the antennal insertions and again at the apex, and the large, complex inter-aedeagal structure of the male genitalia (cf. Figs. 419, 420, 421), and the two are apparently sister groups.

127—*Sibinia (Sibinia) tanneri*, new species
(Figs. 351, 409, 416, 417, 419, 420, 433)

Holotype.— Male, CALIFORNIA: Riverside Co., Oasis, 18 March, 1971, J. R. Gill, on *Coldenia* sp. (USNM #75430).

Allotype.— Female, same data as holotype (USNM).

Paratypes.— Same data as holotype (3); distributed to CAS, WEC.

Diagnosis.— See diagnosis of *tanneri* group.

Description.— *Length*: male 1.75–1.78 mm, female 1.85–1.92 mm. *Width*: male 0.86–0.88 mm, female 0.93–0.95 mm. *Integument*: rufous, shading to reddish orange on legs and antennae. *Head*: integument concealed by round to polygonal flat, nonimbricated, variegated white and pale ochreous scales. *Eye*: large, round, height ca. 1.0x length; in dorsal view evenly, broadly convex; hind margin not raised. *Frons*: slightly narrower than base of rostrum, broadly curved, continuous with vertex of head. *Rostrum*: male 1.15–1.18, female 1.05–1.13x pronotum length. In dorsal profile feebly concave at base, broadly curved over antennal insertions; in dorsal view sides tapered from base to antennal insertions in male; in female abruptly narrowed just distad of base, sides parallel to antennal insertions, slightly expanded at insertions, constricted distad of insertions and widened again at extreme tip. Distal portion short, in male 38–45%, in female 46–47% of total rostral length; not at all tapered, with fine, dense punctures. *Prothorax*: in dorsal view sides rounded; in lateral view slightly, evenly convex; subapical constriction obsolete medially on dorsum. Pronotum with short, broad, obovate to apically subtruncate, flat, recumbent, slightly imbricated, white and ochreous scales intermixed except on mediobasal portion where all scales are ochreous; scales on pleuron as on pronotum. *Elytra*: in dorsal view humeri prominent, sides broadly rounded from beyond humeri to apices; in lateral view flat on disc. Interspaces flat, feebly impressed, surface punctulate, odd interspaces not wider than even ones; sutural interspaces not raised, about 0.50 as wide as interspace 2; striae very fine, shallowly punctate. Scales on interspaces

similar in color and shape to scales on pronotum but slightly more elongate, recumbent, feebly imbricated, in triple rows on each interspace; striae scales absent. *Pygidium*: in male vertical, exposed portion broadly biconcave, apicomedian portion fornicate, extending well below posterior margin of apical sternum; in female, pygidium strongly oblique, very strongly narrowed to blunt point apically, broadly concave, produced well beyond elytral apices. *Abdomen*: sternum 5 in male feebly concave medially at extreme apex, with feebly developed subapical constriction; in female, sternum 5 posteriorly attenuate, posterior margin produced posteriorly well beyond elytral apices. *Femora*: profemur elongate, ca. 0.90x width of metafemur, narrow at base; mesofemur and metafemur longer and stouter but about the same shape as profemur. *Tibiae*: in male, mucro on each tibia modified to form a pair of large stout black opposing clawlike spines; in female, pro- and mesotibiae with slender curved black mucro; metatibial mucro obsolete. *Male genitalia*: (Fig. 419, 420). *Spiculum ventrale*: (Fig. 351). *Spermatheca*: (Fig. 409).

Discussion.— A relatively small *Sibinia*; adults reportedly collected on *Coldenia* sp. (Boraginaceae); known only from the type-series from southern California (Fig. 433).

I take pleasure in naming *S. tanneri* for my friend and former teacher, Dr. Vasco M. Tanner, of Brigham Young University.

The *texana* Group

Diagnosis.— (Fig. 418). Pronotum with broad dorsomedian vitta of ferruginous scales; elytra in lateral view strongly convex, with mediobasal rectangular macula of fulvous to ferruginous scales covering interspaces 1–4; posteromedian portion of pygidium greatly thickened and prominent, produced posteriorly well beyond elytral apices.

Discussion.— The *texana* group contains a single species, *S. texana* of southern Texas (Fig. 433). The host(s) of the species is unknown.

Pierce (1908) established the genus *Mecynopyga* for *S. texana*, and placed the genus in the subfamily Anthonominae. Burke (1960), noting the structure of the abdominal sternum 2, correctly transferred *Mecynopyga* to Tychiinae. As discussed above, *S. texana* may be sister to *S. tanneri*. Although adults of the two species differ from each other in many characters, they do have similar inter-aedeagal structures (cf. Figs. 419, 420, 421) of a type unique among known *Sibinia*. In external characters, however, *S. texana* males more closely resemble those of South American *S. sellata*. Both have the pygidium strongly thickened (most strongly in *S. texana*).

128—*Sibinia* (*Sibinia*) *texana* (Pierce), new combination (Figs. 352, 411, 418, 421, 433)

Mecynopyga texana Pierce 1908: 179. Leng, 1920; Burke 1960. Holotype, female: San Diego, Texas (USNM).

Diagnosis.— See diagnosis of *texana* group.

Description.— *Length*: male 1.70 mm, female 1.68–1.88 mm. *Width*: male 0.75 mm, female 0.69–0.72 mm. *Integument*: piceous to black, shading to rufopiceous on legs, antennae, and distal portion of rostrum. *Head*: punctures small, sparse, interspaces wide, smooth, densely punctulate posteriorly. Scales on vertex small, narrow, apically blunt, integument broadly exposed between scales. *Eye*: nearly round, height ca. 1.3x length; in dorsal view evenly convex; hind margin not at all raised. *Frons*: about as wide as base of rostrum, feebly rounded, continuous with vertex of head. *Rostrum*: male 0.88x, female 1.05x pronotum length. In dorsal profile not rounded at base; in dorsal view feebly tapered from base to antennal insertions, expanded immediately over insertions, broadly constricted distally, slightly expanded again at extreme tip. Distal portion in male short, 36% of total rostral length, stout, feebly tapered; in female, distal portion longer, 44–54% of total rostral length, cylindrical; rostral carinae obsolete, dorsal margin of scrobe carinate. Scales elongate, parallel sided, apically truncate, white, recumbent. *Prothorax*: in dorsal view elongate, sides broadly, evenly convex, subapical constriction obsolete on dorsum. Pronotum with sparse punctures, interspaces wide, smooth; scales broad, recumbent, parallel sided, apically truncate, white and pale to dark fulvous, white scales covering lower posterior portion of pleuron, upper portion of pleuron, and forming broad dorsolateral vittae which diminish in width toward apex; ferruginous scales present on antero-medial portion of pleuron and forming broad dorsomedian vitta. *Elytra*: in dorsal view humeri feebly prominent, sides broadly curved from just behind humeri to apices; in lateral view strongly, evenly convex. Sutural interspaces distinctly raised, all others flat, feebly impressed; odd interspaces not wider than even ones; apices of interspaces 4–7 not prominent. Scales on interspaces similar in shape and size to scales on pronotum, in triple rows on each interspace, uniformly recumbent, darker scales forming large dorsomedian macula which covers interspaces 1–4 and broad transverse apical band; sutural interspaces

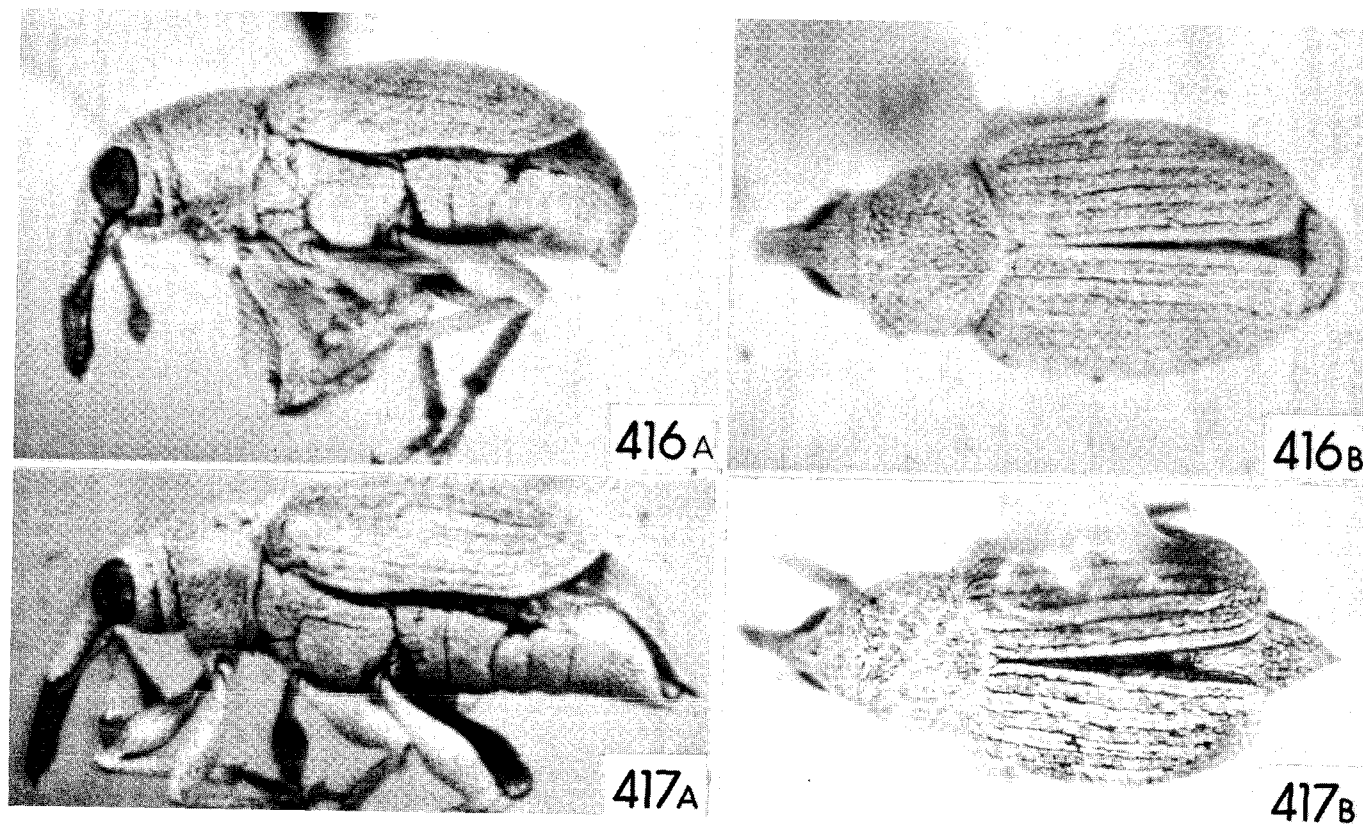


Fig. 416–417, *Sibinia* spp., habitus: 416, *S. tanneri*, male, Oasis, Riverside Co., California, 417, *S. tanneri*, female, same locality (A, lateral view; B, dorsal view).

with oblong white scales at base; striae scales fulvous, slightly narrower than scales on interspaces. *Pygidium*: rounded apically, produced well beyond elytral apices in male and female. *Abdomen*: sterna 3 to 5 strongly sloping upward; in male, sternum 5 concave medially, concavity becoming broader and deeper posteriorly, subapical constriction obsolete, posterior margin of segment broadly rounded, produced slightly posteriorly; in female, anteromedian portion of sternum 5 slightly convex, broadly, deeply constricted, posterior portion of segment broadly flared downward, produced posteriorly more strongly than in male. *Femora*: narrow at base, enlarged in distal 0.75, ventral margin strongly rounded. *Tibiae*: each tibia of male and pro- and mesotibiae of female with large, stout, conical, black mucrones; metatibia of female unarmed. *Male genitalia*: (Fig. 421). *Spiculum ventrale*: (Fig. 352). *Spermatheca*: (Fig. 411).

Discussion.—A relatively small *Sibinia*; host unknown; known only from southern Texas (Fig. 433); five specimens examined.

Burke (1960) reported collecting specimens of *S. texana* “while beating shrubbery along fence rows and roadsides” during May, 1959 (label data on his specimens (TAM) give late March collection dates). Extensive collecting over a period of four years in southern Texas failed to turn up more specimens.

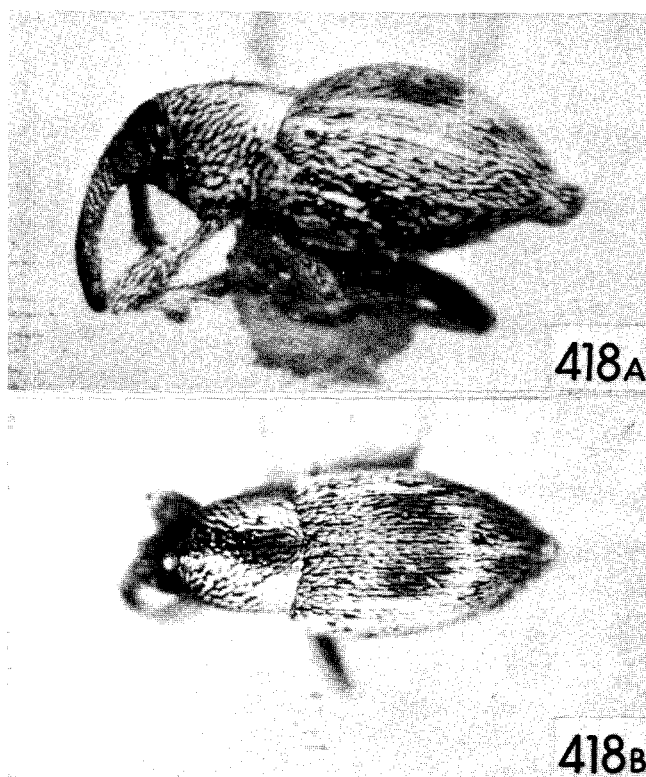


Fig. 418, *Sibinia texana*, female, Zapata Co., Texas. (A, lateral view; B, dorsal view).

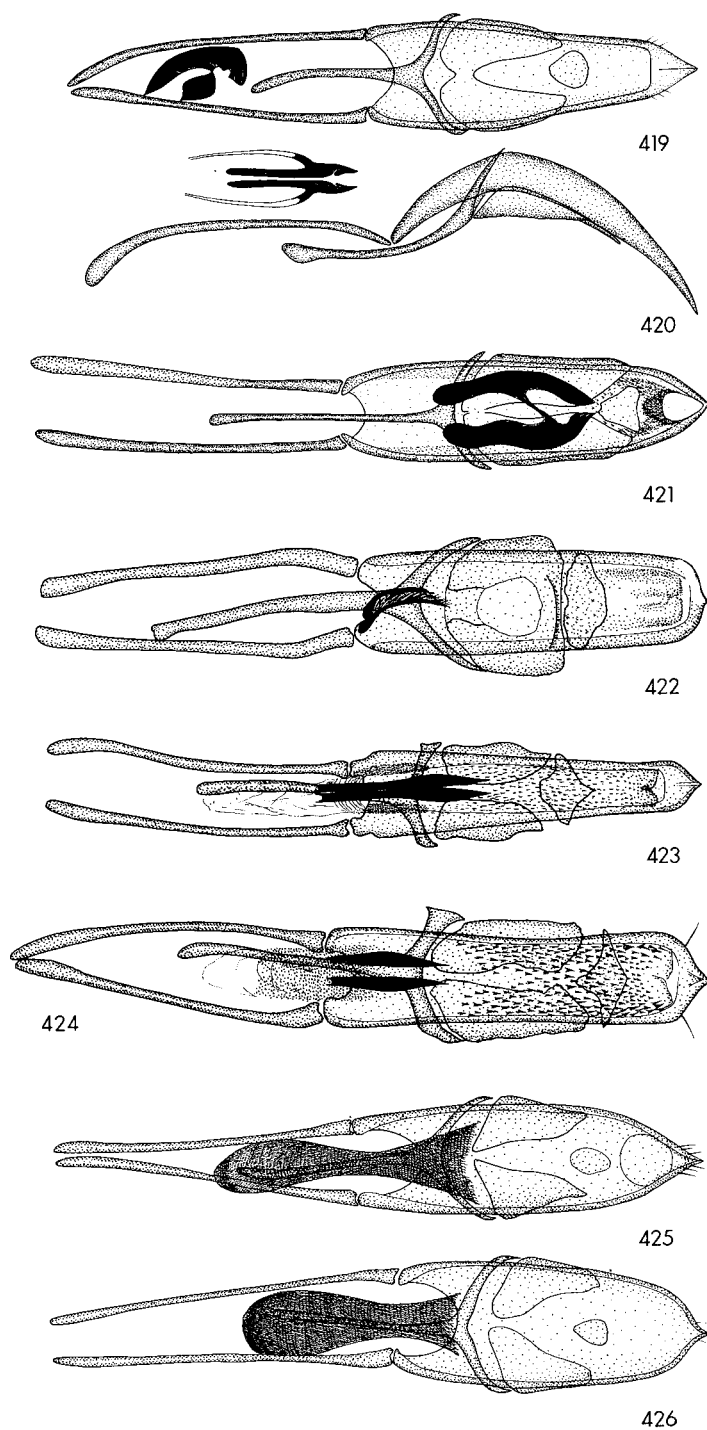


Fig. 419–426, *Sibinia* spp., male external genitalia; 419, *S. tanneri*; 420, *S. tanneri*; 421, *S. texana*; 422, *S. sellata*; 423, *S. argentinensis*; 424, *S. albovittata*; 425, *S. mica*; 426, *S. maculata* (not to scale, 419, and 421–426 ventral views, 420 lateral view).

The *sellata* Group

Diagnosis.— Pronotum and elytra with white scales, fulvous scales, and ferruginous scales, dark scales forming more or less discrete maculae (Figs. 427, 428); internal sac with elongate, slender inter-aedeagal structures (Figs. 422-424).

Discussion.— The *sellata* group contains three South American species, *S. sellata* of Argentina and Uruguay, *S. argentinensis* of Argentina, and *S. albovittata* of Chile (Fig. 429). Label data indicate that specimens of *S. sellata* were collected on “verdolaga” (purslane, Portulacaceae), but no other host information is available for *sellata* group members.

Members of this group bear a close general resemblance to some *viscaria* group members, but are distinguished by the possession of inter-aedeagal structures of the male genitalia, and by the different form of the elytral maculae (cf. Figs. 427, 428, 430, 431). The inter-aedeagal structures of *sellata* group males are less complex than those of *S. tanneri* and *S. texana* (cf. Figs. 419-421, 422-424), which together form the apparent sister group of the *sellata* group.

129—*Sibinia* (*Sibinia*) *sellata* (Boheman)

(Figs. 353, 410, 422, 427, 429)

Ceutorhynchus sellatus Boheman 1859: 133. Blackwelder 1947: 885. Holotype, female: “Bueno Ayres” (Buenos Aires, Argentina) (NRS).

Sibinia sellata: Kuschel 1950: 17.

Paragoges sellatus: Kuschel 1955: 311.

Diagnosis.— (Fig. 427). Angular in form; eye nearly round, strongly convex, hind margin not at all raised; pronotum medially with dark fuscous scales; pygidium prominent, thickened; elytra with prominent dorsomedian macula of fuscous scales; tarsal claws small, without basal tooth; protibia of male curved in distal 0.25.

Description.— *Length*: male 1.59–2.41 (2.03) mm; female 2.31–2.64 (2.46) mm. *Width*: male 0.95–1.26 (1.14) mm; female 1.25–1.43 (1.31) mm. *Integument*: black to piceous on pronotum and venter; elytra and legs pale rufous; tarsi, antennae and distal portion of rostrum lighter ferruginotestaceous. *Head*: scales on vertex short, parallel sided, apically truncate, striate, fulvous and fuscous scales intermixed. *Eye*: height ca. 1.2x length. *Frons*: slightly narrower than base of rostrum, in lateral view markedly rounded, separate from vertex of head. *Rostrum*: male 0.87–0.92 (0.90)x, female 0.95–1.19 (1.05)x pronotum length. In dorsal view feebly tapered from base to antennal insertions, constricted distad of insertions, expanded again at tip; in dorsal profile straight to very broadly, evenly curved from base to antennal insertions, nearly straight from there to tip. Rostral carinae obsolete, punctures deep, elongate, dorsal margin of scrobe carinate. Distal portion in male moderately long, 40–48 (43)% of total rostral length, feebly tapered, lateral sulcus distinct about halfway to tip; in female, distal portion longer, 45–51 (48)% of total rostral length, not tapered, shallowly punctate, smooth at tip. Scales on sides elongate, subtruncate; scales on dorsum narrower, apically truncate, striate, recumbent, fulvous and fuscous scales intermixed. *Prothorax*: in dorsal view sides subparallel in basal 0.66, strongly rounded in apical 0.33 to distinct subapical constriction; in lateral view slightly convex in posterior 0.50, flattened anteriorly to feebly developed subapical constriction. Pronotum with short ovate pale fulvous scales and narrower, apically truncate, striate dark fulvous and fuscous scales; broad light colored scales forming diffuse dorsolateral vitta on each side of dorsum; fuscous scales interspersed among fulvous scales medially, sparser laterally, interspersed among fulvous scales on upper median portion of pleuron; scales on lower 0.25 of pleuron oblong to ovate, apically rounded, flat to concave, pale fulvous, densely imbricated; scales on upper 0.75 pale fuscous, not imbricated, large punctures broadly visible between scales. *Elytra*: humeri prominent; in dorsal view sides gradually convergent from behind humeri to apices; in lateral view broadly, evenly convex from base to apices. Interspaces flat, distinctly impressed, surface shining; odd interspaces wider than even ones; apices of interspaces 4–7 prominent. Scales on interspaces in three or four irregular rows, elongate, apically truncate, striate, recumbent; fulvous and narrower, shining, dark fuscous scales present, the latter forming large prominent dorsomedian triangular macula which is limited anteriorly to interspaces 1 and 2 but extends across interspaces 1–4 posteriorly, remainder of elytra covered with broad fulvous scales except for admixture of darker, fuliginous scales basally; sutural interspaces with basal patch of oblong white scales; striae narrower than scales on interspaces, white, forming distinct vittae. *Pygidium*: narrow, sides only slightly convergent posteriorly to broadly rounded apex, oblique, produced well distad of elytral apices, concave anteriorly just distad of elytral apices, posteromedian portion strongly, evenly convex in male and female. *Abdomen*: in male sternum 5 broadly convex medially, subapical constriction obsolete, posteromedian portion of segment produced posteriorly, posterior margin strongly rounded; in female sternum 5 narrower, otherwise as in male. *Femora*: narrow at base, strongly expanded in distal 0.66. *Tibiae*: each with stout acute murco, metatibial mucro small. *Male genitalia*: (Fig. 422). *Spiculum ventrale*: (Fig. 353). *Spermatheca*: (Fig. 410).

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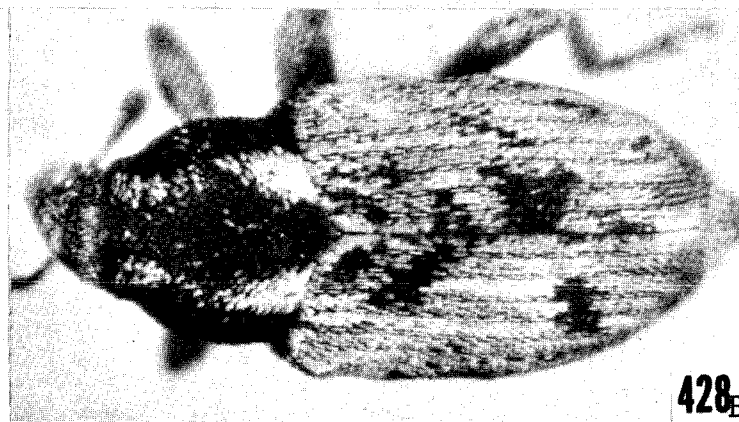
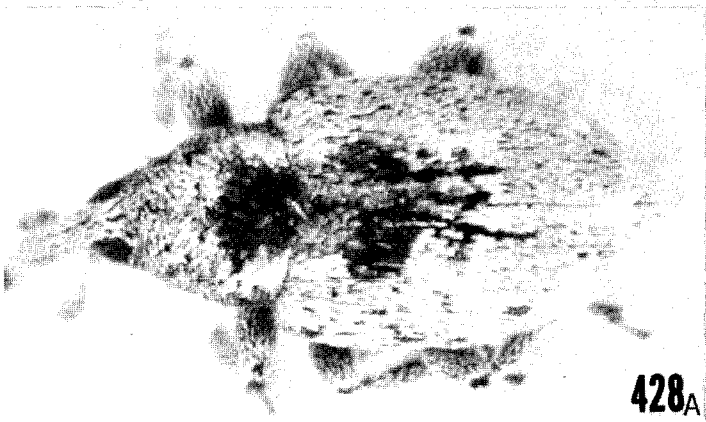
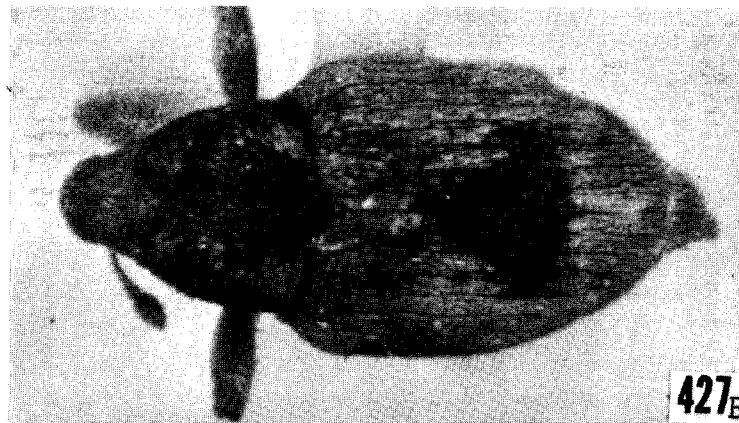
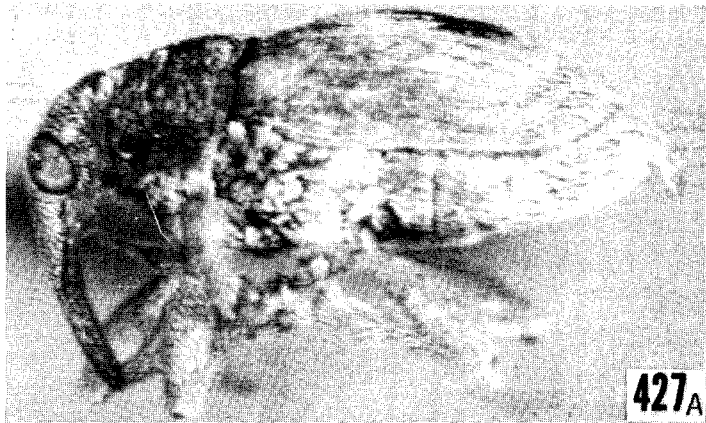


Fig. 427–428, *Sibinia* spp., habitus: 427, *S. sellata*, female, Montevideo, Uruguay; 428, *S. argentinensis*, male, Buenos Aires, Argentina. (A, lateral view; B, dorsal view).

Discussion.— A relatively small *Sibinia*; adults reportedly collected on “verdolaga” (purslane, *Portulacaceae*); known from the Pampas region of northeastern Argentina and Uruguay (Fig. 429); 46 specimens examined.

S. sellata is apparently a common species. Adults have been collected in November, December, January, and February. Association with purslane is uncertain, and collection of larvae of this and other *sellata* group members may do much to clarify host and phylogenetic relationships within the group and between the group and other members of the subgenus *Sibinia*.

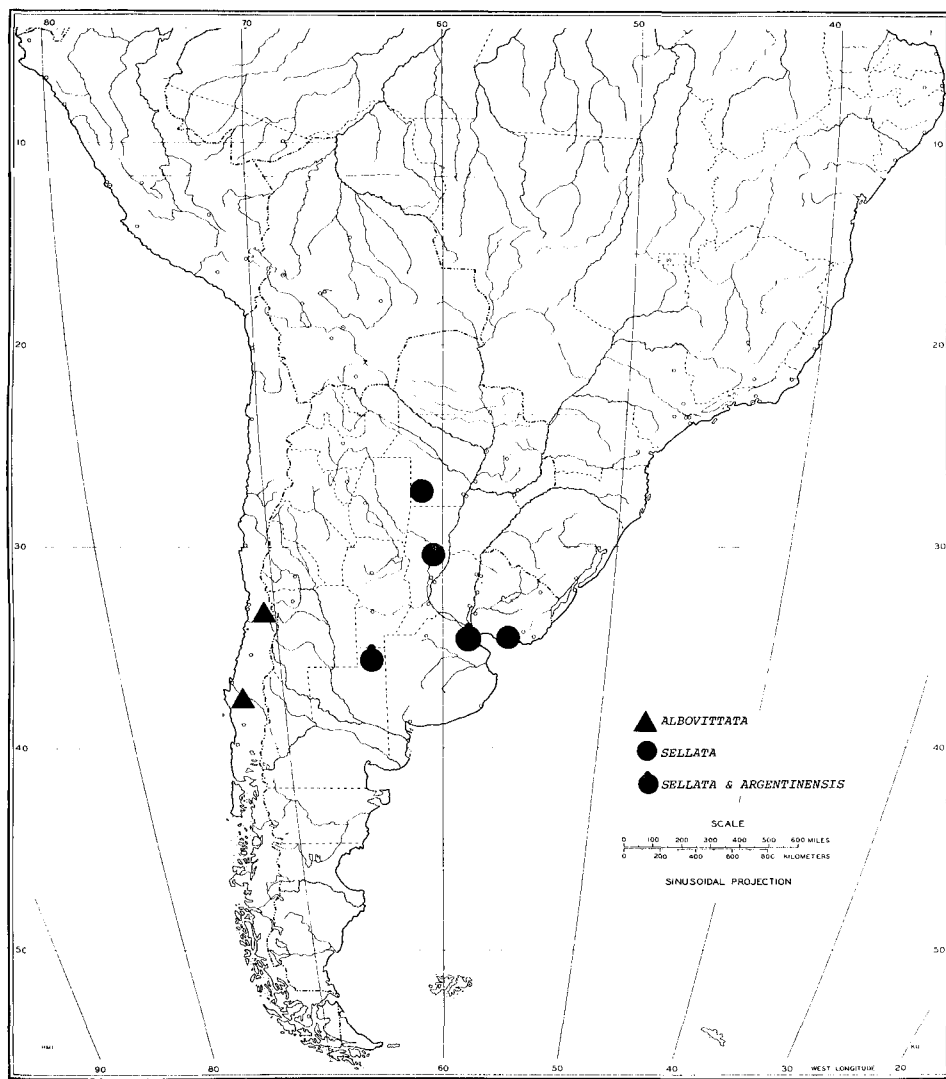
A sister group relationship between *S. sellata* and the Argentine *S. argentinensis* is indicated by shared possession of male protibia curved in distal 0.25, and tarsal claws small, lacking basal process. *S. sellata* also closely resembles the North American *S. texana*. Both groups have the distal portion of female rostrum constricted medially; the eye nearly round and convex, the hind margin not raised; the elytra convex medially in lateral view; and the pleuron with white or pale fulvous scales ventrally, with darker fulvous or fuscous scales medially, light scales forming large laterobasal patches on upper portion of pleuron and on dorsum.

130—*Sibinia (Sibinia) argentinensis* Hustache
(Figs. 354, 412, 423, 428, 429)

Sibinia argentinensis Hustache 1928: 234. LECTOTYPE (HERE DESIGNATED), specimen uppermost on pin carrying three syntypes, labelled “Rep. Argentina, Prov. Buenos Aires, 15-VII-1907, C. Bruch” “148” “TYPE” “Museum Paris, 1949, Col. A. Hustache” (MNHP).

Diagnosis.— (Fig. 428). Pronotum and elytra with white scales, fuscous scales, and fulvous scales, as well as darker fuscous scales which form prominent mediobasal elytral macula; distal portion of rostrum in female cylindrical, only slightly longer than distal portion of male rostrum; pygidium feebly convex; tarsal claws without basal tooth.

Description.— *Length:* male 1.92–2.18 (2.04) mm, female 1.82–2.21 (2.01) mm. *Width:* male 0.95–1.12 (1.04) mm, female 0.96–1.16 (1.04) mm. *Integument:* head, basal portion of rostrum, prothorax, venter and mediobasal portion of elytra black; remainder of elytra dark rufous to rufopiceous; legs rufous; antennae, distal portion of rostrum and tarsi ferruginotestaceous. *Head:* scales on vertex elongate, apically truncate, striate, fuscous to fulvous. *Eye:* nearly round, height ca. 1.1x length; in dorsal view broadly, nearly evenly convex; hind margin not raised. *Frons:* very slightly narrower medially than rostrum at base; in lateral view distinctly rounded, feebly separated from vertex of head. *Rostrum:* male 0.94–1.16 (1.04)x, female 1.02–1.21 (1.11)x pronotum length. In dorsal view tapered from base to antennal insertions, sides subparallel from there to tip; in dorsal profile not rounded at base, nearly straight to antennal insertions, broadly rounded over insertions in male and female. Rostral carinae narrow but distinct. Distal portion in male moderately long, 37–52 (43)% of total rostral length, in lateral view feebly tapered, lateral sulcus distinct about halfway to tip; in female, distal portion longer 41–54 (48)% of total rostral length, feebly sulcate in basal 0.25; with broad seta-like scales in male, in female scales reduced to fine setae just basad of antennal insertions. *Prothorax:* in dorsal view sides subparallel in basal 0.50, rounded anteriorly to distinct subapical constriction; in lateral view broadly, evenly convex from base to subapical constriction which is well developed on dorsum. Pronotum with elongate, distinctly striate, apically blunt to truncate scales; and in most specimens white scales in form of laterobasal patches, diffuse dorsolateral vittae; in most specimens fuscous scales limited to broad dorsomedian portion, with greater or lesser number of fulvous scales intermixed, especially anteriorly, without mediobasal patch of light colored scales; scales on pleuron oblong, apically rounded, pale fulvous on lower 0.25, replaced dorsally by darker fulvous to pale fuscous apically rounded scales extended to extreme upper corners of pleuron anteriorly and posteriorly. *Elytra:* in dorsal view humeri slightly prominent, sides feebly convergent in basal 0.50, broadly rounded to apices in apical 0.50; in lateral view flat in basal 0.33, broadly rounded apically. Interspaces flat, feebly impressed, smooth, shining; odd interspaces not wider than even ones; apices of interspaces 4–6 feebly prominent. Scales on interspaces similar to those on pronotum in size, shape and color; in irregular triple rows on each interspace; uniformly recumbent; dark fuscous scales in form of dorsomedian macula in basal 0.50 and extended across interspaces 1–3 posteriorly; macula widest anteriorly, bounded posteriorly by broad diffuse band of white scales also extended across interspaces 1–3, few fuscous scales sometimes posterior to white band; white scales also in dense basal patches on interspaces 4, on apices of interspaces 4–6, in diffuse lateral maculae, and interspersed among fulvous scales in other areas, especially around apices; sutural interspaces with basal and apical clusters of oblong apically rounded non-striate fulvous scales; striae only slightly narrower but of same color as adjacent scales on interspaces. *Pygidium:* in male broadly exposed, narrowed slightly to subquadrate apex, oblique, postero-medial portion broadly convex; in female, pygidium more narrowly exposed, strongly narrowed to rounded apex, postero-medial portion convex. *Male genitalia:* (Fig. 423). *Spiculum ventrale:* (Fig. 354). *Spermatheca:* (Fig. 412).



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Fig. 429, *Sibinia* spp., distribution records: members of the *sellata* group.

Discussion. — A relatively small *Sibinia*; host unknown; apparently common around Buenos Aires, Argentina (Fig. 429).

Adults of *S. argentinensis* have been collected in February and April. Adults resemble those of *S. sellata*, another species of the Pampas region of Argentina, as discussed above. The two are probably sister species.

131—*Sibinia (Sibinia) albovittata* (Blanchard)

(Figs. 355, 413, 424, 429)

Tychius albovittatus Blanchard 1851: 388. Holotype, male: Santiago (Chile) (MNHP).

Sibinia albovittus: Kuschel 1950.

Diagnosis. — In male anteromedian portion of sternum 5 prominent, posteromedian portion concave; pronotum and elytra with white scales, fulvous scales, and fuscous scales; light scales forming diffuse lateral vittae on each side of pronotum, dark scales forming irregular maculae on elytra; distal portion of female rostrum long, slender, subcylindrical.

Description. — *Length*: male 1.82–2.26 (2.11) mm, female 1.97–2.33 (2.18) mm. *Width*: male 0.84–1.08 (1.00) mm, female 0.91–1.12 (1.05) mm. *Integument*: prothorax, head, rostrum, mediobasal portion of elytra and median portion of femora black; remainder of elytra legs and extreme distal portion of rostrum and antennae rufous; tarsi ferruginotestaceous. *Head*: scales on vertex short, parallel sided, apically truncate. *Eye*: nearly round, height 1.25x length; in dorsal view broadly, evenly convex; hind margin not raised. *Frons*: slightly wider than rostrum at base; in lateral view feebly rounded, slightly separated from vertex of head. *Rostrum*: male 0.79–0.93 (0.85)x, female 0.91–1.12 (1.05)x pronotum length. In dorsal view tapered from base to antennal insertions, sides subparallel to tip; in dorsal profile rounded at base, nearly straight to antennal insertions in male, feebly rounded at base or broadly curved from base to tip in female. Dorsolateral carinae feebly developed, dorsomedian carina obsolete. Distal portion in male short, 39–43 (41)% of total rostral length, stout, in lateral view feebly tapered, lateral sulcus distinct about halfway to tip; in female, distal portion much longer, 47–53 (50)% of total rostral length, lateral sulcus distinct about halfway to tip, shallowly punctate distally. *Prothorax*: in dorsal view sides strongly rounded at base and in apical 0.25 behind strongly developed subapical constriction; in lateral view broadly, feebly convex, subapical constriction distinct on dorsum. Scales on pronotum recumbent, white scales broad, apically rounded, darker scales narrower but apically rounded; white scales forming dense patches on each side and in some specimens interspersed among fulvous scales in diffuse anterolateral vittae which extend to apex of pronotum; remainder of dorsum including broad dorsomedian portion and upper portion of pleuron with fuscous scales limited to dorsomedian portion and remainder of dorsum with dark fulvous scales except for dorsolateral vittae of white scales. Scales on pleuron oblong, apically rounded, nonstriate, pale fulvous on lower 0.25, replaced medially by apically rounded fuscous scales, fulvous scales intermixed on upper 0.25. *Elytra*: in dorsal view humeri prominent, sides subparallel behind humeri in basal 0.66, broadly rounded to apices; in lateral view flat in basal 0.33, broadly rounded apically. Interspaces flat, feebly impressed, surface smooth, shining; odd interspaces not wider than even ones; apices of interspaces 4–6 feebly prominent. Scales on interspaces similar to those on pronotum in size shape and color; in irregular triple rows on each interspace, recumbent; dark fuscous scales in large or small irregular scattered patches; white scales sparse, interspersed among fulvous scales (distinction between fuscous and fulvous scales weak in some), fuscous scales coalescent into more or less distinct pattern in some, also in dorsal and lateral maculae; sutural interspaces with basal cluster of oblong white to fulvous scales, and sutural row of small white scales, at least in apical 0.66; striae scales narrower than scales on interspaces, white and fuscous. *Pygidium*: in male oblique, broadly feebly convex, apically subquadrate; in female, pygidium narrower, apically rounded, more strongly oblique, less broadly exposed, posteromedian portion distinctly convex. *Abdomen*: in male subapical constriction of sternum 5 feebly developed laterally, posterior portion of segment distinctly produced posteriorly, posteromedian margin straight; in female, anteromedian portion of sternum 5 slightly concave, posteromedian portion of segment broadly flared downward and produced posteriorly, posterior margin broadly rounded. *Femora*: narrow at base, gradually, moderately strongly inflated, ventral margin strongly rounded distally; metafemur longer and more slender than profemur. *Tibiae*: each with acute, horizontal apical mucro. *Tarsi*: claws small, basal tooth small, much shorter than claw. *Male genitalia*: (Fig. 424). *Spiculum ventrale*: (Fig. 355). *Spermatheca*: (Fig. 413).

Discussion. — A relatively small *Sibinia*; host unknown; known only from Chile (Fig. 429); 14 specimens examined.

Twelve of the 14 known specimens of *S. albovittata* examined were intercepted in New York on ships from Chile (USNM), the other two came from Angol (USNM) and Santiago (USNM). The intercepted specimens were taken between 1931 and 1961, most of them in shipments of peaches or nectarines. It is not certain that the insect is associated with the fruit itself. More likely, its host is common in peach orchards or packing areas in Chile. The specimens

collected in Chile were taken in February and December.

This species is apparently sister to the Argentine *S. sellata* and *S. argentinensis*, as indicated by the presence in the male genitalia of *S. albovittata* and *S. argentinensis* of nearly identical elongate, slender inter-aedeagal structures (cf. Figs. 423, 424). Adults of *S. albovittata* also resemble those of the North American *S. mica* in color and arrangement of scales on the pronotum and elytra (Fig. 430).

The *viscaria* Group

Diagnosis.— Elytra with dorsomedian macula which is constricted medially, and broadest posteriorly (Figs. 430–432); distal lobe of spermatheca short, bulbous (Figs. 414, 415).

Discussion.— To the *viscaria* group are assigned all Palearctic and African *Sibinia* (ca. 120 species) and *S. mica* of the southwestern United States and Mexico (Fig. 433), and *S. maculata* of the western United States (Fig. 434). The diagnosis distinguishes the North American species from other New World *Sibinia*, and also characterizes several European species, for example, specimens of the European *S. primita* Herbst have an elytral macula (Fig. 432) like that in the American species (Figs. 430, 431), and have similar spermathecal structures, as does the type-species of the genus *Sibinia*, the European *S. viscaria*. Like most Old World *Sibinia*, however, *S. viscaria* adults lack elytral maculae. Structure of the median lobe of males of the North American species is similar to that in the European and African species examined (the male genitalia of *S. viscaria* were illustrated by Clark *et al.* 1977, Figs. 44, 45).

Palearctic *viscaria* group members have hosts in the genera *Alsine*, *Cerastium*, *Dianthus*, *Silene*, and *Spergularia* (Caryophyllaceae); *Daphne* (Thymeleaceae); *Polycarpon* (Paronychiaceae); *Armeria*, *Limoniastrum*, *Lychnis*, and *Statice* (Plumbaginaceae); and *Thesium* (Santalaceae) (Table 2, p. 102); hosts of the American species are unknown.

132—*Sibinia* (*Sibinia*) *mica* (Casey), new combination (Figs. 356, 414, 425, 430, 433)

Tychius mica Casey 1892: 422. Holotype, male: "Arizona" (USNM).

Tychius (*Microtychius*) *mica*: Casey 1910; Leng 1920; Klima 1934.

Diagnosis.— (Fig. 430). Pronotum and elytra with white scales, fulvous scales, and fusco-ferruginous recumbent scales; white scales forming mediobasal and posterolateral patches on pronotum; fusco-ferruginous scales forming large medially constricted macula on elytra which is broader anteriorly than posteriorly.

Description.— *Length*: male 1.51–2.05 (1.85) mm, female 1.72–2.13 (1.93) mm. *Width*: 0.79–1.11 (0.96) mm, female 0.88–1.14 (1.00) mm. *Integument*: rufopiceous, shading to piceous or black on pronotum, disc of elytra, and on venter. *Head*: scales on vertex elongate, apically truncate, *Eye*: oblong, height ca. 1.4x length; in dorsal view distinctly, evenly convex; hind margin feebly raised by distance less than diameter of one ocular facet. *Frons*: slightly narrower than base of rostrum, flat, continuous with vertex of head. *Rostrum*: male 0.92–1.05 (1.00)x, female 0.98–1.10 (1.02)x pronotum length. In dorsal profile broadly rounded from base to tip. Distal portion short, in male 39–43%, in female 41–49% of total rostral length, stout, tapered, sulci becoming obsolete just distad of antennal insertions. Dorsomedian carina obsolete. Scales on sides broad, parallel sided, apically truncate, white, these replaced on dorsum by narrower, feebly attenuate, pale fusco-ferruginous recumbent scales. *Prothorax*: in dorsal view parallel sided at extreme base, strongly rounded at about middle; in lateral view broadly, evenly convex; subapical constriction well developed on dorsum. Pronotum with elongate, parallel sided, apically truncate to truncate recumbent scales; scales on extreme lower portion of pleuron feebly concave, apically rounded, white, these replaced anteriorly and dorsally by narrower fulvous scales, these replaced anteriorly on upper portion of pleuron by narrower, apically truncate fuscous scales which cover dorsum except for laterobasal and mediobasal patches of white scales. *Elytra*: in dorsal view sides subparallel behind humeri in basal 0.50; in lateral view feebly evenly convex. Interspaces flat, with large shallow oval impressions; odd interspaces not wider than even ones. Scales on interspaces similar to scales on pronotum, recumbent, in triple rows on each interspace; fuscous scales forming dorsal medially constricted macula which extends from just distad of base to distal 0.25; macula broadest anteriorly, bisected in posterior 0.75 by transverse band of white scales; sutural interspaces with basal cluster of white scales; striae scales indistinguishable from scales on interspaces. *Pygidium*: in male posteromedian portion slightly convex, narrowed to rounded apex, slightly oblique; in female

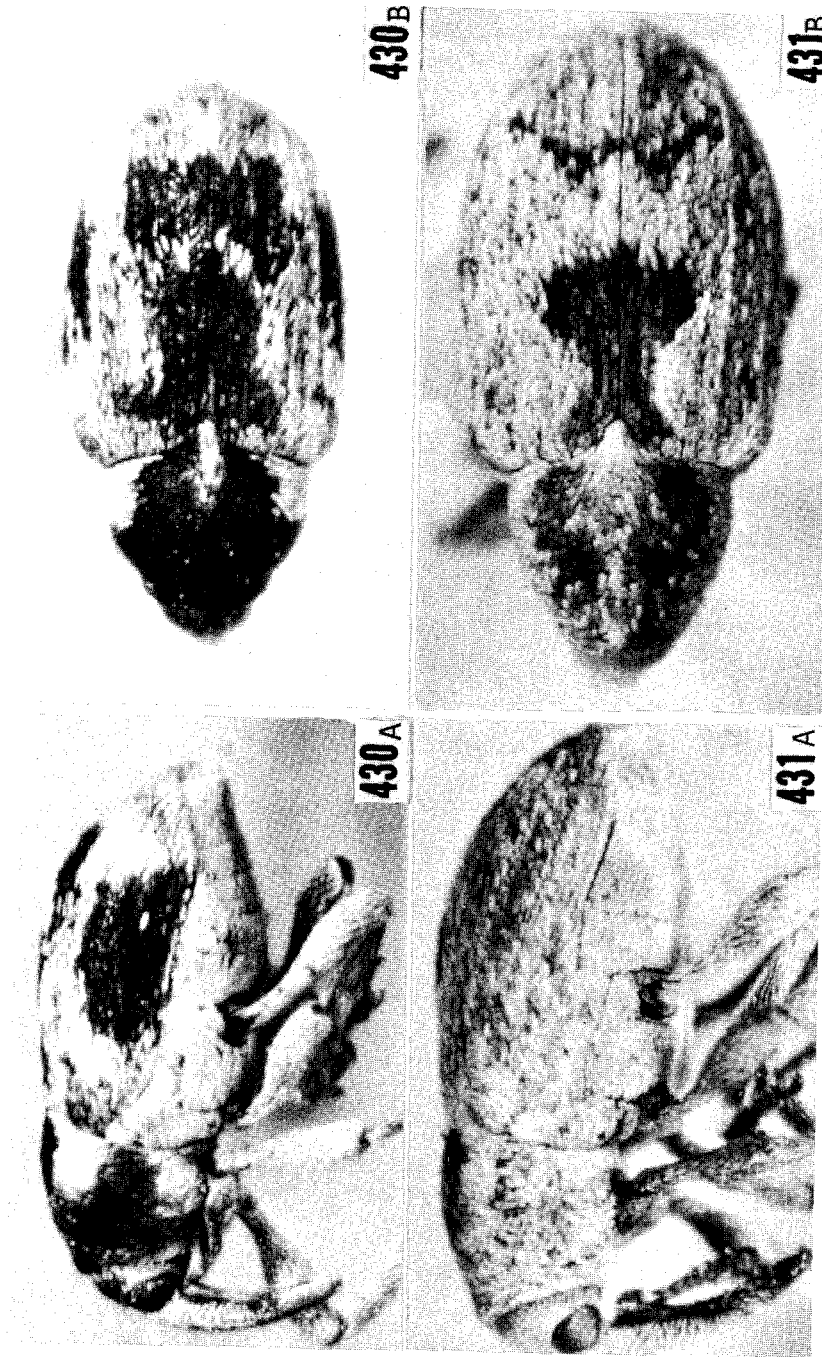


Fig. 430–431. *Sibinia* spp., habitus: 430, *S. mica*, female, 22 mi SW Datil, Catron Co., New Mexico; 431, *S. maculata*, female, Lower Klamath Lake, Siskiyou Co., California. (A, lateral view, B, dorsal view).

pygidium narrowed to rounded apex, more strongly oblique, posteromedian portion not prominent. *Abdomen*: in male anteromedian portion of sternum 5 concave, subapical constriction obsolete, posteromedian portion of segment slightly produced posteriorly; in female, sternum 5 flat medially, broadly constricted laterally and medially, posteromedian 0.50 of segment broadly curved downward, posterior margin distinctly produced posteriorly. *Femora*: elongate, narrow at base, clavate, ventral margin strongly rounded distally; metafemur more elongate but shape about as profemur. *Tibiae*: pro- and mesotibiae with stout conical feebly curved mucrones, metatibial mucro longer, more slender. *Tarsi*: claws small, basal tooth not nearly as long as claw. *Male genitalia*: (Fig. 425). *Spiculum ventrale*: (Fig. 356). *Spermatheca*: (Fig. 414).

Discussion.— An average sized *Sibinia*; adults reportedly collected on "*Salsola pestifer*" (Chenopodiaceae) and "*Sophia obtusa*" (Cruciferae); known from Arizona, New Mexico, and and central and southern Mexico (Fig. 433); 20 specimens examined.

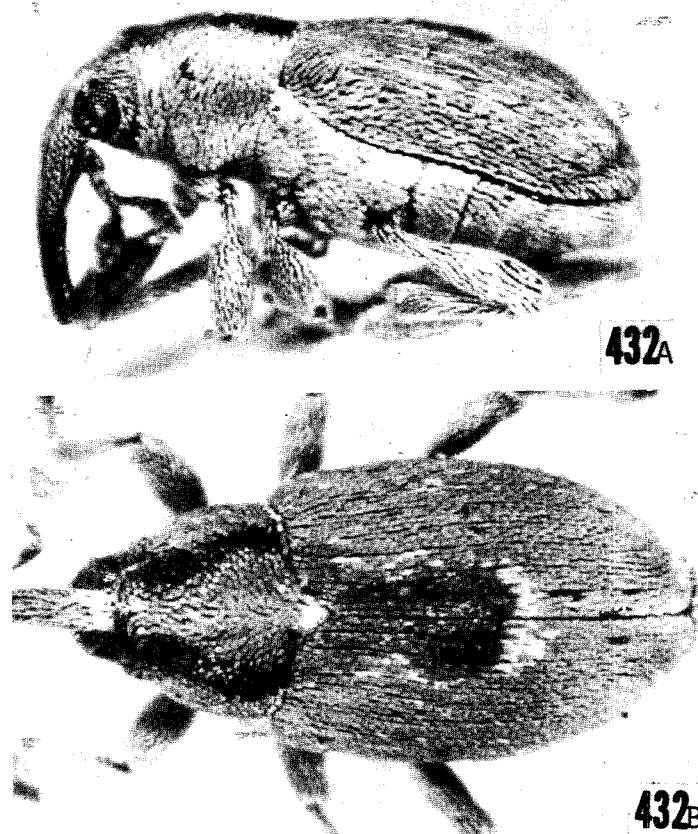


Fig. 432. *Sibinia primita*, habitus: female, Europe. (A, lateral view; B, dorsal view)

All examined specimens of *S. mica* were collected in July and August. The host relationships must be considered uncertain; in Oaxaca, Mexico, two specimens were collected sweeping vegetation growing in and around small mountain streams where oaks and other hardwoods were the dominant vegetation.

S. mica may be a relatively recent immigrant, having arrived in North America from Eurasia via Beringia. It closely resembles the Palearctic *S. phalerata*, a series with hosts in the family Caryophyllaceae (Table 2, p. 102). Likewise, the other American *viscaria* group member, *S. maculata*, appears to be closely related to some Eurasian species. A thorough study of the Eurasian *Sibinia* fauna will probably be necessary before relationships can be resolved. Determination of the hosts of *S. mica* and *S. maculata* will undoubtedly provide valuable clues.

Mexican specimens of *S. mica* are smaller (length 1.51–1.74 mm), than most specimens from Arizona and New Mexico (length 1.64–2.13 mm), have the hind margin of the eye somewhat more distinctly raised, and have darker fuscous scales on the pronotum and elytra.

133—*Sibinia (Sibinia) maculata* LeConte, new combination
(Figs. 357, 415, 426, 431, 434)

Paragages maculatus LeConte 1876: 219. Fall 1901; Leng 1920; Klima 1934; Moore 1937; Hatch 1971. LECTOTYPE (HERE DESIGNATED), female, one of two syntypes (MCZ), labelled "Cala. J." (San Diego, California) "Type 5351" "*Paragages maculatus* LeC."

Tychius maculifer Hatch 1971: 356. Holotype, male: Klamath Falls, Oregon (JSC).

Diagnosis.— (Fig. 431). Rostrum long, nearly straight; pronotum and elytra with white scales, fulvous scales, and darker fuscous scales intermixed; darker scales forming dorsal medially constricted elytral macula, which is broadest posteriorly.

Description.— *Length*: male 2.09–2.57 mm, female 2.12–2.67 mm. *Width*: male 1.06–1.28 mm, female 1.04–1.38 mm. *Integument*: piceous to black, shading to rufopiceous on tibiae, tarsi, antennae and distal portion of rostrum. *Head*: scales on vertex broad, parallel sided, apically rounded, imbricated; white, fulvous and fuscous scales intermixed. *Eye*: height ca. 1.2x length; in dorsal view strongly, evenly convex; hind margin feebly raised by distance less than diameter of one ocular facet. *Frons*: wider than base of rostrum, rounded separately from vertex of head. *Rostrum*: male 0.99–1.29x, female 1.09–1.37x pronotum length. In dorsal profile feebly rounded at extreme base, nearly straight from distad of base to tip. Distal portion slightly dorsoventrally flattened, feebly tapered, in male 37–49%, in female 42–55% of total rostral length, sulcate nearly in tip. Dorsomedian carina feebly developed. Scales elongate, oblong to parallel sided, apically truncate, slightly raised, becoming erect laterally on frons; distal portion with white bristles. *Prothorax*: in dorsal view broadly rounded between base and subapical constriction; in lateral view broadly evenly convex, subapical constriction well developed on dorsum. Scales on pleuron short, broad, rounded; scales on dorsum slightly more elongate, recumbent, broadly imbricated; white, fulvous and dark fuscous scales intermixed; light scales forming large round mediobasal macula surrounded by broad curved vittae of darker fuscous scales on dorsum. *Elytra*: in dorsal view sides subparallel behind humeri in basal 0.50; in lateral view evenly, feebly convex. Interspaces flat, with large, shallow oval impressions; odd interspaces slightly wider than even ones. Scales on interspaces similar in shape and color to scales on pronotum; in triple rows on each interspace, recumbent broadly imbricated; darker scales forming large dorsomedian macula and narrow, posteromedian sinuate transverse band, these separated by broader transverse band of white scales; macula constricted medially, much broader posteriorly than anteriorly; striae scales indistinguishable from scales on interspaces. *Pygidium*: narrowly exposed, in male broadly rounded apically, vertical, in female very slightly narrowed to rounded apex, oblique, produced slightly beyond elytral apices. *Abdomen*: sternum 5 in male broadly concave medially, subapical constriction obsolete laterally and medially, posterior margin straight; in female, sternum 5 slightly convex anteromedially, subapical constriction very strongly developed, entire posteromedian 0.66 of segment broadly curved downward, posterior margin slightly projected. *Femora*: moderately stout, narrow at base, gradually widened in distal 0.66. *Tibiae*: each with stout curved oblique mucro. *Tarsi*: claws small, basal tooth not as long as claw. *Male genitalia*: (Fig. 426). *Spiculum ventrale*: (Fig. 357). *Spermatheca*: (Fig. 415).

Discussion.— An average sized *Sibinia*; host uncertain (see below); known from the western United States (Fig. 434); 292 specimens examined.

S. maculata is apparently common in some portions of its range (especially central California), but the host relationships have not been satisfactorily resolved. Label data indicate association with several different plants. One specimen examined is labelled "ex seed *Astragalus*", another "reared from pine-cone gall". Twenty-six adults were taken "on *salsola soda*", five on "*Erysimum capitatum*". Other "host" labels on smaller numbers of specimens are "*Chenopodium*

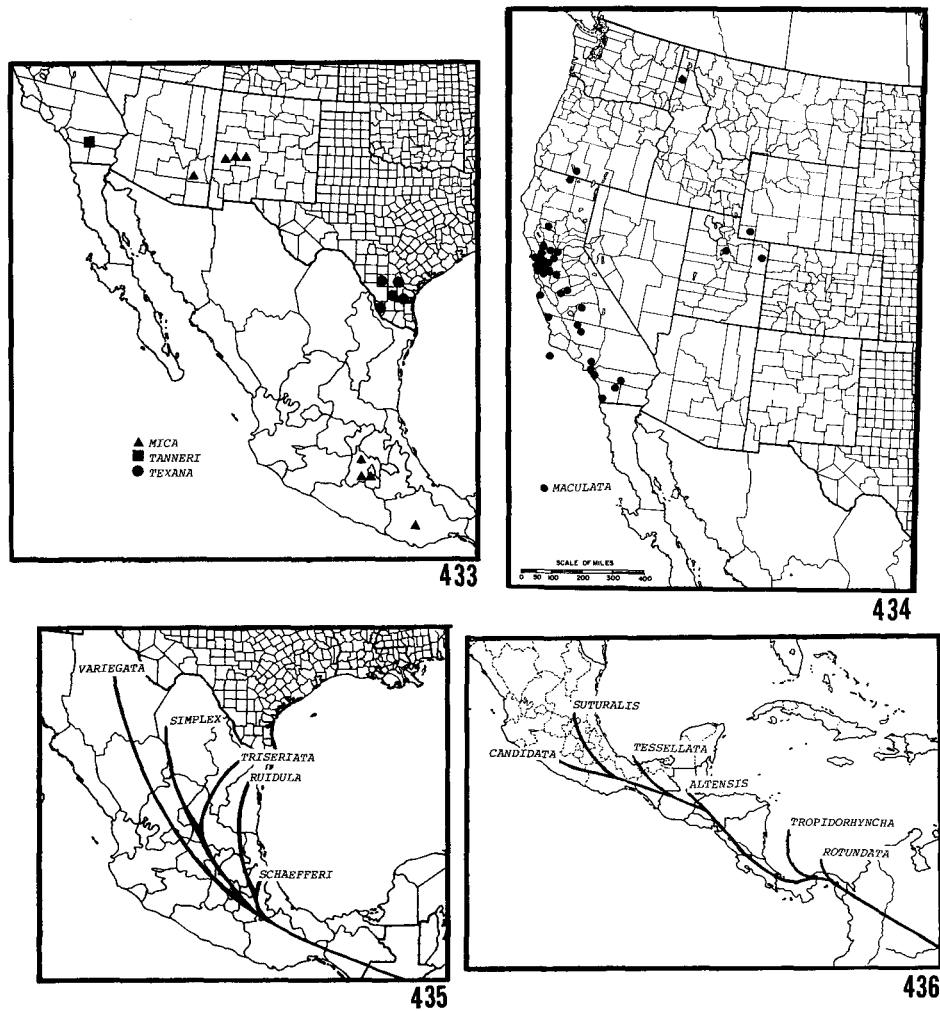


Fig. 433–436, *Sibinia* spp., distribution records: 433, *S. mica*, *S. tanneri*, and *S. texana*; 434, *S. maculata*. Fig. 435, 436, *Sibinia* spp., cladograms superimposed over generalized distributions: 435, the *variegata* group; 436, some members of the *rotundata-suturalis* stock.

album", "alfalfa", "*Eleocharis macrostachys*", "sweeping safflower", "on sunflower (*Helianthus*)", "on petioles of peach", "on mixed vegetables", "*Chrysothamnus*", "Rotary trap", and "under *Eucalyptus* bark".

Relationship of *S. maculata* to other *viscaria* group members including the North American *S. mica* were considered in the discussion of the latter species.

PHYLOGENY

Introduction.

My study of the tychiine weevils began with a revision of the North American species of *Tychius* (Clark 1971). When I began to closely examine the other North American tychiines it became obvious that a reconstruction of their phylogeny would be necessary before a satisfactory classification could be proposed.

Reconstruction of the phylogeny of a group consists of the process of recognizing all of the monophyletic groups within that group. Ross (1974) outlined four practical methods for preliminary recognition of monophyletic groups: (1) species keyed out in an existing key, (2) Adansonian methods, (3) possession of a single derived character state, and (4) possession of several striking and presumed derived characters. In delimiting what he considered to be the subfamily Tychiinae, Kissinger (1964) in effect used the third method, including only those Curculionidae whose adults have the sides of the abdominal sternum 2 angled posteriorly to cover the sides of sternum 3 and part of sternum 4.

Use of each of these four methods entails comparison of different attributes of the organisms in question. Hennig (1966) proposed three methods by which such comparisons could be carried out. The Holomorphological Method subjects any and all physical characteristics of the organisms themselves to analysis. Characters analysed by this method in the study of Tychiinae were those of external structure of the adult weevils. Larvae and pupae of several species have also been examined and will be described in future publications where their significance to tychiine phylogeny will be discussed. Of greater value than characters of the immature stages of the weevils was evidence provided by analysis of their host associations, essentially Hennig's Parasitological Method. I also used Hennig's Chorological Method to analyse distribution and vicariance patterns.

Before any of these methods could be used it was necessary to decide which character states were plesiotypic (ancestral) and which were apotypic (derived). Fossils can provide evidence for making such decisions. Among numerous fossil weevils assigned to tychiine genera by Scudder (1878, 1893) and Wickham (1917) only two, *Tychius evolatus* Scudder and *T. ferox* Wickham, were examined in the present study (specimens of both are in the USNM collection of invertebrate fossils). The abdominal sterna of some of the *T. evolatus* specimens are clearly visible, but none have the sternum 2 angled posteriorly and therefore cannot be identified as tychiines. The sterna of the holotype of *T. ferox* are not visible. Nothing in the illustrations or descriptions of this or any other fossil weevils examined conclusively demonstrates that they are tychiines. Consequently, available fossils provide no information of use in reconstructing phylogeny, and other criteria had to be used to determine relative plesiotypy-apotypy.

For this I relied primarily on comparisons of distributions of various character states. Ross (1974) classified such comparisons into two categories, (1) ex-group, and (2) in-group (see also Ball 1975). For ex-group comparisons, a character with two or more different states is compared with the corresponding state of that character in a closely related group or groups. A character state whose expression in the group in question is the same as that in the related group or groups is inferred to be plesiotypic, but if the condition is unique to the group in

question, it is inferred to be apotypic.

Obviously, before this method can be used, there must be some indication as to which groups are “closely related”. Here recourse was made to previously proposed classifications of higher taxa within Curculionidae. Since Germar (1817) recognized the genera *Tychius* and *Sibinia*, authors have placed these taxa together in various super-generic taxa. Most authors have also considered *Tychius* and *Sibinia* to be closely related to *Lignyodes* Dejean. Clark *et al.* (1977) concluded that *Lignyodes*, along with *Plocetes* LeConte, *Hamaba* Casey, *Chionanthobius* Pierce, *Rosella* Whitehead, and *Neotylopterus* Hustache, constitute a monophyletic group, the tribe Lignyodini. A sister group relationship between Lignyodini and Tychiinae (*Tychius* and *Sibinia*) was suggested, the latter group assigned the rank of tribe (Tychiini).

Apotypic character states used to infer the sister-group relationship of Lignyodini and Tychiini were found by comparing members of those taxa to other Tychiinae and to members of other curculionid subfamilies, which together comprized the ex-group. Once Lignyodini was recognized as the sister group of Tychiini, Lignyodini was considered an ex-group to infer apotypic character states within Tychiini, specifically apotypic states indicating the sister-group relationship between the *Tychius sororius* group and *Sibinia*, and apotypic states indicating monophyly of *Sibinia* itself. Subsequently, *Tychius*, especially the *sororius* group of *Tychius*, was considered an ex-group for inferring apotypic states within *Sibinia*.

When a character is represented in *Sibinia* by two or more states not found in *Tychius* or Lignyodini, determination of relative plesiotypy-apotypy was based on in-group comparisons. That is, comparison within *Sibinia* itself. In such cases, when one of the contrasting conditions occurs in those *Sibinia* already inferred from ex-group comparisons to represent early branchings, that condition is considered plesiotypic. Thus character states expressed in members of the “*Tychius*” stock are inferred to be plesiotypic for purposes of comparison of character states in other *Sibinia*. Validity of conclusions reached on the basis of in-group comparisons rests upon the strength of inferences which initially indicated the relationship of the groups in question. But this applies to ex-group comparisons as well, since their validity is dependent upon the soundness of the previously established classification used to indicate which groups could be considered “related”.

Character states used in construction of the phylogeny are enumerated, discussed, and analyzed in appendix II (p. 368).

The genus *Tychius* and the sister group *Sibinia*.

Phylogeny and zoogeography of *Sibinia* can be understood only in the context of relationship of that taxon to the other major group of Tychiini which includes those taxa with the plesiotypic alternatives of apotypic states 4–10 (appendix II, p. 368). This group consists of species presently assigned to *Tychius* (see Clark 1976) as well as the type-series of *Apeltarius* Desbrochers and *Xenotychius* Reitter, which I have examined, and apparently *Pseudolignyodes* Pic (Caldara *in litt.*). The latter three are probably cladistically part of *Tychius*, even though they have some distinctive characters, and are included in my broad concept of the genus in the following discussion. The approximately 300 described Palearctic and Ethiopian *Tychius* have not been sufficiently systematized (Griffiths 1974) to permit reconstruction of their phylogeny. I have examined many of them, however (Clark 1976, 1977b), and have some preliminary notions about their relationships. One important conclusion drawn from preliminary analysis is that the sister group of *Sibinia* is part of *Tychius*. That is although it belongs to the “clade” which also includes the genus *Sibinia*, it belongs to the *Tychius* “grade” (see Mayr 1974). This of course means that *Tychius* is paraphyletic. Nevertheless my concept of *Tychius* is defensible because the group is easily distinguished from *Sibinia*

both morphologically and ecologically (hosts of the two groups belong to different legume subfamilies), and the two represent what Mayr (1974) calls “adaptive complexes of taxa”.

Shared possession of apotypic states 1–3 by *Tychius sororius* group and *Sibinia* members indicates that the two are sister groups.

The *sororius* group includes four species from sub-Saharan Africa, *T. chembaensis* Hustache of “Zambeze” (the Zambezi River drainage basin in southeastern Africa), *T. chaboti* Hustache of Angola, *T. discolor* Fahraeus of “Caffraria” (Kaffraria, the region between the Drakensberg Mts. and the Indian Ocean, now the Transkeian Territories of the Republic of South Africa), and the following new species from Mozambique:

Tychius sororius, new species
(Figs. 437–439)

Type Series. — Holotype male and allotype female: MOZAMBIQUE, Lourenço Marques, ii 1957, N.L.H. Kraus (USNM #75431).

Diagnosis. — Moderately large, elongate *Tychius*; head constricted behind eyes, hind margin of eye and frons abruptly raised above vertex of head; antennal funicle with six articles; rostrum quadrate in cross-section, proximal portion as well as frons very broad; prothorax with strongly developed subapical constriction and anterolateral postocular lobes; elytra with double rows of round, slightly concave scales, and single median row of narrow scales on each interspace.

Description. — *Length:* male 2.62 mm, female 2.60 mm. *Width:* male 1.25 mm, female 1.21 mm. *Integument:* posterolateral portions of elytra, legs and distal portion of rostrum rufopiceous, antennae ferruginotestaceous, remainder of body black. *Frons:* broad, subequal in width to base of rostrum, in lateral view broadly rounded. *Eye:* large, nearly round, height ca. 1.2x length; in dorsal view strongly, evenly convex; hind margin abruptly raised by distance ca. equal to combined diameters of three ocular facets. *Rostrum:* male 0.77x, female 0.79x pronotum length. In dorsal view slightly evenly tapered to just distad of antennal insertions then more strongly tapered to acute tip in male, abruptly narrowed and subparallel sided to narrower tip in female; in dorsal profile prominently rounded at extreme base, nearly flat from there to antennal insertions. Dorsomedian carina obsolete, lateral carinae feebly developed. Distal portion in male short, 18% of total rostral length, in lateral view strongly tapered to acute tip; in female, distal portion slightly longer, 46% of total rostral length, more finely tapered. Scales on sides oblong, white, replaced on dorsum by more elongate, uniformly recumbent ferruginous scales. *Prothorax:* in dorsal view sides strongly, evenly rounded from base to strongly developed subapical constriction; in lateral view broadly, evenly convex from base to subapical constriction. Scales on pronotum elongate, apically bluntly rounded, ferruginous, uniformly recumbent, also with narrow median vitta and broad lateral vittae of oblong white scales; pleuron with nearly round, concave white scales on posteroventral portion, these replaced dorsally by intermixed round concave white to pale ferruginous scales and elongate ferruginous scales. *Elytra:* in dorsal view sides subparallel in basal 0.66; in lateral view flat in basal 0.33, broadly rounded posteriorly. Interspaces nearly flat, distinctly, densely impressed, odd interspaces distinctly wider than even ones, prominent on declivities; white, pale ferruginous and darker ferruginous scales intermixed, lighter scales predominant on sutural and other odd numbered interspaces; striae scales minute, narrow. *Abdomen:* in male, sternum 5 feebly concave medially, posteromedian portion of segment turned slightly downward; in female, about as male except sternum 5 with deep, transverse, posteromedian fovea. *Femur:* strongly clavate, minutely dentate ventrally. *Tibiae:* pro- and mesotibiae with moderately large, curved horizontal mucrones; metatibia with shorter straight, oblique mucro. *Male genitalia:* (Fig. 437). *Spiculum ventrale:* (Fig. 438). *Spermatheca:* (Fig. 439).

Discussion. — This species differs from the other *sororius* group members in having six rather than seven antennal funicular articles. Otherwise it closely resembles those species and, except for number of funicular articles, the characters listed in the diagnosis are diagnostic of the group (if memory serves correctly, all but *T. sororius* were examined before the importance of the group as the sister group of *Sibinia* became apparent). The male genitalia of *T. sororius* (Fig. 437) are similar to those of *T. quinquepunctatus* (L.) (illustrated by Clark *et al.* 1977) and other *Tychius* examined. The shape and structure of the spermatheca of *T. sororius*, also similar to that of *T. quinquepunctatus* (Fig. 439), is characteristic of most other *Tychius* examined, including North American and European species. Hosts of *sororius* group members, as well as of other sub-Saharan African tychiines are unknown.

The position occupied by the *sororius* group relative to other *Tychius* cannot be established

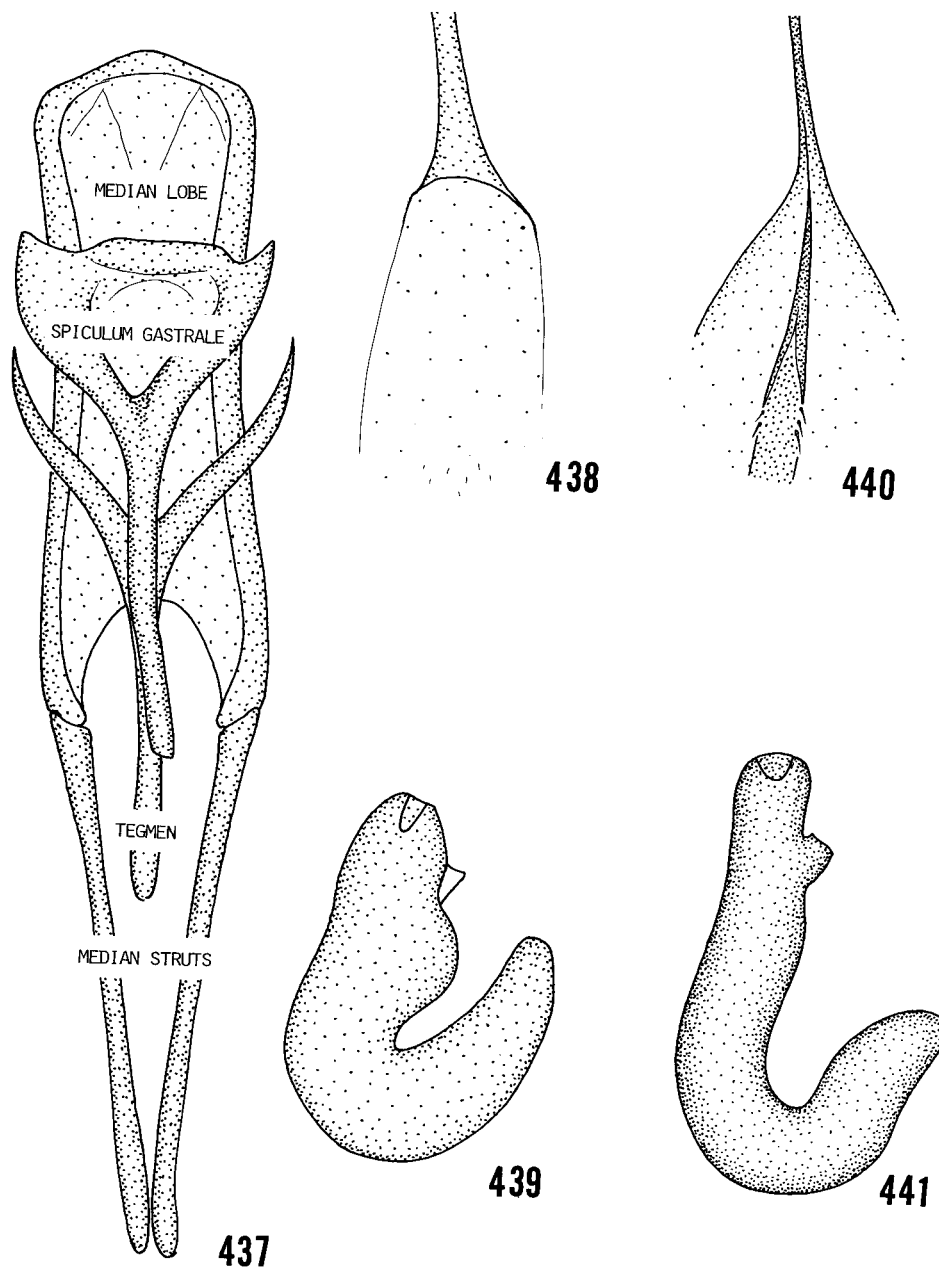


Fig. 437–439, *Tychius sororius*: 437, male genitalia, ventral view; 438, spiculum ventrale, ventral view; 439, spermatheca.
 Fig. 440–441, *T. quinquepunctatus*: 440, spiculum ventrale, ventral view; 441, spermatheca.

with confidence until phylogenetic relationships of taxa within the genus are more completely understood. Members of the group do resemble several Palearctic species including *T. grenieri* Brisout, as well as most members of the North American *semisquamosus* group, in their elongate, subparallel body form and vestiture of double rows of round to oval white, pale ferruginous and sometimes somewhat darker ferruginous recumbent scales, and single median rows of narrower scales on each elytral interspace. These conditions are probably apotypic.

The Plesiotypic “*Itychus*” Stock (Fig. 442).

Direction of transformation series: plesiotypic (=simple) to apotypic (=complex), or the reverse? — When species of *Sibinia* are compared, one is immediately impressed by the contrasts in morphological complexity exhibited by different members of the group. Most species are unicolorous or have somber colors and patterns, and lack really distinctive structural features. By contrast, others have complex patterns of variously colored scales and several have prominent structural modifications. Most distinctive of all is a group of species characterized by relatively large size, robust form, and apotypic characters states 1, 2, and 9 (as described in appendix II). Three species exhibiting this combination of character states, *S. vosei*, *S. grisea*, and *S. fulva*, were placed by Kissinger (1962) in *Itychus*. I assumed initially that these “*Itychus* characters” were apotypic because they seemed to be confined among tychiines to these three species. When other species (*S. impensa*, *S. amplificata*, *S. bufemoratoides*, *S. bufemorata*, *S. grandis*, *S. warneri*, *S. alvarengae*, *S. distorta*, and *S. griseoides*), all South American, were found to have most or all of the “*Itychus* characters”, it appeared that these also belonged to *Itychus* and that the group was monophyletic. It was also observed however, that many *Sibinia* exhibit what appear to be intermediate stages in expression of the “*Itychus* characters”. These were interpreted as intermediate stages in morphoclines, but there seemed to be several different parallel morphoclines. Since the more prominent expression of the “*Itychus* characters” was considered apotypic, I assumed that a transformation from simple to complex was also a transformation from plesiotypic to apotypic. But that meant that some transformations had to be the reverse, in other words, transformations from complex to simple were transformations from plesiotypic to apotypic. Aside from the problem of arranging the morphoclines, it was difficult to decide which of the various morphoclines was the one by which the “*Itychus* characters” were acquired and which were reduction-loss sequences.

This problem was initially resolved by treating the *variegata* group as the most plesiotypic of all *Sibinia*. The members of this group are similar to some North American species of *Tychius* assigned to the *semisquamosus* group (Clark 1971). Consequently, the *semisquamosus* group and *Sibinia* were inferred to be sister groups, the *variegata* group the earliest branch derived from the *Sibinia* stem ancestor. Then a sequence (the *rotundata-suturalis* stock) was assembled which appeared to represent a simple to complex-plesiotypic to apotypic transformation series running from southwestern United States and Mexico (where *variegata* group members occur), through Middle America, to South America, where *Itychus* was inferred to have arisen. The somewhat belated discovery of the sister group of the *variegata* group in Argentina, and the discovery in Africa of the *sororius* group of *Tychius*, the sister of all *Sibinia*, indicated that this scheme was untenable. Of greater importance, these discoveries made it evident that the relatively complex “*Itychus* characters”, instead of being the most apotypic states in *Sibinia*, are actually plesiotypic for the genus.

It is now evident that species exhibiting pronounced expression of “*Itychus* characters” have changed relatively little from the *Sibinia* ancestral stock. It also appears that this “*Itychus*” stock arose in South America, and that it has produced an array of forms in which the “*Itychus* characters” as well as several other morphological features are reduced or absent. In other words, it appears that most observed transformations are in the direction of plesiotypic=complex,

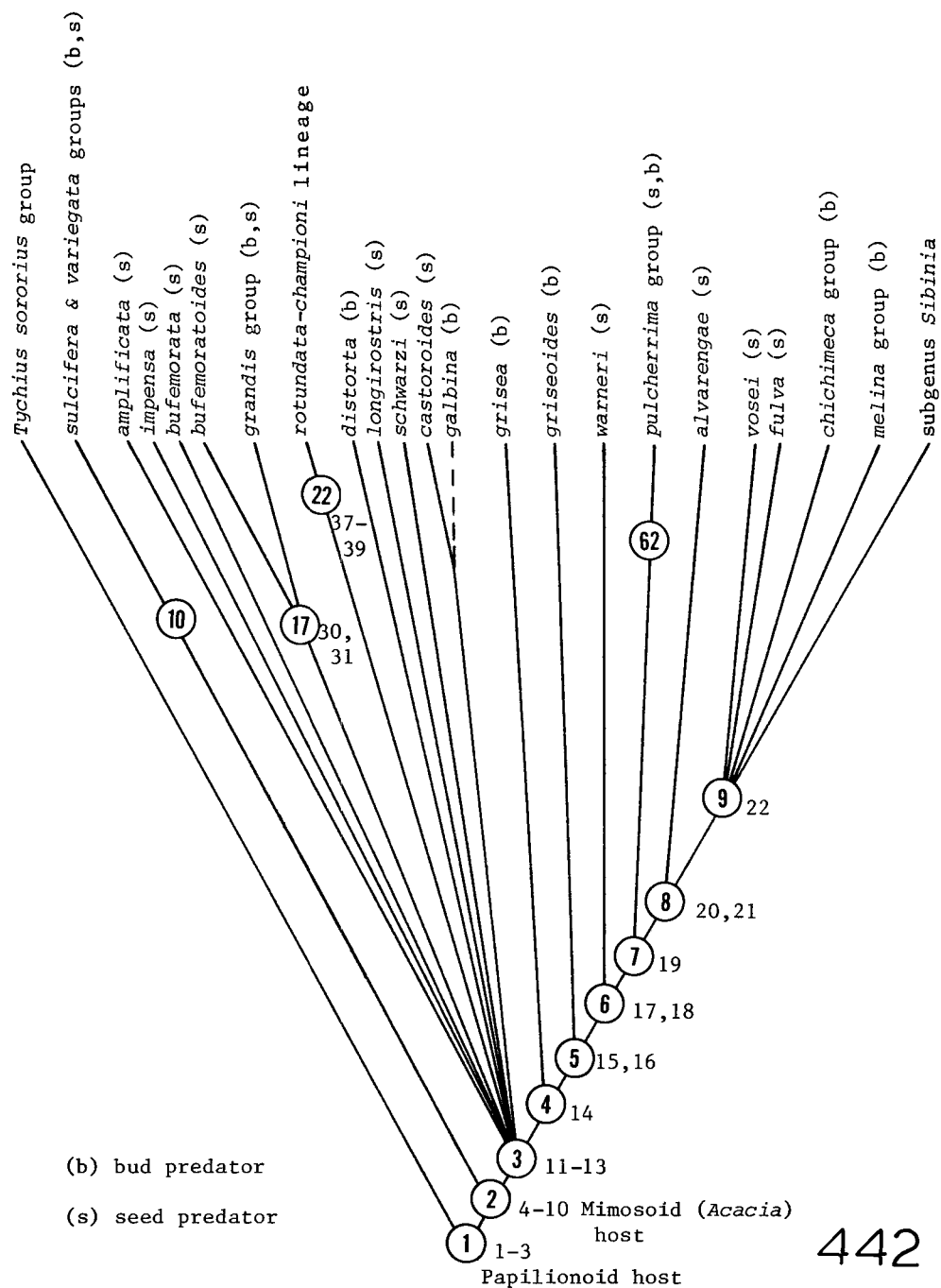


Fig. 442. Reconstructed phylogeny of the major *Sibinia* lineages (the *Tychius sororius* group is the sister group of the genus *Sibinia*; see text and appendix II).

to apotypic=simple, and that this transformation has occurred repeatedly in different lineages. This hypothesis accounts for the presence of what appear to be remnants of “*Itychus* characters”, such as the tendency in many different species for the hind margin of the eye to be raised to various degrees, scattered throughout the genus. It also appears to be well correlated with what is known about the geological history of the Neotropical Region and reconstructions of the history of its flora.

Reduction of prominent characters: bud and seed predators. – Much of the postulated reduction of the “*Itychus* characters” and other characters in *Sibinia* can be explained in terms of the life histories of the species. Among Mimosoideae-associated *Sibinia* (subgenus *Microtychius*), two distinct life history categories are distinguished: (1) seed predators, and (2) bud predators. Two features of importance to phylogeny are evident: (1) seed predators are larger than bud predators, and (2) some of their structural features are more pronounced, their scale patterns more distinct. The seed predator habit is inferred to be plesiotypic on the basis of ex-group comparisons with *Tychius* and Lignyodini members. All lignyodines whose life histories are known develop in fruit of their hosts (Oleaceae and Rubiaceae, Clark *et al.* 1977); almost all *Tychius* whose life histories are known are seed predators (of papilionoid legumes), none are known to develop in flower buds (see Clark and Burke 1977).

Bud predators as well as seed predators are represented in all major lineages and in nearly every species group of the subgenus *Microtychius*. Bud and seed predators are frequently encountered at the same time on the same plant (microsympatry, Table 3, p. 104). Members of these microsympatric bud-seed predator pairs are sometimes easily recognized as belonging to the same species group. Many of the bud predators appear to be reduced versions of the seed predator member of the pair, although in all instances there are structural modifications in one or the other which indicate that the two are good species and not ecophenotypes (phenotypic differences expressed in conspecific individuals resulting from different environmental conditions). The shift from seeds to buds as the site of larval development must have occurred independently several times. I have not observed cases of obvious intermediacy—most species are easily categorized as either bud or seed predators, not both. Thus, reduction in structural complexity associated with reduction in overall size resulting from the shift from seeds to buds as the larval developmental site probably accounts for a good deal but not all of the apparent reduction in morphological features observed in *Sibinia*; reduction of prominent features in various seed predator *Sibinia* is not readily explainable.

In summary, some of the most complex and pronounced character states in *Sibinia* are apparently plesiotypic for the group. These prominent plesiotypic features are referred to as “*Itychus* characters” because the species possessing them were placed in the genus *Itychus* by Kissinger (1962). The species exhibiting these characters form a distinct paraphyletic group, the “*Itychus*” stock. Much evolution in other *Sibinia* has apparently been accompanied by reduction and eventual loss of the “*Itychus*” and other characters. Some reduction is attributable to reduction in overall body size associated with the shift in the site of larval development from seeds to flower buds. Because of this reduction, many *Sibinia* cannot be associated with their respective lineages without reference to species exhibiting intermediate character states. This has made determination of many phylogenetic relationships difficult, subjective, or impossible, hence the phylogeny is only partially reconstructed.

Radiation of the “*Itychus*” Stock (Fig. 442).

The *Sibinia* stem ancestor (ancestor 2) was characterized by apotypic states 4–10 (appendix II). With this combination of characters as well as apotypic states 1–3, this ancestor resembled species assigned to the “*Itychus*” stock. Ancestor 2 was probably South American and probably had an *Acacia* host which belonged to a section of that genus recognized by some authors as the

genus *Senegalia*; although hosts of South American "Itychus" are unknown, all three North American members of the group have *Acacia* (*Senegalia*) hosts. It was probably an element of the deciduous or semideciduous forest which occupied south-central South America during the early Tertiary, Solbrig's (1976) "Tertiary-Chaco paleoflora".

Ancestor 2 produced the ancestor of the *sulcifera-variegata* lineage (ancestor 10) whose *Acacia* host was probably an element of the xerophytic Monte vegetation which developed from the Chaco-Tertiary paleoflora during the late Tertiary in what is now northern Argentina. The *sulcifera-variegata* lineage appears to have expanded across the tropics via the dry intermountain valleys and lee slopes of the Andes into North America.

Ancestor 3 apparently gave rise to several species, groups of species, and lineages which are depicted as having arisen simultaneously. This depiction reflects my inability to find evidence for more complete reconstruction of the phylogeny, and is probably also an indication that the South American *Sibinia* fauna is very incompletely represented in the present study. Some descendants of ancestor 3 (*S. impensa*, *S. amplificata*, *S. bufemorata*, *S. bufemoratoides*) exhibit numerous "Itychus characters", whereas others (*S. distorta*, *S. schwarzi*, and some *rotundata-championi* lineage and *grandis* group members) have few. All others (other *rotundata-championi* lineage and *grandis* group members, *S. longirostris*, *S. casteroides*, and *S. galbina*) have no recognizable "Itychus characters" but are inferred to have arisen from ancestor 3 because of evident relationship to species which do (some *grandis* group and *rotunda-championi* lineage members) or because I cannot find evidence of sister group relationships between them and other known *Sibinia* (*S. castoroides*, *S. longirostris*, *S. galbina*). Ancestor 3 was apparently associated with more mesic South American savanna vegetation which developed into the Campos Cerrados and related savanna formations which occupy much of Brazil today (see Hueck & Siebert 1972). The Brazilian Campos Cerrados today have a far greater concentration of "Itychus" stock members than any other single region. Apparently, all extant *Sibinia*, with the exception of the *sulcifera-variegata* lineage are derived from this Campos Cerrados "Itychus" stock which expanded throughout the neotropics. Descendants of this stock also radiated into the semi-arid and arid South American Monte and North American Sonoran, Mohavean, and Chihuahuan semi-deserts where they became sympatric with *sulcifera-variegata* lineage members. Further collecting in South America, especially Brazil, will probably result in discovery of additional species which may make possible a more detailed reconstruction of the phylogeny of the species and groups derived from ancestor 3.

Ancestor 4 gave rise to *S. grisea*, a species of the Campos Cerrados of Brazil, and of Mexico and Central America, which is (in Mexico) a bud predator of *Acacia paniculata*. South American males of this species have the apex of the median lobe entire as do other "Itychus", but Mexican males have the apex slightly sclerotized (Fig. 87). Reduction of sclerotization of the apex of the median lobe is a group trend in *Sibinia* and is undoubtedly an apotypic condition. Reduction has apparently occurred in Mexican populations of *S. grisea*, and may indicate that the species arose in South America and dispersed into Central America and Mexico.

Ancestor 5 gave rise to the bud predator *S. griseoides* of northern Argentina, and to ancestor 6 which produced *S. warneri*, a Brazilian seed predator.

Ancestor 7 gave rise to the *pulcherrima* group. The ancestor of this group (ancestor 62) which has species in the circum-Caribbean Region and in Brazil, probably left the plesiotypic *Acacia* host association and acquired a host in the genus *Pithecellobium*. Reduction and loss of "Itychus characters" apparently occurred rapidly as the group expanded and differentiated as discussed below. Ancestor 7 also gave rise to ancestor 8 which occurred in South America where it gave rise to a Brazilian seed predator, *S. alvarengae*.

Ancestor 9 was probably Middle American. It gave rise to several species whose relationships are not fully determined. Two of these, *S. vosei* of southern Mexico and northern Central

America, and *S. fulva* or southwestern United States and Northern Mexico are *Acacia* seed predators. *S. vosei* expresses many "Itychus characters" and has probably diverged little from ancestor 9, but *S. fulva* is characterized by reduction of some "Itychus characters": the head is only feebly constricted, the postocular lobes of the pronotum weakly developed, the median portion of sterna 1–4 of the male only shallowly concave, the scales unmodified, and the femora not channeled beneath. *S. fulva* is probably more recently derived from the "Itychus" ancestor, having become associated with the flora of the temperate U.S.–Mexican High Plateau. Two groups of bud predators, the *chichimeca* and *melina* groups probably also arose from ancestor 9 in Middle America, but are represented today in Middle as well as in South America. The ancestor of the *melina* group (ancestor 69) possibly left the plesiotypic *Acacia* host association and acquired a *Mimosa* host. These groups are discussed in detail below.

Evidence that the subgenus *Sibinia* is derived from ancestor 9 is weak. A few species in the subgenus exhibit what appear to be apotypic states 21–22 in reduced condition, but no subgenus *Sibinia* members exhibit apotypic states 1–3, 7–10, or 12–20, inferred in ancestors 1–9. Nevertheless, similarity of the median lobe in subgenus *Sibinia* members (Figs. 419–426) to that of the *chichimeca* group member *S. azteca* (Fig. 388) (almost certainly derived from ancestor 9) could possibly be the result of parallel reduction from the same ancestral stock (ancestor 9). Subgenus *Sibinia* members are most divergent and diverse in the Old World and have non-legume hosts.

The *sulcifera-variegata* lineage (Fig. 443).

I found no striking synapotypic features which could be inferred for the ancestor of the *sulcifera* and *variegata* groups (ancestor 10), but overall similarity of seed predator members of the two groups (*S. sulcifera*, *S. asulcifera*, and *S. variegata*) is so great that there is little doubt that they are sister groups. Furthermore, bud predator members of the lineage are very similar to the seed predators and are easily assigned to one or the other of the two groups. Members of the *sulcifera* group occur in the Monte and adjacent "Western Chacorandes" regions (see Hueck and Siebert 1972) of Argentina, as well as in North America in the Sonoran, Mohavean, and Chihuahuan Desert Regions and in the arid Valley of Tehuacan, Mexico. *Variegata* group members are known only from the Chihuahuan Desert and surrounding Mesquite-Grassland Zone of Mexico and southwestern United States and the Rio Balsas drainage basin of southern Mexico. Ancestor 10 probably had an *Acacia* host as did ancestor 2. Members of the *sulcifera* group have hosts in the genera *Acacia* and *Prosopis*; *variegata* group hosts are all species of *Acacia*. *Prosopis*-associated members of the lineage appear to form a monophyletic subgroup of the *sulcifera* group. The ancestral *Acacia* host was probably a xerophyte in the Pliocene vegetation which gave rise to the extant vegetation of the Argentinean Monte. Occurrence of *sulcifera* and *variegata* group members in North America can be attributed to Pliocene or post-Pliocene expansion across the tropics along the slopes of the rising Andean Cordillera.

The sulcifera group.— The ancestor of the *sulcifera* group (ancestor 11) gave rise to the large distinctive *S. sulcifera* which probably occurs in Mexico (the only known specimens were intercepted in quarantine at the U.S.-Mexican Border), but whose host is unknown. Ancestor 12 produced ancestors 13 and 15. Both of these gave rise to North American species; 13 gave rise to South American species. Although *S. sulcifera*, the most "Itychus"-like member of the lineage is North American, it appears more likely that the lineage arose from South American stock which, as discussed above, became associated with a xerophytic host in the developing Argentine Monte. Ancestor 13 probably gave rise to the North American predator of *Prosopis* buds, *S. setosa*, and to ancestor 14. Ancestor 14 was probably South American and there gave rise to *S. sulcifera*, a seed predator, and *S. concava*, a bud predator. Close overall

resemblance of these two species to each other indicates that they are a microsympatric bud-seed predator pair. Specimens of *S. concava* were reportedly collected on *Prosopis*, and I believe that *Prosopis* is the host of *S. asulcifera* as well, even though labels on the only known specimens indicate occurrence on several different plants. The close overall resemblance of *S. asulcifera*, *S. concava*, and *S. setosa* to each other, along with the known *Prosopis* association of the latter two is evidence that the three species form a monophyletic group even though no marked synapomorphies could be found to support this hypothesis.

Ancestor 15 gave rise to two bud predators, *S. cuauhtemoc* of the Valley of Tehuacan, Mexico, and *S. transversa* of southwestern United States. These retain the plesiotypic *Acacia* host association.

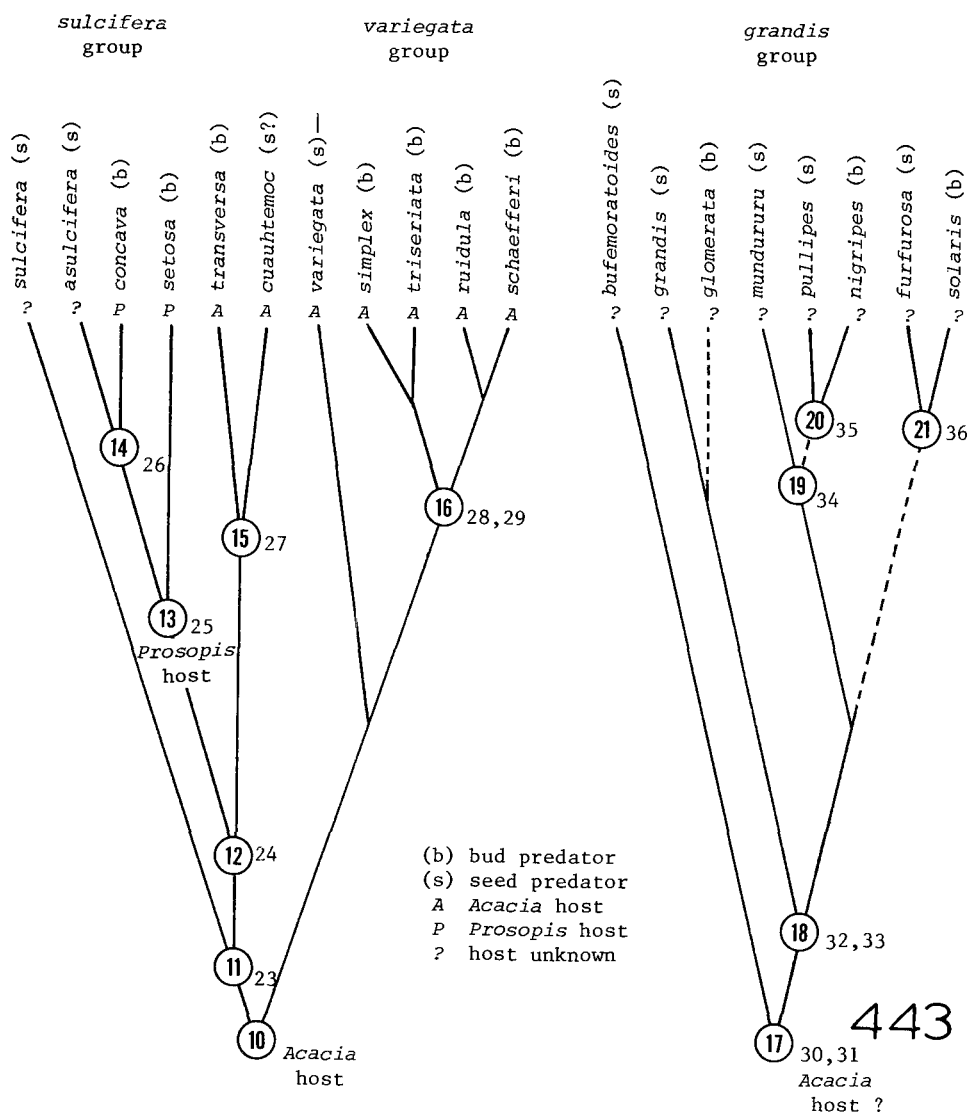


Fig. 443. Reconstructed phylogeny of the *Sibia sulcifera*, *variegata*, and *grandis* groups; see text and appendix II.

The variegata group.— The *variegata* group ancestor (ancestor 16) was probably an *Acacia* seed predator in the xerophytic forest component of the Madro-Tertiary geoflora (see Axelrod 1958) of southwestern North America. Three subgroups are indicated: a seed predator, *S. variegata*, and two vicariant bud predator sister pairs, *S. simplex* and *S. triseriata*; and *S. ruidula* and *S. schaefferi*. I found no indication of sister group relationships among these three components. The known *Acacia* hosts of *variegata* group members are characterized by an inflorescence of yellow flowers in a congested globose head. These probably form a natural, although to my knowledge, not formally recognized group. The distributions of two of these, *A. neovernicosa* and *A. constricta*, coincide with the limits of the Chihuahuan “hot” desert (see Shelford 1963) and the species are frequently found side by side; *A. constricta* also occurs south of the Mexican Trans-Volcanic Sierra. Isely (1969) suggested that *A. neovernicosa*, a diploid, is ancestral to *A. constricta*, a tetraploid, so it is not surprising that *S. variegata* and *S. simplex* are both associated with both plant species. Neither weevil species is known from south of the Trans-Volcanic Sierra, however.

The other three *variegata* group members are bud predators of *A. farnesiana* and *A. schaffneri*. These acacias occur in the mesquite and *Acacia* grassland zones which surround the Chihuahuan “hot” desert. Both of them, or closely allied forms (they are allied to *A. farnesiana* and *A. tortuosa* (L.) Willd. which Isely (1969) considers to be restricted to the West Indies) also occur in Mexico south of the Trans-Volcanic Sierra as well as in Central America and northern South America. They are frequently sympatric, at least where I have observed them in the United States and Mexico, and the weevils associated with them apparently have no preference for one or the other. Members of the *variegata* group exhibit microsympatry within the Chihuahuan “hot” desert and surrounding grassland zones, parapatry between those two zones, and allopatry between them and the Arid Tropical Scrub south of the Trans-Volcanic Sierra. The weevils exhibit vicariance patterns between the three vegetation zones, and between components of two host complexes (*A. neovernicosa* and *A. constricta* from one complex, *A. schaffneri* and *A. farnesiana* the other). The bud predator *S. triseriata*, which occurs on *A. schaffneri* in the *Acacia*-Grassland Zone of southern Texas and northeastern Mexico, is sister to the bud predator *S. simplex* whose hosts, *A. constricta* and *A. neovernicosa*, are elements of the Chihuahuan “hot” desert flora. The members of the other bud predator sister pair, *S. ruidula* and *S. schaefferi*, are both associated with *A. schaffneri* and *A. farnesiana*, but *S. ruidula* occurs north, *S. schaefferi* south of the Mexican Trans-Volcanic Sierra.

Sibinia bufemoratoides and the *grandis* group (Fig. 443).

The *grandis* group is a heterogeneous assemblage of species, many of which do not appear to be closely related, an indication that many members of the group are either extinct or remain to be discovered. *S. grandis* has several “*Itychus* characters”; but the remaining six species assigned to the group are assumed to have secondarily lost most or all of those plesiotypic features.

Ancestor 17, like ancestor 3, probably occurred in South America in the Campos Cerrados or related formations. It gave rise there to *S. bufemoratoides* of Brazil, a member of the “*Itychus* stock” in which apotypic states 30 and 31 are only feebly expressed and to ancestor 18. The descendants of ancestor 18 constitute the *grandis* group.

Ancestor 18 probably resembled *S. grandis*, a seed predator of southeastern Brazil which has reduced “*Itychus* characters” including feebly constricted head and feebly developed postocular lobes. The distally inflated femora of *S. grandis* bear no resemblance to the large, ventrally channeled “*Itychus*” femora (apotypic state 9) of *S. bufemoratoides*, and apparently represent an apotypic simplification. The bud predator *S. glomerata* is tentatively associated with *S. grandis* because the two occur in the same geographical area and are similar enough to be a microsympatric

bud-seed predator pair; their host is unknown.

Ancestor 19 gave rise to *S. mundururu* of the Caatinga Region of northeastern Brazil and possibly to ancestor 20. These retain no “*Itychus* characters” except for armature of minute asperities on the internal sac, but *S. mundururu* does resemble *S. grandis* in form and in scale color and pattern. The descendants of ancestor 20, *S. pullipes* and *S. nigripes* are probably a seed-bud predator sister pair and probably have the same or closely related hosts. Both occur in the Campos Cerrados of eastern Brazil. They resemble each other very closely but do not resemble *S. grandis* or *S. mundururu*, and, since apotypic state 34 is not unique to *S. mundururu*, *S. pullipes*, and *S. nigripes*, the relationship of the latter two to *S. mundururu* is questionable.

The inferred descendants of ancestor 21, *S. furfurosa* and *S. solaris*, resemble each other closely and are probably a sister pair of seed-bud predators (*S. furfurosa* is largest). Both occur in the West Indies; *S. solaris* is also known from Quintana Roo, Mexico. Their host or hosts are unknown.

The *rotundata-suturalis* and *hispida* stocks (Fig. 444).

The history of these paraphyletic groups is interpreted as a series of vicariance events which accompanied expansion from South America into Central America and then into North America, followed by radiation of the *championi* lineage (cladistically part of the group) throughout Mexico and Central America and back into South America (Fig. 453). The sequence of these events is inferred on the basis of morphological, host, and chorological relationships of seed predator members of the stock. It is marked by step-wise reduction and eventual loss of “*Itychus* characters” in the member taxa, beginning with the “*Itychus*”-like *S. rotundata* and *S. tropidorhyncha* of Panama, through *S. suturalis* of southwestern United States which retains a few “*Itychus*” features, to the *championi* lineage which retains only vestiges of “*Itychus* characters”. The positions of several branching points in this lineage are determined on the basis of negative reduction-loss morphological evidence, but the sequence agrees with chorological and host relationships. Although some bud predators have apomorphies which indicate their sister group relationships to various seed predators, most do not express those apotypic states which indicate sister group relationships among the seed predators themselves. Hosts, known for several North American members of the lineage, include species of *Calliandra* and *Lysiloma* (both Ingaeae) and *Mimosa* (Mimoseae). The lineage ancestor probably had a host in the tribe Ingaeae, as do the “*Itychus*”-like *S. tessellata* and *S. candidata*, but hosts of the more plesiotypic *S. rotundata*, *S. tropidorhyncha*, and *S. altensis* are unknown. Ingaeae and Mimoseae are probably apotypic host associations as contrasted with the plesiotypic “*Itychus*” *Acacia* association.

In the following discussion the history of the *rotundata-suturalis* stock is outlined in terms of evidence provided by seed predator members of the group, followed by discussion of bud predator members. The *hispida* stock is discussed separately.

The rotundata-suturalis stock.— Although the ancestor of this stock (ancestor 22) retained many “*Itychus* features”, it was characterized by loss of apotypic state 2, and significant reduction of 3, 9, and 10. It produced *S. rotundata* of Panama and ancestor 24. The latter was characterized by loss of apotypic state 10, but otherwise was similar to ancestor 22 (especially since it retained the plesiotypic tessellate scale pattern). It gave rise to the Panamanian *S. tropidorhyncha*.

As the stock expanded northward it gave rise to ancestor 27 which produced the Guatemalan *S. altensis*. This seed predator, characterized by loss of apotypic state 3, closely resembles *S. tropidorhyncha*. Ancestor 27 also gave rise to ancestor 28 in which those conditions inferred in the ancestor of the *rotundata-championi* lineage ancestor, apotypic states 37-39, were secondarily lost. This ancestor gave rise to *S. tessellata* which has hosts in the plant genus

Calliandra in the Tropical Deciduous and Thorn Forest vegetation zones of Mexico and Guatemala. That species resembles *S. altensis* of Guatemala in form, vestiture, and genitalic characters, but is characterized by complete reduction of apotypic states 2 and 9.

Although resembling *S. tessellata* in form, ancestor 30 had lost the plesiotypic tessellate scale pattern. It gave rise to the Mexican *S. candidata* which occurs on *Lysiloma divaricata* (Ingaeae) in the Tropical Deciduous Forest Zone of Mexico. It also gave rise to ancestor 33 which gave rise to *S. suturalis*, a varied species or species complex whose members retain the robust convex "Itychus" body form and have slightly raised eyes, but have lost the other plesiotypic "Itychus characters". *S. suturalis* has penetrated the temperate Chihuahuan Desert and surrounding mesquite grassland zone of northern Mexico and southwestern United States, and ranges further north than any other *rotundata-suturalis* stock members. One of its various forms resembles *S. candidata* very closely and probably is the most plesiotypic. This form occurs in

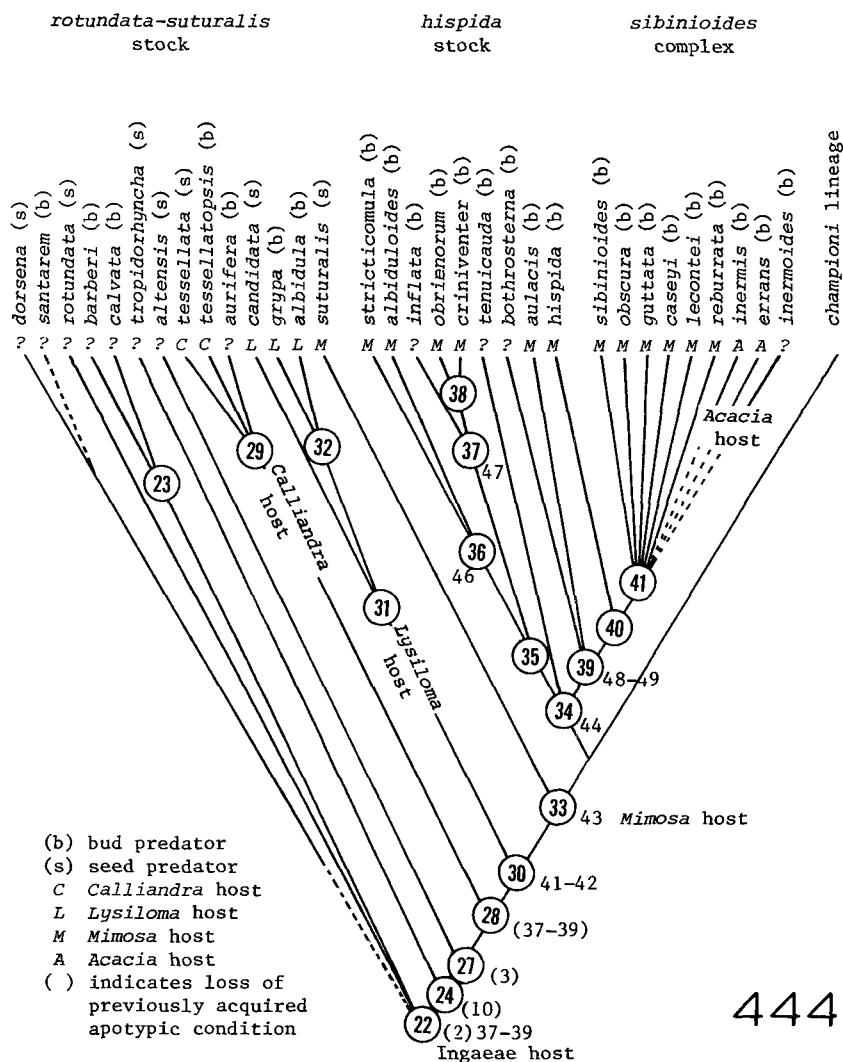


Fig. 444. Reconstructed phylogeny of the *Sibinia rotundata-suturalis* and *hispida* stocks; see text and appendix II.

southern Mexico where it is sympatric but not microsympatric with *S. candidata* (it occurs on *Mimosa benthami*).

The seed predator *S. dorsena* obviously belongs to the *rotundata-suturalis* stock (it expresses apotypic states 37-39), but does not fit into the chorological pattern described above. It is known only from the Amazon Basin of Brazil. It differs somewhat in form and scale color from the species in the transformation series described above, but like some members of that series, exhibits loss of apotypic state 3 and reduction of apotypic states 2 and 9. Perhaps ancestor 22 was South American and *S. dorsena* represents a lineage also descended from that ancestor in which parallel reduction and loss of "Itychus characters" occurred. Alternatively, *S. dorsena* may have arisen in Central America after divergence of ancestor 24, and secondarily dispersed to South America.

Several bud predators are apparently sister to various seed predators of the *rotundata-suturalis* stock; although, as stated above they do not exhibit all of the apotypic states inferred in the ancestor of that group (ancestor 22). Two bud predators which closely resemble each other are *S. calvata* of Panama and *S. barberi* of Guatemala. Their common ancestor is depicted as having arisen simultaneously with *S. rotundata* from ancestor 22, although the former may have arisen from either ancestor 24 or 27. Both bud predators express apotypic state 37 (reduced), but not apotypic states 38 and 39.

The bud predator *S. tessellatopsis* closely resembles the seed predator *S. tessellata*, but is smaller and lacks the tessellate pattern of light and dark scales. A posteromedian transverse band of white scales, prominent in *S. tessellata*, is also distinctly indicated in *S. tessellatopsis*. The two were microsympatric on *Calliandra* in the state of Veracruz, Mexico. The Panamanian *S. aurifera* (host unknown) lacks the band of white scales and is associated with *S. tessellata* and *S. tessellatopsis* on the basis of resemblance to the latter.

The bud predators *S. grypa* and *S. albidula* occur on *Lysiloma divaricata* along with the seed predator *S. candidata*. The bud predators bear a strong general resemblance to each other and are probably sister species. They do not closely resemble *S. candidata*, however, and their sister group relationship to that seed predator is inferred on the basis of shared host alone. They do resemble other *rotundata-suturalis* stock bud predators in having the hind margin of the eye distinctly (although feebly) raised, the eye flat and tilted slightly forward, but these are plesiotypic conditions.

The bud predator *S. santarem* and the seed predator *S. dorsena* may also be a microsympatric bud-seed predator pair. Their host or hosts are unknown but the only known specimens of both species bear identical labels. Phenetic similarity between the adults of the two species is slight, but I can find nothing to indicate that *S. santarem* is sister to any other *Sibinia*.

The hispida stock. — This is a heterogeneous assemblage of bud predators. Some members of the group occur in Central America but most occur in Mexico and southwestern United States. The inferred sister group relationship of the *hispida* stock and *S. suturalis* is based solely on the fact that they share several hosts (Tables 1 and 3, p. 99 and 104). Ancestor 35 probably occurred south of the Mexican Trans-Volcanic Sierra where it gave rise to ancestor 36. The descendants of that ancestor, *S. stricticomula* and *S. albiduloides*, are microsympatric bud predators of *Mimosa benthami* in the Balsas Basin-Valley of Tehuacan region just south of the Trans-Volcanic Sierra. In the sister branch, ancestor 37 gave rise to *S. inflata*, also of the Balsas Basin (state of Morelos, Mexico), and to ancestor 38, probably of Guatemala. The latter gave rise to the bud predator *S. obrienorum* (which retained apotypic state 47) and possibly to *S. criniventer* which lacks both apotypic states 45 and 47 but is apparently microsympatric with *S. obrienorum* on *Mimosa platycarpa*.

Ancestor 39 was probably an element of tropical Mexican Arid Tropical Scrub or Tropical Deciduous Forest zones. It gave rise to *S. bothrosterna* (host unknown) which occurs south

of the Trans-Volcanic Sierra in Chiapas, and to *S. aulacis* which occurs on *Mimosa eurycarpa* on and north of the Trans-Volcanic Sierra. Males of the former species retain the plesiotypic condition of internal sac armed throughout with large spines, but males of *S. aulacis* have highly modified genitalia. Ancestor 39 also produced *S. hispida* on the U.S.–Mexican High Plateau and the *sibinioides* complex with members on the High Plateau and in the Balsas Basin-Valley of Tehuacan region. A vicariance pattern with *S. bothrosterna* in southern Mexico, *S. hispida* on the Plateau, and *S. aulacis* in the intervening area is apparent.

The *sibinioides* complex probably shared a recent common ancestor with *S. hispida* as indicated by strong overall similarity of *S. hispida* to several *sibinioides* complex members, and the fact that *S. hispida* shares hosts with some members of that group (Table 1, p. 99). The sternal channel inferred in ancestor 39 is not present in the *sibinioides* complex nor in *S. hispida*, but the long erect sternal setae of the latter species may be vestiges of that character. The *sibinioides* complex probably represents relatively recent radiation on and adaptation to different species of *Mimosa*. The species resemble each other very closely and are distinguished mainly by scale patterns, color, and minor variations in body form. Species status is indicated by sympatric occurrence of some phenetically recognized groups, although on different hosts. Unlike most of the species assigned to the *sibinioides* complex, *S. inermis* and *S. errans* have hosts in the genus *Acacia* rather than *Mimosa*. The two doubtfully belong to the *sibinioides* complex although their resemblance to the other species in the group is very close and the male genitalia cannot be distinguished. Adults of *S. errans*, however, have mucronate metatibiae and pronotal scale pattern similar to that in *chichimeca* group members. Both species are retained in the *hispida* stock since there is no good evidence of alternative placement.

The bud predators, *S. tenuicauda* of Honduras and *S. inermoides* of Mexico are also tentatively assigned to the *hispida* stock. *S. inermoides* is placed there because of its general resemblance to *S. inermis*, although it has modifications of the legs and male genitalia. The male genitalia of *S. tenuicauda* closely resemble those of *S. stricticomula* and *S. bothrosterna*.

The *championi* lineage (Figs. 445, 446).

Members of the *championi* lineage occur throughout Mexico, Central, and South America. The ancestor of the lineage (ancestor 42) probably had as host a species of *Mimosa* with an inflorescence of pink flowers in a large congested globose head such as that of *M. albida* and *M. pigra*. All known hosts of *championi* lineage members (Table 1, p. 99) (except *S. nana* whose placement is questionable) have this type of inflorescence and probably belong to a natural although not to my knowledge formally recognized group. One *championi* group member, *S. conferta*, which occurs from Mexico to Costa Rica on *M. albida*, is inferred to be a sister to the other three members of the group because of overall similarity. The others, *S. championi*, *S. peniculata*, and *S. foveolata*, occur only in the Tropical Deciduous Forest zone of southern Mexico, where their common ancestor (ancestor 44) probably occurred.

Ancestor 45 gave rise to the *aspersa* and *zapoteca* groups and possibly to the *americana* group and *S. aspersoides* as well. Monophyly of the *aspersa* group is inferred solely on the basis of overall similarity of its members. One member of the group, *S. aspersa*, occurs throughout Mexico and Central and South America, but the others are restricted, *S. picturata* to Guatemala, *S. acicularis* to southeastern Brazil, and *S. ferruginosa* to Argentina. The group ancestor was possibly widespread throughout the neotropics as is *S. aspersa*, but the latter probably acquired its wide distribution relatively recently. It is sympatric, possibly microsympatric, with *S. ferruginosa* in Argentina and its range overlaps that of the other two *aspersa* group members. A similar pattern is exhibited in the *zapoteca* group: *S. zapoteca* is widespread from southern Mexico to Brazil, *S. robusta* is known only from Panama, *S. bellula* and *S. collibita* only from central Brazil.

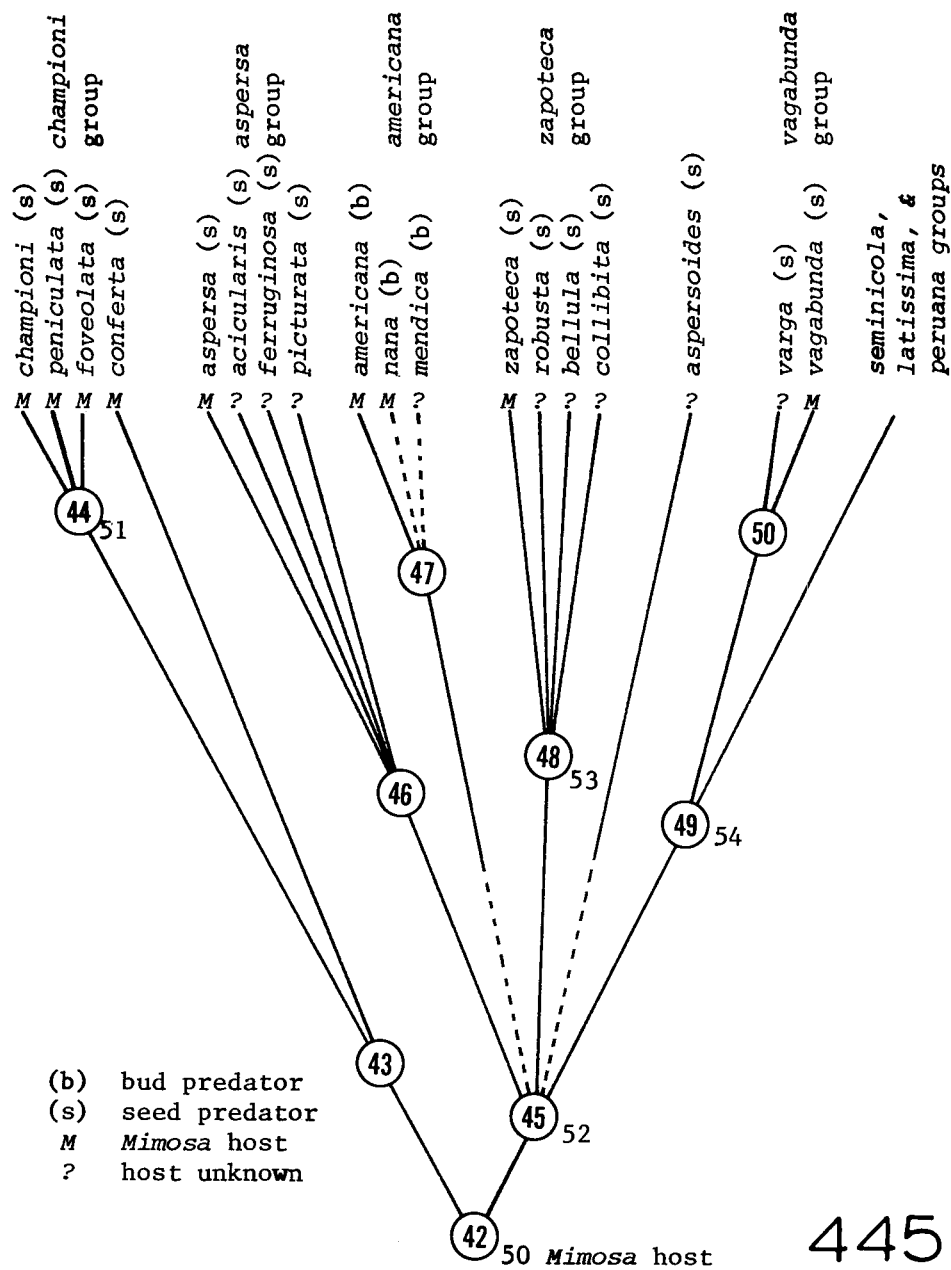


Fig. 445, Reconstructed phylogeny of the *Sibinia championi*, *aspersa*, *americana*, *zapoteca*, and *vagabunda* groups; see text and appendix II.

The relationship of the bud predator *S. americana* to the *aspersa* and *zapoteca* groups is questionable. It is also widespread from Mexico to Argentina. It shares hosts with *championi* group members, and possibly with *S. aspersa* and *S. ferruginosa* as well (it was collected with the latter two species at different localities in northern Argentina). It does have apotypic state 52 but does not closely resemble *aspersa* or *zapoteca* group members. Two other bud predators, *S. nana* of Mexico and *S. mendica* of Brazil, are tentatively associated with *S. americana* on the basis of similarity to each other and to that species, although as mentioned previously, the host of *S. nana* is apparently unrelated to other *championi* lineage hosts and the host of *S. mendica* is unknown. The Brazilian *S. aspersoides* may also have arisen from ancestor 45. It has apotypic state 52 and has scales similar to those of *S. aspersa*.

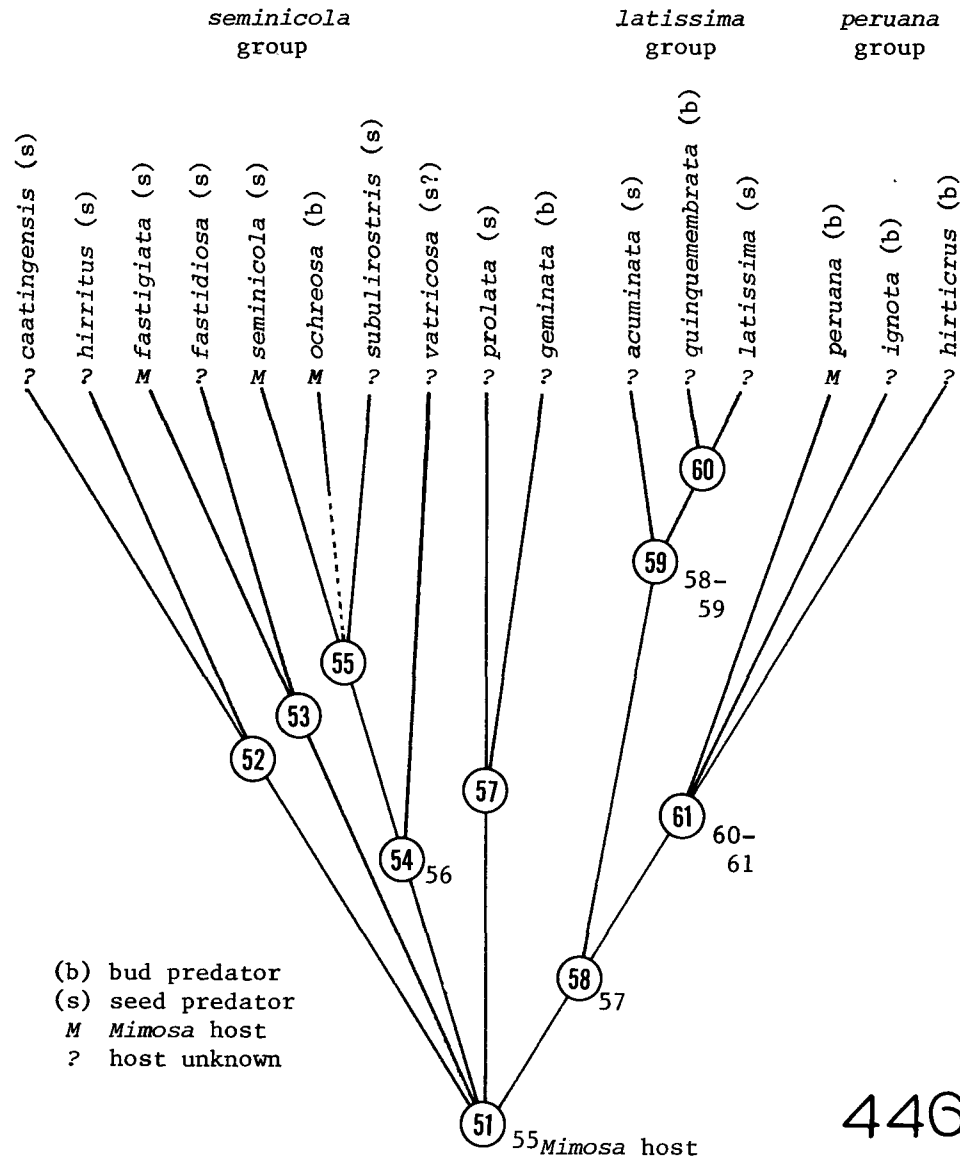


Fig. 446, Reconstructed phylogeny of the *Sibinia seminicola*, *latissima*, and *peruana* groups; see text and appendix II.

Ancestor 49 was probably widespread in Mexico and Central and South America. It gave rise, probably in South America, to the ancestor of the seed predators *S. varga* and *S. vagabunda* (ancestor 50). These are considered sister species because of close overall similarity. Both occur in south-central Brazil where they are apparently sympatric; *S. vagabunda* also occurs in Mexico and Central America.

Ancestor 51 gave rise to the *seminicola*, *latissima*, and *peruana* groups. It was probably widely distributed throughout the neotropics on *Mimosa pigra* or related plant species; *M. pigra* is the only host known for members of these groups and is host of species in two of the three groups. Although their hosts are unknown, distributions of some other South American members of these groups, *S. prolata*, *S. geminata*, *S. subulirostris*, and *S. fastidiosa*, are such that *M. pigra* or related plants may be hosts; all are from lowland areas where *M. pigra* is likely to occur.

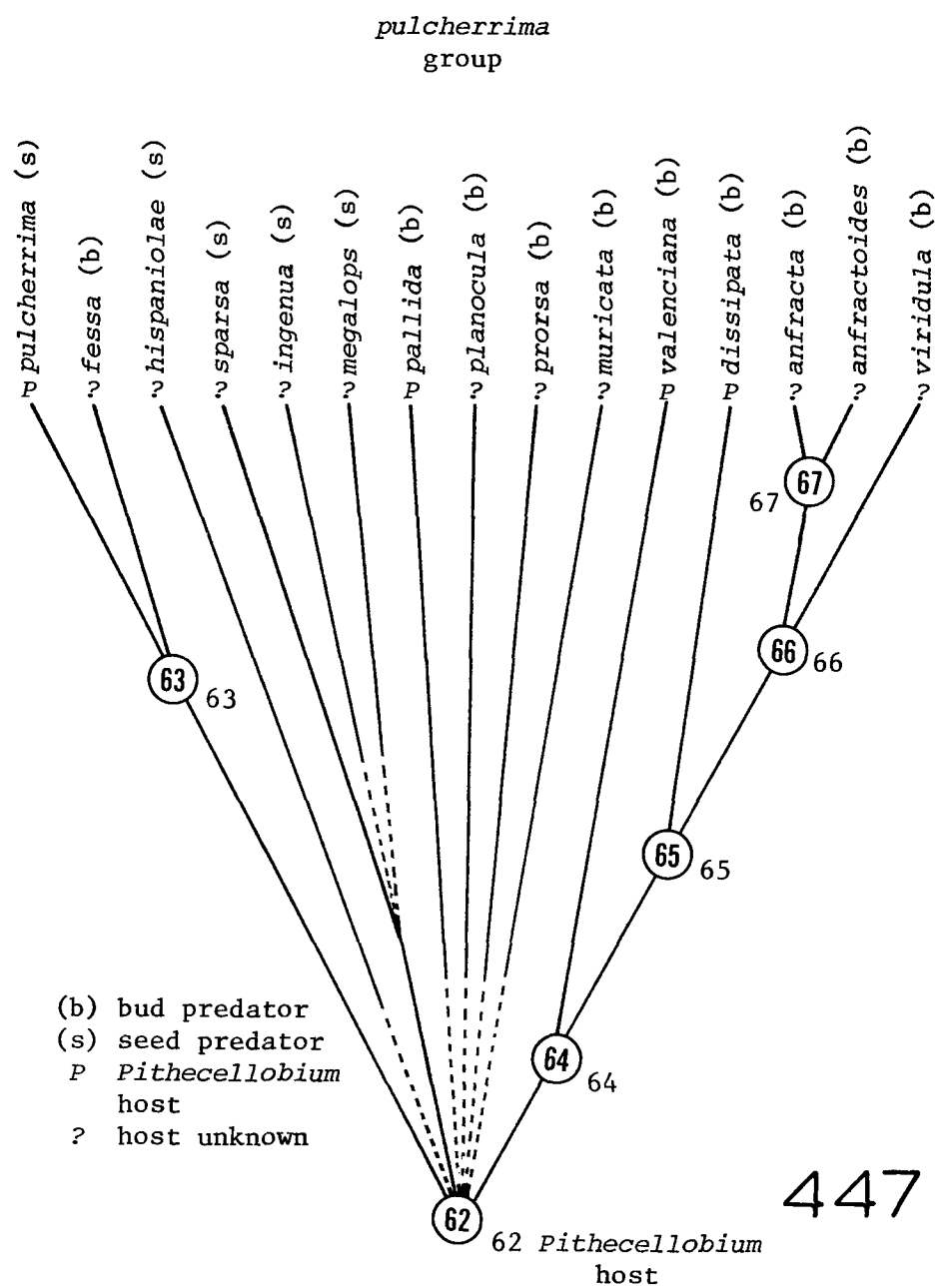
Available information is insufficient to permit complete reconstruction of the phylogeny of the *seminicola* group although relationships of some of its components are evident. *S. hirritus* and *S. caatingensis*, both seed predators, are inferred to be sisters on the basis of overall similarity shared by their adults. They are known only from northeastern Brazil and are apparently sympatric in the state of Rio Grande do Norte. Similarly, the Mexican and Central American *S. fastigiata* and the Brazilian *S. fastidiosa* are judged to be sister species on the basis of overall similarity. The seed predator, *S. prolata*, and the bud predator, *S. geminata*, are sympatric and possibly microsympatric in the state of Sante Fe, Argentina, in the lowland Entre Rios Parkland, where they possibly occur on *M. pigra* or a related plant. They appear to be a seed-bud predator microsympatric pair and resemble each other fairly closely.

Ancestor 54 gave rise to seed predators *S. seminicola* of Texas and northeastern Mexico and *S. subulirostris* of Argentina. These closely resemble each other and appear to be North-South American vicars. Together they are probably sister to *S. vatricosa* of southeastern Brazil although their resemblance to that species is less pronounced. The bud predator *S. ochreosa*, which also occurs on *M. pigra* from Texas to southern Brazil, may be sister to *S. seminicola* and *S. fastidiosa*. It has apotypic state 54 but not states 52, 55, or 56.

Ancestor 58 was probably South American as are all *latissima* and *peruana* group members, and, like the *seminicola* group ancestor, was probably associated with *M. pigra*, as is *S. peruana*. Members of the *latissima* group occur in Paraguay and southeastern Brazil. Two of them, *S. latissima* and *S. acuminata*, are seed predators. The third, the bud predator *S. quinquemembrata*, is probably sister to and possibly microsympatric with *S. latissima*; although adults of the two are distinguished by several characters, the bud predator looks like a miniature version of the seed predator. The *peruana* group includes three bud predators, *S. peruana* which occurs on *M. pigra* in Mexico and Central America and is widespread in South America, *S. ignota* from extreme west-central Brazil, and *S. hirticrus* from northeastern Brazil (hosts unknown). The ancestor of the group was probably South American; occurrence of *S. peruana* in Mexico and Central America and its microsympatry there with some *seminicola* group members is probably attributable to dispersal.

The *pulcherrima* group (Fig. 447)

Most members of this group have lost all but traces of the plesiotypic "Itychus characters". The group is widely distributed throughout Brazil, Central America, and the West Indies, and Mexico. The group ancestor (ancestor 62) probably resembled *S. pulcherrima* in retaining the plesiotypic "Itychus" strongly raised eye and elytral scale pattern, but like that species had other "Itychus characters" reduced or lost. In this ancestor there was probably a shift from the plesiotypic *Acacia* host association to a host in the genus *Pithecellobium* (Ingaeae). The ancestor may have been inter-American or circum-Caribbean as are the seed predator *S. pulcherrima* and the bud predators *S. valenciana* and *S. dissipata*, the most "Itychus-like" *pulcherrima* group members.

Fig. 447, Reconstructed phylogeny of the *Sibinia pulcherrima* group; see text and appendix II.

Ancestor 62 gave rise to ancestors 63 and 64 and possibly to several species of uncertain relationship, most of which do not exhibit apotypic state 62 but are evidently related to species which do. Ancestor 63 gave rise to *S. pulcherrima*, a seed predator of *Pithecellobium unguis-cati* which occurs in Central America, the West Indies, and Mexico, and apparently to *S. fessa*, a Brazilian bud predator. This is indicated by similarity in structure of median lobes of males of the two species; in other features, the two species are quite dissimilar (the median lobe of *S. pulcherrima* is similar to that of some "Itychus" seed predators, especially *S. vosei* and *S. fulva*, and may be plesiotypic for the *pulcherrima* group).

Among species of uncertain relationship inferred to have descended from ancestor 62 is the seed predator *S. hispaniolae* of Haiti which closely resembles *S. pulcherrima* in eye structure (plesiotypic character) and general form. The male of this species is unknown so presence of apotypic states 19 and 62 cannot be ascertained. Adults of seed predators *S. sparsa* and *S. ingenua* of southern Brazil also resemble *S. pulcherrima* somewhat in general form and vestiture but do not have the hind margin of the eye strongly raised. The armature of the internal sac in male *S. sparsa* strongly indicates that the species belongs to the *S. pulcherrima* group, and *S. ingenua* is tentatively placed in that group on the basis of resemblance to *S. sparsa*. Another Brazilian seed predator, *S. megalops*, is tentatively placed near *S. sparsa* and *S. ingenua* because it resembles them, especially the latter, in rostral structure and in the large round eye. It is distinct, however, in scale color and form and in the male genitalia. Three bud predators, *S. planocula* from "Amazonas" and the state of Amapa, Brazil, *S. prorsa*, of northeastern Brazil, and *S. muricata* of southern Brazil, are tentatively placed in the *pulcherrima* group on the basis of similarity to other members of that group in eye structure and possession of large sclerotized elements in the internal sac shared by the adults. Eye structure in adults of most *pulcherrima* group members is probably plesiotypic, however, and members of other groups have similar armature on the internal sac, so assignment of these species to the *pulcherrima* group is questionable. Host data may provide clues to relationship of these species as it does for another bud predator, *S. pallida* of southern Texas and northeastern Mexico. This species has a *Pithecellobium* host as well as eye structure similar to that of *S. pulcherrima*, and is placed in the *pulcherrima* group despite its lack of apotypic state 62.

Relationships among the remaining *pulcherrima* group members are more firmly established, even though all are bud predators. Ancestor 64, like ancestor 62, probably occurred in the circum-Caribbean area where it gave rise to *S. valenciana*, a bud predator of *P. unguis-cati*. Ancestor 65 was probably circum-Caribbean as well. It gave rise to *S. dissipata* of Mexico and Central America which closely resembles *S. valenciana* and *S. pulcherrima* and occurs on *Pithecellobium dulce*. Ancestor 66 was probably widespread in Middle and South America; none of its descendants have known hosts. It gave rise to *S. viridula* of southern Mexico and to ancestor 67 which was undoubtedly South American. It also gave rise to *S. anfracta* and *S. anfractoides* of southeastern Brazil.

The *chichimeca* and *melina* groups and *S. inornata* (Fig. 448).

In addition to *S. vosei* and *S. fulva*, North American species with nearly a full complement of "Itychus characters", ancestor 9 gave rise to two groups of bud predators, the *chichimeca* and *melina* groups, and possibly to the bud predator *S. inornata*.

Most *chichimeca* group members have a dense ventral cluster of posteriorly directed setae (Figs. 386-390) which are almost certainly homologous to the similar complement of setae borne on the large ventral prominence of the median lobe inferred in ancestor 6 (apotypic state 17). The only indication of the prominence itself in the *chichimeca* group, however, is a medioventral sclerotized bridge on the median lobe in *S. chichimeca* and *S. tepaneca*. Ancestor 9 was probably North or Middle American as are most of its inferred descendants,

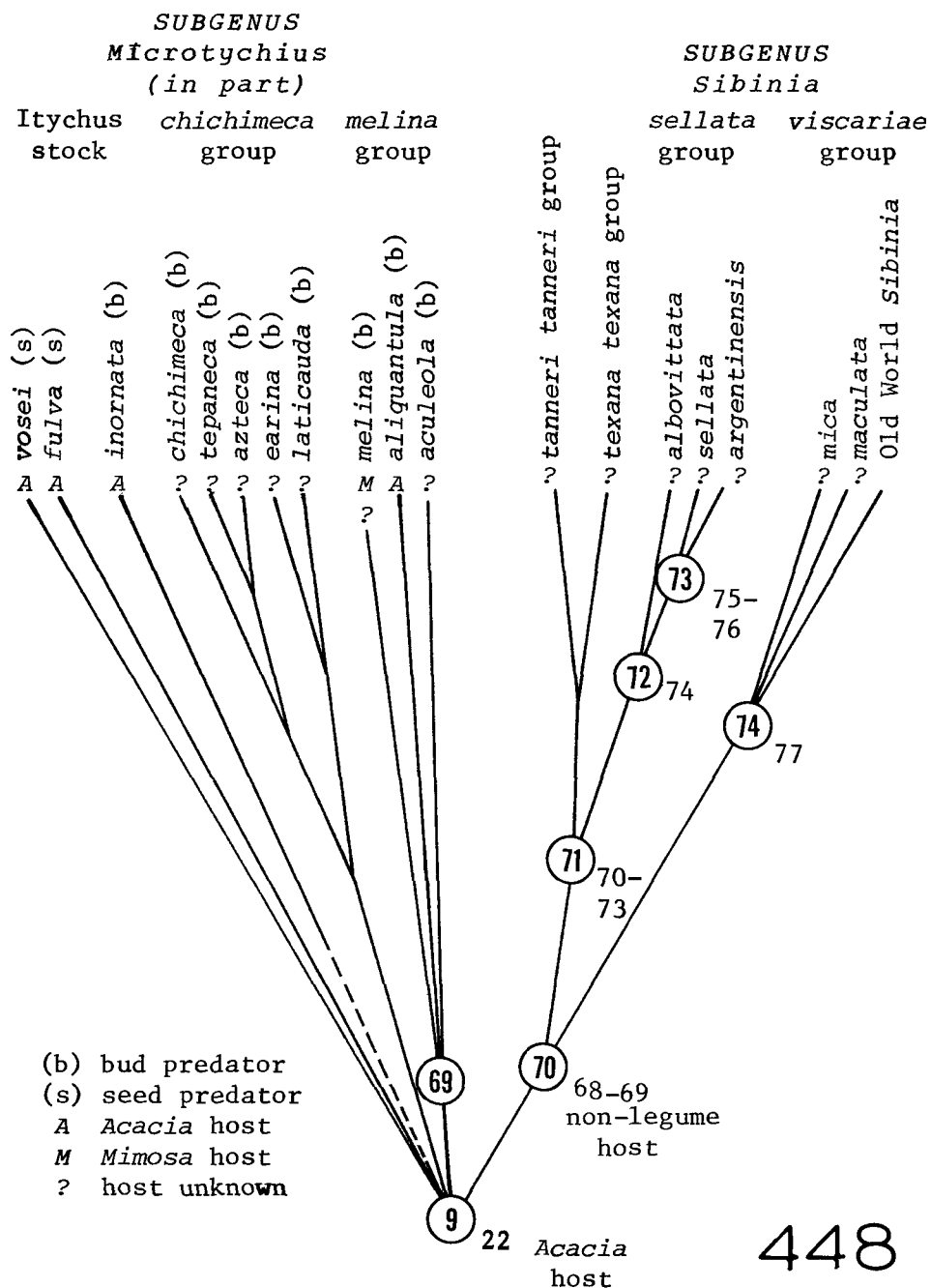


Fig. 448, Reconstructed phylogeny of the *Sibinia* (*Microtychius*) *chichimeca* and *melina* groups, and the *Sibinia* (*Sibinia*) *tanneri*, *texana*, *sellata*, groups, and New World members of the *viscaria* group; see text and appendix II.

although some of these also occur in South America. The inferred branching sequence for *chichimeca* group members is based on the assumptions that these bud predators are derived from an “*Itychus*” seed predator and that evolution has resulted in reduction or loss of the “*Itychus* characters”.

Most “*Itychus*”-like is *S. chichimeca*, which, in addition to apotypic state 17, has several apotypic states (15, 16, 20, 21, 22) which arose in previous ancestors, (20 and 21 reduced in *S. chichimeca*) but has secondarily lost several other “*Itychus*” states (1, 2, 8, 9, 10, 12, 14, 18). *S. tepaneca* closely resembles *S. chichimeca* but has apotypic states 16, 21, and 22 further reduced. *S. azteca* resembles both of these, has apotypic states 11, 15, 16, 20, and 22 even further reduced, and also lacks apotypic state 17. All three of these are known only from Mexico (states of Morelos and Oaxaca); their hosts are unknown.

S. earina of Mexico and Brazil, and *S. laticauda* of Argentina, are also assigned to the *chichimeca* group. These are similar to each other and are very likely sister species. Their relationship to the other three *chichimeca* group members is questionable, however; similarity in the male genitalia could be the result of parallel reduction from a common ancestral stock. In *S. earina* the plates of the spiculum gastrale are somewhat larger in the Brazilian than in the Mexican specimens, a possible indication that that species arose in South America (large plates are plesiotypic).

Like the *chichimeca* group, the *melina* group is probably derived from the “*Itychus* stock”; its members exhibit what must be parallel reduction of “*Itychus* characters”. The group contains three bud predators, *S. melina*, which occurs from Guatemala to southern Brazil, *S. aliquantula* of Puerto Rico, and *S. aculeola* of northern Argentina. Monophyly of the *melina* group is inferred solely on the basis of overall similarity of the species. The group may have originated in Central America; the “*Itychus*”-like Guatemalan form of *S. melina* whose spiculum gastrale has relatively large anterolateral plates and a more or less transverse postero-medial plate occurs there. The bud predator *S. inornata* may also have arisen from ancestor 9. Although this species has no “*Itychus* characters”, it does have large strongly convex eyes which resemble those of *S. vosei*, *S. fulva*, and *chichimeca* group members. Furthermore, its host, *Acacia micrantha*, is closely related to *A. roemeriana*, host of *S. fulva*.

Subgenus *Sibinia* (Fig. 448).

Ancestor 9 may have been ancestral to the subgenus *Sibinia*, as well as to *S. vosei*, *S. fulva*, and to the *chichimeca* and *melina* groups. Some subgenus *Sibinia* members (especially *sellata* and *texana* group members) have what appear to be apotypic states 21 and 22 in somewhat reduced condition, but most others have the posteromedial plate more or less round, the anterolateral plates small. Since most of the ± 100 species of the subgenus *Sibinia* are Old World and relatively few of them have been studied in detail, phylogeny of the group cannot be reconstructed completely. I have seen nothing to indicate that the group is not monophyletic, however.

The subgenus *Sibinia* ancestor (ancestor 70) was probably a New World species derived from the “*Itychus* stock”. Except for apotypic states 21 and 22, however, it probably possessed no “*Itychus* characters”, and unlike its ancestral stock, had a non-legume host. Known subgenus *Sibinia* hosts belong to several different unrelated non-legume plant families. (Table 2, p. 102).

Ancestor 71 diverged to produce the *sellata* group in temperate South America, and the ancestor of the *texana* and *tanneri* groups in temperate North America. Ancestor 72, ancestor to the *sellata* group, gave rise to *S. sellata* and *S. argentinensis* in the pampas region of Argentina and Uruguay, and to *S. albovittata* of Chile. Label data indicate that *S. sellata* was collected on “verdolaga” (Purslane, Portulacaceae), but other *sellata* group members have unknown hosts.

Ancestor 71 also gave rise to *S. texana* of southern Texas and *S. tanneri* of southern California. The status of these two as sister species is uncertain as I can find no shared apotypic characters. One of them, *S. texana*, closely resembles the South American *S. sellata*, especially in having the median prominence on the pygidium strongly developed. The other, *S. tanneri*, differs greatly from other known *Sibinia* in numerous characters and has apparently lost the median prominence of the pygidium. Label data indicate that it was collected on *Coldenia* sp. (Boraginaceae). The host of *S. texana* is unknown.

The amphitropical representation of sister groups in temperate zones of both North and South America can be explained by the presence of a corridor of temperate conditions in the Andes which span the tropics of South America. Ancestor 71 may have dispersed between the two widely separated regions along this corridor, but there is not indication of direction of dispersal.

Ancestor 70 also gave rise to the *viscaria* group which apparently included all Palearctic and African *Sibinia*. The group is diverse, badly in need of revision on a world basis. Not all of the species exhibit apotypic states 68 and 69, but all spermathecae examined (African and European species) resemble those of the North American representatives of the group, *S. maculata* and *S. mica*.

The North American *S. mica* and *S. maculata* are the only New World *viscaria* group members. The latter species is widespread in the western United States but seems to be most common in California. Its distribution with a high concentration of collecting sites around West Coast ports, suggests that it may be a recent introduction, but, neither R.T. Thompson of the British Museum, L. Dieckmann of the Deutsche Entomologische Institut, or myself were able to identify the species among members of Old World fauna. It does not appear to be sister to *S. mica*, the other North American *viscaria* group member. That species occurs at higher elevations in southeastern Arizona and southern New Mexico, and in Mexico on the Trans-Volcanic Sierra and in the Sierra Madre del Sur of Oaxaca. It closely resembles *S. phalerata*, a widespread Palearctic species, and may be an outlier of a Eurasian group.

ZOOGEOGRAPHY

The two subgenera of *Sibinia*, *Microtychius* and *Sibinia*, exhibit markedly different distribution patterns and are discussed separately below. Subgenus *Microtychius* members are apparently restricted to the New World (Fig. 449). They have hosts in the legume subfamily Mimosoideae (Table 1, p. 99). A few subgenus *Sibinia* members occur in the New World, but most are Old World species (Fig. 449). They have hosts in non-legume plant families (Table 2, p. 102).

Subgenus *Microtychius*

Members of this Neotropical subgenus occur from the southwestern United States to northern Argentina. At present, 126 species are known, but this number will undoubtedly increase as more of the potential hosts, the more than 1000 species of New World Mimosoideae, are sampled. Table 5 lists numbers of known species of *Microtychius* by country. Mexico, with 56 species has more than any other country, followed by Brazil with 55. The faunas of Central America and many of the other South American countries and of the West Indies are probably considerably more diverse than indicated. The United States, with 18 species, ranks third in number of known species of *Microtychius*. All of these occur in the southwest; none are known from Florida in spite of the occurrence of several species of Mimosoideae (see Elias 1974).

Species of *Microtychius* are most abundant in areas which support large, diverse mimosoid floras – temperate and tropical desert and semi-desert regions and regions which are variously classified as tropical deciduous and thorn forests (exceptions are four North and Central

Table 5 Numbers of known species of *Sibinia*, subgenus *Microtychius* by country.

Country	<i>Microtychius</i> sp.	Country	<i>Microtychius</i> sp.
United States	18	Haiti	1
Mexico	56	Puerto Rico	2
Guatemala	12	Netherlands Antilles	1
Honduras	11	Colombia	1
El Salvador	4	Venezuela	2
Nicaragua	7	Peru	1
Costa Rica	6	Brazil	55
Panama	7	Bolivia	2
Bahama Islands	1	Paraguay	3
Jamaica	2	Argentina	12

American, species known to be and several South American species expected to be associated with *Mimosa pigra*, a plant of low, frequently flooded areas). In the following discussion weevil distributions are compared and analyzed in terms of their association with the vegetation zones which they inhabit. Relationships of the faunas of the different vegetation zones (Fig. 450, 451) to each other are also discussed. Vegetation zone concepts and terminology are primarily from Shelford (1963), who described and mapped the vegetation zones of North and Central America, and from Hueck and Siebert (1972) who did the same for South America.

North and Central America (Fig. 450). — The North and Central American *Microtychius* fauna is divisible into three overlapping and interrelated units which inhabit (1) the temperate southwestern United States and Mexican Plateau, referred to below as the Plateau Region, (2) the Rio Balsas drainage and Valley of Tehuacan regions which are immediately south of the Mexican Trans-Volcanic Sierra, referred to below as the Balsas Basin-Valley of Tehuacan Region, and (3) the Tropical Middle American Region, comprising Mexico on either side of the Central Plateau, the Isthmian Region of southern Oaxaca and Chiapas, the Yucatan Peninsula, and Central America. Many species of *Microtychius* in the U.S.—Mexican Plateau Region have morphologically distinct populations or sister species in the Balsas Basin and/or in the Valley of Tehuacan. The *Microtychius* faunas of the Plateau-Balsas Basin—Valley of Tehuacan Region combined contain two distinct elements, (1) species whose nearest relatives are in the Tropical Middle American Region, and (2) groups whose nearest relatives are in the south temperate Monte Region of Argentina. The *Microtychius* fauna of the Tropical Middle American Region occupies the Tropical Deciduous Forest and Thorn Forest vegetation zones which extend from northwestern and northeastern Mexico throughout Central America almost to the Colombian border. Some *Microtychius* of this zone also occur in the Balsas Basin-Valley of Tehuacan Region, several have close relatives in the Plateau Region.

The *Microtychius* fauna of the Plateau region inhabits the Sonoran, Mohavean, and Chihuahuan “hot” deserts and the surrounding Mesquite and *Acacia* Grasslands. The Sonoran and Mohavean regions have three species, *S. transversa*, *S. fulva*, and *S. setosa*, all of which also occur in the Chihuahuan region. The Chihuahuan Region has a larger more diverse fauna of 17 species, most of which appear to be endemic. Of these, *S. variegata* and *S. simplex* have distributions closely matching the outline of the “hot” desert, whereas *S. transversa*, *S. fulva*, *S. setosa*, and *S. caseyi* occur within the “hot” desert but are also widespread outside it. The other 13 Chihuahuan species occur mainly in the Mesquite and/or *Acacia* Grassland zones.

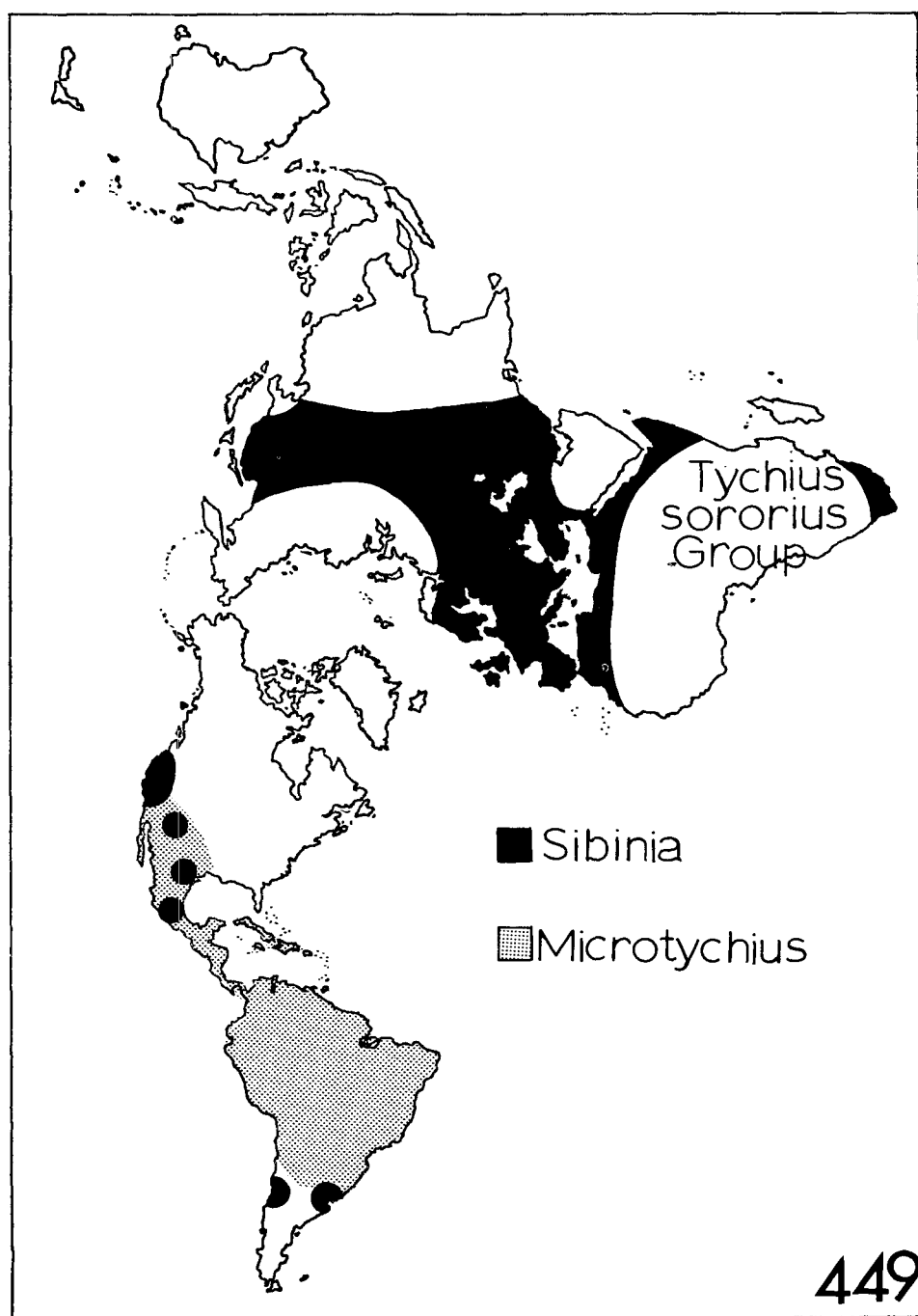


Fig. 449. Distribution of the subgenera of *Sibinia*, and the *sororius* group of the genus *Tychius*.

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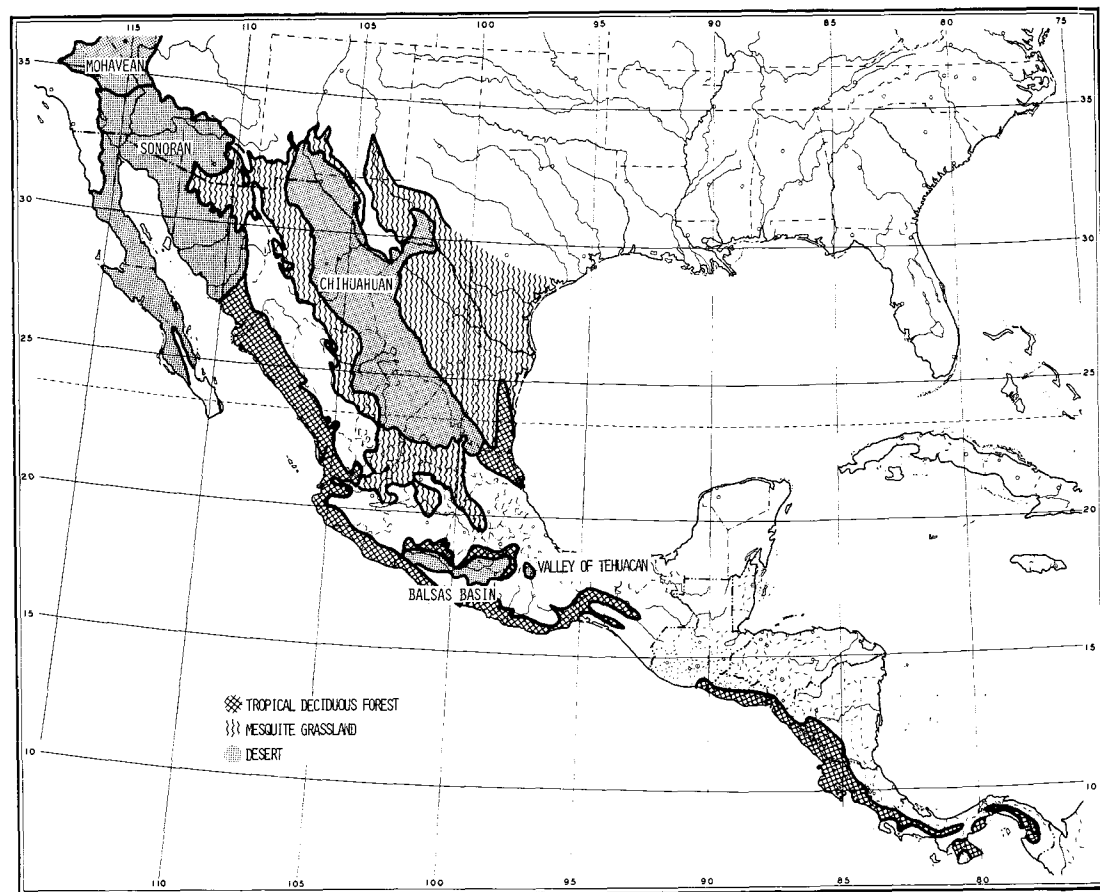


Fig. 450. Distribution of tropical deciduous forest, mesquite grassland, and desert in North and Central America (adapted from Shelford, 1963).

S. aculeola of Argentina, and several undescribed Brazilian species.

Species apparently endemic to Central America include *S. rotundata* and *S. tropidorhyncha* of Panama, and *S. altensis* of Guatemala, all seed predators, and the bud predators *S. barberi* of Guatemala and *S. calvata* of Panama. These represent the basal branchings of the *rotundata-championi* lineage and appear to have evolved in Central America as that lineage expanded northward (Fig. 436) (see phylogeny section). The Panamanian *S. schwarzi* may have arisen from the plesiotypic "Itychus stock" or from the *rotundata-suturalis* stock, but its affinities are uncertain. Two members of the *championi* lineage known only from Central America, *S. robusta* of Panama and *S. picturata* of Guatemala, have affinities with South American species, and belong to groups (the *aspersa* and *zapoteca* groups) which have widespread as well as more restricted members. Central American species with northern affinities are the Guatemalan *S. obrienorum* of the primarily Mexican *hispida* stock and the Panamanian *S. aurifera*, which may be the southern vicar of *S. tessellatopsis* of Mexico and Central America.

Distributional limits of North and Central American *Microtychius* are closely correlated with host distributions, most of which in turn are restricted to a particular vegetation zone. Some of these, all elements of the Tropical Deciduous Forest and Arid Tropical Scrub regions, are comparable but not strictly coincident with distributions of members of several tropical genera of seed beetles (Bruchidae). These were analyzed by Kingsolver and Whitehead (1976) who recognized five groups of northern limits without references to vegetation zones: (1) northwestern Mexico (northern Oaxaca to Arizona), (2) northeastern Mexico (Veracruz to Texas), (3) both northeastern and northwestern Mexico, (4) Isthmus of Tehuantepec (southern Oaxaca to Honduras) and (5) Costa Rica to Panama.

Northern limits of several species of *Microtychius* are in groups 1–3 which are also northern limits of the Tropical Deciduous Forest and Thorn Forest vegetation zones. Several others are limited by the Mexican Trans-Volcanic Sierra, a limit not recognized by Kingsolver and Whitehead (1976). In the Trans-Volcanic Sierra limited group are those species endemic to the Arid Tropical Scrub zone of the Balsas Basin-Valley of Tehuacan regions, and a few species of the Tropical Deciduous Forest zone which may eventually be found to have northern limits in geographical groups 1–3 (*S. vosei*, *S. grisea*, and *S. zapoteca*). Most species with northern limits in the Isthmian region (group 4) are known only from that region. Most species which occur in the Isthmian region have northern limits just south of the Trans-Volcanic Sierra, or in groups 1–3. A few Central American species may have northern limits in the Chiriqui region of northern Panama (group 5), but the Central American fauna is too poorly known to permit generalizations. None of the species with northern limits in that region are known to occur in South America, but the fauna of northern South America is poorly known and some of them may occur there also.

Only three species of *Microtychius* (*S. nana*, *S. dissipata*, and *S. criniventer*) have northern limits in northwestern Mexico only (group 1). However, the northern limits of the Tropical Deciduous Forest zone in southern Sonora fall within this region, and several other species may yet be found to have northern limits there. The species now known to have northern limits in northwestern Mexico also occur in southern Mexico and Central America, so their distributions do not strictly correspond to those of the bruchids in group 1, most of which have southern limits on the Trans-Volcanic Sierra.

The number of species of *Microtychius* with northern limits in northeastern Mexico (group 2) is much larger, but when the fauna of northwestern Mexico is better known, some of these may also be found there. This is likely to be true of species such as *S. americana*, *S. inermis* and *S. vagabunda* whose ranges extend southward into Central America, but is not likely to be true of others such as *S. pallida* and *S. seminicola* which are apparently restricted to northeastern Mexico and southern Texas.

Several widespread species, all elements of the Tropical Deciduous Forest-Thorn Forest zones have northern limits in northwestern and northeastern Mexico (group 3). These are *S. candidata* which is known to occur south of Mexico and *S. grypa*, *S. albidula*, and *S. conferta*, all of which do extend southward through Central America at least to Costa Rica, and *S. aspersa* and *S. peruana*, which occur in Central and South America.

A few species (*S. barberi*, *S. altensis*, *S. tenuicauda*, and *S. viridula*) have northern limits within the Isthmian region (group 4) but are known only from that region. Others with northern limits in that region (*S. melina* and *S. earina*) also occur in Central and South America. The Mexican Trans-Volcanic Sierra is a much more important region than the Isthmian region as a northern limit for species of *Microtychius*. A few species (*S. aurifera*, *S. calvata*, *S. tropidorrhyncha*, *S. rotundata*, and *S. robusta*) are known only from Panama, and as such are in group 5. Perhaps their distributions reflect limitations to dispersal caused by Pleistocene and Recent Volcanic activity in the Chiriqui area of northern Panama as postulated by Kingsolver and Whitehead (1976) (see also Whitehead 1976).

South America (Fig. 451).— The South American *Microtychius* fauna is not well represented in the present study. Host information is almost entirely lacking for South American species, but there is no compelling evidence that these are other than mimosoid legumes. The weevils are prevalent in semi-arid or at least seasonally dry areas where mimosoids are important if not major floral components. Species of *Microtychius* are known from most of the major semi-desert areas of South America, northwestern Venezuela, the Caatingas of northeastern Brazil, the Chaco of Argentina and Paraguay, and the Monte of Argentina. None are known, however, from the Pacific coastal desert where they undoubtedly do occur, from the Puna of Bolivia where some may be expected to occur, or from the cooler Patagonia semi-desert region, where they probably do not occur. Some are likely to be found in dry inter-Andean valleys where several mimosoids do occur. Few if any species of *Microtychius* can be expected to occur in the extensive evergreen tropical rain forests of the Amazon Basin or in the deciduous mesophytic forests and *Araucaria* forests of southern Brazil. They probably do occur, however, in isolated pockets of savanna which are interspersed within the continuous rain forest of the Amazon Basin (see Hueck and Siebert 1972).

Southern and southeastern Brazil have the largest number of known species of South American *Microtychius*, but these regions have been more intensively collected than most others in South America. Most Brazilian species (26) occur in the Campos Cerrados. Others (8) are known from localities within the deciduous mesophytic forests of southern Brazil, but these are probably mainly in more xeric pockets of savanna which dot the region. Others (6) occur in the highlands of southeastern Brazil where they are probably limited mainly to the Campos Limpos (Grassland) rather than the *Araucaria* forest. Numbers of species from the Chaco and Monte Regions of Argentina and Paraguay, and the Caatingas of northeastern Brazil, areas where mimosoids are abundant and diverse, will undoubtedly increase as these areas are more adequately sampled. At present, only two species are known from the Monte region proper, six from the Chaco, four from the Caatingas. Several of the six species presently known from the "Agreste-Wald" region between the Caatingas and the coastal rain forest, may be more widespread, however. The arid and semi-arid regions of northeastern Venezuela contain a large and diverse mimosoid flora, but at present only three species of *Microtychius* are known from the region, a number sure to increase greatly.

The *Microtychius* faunas of Central America, the West Indies, and Mexico appear to be derived extensions of the faunas of southern and Central Brazil. The few known species of the Chaco region are also closely allied to those of Brazil. The fauna of the Monte Region is poorly sampled, but at least two species of that region (*S. concava* and *S. asulcifer*) belong to the *sulcifer* group which is also represented in the Sonoran, Mohavean, and Chihuahuan

One of these, *S. triseriata*, is known only from the *Acacia* Grassland of northeastern Mexico and southern Texas, whereas *S. ruidula* occurs in that region but is also represented by a distinct form in the Mesquite Grassland south and west of the "hot" desert in the Mexican states of Hidalgo, Zacatecas, and Durango. Five species, *S. errans*, *S. guttata*, *S. inermis*, *S. lecontei*, and *S. obscura*, appear to be limited to the eastern portion of the Chihuahuan region, whereas *S. hispida* and *S. sibirnioides* occur primarily in the western portion of that region. The ranges of the latter two extend from western Texas into southwestern Arizona and Sonora, Mexico. One of several forms of *S. suturalis* shares a host, *Mimosa biuncifera*, with *S. hispida* and *S. sibirnioides*, and the three have roughly the same distribution. Other forms of *S. suturalis* occur outside the Chihuahuan region in Mexico.

The Balsas Basin has its own vegetation zone, the Arid Tropical Scrub. This region and the Plateau Region have several species and/or varieties of Mimosoideae in common; their *Microtychius* faunas are closely related. Even more similar to the flora of the Plateau is that of the Valley of Tehuacan. Shelford (1963) considered the Valley of Tehuacan to be part of the Plateau Mesquite Grassland zone, but Rzedowski (1973) demonstrated that the floras of the two regions, although closely related, are quite distinct. This is reflected in the *Microtychius* faunas of the two regions.

Three plateau species, *S. suturalis*, *S. sibirnioides*, and *S. inermis*, have morphologically distinct populations in the Balsas Basin-Valley of Tehuacan region. Vicariant sister pairs between the two regions are *S. ruidula* of the Plateau *Acacia* and Mesquite Grassland zones and *S. schaefferi* of the Balsas Basin, and *S. transversa* of the Sonoran, Mohavean, and Chihuahuan regions and *S. cuauhtemoc* of the Valley of Tehuacan. Members of the *hispida* stock, including species in the *sibirnioides* complex, also occur either in the Plateau region (*S. hispida*, *S. lecontei*, *S. guttata*, *S. obscura*, *S. caseyi*, *S. aulacis*), in the Balsas Basin-Valley of Tehuacan regions (*S. stricticomula*, *S. reburata*, *S. albiduloides*, *S. inflata*), or in both (*S. sibirnioides*, *S. inermis*) but there do not appear to be any clear cut examples of vicariance at the species level among these. Furthermore, several *hispida* stock members (*S. bothrosterna*, *S. obrienorum*, *S. criniventer*, and *S. tenuicauda*) also occur in southern Mexico or Central America.

Microtychius species of the Plateau-Balsas Basin-Valley of Tehuacan region allied to species of *Microtychius* in the south temperate Monte region of Argentina include members of the *variegata* group. This group is apparently restricted to the Plateau Balsas Basin-Valley of Tehuacan regions. Its sister group, the *sulcifera* group, has one member, *S. transversa*, in southwestern U.S., another *S. cuauhtemoc*, in the Valley of Tehuacan, and another, *S. setosa*, widespread throughout southwestern U.S. and Mexico, and in the West Indies. The *sulcifera* group also has two members, *S. concava* and *S. asulcifera*, in the Monte Region of Argentina. (It is uncertain where the other *sulcifera* group member, *S. sulcifera*, occurs; the only known specimens were intercepted in quarantine at the U.S.-Mexican border among plant material from Mexico).

The other Plateau-Balsas Basin-Valley of Tehuacan Region species are more closely allied to species in the Tropical Middle American Region. These include *S. suturalis* which occurs throughout much of Mexico and is part of the tropical *rotundata-suturalis* stock, and members of the *hispida* stock. Several floral elements of the Arid Tropical Scrub of the Balsas Basin-Valley of Tehuacan Region also occur in the surrounding Tropical Deciduous Forest. This is reflected in the *Microtychius* fauna of the region which includes *S. candidata*, *S. grypa*, and *S. albidula* on *Lysiloma divaricata*, and *S. tessellata* on *Calliandra* spp., all of which occur outside the Balsas Basin-Valley of Tehuacan region, and *S. stricticomula*, *S. albiduloides*, and *S. reburata*, which are unique to it.

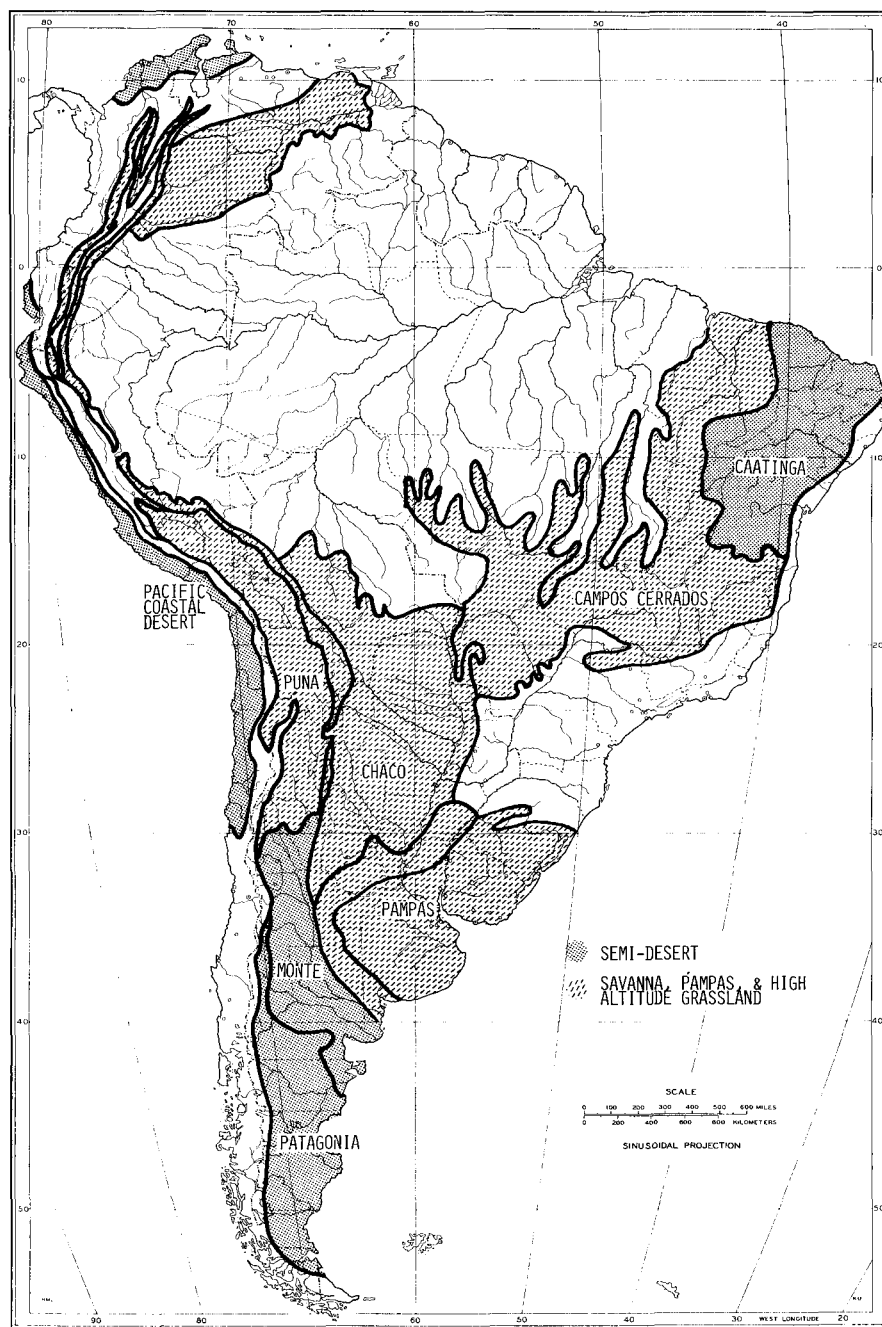
Species of *Microtychius* of the Tropical Middle American Region occupy the Tropical Deciduous Forest and Thorn Forest vegetation zones of Mexico and Central America. They

are in three geographical groups: (1) species known only from Mexico, (2) species which also occur in Central America, and (3) species which are also widespread throughout Central and South America.

Species presently known only from Mexico belong to several different groups. Some appear to be restricted to Mexico but others will probably be found in Central America and possibly South America as well. Among species known only from Mexico are three members of the *chichimeca* group, *S. chichimeca*, *S. azteca*, and *S. tepaneca*. The *chichimeca* group has members in South America. Also known from Mexico only are three *championi* group members, *S. championi*, *S. foveolata*, and *S. peniculata*, which occur in the Balsas Basin-Valley of Tehuacan region as well as in the Tropical Deciduous Forest zone of southern Oaxaca and Chiapas. Like the Mexican *chichimeca* group members, these appear to form an endemic monophyletic subgroup of their group. The fourth *championi* group member, *S. conferta*, is widespread in Mexico and Central America. Two *pulcherrima* group members, *S. viridula* and *S. pallida*, are known only from Mexico (the latter also occurs in Texas). The former will probably be found in Central and perhaps South America, but *S. pallida*, an element of the Tamaulipan Thorn Forest zone, appears to be restricted to southern Texas and northeastern Mexico. The other species, *S. tessellata* with *Calliandra* spp. hosts, and *S. candidata* with *Lysiloma divaricata* as host, are clearly elements of the Tropical Deciduous Forest Zone, and occur widely throughout Mexico, *S. candidata* also extending into southern Arizona, *S. tessellata* into Guatemala. Also known only from Mexico (and Texas) is *S. seminicola*. This species is replaced on its host, *Mimosa pigra* in southern Veracruz, Mexico by the closely related *S. fastigiata* whose range extends southward to Panama. Both *S. seminicola* and *S. fastigiata* have apparent sister species in South America.

Species which occur in Mexico and also in Central but not South America include *S. conferta* and *S. fastigiata*, both of which are discussed in the preceding paragraph, and the Tropical Middle American *S. vosei*. The latter is probably sister to *S. fulva* of the Plateau region, but has plesiotypic relatives in South America. Two *pulcherrima* group members, *S. pulcherrima* and *S. dissipata*, also have tropical Mexican-Central American distributions, but *S. pulcherrima* is also known from the West Indies (Puerto Rico) and may also occur in South America. In Mexico, *S. pulcherrima* is microsympatric on *Pithecellobium unguis-cati* with another *pulcherrima* group member, *S. valenciana*, which is also known from Central and South America (but not the West Indies). The bud predators *S. grypa* and *S. albidula* are microsympatric in Mexico in the Tropical Deciduous Forest zone on *Lysiloma divaricata* along with a seed predator, *S. candidata*. The bud predators also occur in Central America, at least as far south as Costa Rica, which may be their southern limit (*Lysiloma* apparently does not occur in Panama), but the seed predator is known only from Mexico (and southern Arizona).

Species which occur in South America as well as in Mexico and Central America include members of the *championi* lineage, *S. americana*, *S. aspersa*, *S. ochreosa*, *S. peruana*, *S. vagabunda*, and *S. zapoteca*. The extensive distributions of *S. peruana* and *S. ochreosa* can be attributed to the fact that their host, *Mimosa pigra*, is itself widely distributed throughout the neotropics. The others may have widely distributed hosts. A host of *S. americana* and *S. zapoteca*, *M. albidula*, occurs from Mexico to northern South America (Schery 1950); *S. americana* has several other hosts, however, most of which are apparently restricted to Mexico. The bud predator "Itychus", *S. grisea*, occurs in the Tropical Deciduous Forest Zone of Mexico and Central America, as well as in the Campos Cerrados of Brazil. One of the *chichimeca* group members, *S. earina* of Chiapas, Mexico, and south-central Brazil, is allied to species apparently endemic to Mexico (*S. chichimeca*, *S. azteca*, and *S. tepaneca*) but is probably sister to *S. laticauda* of Argentina. The *melina* group has one widespread species, *S. melina* of Guatemala, Venezuela, and Brazil, and several more restricted species including *S. aliquantula* of Puerto Rico,



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Fig. 451, Distribution of desert, savanna, pampas, and high altitude grassland in South America (adapted from Cabrera and Willink, 1973).

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semi-deserts of the United States and Mexico, and in the Valley of Tehuacan of Mexico, and is itself sister to the *variegata* group of North America. Some species of the Monte may be expected to have allies in Brazil and in the Chaco region, however. The three known species from northern Venezuela, *S. aspersa*, *S. melina*, and *S. valenciana*, also occur in Mexico, Central America, and (except for *S. valenciana*) in other portions of South America.

The West Indies. — Only six species are known from the West Indies (Table 5). All have what Rosen (1975) would call a South American - Caribbean track, i.e., their nearest relatives are South American (or Central America). Three of these, *S. furfurosa* (Bahama Islands), *S. hispaniolae* (Haiti), and *S. aliquantula* (Puerto Rico) are known only from the West Indies. The other three are also known from the mainland (*S. solaris* from Jamaica and Quintana Roo, Mexico; *S. setosa* of Jamaica, the Netherlands Indies, Mexico and southwestern United States; *S. pulcherrima* of Puerto Rico, Mexico and Central America). *S. furfurosa* and *S. solaris* are sister species, possibly endemic to the West Indies. *S. aliquantula* is a member of the *melina* group which has members in Central and South America.

Subgenus *Sibinia*.

The subgenus is comparable in diversity to the subgenus *Microtychius*, but instead of being primarily Neotropical, its members occur in the temperate zones of the Palearctic Region (ca. 120 species), South Africa (15 species), North America (4 species), and South America (3 species) (Figs. 429, 433, 434). Whereas members of the subgenus *Microtychius* are restricted to New World members of the legume subfamily Mimosoideae, subgenus *Sibinia* members have hosts in several different, unrelated non-legume plant families (see Table 2, p. 102). Most occur in the Mediterranean Region of southern Europe and North Africa. The South African fauna appears to be derived from that of the Palearctic. There is no indication of close relationship between South African and South American species. On the contrary, the entire Old World fauna appears to be derived from New World stock. All Old World species are assigned to the *viscaria* group. Two New World species, *S. mica* of southern New Mexico, southwestern Arizona, and the Trans-Volcanic Sierra and Sierra Madre del Sur of Oaxaca, Mexico (Fig. 433), and *S. maculata*, of the western United States (Fig. 434) belong to this group. They apparently owe their presence in the New World to dispersal from the Old, via Beringia. *Sibinia mica* is very similar to *S. phalerata*, a widespread Palearctic species. None of Palearctic species examined appears closely allied to *S. maculata*, although several of them have similar elytral and pronotal maculation (eg. *S. primata* (Fig. 432)). The distribution of *S. maculata* (Figs. 434) is such that recent introduction at a West Coast seaport seems likely, but this remains unconfirmed. Unfortunately, hosts of American subgenus *Sibinia* members are unknown. If these turn out to be in any of the families listed in Table 2 (p. 102), as containing *Sibinia* hosts, dispersal from Eurasia in association with the host may be considered highly probable; most of those families, particularly Caryophyllaceae which contains hosts of more *Sibinia* (including *S. phalerata*) than all of the others combined, are primarily Old World groups which have dispersed into other parts of the World including North America (Axelrod and Raven 1974).

The remaining New World species are apparently limited to the warm temperate regions of North and South America. Two of them, *S. tanneri* of southern California and *S. texana* of southern Texas, are known only from North America; the other three are South American—*S. sellata* and *S. argentinensis* of Argentina and Uruguay, *S. albovittata* of Chile. *S. tanneri* was reportedly collected on *Coldenia*, a genus of Boraginaceae. This is a highly modified species, undoubtedly endemic to southern California, perhaps relictual. *S. texana* is also apparently endemic and relictual. Its host is unknown. South American subgenus *Sibinia* members are all assigned to the *sellata* group which very likely is monophyletic and is itself probably sister

to the North American *S. texana* and *S. tanneri*. A corridor of temperate conditions, the Andean Cordillera, forms a bridge between the temperate zones of North and South America across the tropics, and dispersal of plants and animals between the two areas is a well documented phenomenon. This may account for existence of subgenus *Sibinia* members in disjunct regions of the two hemispheres.

HISTORICAL ZOOGEOGRAPHY

The genus Tychius.— Before zoogeographic relationships of members of the genus *Sibinia* can be understood some background information on the apparently paraphyletic genus *Tychius* must be presented.

Evolution in *Tychius* appears to have followed lines of adaptation to various groups of Papilionoideae (Leguminosae) (Clark 1977b). The genus apparently had a North Temperate Zone origin. It is almost exclusively confined to that Zone; only in southern Africa is it represented in the southern hemisphere. It also appears to be virtually absent from the Oriental Region, although *T. ovalis* Roelofs, originally described from Japan, was reported by Voss (1958) from Kwangtse, Fukien Province, China. The Palearctic Region with some 300 species, has by far the largest number of species. The New World by contrast has only 13 species, all North American, and all belonging to groups also represented in the Palearctic. Apparently no *Tychius* occur south of the Mexican Plateau (Clark 1977b). Host relationships also suggest a North-Temperate Zone origin for the genus. Known *Tychius* hosts belong to primarily or exclusively North Temperate papilionoid tribes, and no *Tychius* are known to have hosts in those papilionoid tribes which are entirely or primarily tropical or south temperate (hosts of species in sub-Saharan Africa are not known, however, and may be exceptions).

The genus is probably not of greater than mid-Tertiary age. Its restrictions to North Temperate Zone hosts would indicate that it arose after the Eocene Period when climatic changes began to bring about temperate conditions in the northern hemisphere. Absence of members of the genus from temperate South America and Australia argue against a Gondwanian origin.

It is apparent that most North American *Tychius* owe their presence on that continent to dispersal via Beringia, probably no earlier than the Pliocene (Clark 1977b). *Astragalus*, the plant genus to which hosts of most of the species belong, probably dispersed in that direction during the Pliocene or later (Axelrod and Raven 1975). Some may have arrived during the Pleistocene along with later dispersals of *Astragalus* (see Barneby 1964). Species of *Tychius* associated with *Astragalus* occur primarily in western United States and adjacent portions of Canada and all appear to be more closely allied to Central and Eastern Asian *Tychius* than to European species. Two species of *Tychius*, neither known to be associated with *Astragalus* (one has *Baptisia* spp. hosts) occur only in the eastern United States. The nearest relatives of these appear to be European species and all are possibly relictual elements of the Holarctic Arcto-Tertiary geoflora which had a North Atlantic continuity. These may have been in America before the Pliocene. Raven and Axelrod (1974) maintain that direct migration across the North Atlantic was possible for plants (and associated weevils?) throughout the Tertiary.

Tychius members may have reached southern Africa by late Tertiary dispersal from the Palearctic. On the other hand, an African origin for *Tychius* cannot be ruled out. The genus, is well represented in the Canary Islands and in the Cape Region of South Africa, and at least one species is known from Madagascar. According to Raven and Axelrod (1974) these regions are refugia for a formerly more widespread African flora which was fragmented when extensive arid and semi-arid regions developed following late Tertiary uplift. Obviously the affinities of the African *Tychius* fauna to that of the Palearctic need to be determined before these questions can be answered.

One thing is clear, however — the sister group of *Sibinia*, a group almost certainly of New World origin, is found among sub-Saharan *Tychius* (see phylogeny section). Apotypic states 1–3 (appendix II), cited above as evidence of the sister group relationship between the African *Tychius sororius* group and *Sibinia* are, I believe, very strong indicators of that relationship. It is difficult, however, to account for the occurrence of sister groups on the widely separated land masses of Africa and South America, without assuming that, (1) the tribe Tychiini is of greater than Eocene age, or (2) that the *sororius* group at one time had representatives which extended into America and is now relictual in Africa, or (3) a *sororius* group member crossed the Atlantic during the Tertiary. If assumption 1 were correct, it could be postulated that separation of South America from Africa commencing in late Cretaceous time resulted in formation of a vicariant sister pair on each of the two continents. However, absence of members of the genus from South America makes it appear unlikely that *Tychius* ever had a West Gondwanian distribution. There is not evidence for assumption 2. Assumption 3 is of course a possibility — Raven and Axelrod (1974) emphasize that South America and Africa were in such close proximity into the Eocene to have had a common Angiosperm flora. If so, opportunity for dispersal of an African weevil across the Atlantic was fairly great well into the Tertiary. As mentioned above, however, no *Tychius* are known to occur in South America as might be expected if oversea dispersal did occur. This is all highly speculative. There is good evidence, however, that *Sibinia* arose in the New World during the Tertiary.

Origin and Radiation of Sibinia: the subgenus Microtychius. — New World *Sibinia* associated with plants in the legume subfamily Mimosoideae are assigned to what appears to be a paraphyletic group, the subgenus *Microtychius*. All Old World *Sibinia* and a few New World species belong to the subgenus *Sibinia*, an apparently monophyletic group which had its origin in the New World. Apparently all members of this subgenus have non-legume hosts. Hosts of African *Sibinia* are unknown, but all African species examined appear to be more closely allied to Palearctic non-legume associated subgenus *Sibinia* members than to New World mimosoid associated *Microtychius*. Furthermore, several African *Sibinia* are known only from the Cape Peninsula of South Africa where no native mimosoids occur.

This apparent absence of members of the genus from Old World Mimosoideae is of great biogeographic importance. It can easily be explained on the basis of the history and climatic restrictions of the plants themselves, if it is assumed that *Sibinia* arose in the New World. Mimosoids, including most genera which contain *Sibinia* hosts, are widely distributed throughout tropical and warm temperate regions of the world. The only species adapted to cool-temperate conditions are some Australian *Acacia* (Norris 1956) and a few northern hemisphere herbaceous forms (Isely 1973), none of which are known to be *Sibinia* hosts. Raven and Axelrod (1974) list Mimosoideae among groups whose history and present distribution patterns suggest that they migrated directly between South America and Africa during or prior to the Paleocene. If mimosoids are that old, they may have acquired their pantropical distribution when Pangaea became divided. This seems more reasonable than assuming migration through northern routes which, although probably warmer than presently, certainly did pose barriers to dispersal of warm temperate and tropical adapted organisms in the past as at present. If mimosoid restricted *Sibinia* arose in the New World during the Tertiary, their absence from Old World Mimosoideae would be expected because the plants were excluded from northern cool temperate zones, the only available Tertiary land connections between the Old and New World.

As outlined above in the phylogeny section, the more plesiotypic *Sibinia* are the members of the paraphyletic “*Itychus*” stock. Most “*Itychus*” are South American, although a few derived forms occur in North and Middle America. The *Sibinia* or “*Itychus*” stock ancestor probably had a mimosoid host in the deciduous or semideciduous forest with xerophytic

adaptations which occupied southcentral South America during the early Tertiary, Solbrig's (1976) "Tertiary-Chaco paleoflora". Evolution was probably accelerated as South American climates became cooler and drier throughout the Tertiary, the result of ongoing uplift of the Andean Cordillera. By the Pliocene, a semidesert vegetation existed in western middle South America, and as Andean uplift continued, the xerophytic Monte vegetation zone was formed. This formation is restricted today to Argentina, its elements are most closely related to those of the adjacent Chaco vegetation zone. A few related elements occur, however, to the west of the Andes, in the northern portion of the Pacific coastal desert. Remaining portions of South America had tropical savanna, such as today's Campos Cerrados, scrub, such as the Chaco vegetation, or evergreen forest.

An early split of the "Itychus" stock into two major lineages accompanied the advance of xeric conditions. One lineage remained associated with elements of more mesic vegetation zones of southeastern South America. These retained "Itychus characters" present in *Sibinia* stem ancestor and acquired other characters expressed in extant "Itychus" stock members. Numerous lineages arose from this stock as it expanded throughout tropical South America into Middle and North America and the West Indies. Major groups which arose from it include the *grandis* and *pulcherrima* groups and the *rotundata-championi* lineage.

Meanwhile, the *sulcifera-variegata* lineage was developing in the more arid warm-temperate regions of southern South America and expanding, probably along the Andean Cordillera, into similar portions of North America (Fig. 452). Members of this lineage have apparently disjunct distributions, occurring in the Monte region of Argentina and in the Sonoran, Mohavean and Chihuahuan semi-desert regions of North America. This disjunct pattern is similar to that exhibited by many plants in the arid regions of both continents (Solbrig 1972, 1973, 1976; Porter 1974; Raven and Axelrod 1974; Axelrod and Raven 1975). The general consensus among these workers is that most related plant taxa in these areas acquired disjunct distributions by dispersal between pockets of aridity along the Andean Cordillera. Arid conditions were of maximum extent in the mid-Pliocene and Pleistocene periods, but Raven and Axelrod (1975) rule out as unsupported by any evidence, the concept of a "trans-tropic scrub" hypothesized by Barbour (1969). Species of *Acacia* and *Prosopis*, hosts of *sulcifera* and *variegata* group members, form major elements of the floras of both North and South American arid regions and are frequently mentioned in discussions of disjunctions between the two regions. It should be pointed out, however, that *Prosopis* and at least some of the species of *Acacia* known to be *sulcifera* and *variegata* group hosts, are not restricted to extreme arid regions as are other plants such as *Larrea*, commonly cited in discussions of disjunctions, but have extensive distributions throughout Mexico and Central America (Johnson 1962; Schery 1950) and occur in South America in some inter-Andean valleys, on the Pacific coastal slopes of the Andes from northern Peru to Chile, and in the high Andean "Puna" zone (Solbrig 1976, Hueck and Siebert 1972). Further collecting in these areas may reveal that *sulcifera* and *variegata* group members occur in these intervening areas as well.

As the *sulcifera-variegata* lineage was expanding within xeric regions attaining its present distribution in South American and North American semi-desert regions, the *Sibinia* fauna of the tropical deciduous forest zones was also diversifying and expanding into Middle and North America. A transformation series beginning with the "Itychus"-like *S. rotundata* and *S. tropidorhyncha* of Panama, and progressing northward through *S. altensis* of Guatemala, *S. tessellata* of Guatemala and Mexico, *S. candidata* of Mexico, and *S. suturalis* of Mexico and southwestern United States has been reconstructed (Fig. 436). These species, assigned to the paraphyletic *rotundata-suturalis* stock, appear to mark the path of an early expansion into Middle America from South America. Other lineages, including the *pulcherrima* group as well as the "Itychus" stock itself, also penetrated Middle and North America.



Fig. 452. Hypothetical zoogeographic relationships of the "Itychus" stock to the *sulcifera* and *variegata* groups of the subgenus *Microtychius* (see text).

Once in North America, some of these lineages expanded into the arid tropical Balsas Basin and Valley of Tehuacan regions of Mexico and onto the Mexican High Plateau, where they became sympatric with previously established *sulcifera-variegata* lineage members. *Rotundata-suturalis* stock members which became adapted to the temperate desert zones include *S. suturalis* itself, and members of the *hispida* stock. At the same time members of the *championi* lineage, the terminal branches of the *rotundata-championi* lineage, radiated throughout the Tropical Deciduous Forest of Middle America through which the *rotundata-suturalis* stock had initially gained access to North America and expanded into South America (Fig. 453).

Pleistocene climatic changes probably had a significant role in creating the diversity observed among extant subgenus *Microtychius* members. During that period cyclic fluctuations in temperature and associated arid-humid cycles caused alternate expansion and contraction of xerophytic vegetation zones in the Andean Region as well as in the Amazon Basin (see Haffer 1969, 1974; Vanzolini and Williams 1970; Simpson-Vuilleumier 1971; Raven and Axelrod 1975; and Whitehead 1976). These fluctuations probably enhanced opportunities for dispersal of xerophytic *sulcifera* and *variegata* group members along the Andean Cordillera as well as accelerating speciation in savanna associated faunas such as that of the Brazilian Campos Cerrados. The above cited authors have postulated forest refugia in which species and morphologically distinct populations of different birds, reptiles, and insects developed during periods in which savanna formed the continuous phase. Similarly, pockets of savanna, such as those interspersed today in the midst of the evergreen rainforest of the Amazon Basin (see Hueck and Siebert 1972) must have served and probably do serve today as refugia for species of *Microtychius* and for organisms associated with the vegetation of these regions.

The West Indian *Sibinia* fauna is poorly sampled and hosts of the species are unknown. Relationships among West Indian species and relationships between these and some mainland species are relatively clear, however. Several species occur both in the West Indies and in Mexico, Central and/or South America. Only a few are known only from the West Indies and these are quite obviously very closely related to mainland species. It is highly unlikely that *Sibinia* is old enough to have existed on the "proto-Antilles" land mass which Rosen (1975) postulated to exist between Nuclear Central America and South America. More likely, the West Indian *Sibinia* fauna reached that region by oversea dispersal from the mainland in later Tertiary or Pleistocene time. Many mimosoids occur both on the mainland and on islands of the West Indies. If a plant became established on an island prior to arrival of a weevil which had been associated with it on the mainland, the weevil probably would have a good chance of becoming established on the island as well.

The subgenus Sibinia.—As indicated above, members of this subgenus have non-legume hosts and are by far most numerous in the Old World. The subgenus appears to have arisen out of the "Itychus" stock of the subgenus *Microtychius* in the New World (Fig. 454).

New World members of the subgenus belong to two lineages, one of which has representatives in warm-temperate South America (the *sellata* group of Argentina and Chile) and warm-temperate North America (*S. tanneri* of southern California, *S. texana* of southern Texas). These appear to be the more plesiotypic members of the subgenus. They probably attained a disjunct distribution in temperate portions of North and South America by dispersal along the Andean Cordillera, but no members of the subgenus have been collected in that region. The other lineage includes all of the Old World subgenus *Sibinia* members as well as two North American species. Plants with which members of this lineage have been associated (Table 2, p. 102) belong to groups which are widespread in temperate zones of the world. Adaptation to temperate plant groups probably made possible dispersal of New World stock into the Old World via Beringia (Fig. 454) which stock gave rise to the extensive *Sibinia* fauna (ca. 230 species) of the Palearctic and Ethiopian Regions. These Old World forms are all assigned to the *viscaria*

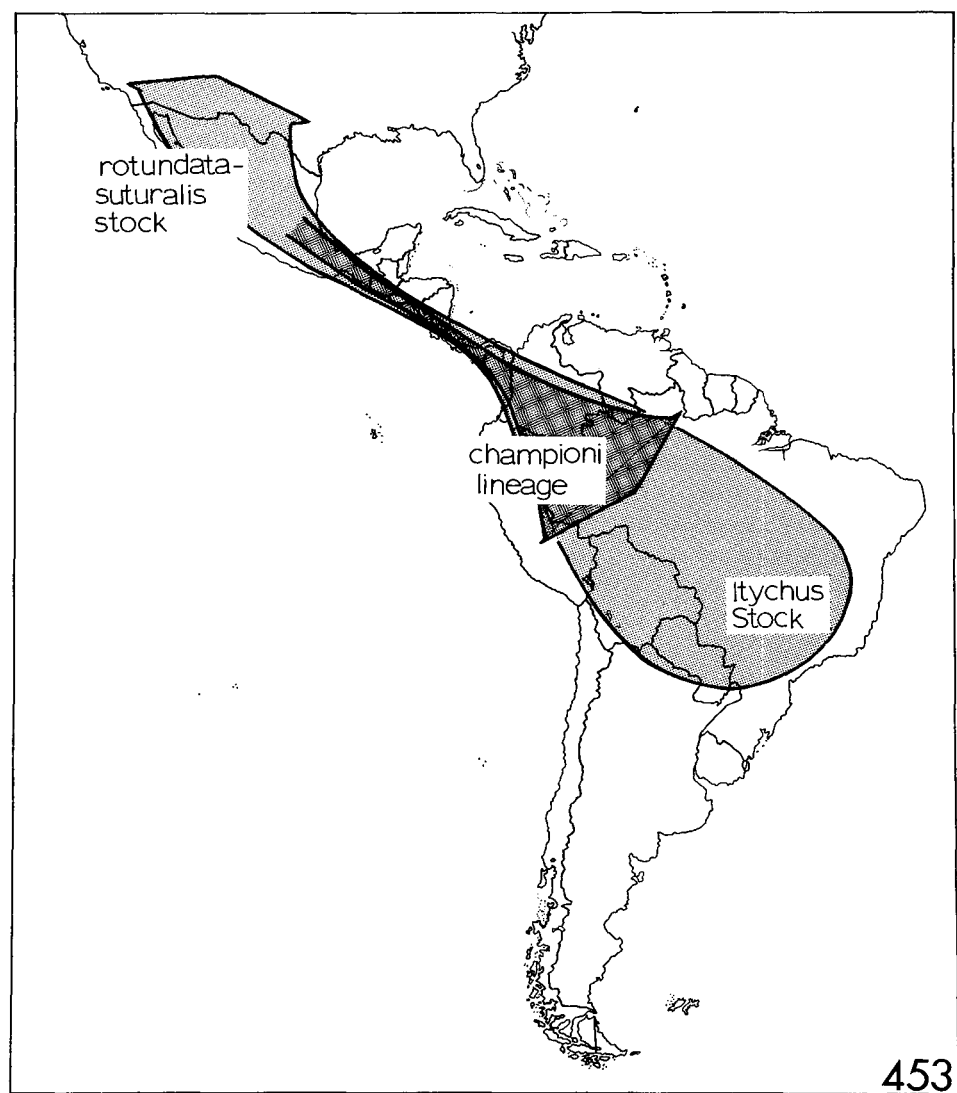


Fig. 453. Hypothetical zoogeographic relationship of the "Itychus" stock to the *rotundata-suturalis* stock (see text).

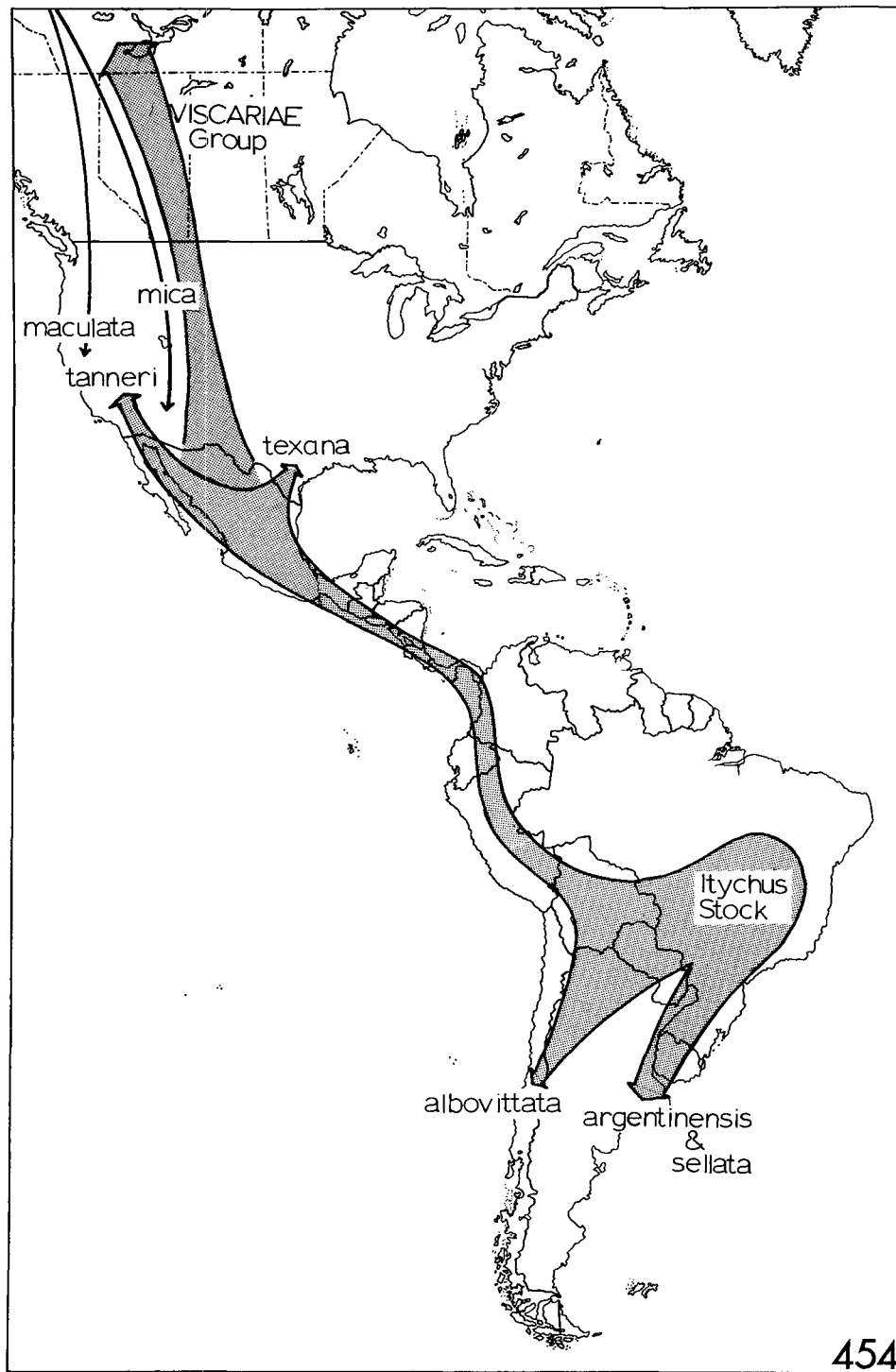


Fig. 454. Hypothetical zoogeographic relationships of the "Itychus" stock of the subgenus *Microtychius* to the *sellata*, *tanneri*, *texana*, and *viscaria* groups of the subgenus *Sibinia* (see text).

group. The New World members of this group, *S. maculata* and *S. mica*, probably owe their presence in North America to dispersal via Beringia from the Old World in the reverse direction of the dispersal from which the Old World fauna was derived (Fig. 454).

In summary, the genus *Tychius* probably arose in the Old World, most likely in the Palearctic but possibly in Africa. A few species dispersed into North America during the mid to late Tertiary, but none entered the Oriental or Australian Regions, and none reached South America. The sister group of *Sibinia*, the *sororius* group, is part of *Tychius* and is known today only from southern Africa. *Sibinia*, however, probably arose in the New World in association with a tropical to warm-temperate host in the legume subfamily Mimosoideae. Subsequent migration of mimosoid associated *Sibinia* to the Old World was not possible because of the climatic barrier to dispersal of the hosts in the northern temperate zone where the only land connection between the New and Old Worlds during Tertiary time existed. One lineage of *Sibinia*, however, became associated with temperate zone hosts (Carophyllaceae, *et al.*, Table 2) in the New World which permitted dispersal to the Old World. This stock gave rise to the present large Old World non-legume associated *Sibinia* fauna.

APPENDIX I

Locality Records

S. albidula

MEXICO. *Chiapas*: 35 mi SW Cintalapa (TAM). *Oaxaca*: 14 mi W Niltpec (TAM); Presa Benito Juarez (TAM); 12 mi S Jicotol (TAM); 8.4 and 12 mi N and 13 mi NW Ocozacoaulta (TAM); 19 mi W San Cristobal de las Casas (CWO); 15 mi E Tuxtla Gutierrez (CWO). *Guerrero*: 20 mi E Acapulco (TAM). *Morelos*: Cuautla (CPENA). Jalisco: 12 mi W Plan de Barrancas (TAM). *Oaxaca*: 7.7 mi S Ejutla (TAM); 2.7 mi NE and 8.3 mi SE El Cameron (TAM); 9 mi E El Cameron (CWO); 10 mi W Tamazulpan (CWO, TTU); 1.5 mi E Tapanatepec (TAM); 13 and 18 mi SE Tlacolula (CWO); 2.8 mi E Matatlan (TAM); 11.3 mi SE and 16 mi NW Totolapan (TAM). *Puebla*: 4.4 mi SE Acatatepec (TAM); 20 mi NE Villa a Camacho (CWO). *San Luis Potosi*: Tazamunchale (USNM); 3.4 mi W Xilitla (TAM). *Veracruz*: 2 km NW Alaxan (TAM); 14 mi W Conejos (TAM); 8 mi W Palma Sola (TAM). HONDURAS. *Comayagua*: Lago Yojoa (CWO); Siguatepeque (CWO); 13 and 14 mi NW Siguatepeque (CWO). *Francisco Morazan*: Tegucigalpa (CWO, USNM). *Ocatepeque*: 11 mi NE Nueva Ocatepeque (CWO). *Olancho*: 5 mi SE and 7 and 11 mi NE Catamacas (CWO); 34 mi SW Juticalpa (CWO). NICARAGUA. *Jinotega*: 10 mi SE Jinotega (CWO). COSTA RICA. *Alajuela*: 9 mi NW Naranjo (CWO). *Cartago*: Cartago (AMNH); 6 mi NW Paraiso (CWO); Turrialba (AMNH, CWO, BMNH). *Guanacaste*: 14 mi NE Esparta (CWO). *San Jose*: 10 mi N San Isidro del General (CWO); San Juan (BMNH). GUATEMALA. *Aceituna* (BMNH); Antigua (USNM); Capetillo (BMNH); 6 and 8 mi E Chimaltenango (CWO); 52 mi SE Coban (CWO); Guatemala City (BMNH); Livingston (USNM); 3 mi N Panajachel (CWO). EL SALVADOR. *Cabanas*: 3 mi SE Ilobasca (CWO). *Cuscatlan*: 7 mi W Cojutepeque (CWO). BRAZIL. *Mato Grosso*: Chapada (dos Guimares) (USNM). *Pernambuco*: (no locality given) (BMNH); Caruaru (MPB). *Goias*: Dianapolis (MZSP). ARGENTINA. *Jujuy*: San Salvador de Jujuy (CWO). *Misiones*: Loreto (MLP). *Salta*: Salta (CWO). *Tucuman*: Horca Molle, near Tucuman (CWO).

S. americana

MEXICO. *Chiapas*: 19 km NE Bochil (CPENA); 45 km SW Cintalapa (TAM); 34 and 35 mi S Cintalapa (TAM); 1.6 mi S Jicotol (TAM); 8.4 and 12 mi N and 13 mi NW Ocozacoaulta (TAM); 19 mi W San Cristobal de las Casas (CWO); 15 mi E Tuxtla Gutierrez (CWO). *Guerrero*: 20 mi E Acapulco (TAM). *Morelos*: Cuautla (CPENA). Jalisco: 12 mi W Plan de Barrancas (TAM). *Oaxaca*: 7.7 mi S Ejutla (TAM); 2.7 mi NE and 8.3 mi SE El Cameron (TAM); 9 mi E El Cameron (CWO); 10 mi W Tamazulpan (CWO, TTU); 1.5 mi E Tapanatepec (TAM); 13 and 18 mi SE Tlacolula (CWO); 2.8 mi E Matatlan (TAM); 11.3 mi SE and 16 mi NW Totolapan (TAM). *Puebla*: 4.4 mi SE Acatatepec (TAM); 20 mi NE Villa a Camacho (CWO). *San Luis Potosi*: Tazamunchale (USNM); 3.4 mi W Xilitla (TAM). *Veracruz*: 2 km NW Alaxan (TAM); 14 mi W Conejos (TAM); 8 mi W Palma Sola (TAM). HONDURAS. *Comayagua*: Lago Yojoa (CWO); Siguatepeque (CWO); 13 and 14 mi NW Siguatepeque (CWO). *Francisco Morazan*: Tegucigalpa (CWO, USNM). *Ocatepeque*: 11 mi NE Nueva Ocatepeque (CWO). *Olancho*: 5 mi SE and 7 and 11 mi NE Catamacas (CWO); 34 mi SW Juticalpa (CWO). NICARAGUA. *Jinotega*: 10 mi SE Jinotega (CWO). COSTA RICA. *Alajuela*: 9 mi NW Naranjo (CWO). *Cartago*: Cartago (AMNH); 6 mi NW Paraiso (CWO); Turrialba (AMNH, CWO, BMNH). *Guanacaste*: 14 mi NE Esparta (CWO). *San Jose*: 10 mi N San Isidro del General (CWO); San Juan (BMNH). GUATEMALA. *Aceituna* (BMNH); Antigua (USNM); Capetillo (BMNH); 6 and 8 mi E Chimaltenango (CWO); 52 mi SE Coban (CWO); Guatemala City (BMNH); Livingston (USNM); 3 mi N Panajachel (CWO). EL SALVADOR. *Cabanas*: 3 mi SE Ilobasca (CWO). *Cuscatlan*: 7 mi W Cojutepeque (CWO). BRAZIL. *Mato Grosso*: Chapada (dos Guimares) (USNM). *Pernambuco*: (no locality given) (BMNH); Caruaru (MPB). *Goias*: Dianapolis (MZSP). ARGENTINA. *Jujuy*: San Salvador de Jujuy (CWO). *Misiones*: Loreto (MLP). *Salta*: Salta (CWO). *Tucuman*: Horca Molle, near Tucuman (CWO).

S. argentinensis

ARGENTINA. *Buenos Aires*: Buenos Aires (MNHP, MZLP, USNM). *La Pampa*: General Pico (MZLP).

S. aspersa

MEXICO. *Chiapas*: 10 km NE Bochil (CPENA); Simojovel (CPENA). *Morelos*: Cuernavaca (USNM). 4.4 mi E Cuernavaca (TAM). *San Luis Potosi*: 1 mi E El Naranjo (TAM); 7 mi W Xilitla (TAM). *Veracruz*: 17 mi N Acayucan (TAM); 8 mi N Catemaco (TAM). GUATEMALA. *Purula* (BMNH); San Jeronimo (BMNH). EL SALVADOR. *Cabanas*: 3 mi SE Ilobasco (CWO). HONDURAS. *Francisco Morazan*: Tegucigalpa (USNM). *LaPaz*: 2 mi SE LaPaz (CWO). *Olancho*: 5 mi SE Catemacas

(BMNH). NICARAGUA. Corinto (BMNH); Chontales (BMNH). COSTA RICA. *Guanacaste*: Bagaces (USNM). Finca La Pacifica, Cañas (USNM). PANAMA. *Canal Zone*: Barro Colorado Island (USNM). VENEZUELA. *Aragua*: El Limón (USNM); Rancho Grande (USNM, CWO). BRAZIL. *Amapa*: Oiapoque (MZSP). *Goiás*: Aragarcas (MZSP); Dianópolis (MZSP); Paraíso (MZSP); Porto Nacional (MZSP). *Mato Grosso*: Cáceres (MZSP); Chapada (Dos Guimarães) (USNM); Corumbá, Porto Esperança (MZSP). *Minas Gerais*: Varingha (MZSP). *Paraná*: Vila Vehl (CWO). *Pernambuco*: Caruaru (MPB). *Roraima* (Rio Blanco); Surumu (MZSP). *Rio Grande do Norte*: Natal (MZSP). *São Paulo*: Jaboticabal (USNM). PARAGUAY. San Bernardino (USNM); 4 km E Ypacarai (CWO); San Lorenzo (CWO). ARGENTINA. *Jujuy*: no locality given (MLP); San Salvador de Jujuy (CWO). *Tucuman*: Horca Molle, near Tucuman (CWO); 5 km S Lules (CWO). *Salta*: Salta (CWO).

S. candidata

UNITED STATES: *Arizona*: Cochise Co., Huachuca Mts. (OSU). Santa Cruz Co., west slope of Patagonia Mts. (UA). MEXICO. *Chiapas*: 0.5 mi N Ocozocoautla (TAM). *Guanajuato*: 3 mi S Valle de Santiago (CWO). *Guerrero*: Iguala (TAM). *Mexico*: 4.3 mi NE Ixtapan (TAM). *Morelos*: 8 mi E Cuernavaca (TAM). *Oaxaca*: 9 mi E El Camerón (CWO); 2.1 mi E Jalapa del Marques (TAM); 21 mi S Matías Romero (CWO); 17 mi SE Nochistlán (CWO); 2.6 mi E Tapanatepec (TAM); Temescal (CWO). *Puebla*: 4 mi S Atlitico (BYU); 4 mi NW Tehuiztzingo (CWO). *San Luis Potosí*: 13 mi W El Naranjo (TAM); 24 mi SW Tamazunchale (TAM). *Sinaloa*: 9 mi SE Gusave (TAM); Mazatlán (TAM). *Veracruz*: 14 mi W Conejos (TAM); Jalapa (BMNH).

S. caseyi

UNITED STATES: *Texas*: Brewster Co., Big Bend National Park: Green Gulch (CWO). MEXICO. *Durango*: 9 mi S San Antonio (CWO); 9 mi N Rodeo (CWO). *Neuvo Leon*: 18 mi N La Escondida (TAM); 9 mi W Iturbide (TAM); 3 mi S Pacheco (TAM).

S. championi

MEXICO. *Chiapas*: 29, 34, and 35 mi SW Cintalapa (TAM). *Guerrero*: 20 mi E Acapulco (TAM). *Oaxaca*: 7.7 mi S Ejutla (TAM); 32.8 mi NW Jalapa del Marques (TAM); 18 mi W Niltépec (BYU); 1.5 and 2.6 mi E Tapanatepec (TAM); 18 mi SE Tlacolula (CWO); 2.1, 16 and 18 mi NW Totolapan (CWO). *Puebla*: 4.4 mi SW Acatepec (TAM).

S. dissipata

MEXICO. *Guerrero*: 19 mi S Iguala (TAM). *Oaxaca*: 3.2 mi S Ocotlán (TAM). *Puebla*: 16 mi NW Acatlán (TAM); 11.8 mi NW Izucar de Matamoros (TAM); Izucar de Matamoros (CAS). *Sinaloa*: Villa Robe (CAS). NICARAGUA. Corinto (BMNH).

S. errans

UNITED STATES. *Texas*: Bee Co., Beeville (USNM). Bexar Co., no locality given (USNM). Dallas Co., Dallas (USNM). DeWitt Co., 3.5 and 7 mi S Cuero (TAM). Hidalgo Co., Pharr (USNM). Jim Wells Co., 6 mi S Ben Bolt (TAM). Live Oak Co., 5 mi SW George West (TAM). Neuces Co., Corpus Christi. San Patricio Co., Sinton (TAM); 6 and 7 mi NE Sinton (TAM). Victoria Co., Victoria (USNM). MEXICO. *Coahuila*: Saltillo (USNM). *Neuvo Leon*: 2.4 mi S La Escondida (TAM); Monterrey (USNM). *San Luis Potosí*: 29 mi N Cd. Valles (CWO).

S. fulva

UNITED STATES. *Arizona*: Cochise Co., Chiricahua Mts. (OSU, UA); Huachuca Mts. (BYU, OSU); Portal (USNM); St. David (CAS); Willcox (UA). Coconino Co., Sedona (NAU). Gila Co., Globe (BYU); 10 and 19 mi N Globe (UA); Pinal Mts. (UA). Graham Co., Graham Mts.: Hospital Flats (UA). Maricopa Co., Apache Lake (CWO); Granite Reef Dam (NAU); Mesa (USNM); Phoenix (UA); Scottsdale (NAU); Wickenburg (CU, OSU). Mohave Co., Chloride (OSU); Hualpai Mts. (OSU); 14 mi SE Kingman (UI); Topeck (OSU). Pima Co., Cotaro (UA); Sahuarita (UA); Santa Catalina Mts.: Bear Wallow and Hitchcock Hwy. mi 4 and 10 (CWO); Hitchcock Hwy. mi 5 and Sabino Cyn. (UA); Santa Rita Mts. (OSU); Santa Rita Mts.: Madera Cyn. (CU); Santa Rita Destr. Site (UA); Tucson (BYU, OSU, UA); Santa Rosa Mts. (OSU). Pinal Co., Oracle (USNM). Yavapai Co., Bumble Bee (CAS); 10 mi S Verde Camp (NAU); 10 mi E Camp Verde at Montezuma Lake (NAU); Congress (OSU); Cottonwood (NAU). Yuma Co., Yuma (OSU). *California*: Imperial Co., Mountain Springs (OSU, TAM). Los Angeles Co., no locality given (USNM). Riverside Co., Banning (CAS); Mount San Jacinto (LACM); Palms to Pines Highway (CIS); Palm Springs (CAS, CIS); White Water (CAS). San Bernardino Co., no locality given (USNM); near Mitchell Caverns State Park (CWO); Quail Springs (CAS). San Diego Co., 6 mi E Banner (CIS, CWO); Borrego (CNC); Jacumba (AMNH, OSU); 2 mi E and 4 mi W Jacumba (TAM); San Felipe Valley (CIS); 19 mi SE Warner Springs (CWO). *Nevada*: Clark Co., Las Vegas (WEC). *New Mexico*: Eddy Co., Carlsbad Caverns (CAS). *Texas*: Brewster Co., 6 mi N Alpine (TAM); Big Bend National Park; Green Gulch (TAM), Pine Cyn. (CWO), Boquillas, 5 mi N Glenn Spring, Boot Springs, Oak Springs, Panther Junction and Persimmon Gap (CNC); 23 mi S Marathon (CWO); 5 mi N Study Butte (TAM). Terlingua (CAS). Culberson Co., 3 mi E. Van Horn (TAM). Hidalgo Co., Santa Ana Wildlife Refuge (TAM). Jim Wells Co., 1 mi N and 1 mi S Premont (TAM). Presidio Co., 12 mi W Lajitas (TAM); near Presidio (USNM). Terrell Co., Downing Ranch (USNM). Uvalde Co., Uvalde (OSU, TAM); Sabinal (USNM). Val Verde Co., Pecos River at U.S. Hwy. 90 (CWO). Webb Co., Laredo (USNM). MEXICO. *Baja*:

California Sur: Cape San Lucas (USNM, MCZ). *Sonora*: San Javier (CAS).

S. grisea

MEXICO. *Campeche*: 16 mi N Champoton (CWO). *Chiapas*: 22 mi S La Trinitaria (TAM). *Guerrero*: Iguala (TAM); 19 and 32 mi S Iguala (TAM); Mexcal (CIS). *Oaxaca*: 11.6 mi E Jalapa del Marques (TAM); 27 mi E Juchitan (TAM); 8 mi N La Ventosa (TAM); 14 mi W Nilttepec (TAM); 1 mi SE Rio Hondo (TAM); 11.3 mi SE Totolapan (TAM); 18 mi SE Tlacolula (CWO). *Puebla*: 16 and 19 mi NW Acatlan (TAM); 10 mi SE Pitayo (USNM); 13.3 mi NW Tehuitzingo (CWO, TAM). *Veracruz*: San Rafael Jicatltepec (USNM). *Yucatan*: Izamal (USNM). HONDURAS. *Comayagua*: 3 mi SW Comayagua (CWO). NICARAGUA. *Maragaloa*: 3 mi W Sebaco (CWO). BRAZIL. *Bonito*: Pernambuco (USNM). *Minas Gerais*: Pedra Azul (CWO).

S. grypa

MEXICO. *Baja California Territorio Sur*: Cape San Lucas (BYU); Los Planes (USNM); San Jose del Cabo (CAS); 6 mi SW Santiago (UA); Tres Marias Islands: Magdalena Island and Maria Madre Indian Village (CAS). *Campeche*: Francisco Escarcega (CWO). *Chiapas*: 35 mi SW Cintalapa (TAM); 3 mi SW La Trinitaria (TAM). *Guanajuato*: Jutiapa. *Guerrero*: 0.2 mi W Cacahuamilpa (TAM); Iguala (TAM). *Mexico*: Atlahuaca (CWO); 4.3 mi NE Ixtapan (TAM); 19 mi S Toluca (TAM). *Morelos*: 2 mi N Jojutla (CWO). *Oaxaca*: 9 mi E El Cameron (CWO); 16 mi W Jalapa del Marques (TAM); 0.5 mi SW Juchitan (TAM); 2.8 mi E. Matatlan (TAM); 14 mi E Nilttepec (TAM); 1 mi SE Rio Hondo (TAM); 17 mi W Tehuantepec (CWO); 6 mi W Tehuantepec (CIS, CWO, TAM); 12 mi W Tehuantepec (TAM); 56 mi NW Tehuantepec (CWO); 11.3 mi SE Totolapan (TAM). *Puebla*: 4 mi SE Acatepec (TAM); 16 and 19 mi NW Acatlan (TAM, CWO); 11.8 mi NW and 12 mi SE Izucar de Matamoros (TAM, CWO); 14 mi SE Petlalcingo (CWO). *Queretaro*: 1 mi NW Ayutla (TAM). *San Luis Potosi*: Ciudad del Maiz (USNM). *Sinaloa*: 5 mi E Concordia (CWO); 2 mi W El Palmito (CWO). *Sonora*: Alamos (CAS). *Tamaulipas*: 6.2 mi W Antiguo Morelos (TAM); Nacimiento del Rio Frio, ca. 25 N Ciudad Mante (CWO); 8 mi W El Limon (TAM). *Veracruz*: Vega de Alatorre (TAM); 14 mi W Conejos (TAM); 8 mi W Palma Sola (TAM). NICARAGUA. 23 mi SE Esteli (CWO); Managua (BMNH). COSTA RICA. *Guanacaste*: Bagaces area, Comelco, Palo Verde (USNM).

S. hispida

UNITED STATES. *Arizona*: Cochise Co., 10 mi N Apache (CWO); Chiricahua Mts.: Cave Creek (USNM); Dragoon Mts.: Cochise Stronghold (UA); Huachuca Mts.: Miller Cyn. (OSU); Pearce (UA); 5 mi E Portal (CWO). Gila Co., Globe (BYU, CAS, UA); Sixshooter Cyn., N. Globe (TAM). Graham Co., Mount Graham (BYU). Pima Co., Santa Catalina Mts. (BYU), Hitchcock Hwy., mi 5 (UA), Hitchcock Hwy., mi 4, Molino Basin and Peppersauce Cyn. (CWO); Santa Rita Mts. (BYU, CAS, USNM), Foot of Miller Creek (CAS), 6 mi N Madera Cyn. (NAU), Madera Cyn. (CWO, TAM), Box Cyn. and Florida Cyn. (CWO); Santa Rita Range Reserve (BYU). Pinal Co., Oracle (USNM). Santa Cruz Co., Nogales (BYU, CAS, USNM); Ruby (OSU); Tumacacori Mts. (OSU), Sycamore Cyn., Yanks Spring (CAS). Yavapai Co., Bloody Basin (UA); 10 mi S Camp Verde (NAU). *New Mexico*: Guadalupe Co., Santa Rosa (TAM). Lincoln Co., 0.5 mi W Sunset (WEC). *Texas*: Brewster Co., Alpine (USNM); 17 mi S Alpine (CWO); 3.6 mi E, 7 mi W, 6 mi N and 1 and 43 mi S Alpine (TAM); Chisos Mts. (OSU); Big Bend National Park: Green Gulch (CWO, TAM). Brown Co., Bangs (USNM). Culberson Co., Pines Springs (CWO), Dickens Co., 9 mi SE Dickens (CWO). Glasscock Co., 9 mi SE Stanton (TAM). Jeff Davis Co., Davis Mts. (CAS, OSU); Fort Davis (CNC); 5 mi S, 14 mi SE, 10 mi SW, and 12 mi NW Fort Davis (TAM). Llano Co., Buchanan Dam (TAM). Lubbock Co., Lubbock (TAM). McCulloch Co., 6 mi SE Brady (TAM). Mills Co., 23 mi W Goldthwaite (TAM). Presidio Co., 18 mi S Marfa (TAM); Shafter (TAM); 4.6 mi N Shafer (TAM). Reeves Co., 2 mi S Toyahvale (TAM). San Saba Co., 15 mi NW San Saba (TAM). Terry Co., Brownfield (CWO). Uvalde Co., Uvalde (USNM). Val Verde Co., Del Rio (CNC). Devil's River (USNM). MEXICO. *Chihuahua*: 5 mi NE Hidalgo del Parral (CWO). *Durango*: 8 mi NE Guadalupe Victoria (CWO); 2, 9 and 14 mi NW La Zarca (CWO). *Nuevo Leon*: 3 mi S Pacheco (TAM). *Zacatecas*: 13 mi SE Sombrerete (CWO).

S. inermis

UNITED STATES. *Texas*: Atascosa Co., 5 mi S Cambellton (CWO). Bee Co., Beeville (USNM); 6 mi NE, 7 and 18 mi SE Beeville (TAM). Brazos Co., Bryan (TAM); College Station (TAM). Brewster Co., 17 mi S Alpine (CWO); Big Bend National Park: road to basin and upper basin (RWH), Chisos Basin, Green Gulch and Pine Cyn. (CWO), Green Gulch and Boquillas (CNC), Chisos Mts., South Rim Trail (TAM). Brooks Co., 2.7 mi E Falfurrias (TAM). Burnet Co., 10 mi E Burnet (TAM). Calhoun Co., Port Lavaca (USNM). Cameron Co., Brownsville (BYU, TAM, USNM); Brownsville, Esperanza Ranch (BYU); 6 mi E Brownsville (TAM); Harlingen (USNM); 1 and 5 mi N Harlingen (TAM); Olmito (USNM); Port Isabel (USNM); Rio Hondo (USNM); San Benito (USNM); DeWitt Co., Cuero (USNM); 3.4 and 7 mi S Cuero (TAM). Dimmit Co., 7 mi N Carrizo Springs (CWO). Duval Co., San Diego (TAM). Hidalgo Co., Bentson Rio Grande Valley State Park (TAM); 2 mi S and 4 mi N Delfina (TAM); 2 mi S Linn (TAM); Mercedes (USNM); Mission (TAM); Progreso (TAM); Santa Ana Wildlife Refuge (TAM); Weslaco (TAM). Jeff Davis Co., Fort Davis (CNC). Jim Wells Co., 7 mi W Alice (TAM); 6 mi S Ben Bolt (TAM); 3.1 mi S Orange Grove (TAM); 1 mi N and 1.4 mi S Premont (TAM); 0.2 mi S Sandia (TAM). Kerr Co., Kerrville (TAM); LaSalle Co., Encinal (TAM). Kleberg Co., Kingsville (TAM); 6 mi S Kingsville (TAM); 3 mi S Ricardo (TAM); Riviera (TAM); Riviera Beach (TAM). LaSalle Co., Encinal (TAM). Live Oak Co., 5 mi SW George West (TAM). Matagorda Co., no locality given (TAM). Medina Co., Castroville (TAM); 3 mi E and 5 mi W Hondo (TAM). Neuces Co., Corpus Christi (TAM, USNM); Corpus Christi: Rodd Field (TAM). Refugio Co., Woodsboro (TAM). San Augustine Co., San Augustine (USNM). San Patricio Co., 4 mi SW Mathis (TAM); Lake Corpus Christi (RWH, OSU, TAM); 2 mi S Odem (TAM); Sinton

(TAM); 5, 6 and 7 mi N and 13 mi SW Sinton (TAM); Welder Wildlife Refuge (CWO, TAM, TTU). Starr Co., no locality given (OSU, TAM); Roma (USNM). Tarrant Co., Arlington (USNM). Uvalde Co., Garner State Park (TAM); 3 mi E Sabinal (TAM). Val Verde Co., no locality given (TAM); Devil's River (USNM); Victoria (TAM, USNM); 3 mi N Victoria (TAM). MEXICO. *Chiapas*: 0.5 mi N Ocozocoautla (TAM). *Coahuila*: Monclova (USNM). *Durango*: 24 mi NE Durango (CWO); 5 mi NE Francisco I. Madero (CWO). *Hidalgo*: 0.8 mi N Zimapan (USNM). *Mexico*: Tonatico (TAM). *Neuvo Leon*: 20 mi W Linares (CAS); 7.5 mi S Monterrey (TAM); Chipinque Mesa (CWO). *Oaxaca*: Huajuapán de León (TTU); 11 mi N Huajuapán de León (BYU); 14 mi S. Matías Romero (TAM); 10 mi N Níltepec (TAM); 3 mi SE Nochistlán (TAM); Oaxaca (CAS); 10 mi W Tamazulpan (TTU); 12 mi W Tehuantepec (TAM); 7.6 mi N Totolapan (TAM). *Puebla*: 35 mi S Puebla (USNM); 14 mi SE Petlalcingo (CWI). *Queretaro*: Cadereyta (TTU). *Tamaulipas*: Matamoros (USNM); 10 mi E San Fernando (TAM); Tampico (USNM); Victoria (USNM). *Zacatecas*: Hwy. 49, 161 km N Fresnillo (CWO).

S. maculata

UNITED STATES. *California*: San Miguel Island (CAS). Alameda Co., no locality given (CAS); Alameda (CAS, UK); Bay Farm Island (UI); Centerville (CAS); East Oakland (UK); Pleasanton (CAS); Newark (CAS). Contra Costa Co., no locality given (UK); Antioch (CAS, CIS, CWO). Fresno Co., Firebaugh (JSC); Fresno (USNM). Glenn Co., Willows (CAS). Kern Co., Bakersfield (CAS); Pond (CAS); Poso Creek (CAS); Shafter (CAS). Los Angeles Co., Azusa (CAS). Madera Co., Chowchilla (USNM). Marin Co., China Camp (CIS); Lake Lagunitas (NAU); Novata (CIS); 6 mi W Novata (NAU). Monterey Co., Carmel (CAS). Napa Co., Napa (CAS). Orange Co., no locality given (BYU, CAS); Anaheim (CNC), Costa Mesa (CAS, CNC); Irvine (CNC); Santa Ana (CNC, USNM). Sacramento Co., Brannan Island (CIS); Sacramento (USNM). San Diego Co., Borrego Springs (BMNH); Monument (CAS, UA), San Diego (CAS, OSU, UA, USNM). San Francisco Co., no locality given (CAS); San Mateo Co., East Palo Alto (CAS); Moss Beach (CAS); Palo Alto (CIS); Redwood City (USNM); San Carlos (OSU), San Francisco (CAS); west end Dumbarton Bridge (CAS). San Luis Obispo Co., San Simeon (CAS). Santa Clara Co., Palo Alto (UI), Siskiyou Co., lower Klamath Lake (JSC). Solano Co., Bernica (USNM). Sonoma Co., Hacienda (CIS); Salmon Creek Hwy. (CWO). Stanislaus Co., Modesto (CAS). Tulare Co., Woodlake (CIS). Yolo Co., Davis (USNM); Woodland (USNM). *Idaho*: Kootenai Co., Lake Cour d'Alene, 1.2 mi E Harrison (WEC). *Oregon*: Klamath Co., Klamath Falls (JSC). *Utah*: Uintah Co., Jensen (TAM). Utah Co., Mt. Timpanogas: Aspen Grove (BYU); Utah Lake: east side (BYU). *Wyoming*: Uintah Co., Lyman (UK).

S. melina

GUATEMALA. El Naranjo (USNM); Quetzaltenango (USNM). VENEZUELA. Colonia Tovar (SMTD); El Valle (USNM). BRAZIL. *Goiás*: Dianópolis (MZSP). *Minas Gerais*: Sete Lagoas (MZSP). *Roraima* (Rio Branco): Surumu (MZSP).

S. mica

MEXICO. *Distrito Federal*: Tlalpam (USNM). *Mexico*: Toluca (USNM); 13 mi N Acambay (CWO). *Oaxaca*: 2 mi N San Jose Pacifico (TAM). *Puebla*: 5 mi SW Chipilo (CWO). UNITED STATES. *Arizona*: no locality given (USNM). Graham Co., Fort Grant (USNM). *New Mexico*: Catron Co., 8.5 mi E and 22 mi SW Datil (USNM). Socorro Co., no locality given (USNM); Magdalena Mts. (USNM).

S. nana

MEXICO. *Nayarit*: 9 mi E El Refugio (TAM); Tuxpan (TAM). *Oaxaca*: 2.1 and 32.8 mi NW Jalapa del Marques (TAM); 2.7 mi NW El Cameron (TAM); 0.5, 2, 7, 14 and 27 mi E and 5 mi NE Juchitan (TAM, CWO); 14 mi S Matías Romero (TAM); 14 mi W Níltepec (TAM); Tehuantepec (CWO); 10.5 and 12 mi W Tehuantepec (TAM). *Sinaloa*: 15 mi SE Escuinapa (CWO); 20 mi SE Rosario (TAM).

S. ochreosa

UNITED STATES. *Texas*: Cameron Co., Brownsville (TAM, USNM); Brownsville; Esperanza Ranch (BYU), White Wing Dove Reserve (TAM); La Feria (TAM); Laguna Atascosa Wildlife Refuge (TAM); Hidalgo Co., 6 and 7 mi S Alamo (TAM); Mercedes (USNM); Santa Ana National Wildlife Refuge (TAM). MEXICO. *San Luis Potosí*: 2 mi SE Pedro Montoya (TAM). *Tamaulipas*: 8.3 mi W Magiscatzin (TAM); Matamoros (USNM); Tampico (USNM). *Veracruz*: Lago de Catemaco (USNM); Coyame, Lake Catemaco (TAM, USNM); 5 mi NW Lerdo de Tejada (TAM); 7 mi NE Mata Espino (TAM); 9 mi N Tempool (CWO); 2 mi N Tlacotalpan (TAM); Veracruz (TAM). HONDURAS. *Comayagua*: Lago Yojoa (CWO). NICARAGUA. *Chontales*: (no locality given) (BMNH). *Matagalpa*: 11 mi SE Cd. Darío (CWO). BRAZIL. Rio de Janeiro (CWO).

S. pallida

UNITED STATES. *Texas*: Cameron Co., Boca Chica (TAM); 2 mi W Boca Chica (TAM); Brownsville (USNM); Brownsville; Esperanza Ranch (USNM); 6, 8 and 20 mi E Brownsville (TAM). Hidalgo Co., 2 mi S Delfina (TAM). Jim Wells Co., 1 mi N Premont (TAM). Kleberg Co., Riviera Beach (TAM). Nueces Co., Corpus Christi (USNM). Refugio Co., 8 mi S Woodsboro (TAM). MEXICO. *Tamaulipas*: 2 mi NE San Fernando (CWO).

S. peruana

MEXICO. *Nayarit*: 3 mi S Rosa Moroana (CWO, NAU). *Oaxaca*: 0.5 mi SE Juchitan (TAM); 11 mi N Matías Romero (TAM); 5 mi E Temascal (CWO). *Puebla*: Tehuacan (USNM). *Tabasco*: 15.6 mi N, 8 mi E and 19 mi NE Villahermosa (TAM).

Tamaulipas: 8.3 mi W Magiscatzin (TAM); Tampico (USNM). *Veracruz*: Coyame (TAM, USNM); Hueyapan (USNM); 7 mi NE Mata Espino (TAM); 2 mi N Tlacotalpan (TAM); Veracruz (TAM); 1 km S Veracruz (USNM). GUATEMALA. Livingston (USNM). HONDURAS. *Comayagua*: Lago Yojoa (CWO); *Cortez*: Omoa (CWO); *Olancho*: 7 mi SE Catemacac El Carbon (CWO). COSTA RICA. *Guanacaste*: Finca Tabagá, Las Cañas (JSC). PERU. Departamento Piura (USNM). BRAZIL. *Roraima* (Rio Branco): Boa Vista (MZSP). PARAGUAY. San Bernardino (USNM); San Lorenzo (CWO). ARGENTINA. *Santa Fe*: Estancia la Noria, Rio San Javier (BMNH).

S. pulcherrima

MEXICO. *San Luis Potosi*: 27 mi N Cd Valles (CWO). *Tamaulipas*: 7 mi S Antiguo Morelos (TAM); Tampico (USNM). NICARAGUA. Corinto (BMNH). PUERTO RICO. Guanica (USNM); Ponce (USNM).

S. rotundata

PANAMA. *Chiriqui*: Volcan de Chiriqui (BMNH). *Cocle*: La Mesa ab. El Valle, 8°37'N, 80°7'W (HSC). Champion (1910: 191) mentions a specimen from Bugaba, Panama, which I have not seen.

S. ruidula

MEXICO. *Durango*: 5 mi N Donato Guerrero (TTU); 5 mi NE Francisco I. Madero (CWO); Durango (USNM); 24 mi NE Durango (CWO); *Hidalgo*: 0.9 and 3 mi N Zimapan (USNM, TAM). *Jalisco*: 5 mi NW Lago de Moreno (CWO). *Neuvo Leon*: Monterey (USNM). *Zacatecas*: 4 mi E Zacatecas (CWO).

S. sellata

ARGENTINA. *Chaco*: Corzuela (MZLP). *Buenos Aires* (AMNH, NRS). *La Pampa*: General Pico (MZLP). *Santa Fe*: Estancia la Noria, Rio San Javier (BMNH), Rafaela (MZLP). Intercepted in New York on ship from Argentina (USNM). URUGUAY. Montevideo (USNM).

S. setosa

UNITED STATES. *Arizona*: Cochise Co., 1 mi W junction Hwy. 666 and I-10 (TTU); Benson (BYU, CAS); Chiricahua mts.: Rucker Cyn. (CWO); Huachuca Mts.: Miller Cyn. (OSU); 1 mi W Pomerene (CWO); Portal (UA); 1 mi SW Portal (USNM); St. David (UA); Willcox (UA); 3 mi SW Willcox (CWO). Gila Co., Globe (BYU). Graham Co., 20 mi W Duncan (TTU); Gila Valley (UA). Greenlee Co., 5.7 mi W Duncan (TTU). Maricopa Co., Apache Lake (CWO); Arlington (USNM); 8 mi E Buckeye (WEC); Gila Bend (CAS, OSU); 1 and 14 mi S Gila Bend (WEC); Phoenix (UA, OSU, USNM, TTU); Scottsdale (NAU). Mohave Co., 1 mi E Ehrenberg (CWO); Littlefield (WEC); 2 mi S Wickieup (WEC). Pima Co., Baboquivari Mts.: Browns Cyn. (CWO); Oracle (CIS); Organ Pipe Cactus National Monument: Dripping Springs (WEC); Papago Well, 40 mi SW Ajo (UA); San Miguel (USNM); Santa Catalina Mts. (BYU, USNM); Santa Catalina Mts.: Agua Caliente Ranch (USNM), Canyon del Oro (CIS), Hitchcock Hwy., mi 4 (CWO), Molino Basin (CWO), Sabino Cyn. (CWO, UA); Santa Rita Mts. (BYU, USNM); Santa Rita Range Reserve (CWO, UA); Tucson (BYU, CAS, OSU, TTU, UA, USNM); 5 mi N, 5, 9 and 15 mi E Tucson (CWO); 16 mi SE Tucson (CIS), Pinal Co., Picacho (CAS). Yavapai Co., Bumble Bee (CAS); 4 mi SE Camp Verde (NAU). Yuma Co., Colorado River at Parker (CWO); Parker (CWO); San Luis (USNM); Somerton (USNM); Yuma (CAS, CNC, UA, USNM). *California*: Imperial Co., Calexico (USNM); Coyote Wells (USNM); Fort Yuma (CAS, USNM); junction Hwys. 78 and 99 (CWO). Inyo Co., Bennetts Wells (CIS); Death Valley (USNM); Death Valley: Navares Spring (UI); Panamint Valley (USNM). Los Angeles Co., no locality given (USNM). Riverside Co., Blythe (CWO); Chuckawalla Springs (CIS); Indio (CAS); Mecca (CAS); Palm Canyon (CAS, USNM); Palm Springs (CAS, USNM); Riverside Mts. (OSU); 1 mi E Shavers Well (CWO); Thermal (CAS). San Bernardino Co., Cronise Valley (CIS); Needles (USNM). San Diego Co., no locality given (USNM); Borrego Springs (OSU); 2 mi E Jacumba (TAM); Scissors Crossing (CWO); 1 mi NE Scissors Crossing (CWO). *Nevada*: Clark Co., Cheston Mts.: Kyle Cyn. (CWO); Glendale (USNM); Las Vegas (USNM, WEC); Overton (USNM). *New Mexico*: Chavez Co., 24 mi N Roswell (TAM). DeBaca Co., 2, 6 and 18 mi E Fort Sumner (TAM). Dona Ana Co., Las Cruces (USNM); 15 mi W Las Cruces (TTU). Eddy Co., 25 mi E and 23 mi W Carlsbad (TTU); 10 mi E Loco Hills (TTU). Lea Co., 15 mi E Lovington (TTU); 2 mi W Maljamar (CWO). Luna Co., Deming (USNM). Quay Co., Tucumcari (USNM). Roosevelt Co., Tolar (TAM). Socorro Co., 2 mi N Bernardo (TAM). *Texas*: Archer Co., 5 mi SE Megargel (CWO). Bee Co., Beeville (USNM); 7 and 18 mi SE Beeville (TAM). Bexar Co., no locality given (USNM); San Antonio (USNM, TAM). Blanco Co., no locality given (USNM). Borden Co., 14 mi NE Gail (CWO). Brazos Co., College Station (TAM). Brewster Co., 7 mi W and 32 mi S Alpine (TAM); 65 mi S Alpine (CWO); Big Bend National Park: Boquillas Cyn. (CWO), Green Gulch (CWO, TAM), Hot Springs (CWO), Oak Springs (CNC), 3 mi W and 5 mi N Panther Junction (CWO), "Rio Grande" (USNM), Rio Grande Village (CWO), Solis Ranch (TAM), 32 mi S Marathon (CWO). Brisco Co., Prairie Dog Town Fork of the Red River at Hwy. 70 (CWO); 5 mi S Quitaque (CWO). Brooks Co., 4 mi S Falfurrias (TAM). Brown Co., Bangs (USNM); Brownwood (TAM). Burnet Co., 10 mi E Burnet (TAM). Callahan Co., no locality given (TAM); 12 mi NE Putman (CWO). Cameron Co., Brownsville (USNM, CAS); 8 mi E Brownsville (TAM); Port Isabel (USNM). Coke Co., 30 mi SE Bronte (CWO); 16 mi NE Robert Lee (TAM). Coleman Co., 5 mi W Valera (CWO). Comal Co., New Braunfels (OSU, USNM). Concho Co., 16 mi NE Eden (TAM). Cottle Co., Paducah (WEC). Crockett Co., 8.4 mi E Iraan (TAM); 2 and 14 mi E jct. Hwys. 29 and 163 (TAM); 12 mi W jct. Hwys 29 and 137 (TAM). Crosby Co., 3 mi E Crosbyton (CWO). Culberson Co., Hwy 62-180, 3 mi S New Mexico state line (TTU); 3 mi E Van Horn (TAM). Dallas Co., Dallas (BYU). Dickens Co., 3, 16, and 22 mi W, 4 mi N and 9 mi SE Dickens (CWO); 3 mi SW

Dumont (CWO); Spur (USNM). Duval Co., San Diego (USNM). Ector Co., 1 mi SW Penwell (TAM). El Paso Co., El Paso (CAS, USNM). Fisher Co., no locality given (TAM). Floyd Co., 35 mi NE Floydada (CWO). Gaines Co., 16 and 19 mi SW Seminole (CWO); 22 mi W Seminole (TTU). Garza Co., Post (TTU). Gillespie Co., Langes Mill (TAM). Glasscock Co., Garden City (TAM); 9 mi SE Stanton (TAM). Gonzales Co., Palmetto State Park (TAM). Hall Co., Turkey (CWO); 2 mi S and 6 mi SE Turkey (CWO). Hemphill Co., 14 mi NE Canadian (CWO). Hidalgo Co., no locality given (OSU); 4 mi N Del-fina (TAM); Mercedes (USNM). Hudspeth Co., 2 mi NW Acala (TAM); 2 mi W and 49 mi E Hueco (TTU); 5 mi W Dell City on Hwy. 62-180 (TTU). Hutchinson Co., Fritch Fortress (CWO). Jeff Davis Co., Davis Mts. (OSU, CWO); 7 mi S Kent (TAM). Jim Wells Co., 1 mi N Premont (TAM); Sandia (TAM). Kinney Co., 2 mi S jct. Hwys. 277 and 693 (CWO). Kleberg Co., Baffin Bay (TAM); 6 mi S Kingsville (TAM); Riviera (TAM); 5 mi E and 5 mi W Riviera (TAM). Lamb Co., 6 mi S Giddings (USNM). Live Oak Co., no locality given (TAM); 5 mi E George West (TAM). Llano Co., no locality given (OSU); Buchanan Dam (TAM). Lubbock Co., Lubbock (TTU, TAM); Couch Ranch, 10 mi E Lubbock (CWO); 3 mi NE Shallowater (CWO). McLennan Co., Leroy (USNM). McMullen Co., no locality given (TAM). Medina Co., 3 mi E Hondo (TAM). Midland Co., Midland (USNM). Mills Co., 23 mi E Goldthwaite (TAM). Moore Co., Hwy. 136 near Fritch (CWO). Nueces Co., Corpus Christi (OSU, USNM). Pecos Co., no locality given (RWH); 4 mi W Iraan (TAM); 15 mi E Fort Stockton (TAM); Sheffield (CAS). Potter Co., Meredith (CWO). Presidio Co., Chinati Mts.: 25 mi NW Presidio (TAM); 12.5 mi W Lajitas (TAM); Plata (TAM); Presidio (USNM). Refugio Co., 8 mi E Refugio (TAM); Woodsboro (TAM). Runnel Co., 11 mi SW Ballinger (CWO). San Patricio Co., Gregory (USNM); Mathis (USNM); 4 mi SW Mathis (TAM); Sinton (TAM, USNM); 13 mi SW Sinton (TAM). San Saba Co., Richland Springs (USNM); 3 mi S and 15 mi NW San Saba (TAM). Schleicher Co., 18 mi E El Dorado (TAM). Scurry Co., 4 mi NE Dermott (CWO); 9 mi NE Snyder (TAM). Shackleford Co., no locality given (RWH). Smith Co., Tyler (USNM). Starr Co., Rio Grande City (TAM). Sterling Co., 10 mi W Sterling City (TAM). Sutton Co., 17 mi E Sonora (CWO). Terrell Co., Sanderson (CNC). Travis Co., Austin (USNM). Uvalde Co., Sabinal (USNM); 3 mi E Sabinal (TAM); Uvalde (USNM); 5 and 9 mi W Uvalde (TAM). Val Verde Co., no locality given (OSU); Comstock (TAM); Del Rio (USNM); 12 mi SW Del Rio (CWO). Victoria Co., 7 mi S Victoria (TAM). Ward Co., 3 mi NE Pyote (TAM). Webb Co., no locality given (TAM); 18 mi N Laredo (TTU). Wichita Co., Wichita Falls (CWO). Willacy Co., San Perlita (TAM). Yoakum Co., Plains (TAM). Young Co., 2 mi NW Olney (CWO). Zavala Co., La Pryor (TAM); Nueces River (USNM). *Utah*: Washington Co., Leeds (USNM); Santa Clara (BYU); 1 mi W Santa Clara (WEC); 1.6 mi E Shivwits (USNM); St. George (BYU, USNM, WEC). MEXICO. *Aguascalientes*: Aguascalientes (USNM); 1.5 mi W southern Aguascalientes state line (CWO). *Baja California*: Catarina (CAS), *Baja California Sur*: Isla Carmen (CAS). *Chihuahua*: 3 mi N Chihuahua (TTU); 5 mi S Galeana (TTU); 38 mi S Gallego (TTU). *Durango*: 2 mi N Cerro Gordo (TTU); 5 and 10 mi NE Donato Guerra (TTU); Ciudad Lerdo (CAS). *Hidalgo*: 18 mi W Pachuca (TTU). *Nuevo Leon*: 19 mi W Iturbide (TAM); 5 mi W Doctor Arroyo (TAM); 2.4 mi S La Escondida (TAM); Hwy 57, 70 mi SW Linares (CWO, TTU); 17 mi S Nuevo Laredo (USNM); 79 mi S Monterrey (TTU); 22 mi N Sabinas Hidalgo (TTU); Huasteca Canyon (Near Monterrey) (CWO). *Oaxaca*: 3.2 mi S Ocotlan (TAM). *Puebla*: 11.8 mi NW Izucar de Matamoros (TAM); Tlaxcopec (USNM). *Queretaro*: Cadereyta (TTU); 16 mi N Queretaro (TTU); Tequisquiapan (TTU). *San Luis Potosi*: 28 mi W Ciudad del Maiz (CWO); 11 mi E El Huizache (CWO); 12, 18 and 65 mi NW San Luis Potosi (TTU, CWO); 8.7 mi S Santa Maria del Rio (TAM); 16 mi S Santa Maria del Rio (TTU). *Sonora*: Altar (USNM); Hermosillo (USNM). *Zacatecas*: 31 mi SE Guadalupe (TTU); 13 mi SE Sombrerete (TTU); 9 mi NE Zacatecas (TTU). JAMAICA. No locality given (BMNH). BONAIRE, Aruba (USNM). CURACAO. Damacar (USNM); Schottgatwee (USNM); Zapateer (USNM).

S. sibiinioides

UNITED STATES. *Arizona*: Cochise Co., 1 mi W Bisbee (CIS, CWO); Chiricahua Mts. (OSU); Chiricahua Mts.: Cave Creek (USNM), Pinery Cyn. (CWO); Chiricahua National Monument (CWO); Copper Cyn., 2 mi W Montezuma Pass (CWO); Coronado National Monument, Montezuma Pass (CWO); 10 mi N Douglas (CWO); Dragoon Mts.: Cochise Stronghold (CWO, UA); Huachuca Mts.: Miller Cyn. (OSU, WEC), Montezuma Cyn. (CWO), Sunnyside Cyn. (NAU); 3.5 mi S Parker Canyon Lake, Sunnyside Cyn. (CWO); 9 mi N of Parker Canyon Lake (CWO); 7 mi S Pearce (CWO); Tanque, 3 mi NE Portal (CWO); Tombstone (BYU); Hwy. 181, 6 mi W jct. Hwy. 66 (CWO). Graham Co., Pinaleno Mts.: Hospital Flat and Swift Trail (CWO, CAS). Maricopa Co., Gila Bend (BYU). Pima Co., Baboquivari Mts.: Browns Cyn. (CWO, UA); Santa Catalina Mts.: Bear Wallow, Bear Cyn. and Hitchcock Hwy., mi 10, 14, 15, 16, 17, 20, and 27, Molino Basin, Peppersauce Cyn. and Sabino Cyn. (CWO). Bear Canyon (USNM), Molino Basin, 22 mi NE Tucson (TAM); Santa Rita Mts. (BYU, CAS, USNM); Santa Rita Mts.: Box Cyn. (CWO, NAU), Florida Cyn. (CWO, NAU), Madera Cyn. (CWO, NAU, TAM, UA), Madera Cyn., Bogsprings Camp (CWO, NAU); Santa Rita Distr. Site, IBP (UA); Santa Rita Range Reserve (BYU, CAS, UA); Nogales (BYU); 15 mi W Nogales (USNM); Patagonia (CWO, OSU, UA); west slope Patagonia Mts. (UAP; Pena Blanca Lake (NAU); 2 mi W Pena Blanca Lake (CWO). Yavapai Co., 10 mi S Camp Verde (NAU). *New Mexico*: Lea Co., 2 mi W Maljamar (CWO). Lincoln Co., 0.5 mi W. Sunset (WEC). *Texas*: Brewster Co., 9 and 17 mi S Alpine (CWO); 6 mi N, 7 mi W and 43 mi S Alpine (TAM); Big Bend National Park: Green Gulch (CWO, TAM), Chisos Basin and Panther Junction (CNC). Culberson Co., Pine Springs (CWO). Jeff Davis Co., no locality given (OSU); Davis Mts. (CAS, OSU); Davis Mts.: H.O. Canyon (TAM); Davis Mts.: Hwy. 188 (CWO); Davis Mts. State Park (TAM); Fort Davis (CNC); 5 mi S, 10 and 14 mi SE, 8 mi NE and 12 mi NW Fort Davis (TAM). Pecos Co., 30 mi S Fort Stockton (CWO). Presidio Co., 10 mi S and 7 mi SW Marfa (TAM). MEXICO. *Chihuahua*: 3 mi N Chihuahua (TTU). *Durango*: NW LaZarca (CWO); Lerdo (CAS). *Guerrero*: 0.2 mi W and 2.5 mi NE Cacahuamilpa (TAM); Taxco (UA). *Jalisco*: 5 mi NW Lagos de Moreno (CWO). *Michoacan*: between Hidalgo and Morelia (UA). *Oaxaca*: Huajuapán de Leon (CWO, TTU); 10 mi W Tamazulpan (TTU); 11.3 mi SE Totolapan (TAM). *Puebla*: 4.4 mi SW Acatepec (TAM); 16 and 19 mi NW Acatlan (TAM, CWO); 11.8 mi NW Matamoros de Izucar (TAM); 13.3 mi NE Tehuiztzingo (TAM). *Sinaloa*: 26 mi N El Puerto (TAM); 2 mi E San Blas (CWO, NAU). *Sonora*: Hermosillo (CAS, UA); 13 mi E Hermosillo (CWO, NAU); 5 mi S Magdalena (TAM); Sierra de Magdalena, due north of Magdalena (UA); Santa Ana (TAM); 36 mi S Santa Ana (TAM). *Zacatecas*: 13 mi SE Sombrerete (CWO).

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S. simplex

UNITED STATES. *Arizona*: Cochise Co., Bisbee (CWO); Chiricahua Mts., (UA); Chiricahua Mts.: Rucker Cyn. (CWO); 10 mi N Douglas (CWO); Huachuca Mts. (USU); 1 mi W Pomerene (CWO); Portal and 1 mi E Portal (USNM); 1 mi SW Research Station, Portal (USNM); 5, 10 and 12 mi N Tombstone (CWO); Whetstone Mts.: southwest end, Dry Canyon, Sands Ranch (CAS). Gila Co., 15 mi W Fort Apache, Cedar Creek (UA); Globe (BYU); Icehouse Cyn., N. Globe (TAM); San Carlos (BYU, USNM); Graham Co., 20 mi W Duncan (TTU); Mount Graham (BYU); Pinaleno Mts.: Noon Creek (CWO). Pima Co., Continental (UA); Sahuarita (UA); Santa Catalina Mts. (BYU, CAS); Santa Catalina Mts.: Bear Wallow, Hitchcock Hwy. mi 19 and 25. Molino Basin and Sabino Cyn. (CWO); Santa Catalina Mts.: Canyon Del Oro (CIS); Santa Catalina Mts. Mount Lemon (USNM); Santa Rita Mts.: Box Cyn. and Madera Cyn. (CAS, NAU); Tucson (BYU, CAS, CWO, UA, USNM); 16 mi SE and 5 and 17 mi N Tucson (CWO); Tucson Mountains (CIS). Pinal Co., Oracle (CIS, USNM); 6 mi NE Oracle (CWO); 12 mi W Stanfield (UA). Santa Cruz Co., Carr Cyn. (BYU); 9 mi NE Sonoita (BYU). *New Mexico*: Hidalgo Co., 17 mi E junction Hwys. 80 and 9 (USNM). *Texas*: Bailey Co., 8 mi SE Muleshoe (CWO). Brewster Co., 19 mi E, 1, 5, and 43 mi S Alpine (TAM); Big Bend National Park: Chisos Basin and Tornillo Flat (CNC), Green Gulch, Glen Springs. 2 mi E Mount Nugent and Rio Grande Village campground (TAM), road to Basin (RWH), Green Gulch, Juniper Cyn., 5 mi N Panther Junction and Pine Cyn. (CWO); Chisos Mts. (CAS); 5 and 12 mi N Study Butte (TAM). Culberson Co., 0.5 mi S Kent (TAM); Pine Springs (CWO); 4 mi SW and 19 mi NW Pine Springs (CWO); Van Horn (USNM); 3 and 16 mi E Van Horn (TAM). El Paso Co., El Paso (BYU, USNM). Jeff Davis Co., 5 mi S Fort Davis (TAM); 7 mi S Kent (TAM); Valentine (TAM). Presidio Co., Marfa (CAS, USNM); Plata (TAM); Presidio (TAM, USNM); Almito Creek, 5 mi SE Presidio (TAM); Chinati Mts.: 25 mi NW Presidio (TAM); 3, 4 and 13 mi N Presidio (TAM); 4 mi N Shafter (TAM). Reeves Co., 2 mi S Toyahvale (TAM). *MEXICO. Chihuahua*: 3 mi N Chihuahua (TTU); 5 mi Hidalgo del Parral (CWO). Durango: 5 mi SW Cuencame (TAM); 9 mi S Gallego (CWO); 14 mi NW Lazarca (CWO); 9 mi N Rodeo (CWO); 9 mi S San Antonio (CWO). *Sonora*: 6 mi S Casa Blanca (CWO, NAU). *San Luis Potosi*: Santa Maria del Rio (TAM). *Tamaulipas*: 50 mi SW Ciudad Victoria (USNM). *Zacatecas*: 15 mi NE Fresnillo (CWO).

S. suturalis

UNITED STATES. *Arizona*: Cochise Co., Chiricahua Mts., (OSU); Chiricahua Mts.: 3.5 mi SW Portal (CAS); Huachuca Mts. (BYU, CAS, OSU); Huachuca Mts.: floor of Carr Cyn. (CAS); Tombstone (BYU); Whetstone Mts.: east end, Dry Cyn., Sands Ranch (CAS). Graham Co., Fort Grant (USNM); Mount Graham (BYU); Maricopa Co., Gila Bend (BYU). Pima Co., Baboquivari Mts.: east side Browns Cyn. (CAS); Santa Catalina Mts.: Molino Basin (CWO, TAM), Peppersauce Cyn. (CAS); Santa Rita Mts. (BYU); Santa Rita Mts.: Box Cyn. (NAU); 17 mi N Sonoita (UI). Pinal Co., Oracle (CAS, CWO). Santa Cruz Co., Carr Cyn. (CWO); Nogales (BYU, CAS, USNM); Patagonia (BYU); Pena Blanca Lake (NAU); Ruby (OSU). Yavapai Co., Ash Fork (OSU). *New Mexico*: Dona Ana Co., 3 mi E Organ (CWO); Organ Mts.: A.B. Cox Ranch (TAM); Guadalupe Co., Santa Rosa (TAM). Lincoln Co., 0.6 mi W Sunset (WEC). *Texas*: Brewster Co., 9 and 13 mi S and 17 mi SW Alpine (CWO); 6 mi N and 7 mi W Alpine (TAM); Big Bend National Park; Green Gulch (TAM); Chisos Mts. (OSU); 15 mi Marathon (TAM). Cameron Co., Brownsville (TAM); Olmito (USNM). Hidalgo Co., Santa Ana Wildlife Refuge (TAM). Jeff Davis Co., Davis Mts. (CAS, OSU); Fort Davis (UI, TAM); 10 mi SE Fort Davis (UI, TAM); 1 mi W, 12 and 25 mi NW, 5 mi S and 8 mi NE Fort Davis (TAM). Presidio Co., 18 mi S Marfa (TAM); Shafter (TAM). Starr Co., Falcon State Park (TAM). Swisher Co., no locality given (TAM). Terry Co., Brownfield (CWO). *MEXICO. Chihuahua*: (BYU); 22 mi S Chihuahua (CIS). *Durango*: 9 mi SW Cuencame (CWO); Durango City (BMNH USNM); 5 mi NE Francisco Ignacio Madero (CWO); 9 mi NE Guadalupe Victoria (TAM); 9 mi NW LaZarca (CWO); 2 mi SW Yerbánis (CWO). *Guerrero*: 2.4 mi N Mazatlan (TAM); 0.2 mi W and 2.5 mi NE Cacahuamilpa (TAM). *Hidalgo*: 18 mi SE Actopan (CWO). *Nuevo Leon*: 9 mi W Iturbide (TAM); 3 mi S Pacheco (TAM). *Morelos*: 10 mi E and 10 mi S Cuernavaca (TAM, CWO); 11 mi NW Cocoyoc (CWO). *Oaxaca*: 3 mi SE Nochistlan (TAM); 12 mi W Tehuantepec (TAM); 11 mi SE Petlalcingo (TTU); 13 mi SE Tlacolula (CWO). *Puebla*: Matamoros de Izucar (BMNH). 4.4 mi SW Acatepec (TAM); 16 mi NW Actlan (TAM); 11.3 mi SE Petlalcingo (TTU); 13.3 mi NE Tehuiztzingo (TAM). *Queretaro*: 7 mi N Queretaro (CWO). *San Luis Potosi*: 35 mi E San Luis Potosi (TAM). *Sonora*: 13 mi N Imuris (CWO). *Tamaulipas*: 16.3 mi NE and 23.9 mi SW Juamave (TAM); 14 mi W Manuel (TAM). *Tlaxcala*: Tepayanco (record from Champion (1910: 191), specimen not seen).

S. tessellata

MEXICO. Chiapas: 3 mi SE La Trinitaria (TAM). *Morelos*: 4.4 mi E Cuernavaca (TAM). *Puebla*: 4.4 mi SW Actepec (TAM). *San Luis Potosi*: 13 mi E El Naranjo (TAM). *Tamaulipas*: Galeana Canyon, 38 mi Cd. Mante (CWO); 5 mi E Nuevo Morelos (CWO). *Veracruz*: 14 mi W Conejos (TAM). *Yucatan*: 3 mi E Chichen Itza (CWO). GUATEMALA. *Alta Verapaz*: Tamaha (record from Champion (1910: 191), specimen not seen).

S. texana

UNITED STATES. *Texas*: Duval Co., San Diego (USNM). Kleberg Co., 1 mi S Kingsville (TAM). La Salle Co., Cotulla (USNM). Zapata Co., no locality given (TAM); Zapata (TAM). Burke (1959) also mentions specimens from Live Oak County, Texas.

S. transversa

UNITED STATES. *Arizona*: Cochise Co., Benson (BYU, CAS); Portal (CIS, CWO, USNM); St. David (UA). Coconino Co., Colorado Cyn. (USNM); Grand Cyn.: plateau near halfway house (USNM); Grand Cyn.: Cotton Springs (USNM, CAS); 4 mi N Sedona (NAU). Gila Co., Globe (BYU, UA); Pinal Mts. (BYU). Graham Co., Mount Graham (BYU), Maricopa Co., Gila Bend (CAS); Organ Pipe Cactus National Monument: 4 mi S Dripping Springs (WEC); Phoenix (USNM). Mohave Co., 1 mi E Ehrenberg (CWO); Hualpai Mts. (OSU); 2 mi S Wickieup (WEC). Pima Co., Coyote Mts.: east slope, 0.5 mi N Mendosa Cyn. (UA); Saharita (UA); Saguaro National Monument: Headquarters (UA); Santa Catalina Mts. (BYU, CWO, WEC), Sabino Cyn. (CWO, UA); Santa Rita Destr. Site (UA); Santa Rita Mts. (USNM); Santa Rita Range Reserve (CWO); Tucson (BYU, OSU, USNM); 5 mi N, 5 and 9 mi E and 16 mi SE Tucson (CWO); 28 mi N Tucson (CIS). Pinal Co., Oracle (USNM); Picacho (BYU); Superior (UA). Yavapai Co., Bumble Bee (CAS); 10 mi S Camp Verde (NAU). Yuma Co., Yuma (UA). *California*: Imperial Co., Mountain Springs (TAM); 2 mi W Mountain Springs (CAS); Potholes (CAS). Riverside Co., Aguanga (CNC); Banning (CIS, CAS); Blythe (OSU); Chuckawalla Springs (CIS); Joshua Tree National Monument: Cottonwood Springs (OSU); Mecca (CAS); Palm Springs (CAS, USNM). San Bernardino Co., no locality given (USNM); 10 mi NE Earp (CWO); Essex (CWO); near Mitchell Caverns State Park (CWO). San Diego Co., Jacumba (OSU); 2 mi E and 4 mi W Jacumba (TAM). *Nevada*: Clark Co., Las Vegas (WEC). *Texas*: Brewster Co., 51 mi S Alpine (TAM); Big Bend National Park: Chisos Basin, 2.5 mi SW Grapevine Hills and Juniper Canyon (CWO), Green Gulch (TAM), Santa Elena Cyn. (CNC), Chisos Mts., (OSU, USNM). Conchos Co., 16 mi NE Eden (TAM). Crockett Co., 12 mi W jct. Hwys. 29 and 137 (TAM). Culberson Co., 3 mi E Van Horn (TAM). Frio Co., Pearsall (TAM). Howard Co., 14 mi SE Big Spring (TAM). Jim Wells Co., 1 mi N Premont (TAM). Live Oak Co., 5 mi SW George West (TAM). Pecos Co., 4 mi W Bakersfield (TAM). Presidio Co., 12.5 mi W Lajitas (TAM); 28 mi W Presidio (TAM); Shafter (TAM); 9 mi N Shafter (TAM). Reeves Co., 2 mi S Toyahvale (TAM). Schleicher Co., 18 mi E El Dorado (TAM). Sterling Co., 19 mi W Sterling City (TAM). Terrell Co., Sanderson (CNC). Uvalde Co., 3 mi E Sabinal (CWO); 9 mi W Sabinal (CWO); Uvalde (CAS, USNM); 5 mi W Uvalde (TAM). Val Verde Co., Comstock (TAM); 1 mi SE Comstock (CWO); Del Rio (USNM); Devil's River (USNM); 10 mi W Langtry (CWO). Victoria Co., Victoria (USNM). *Utah*: Washington Co., St. George (USNM). MEXICO. *Chihuahua*: 9 mi S Gallego (CWO).

S. vagabunda

MEXICO. *Chiapas*: 29, 34, and 35 mi SW Cintalapa (TAM); 1 mi S Rayon (TAM). *Guerrero*: 20 mi E Acapulco (TAM). *Oaxaca*: 7.7 mi S Ejutla (TAM); 2.7 mi NW and 8.3 mi SE El Cameron (TAM), 18 mi SE Tlacolula (CWO). *Puebla*: 4.4 mi SW Acatepec (TAM). *San Luis Potosí*: 3.4 mi W Xilitla (TAM). *Veracruz*: 14 mi W Conejos (TAM). GUATEMALA. Capetillo (BMNH); San Jerónimo (BMNH); 3 mi SW and 6 mi NW Huehuetenango (CWO). BRAZIL. *Goiás*: Rib. Vaozinho (MZSP).

S. valenciana

MEXICO. *San Luis Potosí*: 27 mi N Cd. Valles (CWO). *Tamaulipas*: 7 mi S Antiguo Morelos (TAM); Tampico (USNM). *Oaxaca*: 10.5 mi W Tehuantepec (TAM). *Yucatan*: Izamal (USNM). EL SALVADOR. La Libertad (USNM). COLOMBIA. no definite locality (RISNB). VENEZUELA. Valencia (SMTD).

S. variegata

UNITED STATES. *Arizona*: Cochise Co., Chiricahua Mts. (OSU, UA); Dos Cabezas (BMNH, UA); 10 mi N Douglas (CWO); Hereford (OSU); Huachuca Mts. (BYU); (CAS, OSU); 1 mi W Pomerene (CWO); Portal (CWO, UA); 1 mi E, 1 mi SW, 3 mi E and 3.6 mi E Portal (USNM); 5 mi E and 12 mi S Tombstone (CWO); Whetstone Mts.: southeast end, Dry Canyon, Sands Ranch (CAS). Gila Co., Cutter (UA); Globe (BYU, UA); San Carlos (BYU). Maricopa Co., Wickenburg (OSU). Navajo Co., Fort Apache (UA). Pima Co., Marana (UA); Organ Pipe Cactus National Monument; 4 mi S Dripping Springs (WEC); Santa Catalina Mts.: Bear Wallow, mi 14 and 15 Hitchcock Hwy. (CWO); Santa Catalina Mts.: Peppersauce Cyn. (CAS); Santa Rita Mts. (OSU); Santa Rita Mts.: Box Cyn. (NAU); Santa Rita Range Reserve (UA); Tucson (BYU, CAS, OSU); Picacho (UA); 10 mi W Stanfield (UA). Yavapai Co., Congress Junction (OSU). *New Mexico*: Hidalgo Co., 1.7 mi E junction Hwys. 80 and 9, (USNM); 15 mi N Rodeo (CWO). *Texas*: Brewster Co., 1, 5, and 43 mi S Alpine (TAM); Big Bend National Park: Chisos Basin (CNC, TAM), Chisos Mts. (CAS, OSU, RWH, UI, USNM), Green Gulch (CWO, TAM), 2 mi E Mount Nugent (TAM); Oak Springs, Pine Cyn. (CWO), Rio Grande Village (TAM), South Rim Trail (TAM). Culberson Co., 0.5 mi S Kent (TAM); Pine Springs (CWO); 4 mi SW and 19 mi NE Pine Springs (CWO). El Paso Co., El Paso (USNM). Jeff Davis Co., Davis Mts. (OSU); 2 mi NE "rockpile" W Fort Davis (TAM); Valentine (TAM); Presidio Co., Chainti Mts.: 25 mi NW Presidio (TAM); Marfa (CAS, USNM); Plata (TAM), 2, 3, 4, and 13 mi N Presidio (TAM); 2 mi S Shafter (TAM). MEXICO. *Chihuahua*: Colonia Dublan (BYU); 5 mi NE Hidalgo del Parral (CWO). *Coahuila*: 23 mi W Saltillo (CWO). *Durango*: 5 mi SW Cuencame (TAM); 9 mi SW Cuencame (CWO, NAU); 9 mi S San Antonio (CWO); 2 mi SW Yerbánis (CWO). *Nevo Leon*: 10 mi S jct. Hwys. 57 and 60 (TTU). *San Luis Potosí*: Santa Maria del Rio (TAM); 16 mi S Santa Maria del Rio (CWO, TTU). *Zacatecas*: 32 mi N Fresnillo (CWO); 31 mi SE Guadalupe (CWO).

S. rosei

MEXICO. *Campeche*: 1 mi S Becal (CWO); 16 mi N Champoton (CWO). *Guerrero*: 19 mi S Iguala (TAM); 11.3 mi SE Totolapan (TAM). *Oaxaca*: 14 mi W Niltépec (TAM). *Puebla*: 4 and 13.3 mi NW Tehuiztzingo (CWO, TAM). *Yucatan*: Tixkokob, Cordelería and Mayapan (AMNH); 2 mi E Chichen Itza (CWO). HONDURAS. *Comayagua*: 4 mi SW Comayagua (CWO).

APPENDIX II

APOTYPIC CHARACTER STATES IN *SIBINIA*

Apotypy determined by ex-group (ex), and in-group (in) comparisons.

1 (ex) *Head constricted behind eye, frons and hind margin of eye abruptly raised.* (Figs. 98, 105). — This is expressed in *T. sororius*, and more markedly developed in the *Sibinia* "Itychus" stock (most pronounced in *S. impensa*, *S. amplificata*, *S. bufemoratoidea*, *S. bufemorata*, *S. grandis*, *S. grisea*, *S. warneri*, *S. alvarengae*, *S. griseoides*, *S. distorta*, *S. vosei*, and *S. fulva*). In most *Sibinia*, the head is not constricted, the anterior margin of the pronotum unmodified, presumably the plesiotypic condition as expressed in other Curculionidae. In some *Sibinia*, the head is not constricted and the frons not raised, but the hind margin of the eye is raised to variable degrees (prominently in *S. rotundata*, *S. tropidorhyncha*, *S. altensis*, and some *pulcherrima* group members (Figs. 375-377)). Absence or reduced expression of this character complex in *Sibinia* is attributed to secondary reduction.

2 (ex) *Anterodorsal margin of pronotum broadly concave, anterolateral margins swollen into distinct postocular lobes* (Figs. 96, 98, 105, 106). — This is expressed in *T. sororius* and in the "Itychus" species listed above as possessing apotypic state 1. The straight anterior pronotal margin of most *Tychius* and other Tychiinae is probably plesiotypic, *Sibinia rotundata* and *S. tropidorhyncha* have the anterodorsal margin of the pronotum broadly concave but lack anterolateral postocular lobes, an intermediate stage in secondary reduction of this condition to the simple pronotum expressed in most *Sibinia*. *Tychius quinquepunctatus* also has postocular lobes, a possible indication of relationship to the *sororius* group.

3(ex) *Frons and proximal portion of rostrum widened.* — This is expressed in *T. sororius*, some "Itychus" stock members (not *S. griseoides*, *S. distorta*, *S. vosei*, and *S. fulva*) and in *sulcifera* and *variegata* group members (much reduced in these). In other *Sibinia* the frons is distinctly narrower than the base of the rostrum (apotypic state 11).

4 (ex) *Elytral apices broadly, separately rounded* (Figs. 75, 321). — This is unique to *Sibinia*. All other Tychiinae have more nearly conjointly rounded elytral apices.

5 (ex) *Pygidium of female broadly exposed, concealed and exposed portions separated by transverse carina.* — The female pygidium is completely or nearly completely concealed and lacks a carina in *Tychius* and other Tychiinae.

6 (ex) *Spiculum gastrale a pair of large anterolateral plates and a smaller posteromedian plate, spiculum rod absent* (Fig. 46, et seq.). — In most weevils the spiculum gastrale consists of an elongate rod with an expanded base, the rod extending anteriorly beyond the apices of the median struts of the median lobe within the abdomen (see Morimoto 1962, Kuschell 1964, Clark 1977a). The rod and sometimes the base lie to the right of the median lobe within the abdomen. In *Tychius*, however, the spiculum rod and the expanded base are Y shaped, and lie completely ventral to the median lobe overlying the tegmen, and the spiculum rod extends anteriorly only about halfway to the apex of the tegmental strut (Fig. 437). Between the arms of the Y is a more or less complete sclerotized plate of which the arms are an integral part. In the spiculum gastrale of male *Sibinia*, homology of the anterolateral plates to the arms of this Y, and homology of the posteromedian plate to the sclerotized plate between the arms, is indicated by musculature (Clark 1977a). In *T. sororius* the arms of the Y are somewhat expanded and a sclerotized posteromedian plate between the arms of the Y is surrounded by nonsclerotized chitin which is nearly completely isolated by it (Fig. 437), possibly an intermediate stage in development of the modified spiculum gastrale of *Sibinia*.

7 (ex) *Spermatheca with rigid cup-shaped structure at origin of spermathecal gland* (Figs. 26 et seq.). — This is unique in Tychiinae to members of the subgenus *Microtychius*. Its absence in subgenus *Sibinia* members is attributed to secondary loss.

8 (ex) *Postcoxal process of prosternum large, bilobed, the lobes widely divergent.* — This is expressed in most of the species which express apotypic states 1 and 2, as well as in *S. sulcifera*. The postcoxal process in *Tychius* is small and simple, the plesiotypic condition.

9 (ex) *Femora greatly enlarged, channeled beneath to receive tibiae* (Fig. 99). — This is strongly developed in "Itychus" stock members *S. impensa*, *S. amplificata*, *S. bufemorata*, *S. bufemoratoidea*, *S. warneri*, and *S. alvarengae*, but exhibits various degrees of reduction in all other "Itychus". In some species which retain reduced "Itychus" characters, including *S. sulcifera*, *S. rotundata*, *S. tropidorhyncha*, and *S. altensis*, the femora are reduced in size although still more or less distinctly channeled. In most *Sibinia*, however, the femora are narrow at the base and gradually expanded distally, and are not for practical purposes distinguishable from femora of those *Tychius* and other Tychiinae with unarmed femora, apparently the plesiotypic condition (*T. sororius* group members have minutely toothed femora).

10(ex) *Tibiae angulate at base and in apical 0.25.* — This is expressed only in the “*Itychus*” stock members, *S. impensa*, *S. amplificata*, *S. bufemorata*, *S. bufemoratoidea*, *S. warneri*, *S. alvarengae*, and *S. schwarzi*. The straight tibiae of all other *Sibinia* are not for practical purposes distinguishable from plesiotypic tibiae of other *Tychius* and are considered secondarily reduced.

11(ex) *Frons slightly to much narrower than base of rostrum.* — This was discussed with apotypic state 3.

12(ex) *Body robust, pronotum and elytra strongly convex (Figs. 141, 142, 192, 193).* — This is strongly expressed in “*Itychus*” seed predators, but is also characteristic of several *rotundata-championi* lineage seed predators including *S. rotundata*, *S. tropidorhyncha*, *S. dorsena*, *S. altensis*, *S. tessellata*, *S. candidata*, and *S. suturalis*. Most other *Sibinia*, including most bud predators, are intermediate or closely resemble the plesiotypic condition as expressed in *T. sororius* and *sulcifera* and *variegata* group members which have a more elongate body form with less strongly convex pronotum and elytra (cf. Fig. 70).

13(ex) *Scales on pronotum and elytra uniformly elongate, clusters of light and dark scales arranged in tessellate pattern, scales on pronotum directed basad, except on extreme postero-lateral patterns (Figs. 102, 142).* — Although many *Tychius* have uniformly elongate scales, the admixture of round recumbent scales and elongate, narrow scales on the pronotum, with round scales forming a mediobasal patch or median and lateral vittae, and elongate scales forming median rows on the elytral interspaces (see Clark 1977b, Figs. 4–6), is considered plesiotypic in *Sibinia* because this condition is exhibited in the *T. sororius* group. Most *Sibinia* with strongly convex pronotum and elytra (apotypic state 12) also have basally directed pronotal scales. Among these, the tessellate color pattern is most pronounced in *S. impensa*, *S. amplificata*, *S. bufemorata*, *S. bufemoratoidea*, *S. tropidorhyncha*, *S. altensis*, *S. dorsena*, *S. tessellata*, *S. alvarengae*, *S. warneri*, and *S. vosei*. The pattern is indicated but less distinct in several other bud and seed predator *Sibinia*, but lost from others such as *S. candidata* and *S. suturalis*. Some modifications of the tessellate pattern can be traced through intermediate stages. For example, the highly modified pattern expressed in *S. grandis* has an intermediate expression in *S. bufemoratoidea*, an “*Itychus*” with a similar pattern superimposed on a distinct tessellate pattern. In some *Sibinia* elongate scales and rounded scales are present in the same positions and proportions as in *Tychius* and *sulcifera* group members, an apparent secondary acquisition of a condition resembling the plesiotypic one.

14(ex) *Protibia minutely mucronate or unarmed.* — This is expressed in the “*Itychus*” stock members, *S. warneri*, *S. alvarengae*, *S. griseoides*, *S. vosei*, and *S. fulva* and in *pulcherrima* group members *S. pulcherrima*, *S. valenciana*, and *S. dissipata* which have a few reduced “*Itychus*” features. In *Tychius* and other *Sibinia*, the protibial mucro is larger than that of the meso- and metatibiae, apparently the plesiotypic condition. This is true of other *pulcherrima* group members and all *chichimeca* and *melina* group and subgenus *Sibinia* members, in which the large protibial mucro is attributed to secondary reversal.

15(ex) *Pygidium of male large, broadly, evenly convex.* — This is expressed in *S. warneri*, *S. pulcherrima*, *S. alvarengae*, *S. griseoides*, *S. chichimeca*, *S. tepaneca*, *S. vosei*, and *S. fulva* and must have been acquired in the “*Itychus*” stock and lost or modified in descendent lineages. The plesiotypic condition exhibited in *Tychius* is a smaller, more flattened pygidium.

16(ex) *Median lobe abruptly bent downward at extreme apex (Figs. 90, 94, 110).* — This is markedly expressed in *S. griseoides*, *S. warneri*, *S. alvarengae*, *S. vosei*, and *S. fulva*, and evident although less distinctly developed, in *S. chichimeca*, *S. tepaneca*, and *S. melina*. It is apparently secondarily reduced and for practical purposes not distinguishable from the plesiotypic simple condition exhibited in basal *Sibinia* lineages in other descendants of ancestor 5 in which it first appeared.

17(ex) *Median lobe with ventral prominence bearing long posteriorly directed setae.* (Figs. 89, 92, 94, 95, 109, 110). — This is most prominent in *S. warneri* and *S. alvarengae* (Fig. 89-92), but it also is distinct in *S. vosei* and *S. fulva* (Figs. 94, 95, 109, 110). The dense cluster of long ventral subapical setae on the median lobe of most *chichimeca* group members (Fig. 386-390) is considered homologous to the setae on the prominence although in these bud predators, only a remnant of the prominence itself, the partially sclerotized medioventral portion of the median lobe, is evident. The prominence and its setae must have been secondarily lost in the ancestors of *S. inornata*, *melina* group and subgenus *Sibinia* members as well as in *S. azteca*, a *chichimeca* group member (Fig. 388).

18(ex) *Internal sac densely armed throughout with minute asperities (Figs. 89, 92, 94, 109).* — In most *Tychius* examined, including *T. sororius*, the internal sac is unarmed or has only a few asperities on the extreme proximal portion. In *Sibinia*, however, several different patterns of armature are expressed. The most common pattern, a dense set of fine spines on the distal 0.50 of the sac (Fig. 47), appears to have arisen several times in different *Sibinia* lineages. Apotypic state 18, expressed only in *S. warneri*, *S. alvarengae*, *S. vosei*, and *S. fulva*, is apparently only one of several modifications of the plesiotypic condition which was probably something like that in *S. amplificata* and *S. impensa*, in which only the proximal portion of the sac is armed, and that with minute asperities.

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19(ex) *Sternum 5 of male markedly, evenly rounded, not constricted subapically (Fig. 374).* — This is strongly expressed in *S. alvarengae* and *S. vosei*, in *pulcherrima* group members *S. pulcherrima*, *S. valenciana*, and *S. dissipata*, and less distinctly in *S. sparsa*. In all other ancestor 7 descendants, the sternum is for practical purposes not distinguishable from the plesiotypic condition exhibited in *Tychius* and plesiotypic *Sibinia*, in which the sternum 5 of the male is more or less prominent and feebly constricted subapically, at least on the sides.

20(ex) *Sterna 1–5 of male deeply, broadly concave medially, scales on concave portion finely dissected.* — Males of several *Sibinia* have concave abdominal sterna with finely dissected scales. Similar conditions are expressed in *hispidia* stock members, some *pulcherrima* group members, and in *S. bufemorata* and *S. bufemoratooides*, but in none of these are all five sterna involved or the concavity nearly so deep as in *S. alvarengae* and *S. vosei*. Apotypic state 20 is exhibited in apparently reduced condition in *S. grisea*, *S. chichimeca* and *S. tepaneca*, but is not expressed in other ancestor 8 descendants which probably include all subgenus *Sibinia* members.

21(in) *Anterolateral plates of spiculum gastrale large, margins flared.* — This is strongly developed in male *S. alvarengae* (Fig. 92), *S. vosei* (Fig. 95), and *S. fulva*, but is also distinctly indicated in *S. chichimeca* (Fig. 386), *S. tepaneca* (Fig. 387) and in *S. melina* (Fig. 391). Some subgenus *Sibinia* males also have relatively large anterolateral plates (Figs. 421, 422) but most other members of that subgenus have small plates which cannot be distinguished from those in more basal lineages, apparently the result of secondary reduction.

22(in) *Posteromedian plate of spiculum gastrale transverse, posterior portion flared downward.* — This is strongly developed in male *S. vosei* (Fig. 95) and *S. fulva*, but is also distinct in *S. chichimeca* (Fig. 386), *S. tepaneca* (Fig. 387) and *S. melina* (Fig. 391). Some subgenus *Sibinia* males have the posteromedian plate transverse (Figs. 421, 422), but do not have the posterior portion flared downward, a weak indication that subgenus *Sibinia* members as well as the species listed above, are derived from ancestor 9.

23(ex) *Spiculum ventrale with elongate, broadly forked base.* — Although the structure of the spiculum ventrale is highly variable in *Tychiini* (Figs. 1-25, 156-185, 333-357), the structure in male *S. sulcifera* (Fig. 1), *S. asulficifera* (Fig. 2), and *S. concava* (Fig. 3) is distinct and presumably apotypic. The spiculum ventrale is reduced, apparently secondarily, in the other *sulficifera* group members (Figs. 4, 6).

24(ex) *Elytra with transverse diamond shaped mediobasal fascia of light scales (Figs. 59B, 60B, 61B, 62B).* — This is unique to *sulficifera* group members.

25(ex) *Hosts in plant genus Prosopis.* — Only two *sulficifera* group members, the bud predators *S. concava* and *S. setosa*, are known to be associated with *Prosopis*, but the close resemblance of the seed predator *S. asulficifera* to *S. concava* indicates that it may also be found on *Prosopis*.

26(ex) *Spermatheca as in Fig. 27.* — Spermathecal shape is varied in *Sibinia* but that of *S. concava* and *S. asulficifera* females appears unique and is probably apotypic.

27(ex) *Distal portion of female rostrum elongate, slender, cylindrical, smooth (Fig. 69, 61A, 62A).* — This condition is shared by *S. cuauhtemoc* and *S. transversa* females but appears to have been convergently acquired in numerous other bud predators in different groups (apotypic states 44, 66). It is probably commonly acquired by females of species which oviposit in some particular type of flower bud or have a common mode of oviposition, but this has not been investigated.

28(ex) *Pronotum and elytra with narrow dark ferruginous scales, slightly wider lighter ferruginous to fulvous scales, and still wider white scales; round concave scales limited to extreme anterolateral, posterolateral, and mediobasal portions of pronotum (Figs. 70-74B).* —

This is unique to *variegata* group members, and appears to be a modification of the plesiotypic condition exhibited in *sulficifera* group members and in *T. sororius* in which the white and pale ferruginous scales are large and round to subquadrate, the darker ferruginous scales narrow.

29(ex) *Hosts in Acacia farnesiana-schaffneri-constricta-neovernicosa complex.* — This appears to be a natural although not formally recognized host group (see Isely 1969). All *variegata* group members have hosts in the group, as does the *hispidia* stock member *S. inermis*.

30(ex) *Orifical plates of median lobe prominent, thickened.* — This is expressed only in *S. grandis* (Fig. 111) and *S. bufemoratooides* (Fig. 56), very feebly in the latter. If it characterized ancestor 17, as inferred, it must have been secondarily lost in the other species assigned to the *grandis* group.

31(ex) *Pronotum and elytra with diagonal vittae of white and ferruginous scales.* — As with apotypic state 31, this is pronounced in *S. grandis*, feebly indicated in *S. bufemoratooides*. Other species assigned to the *grandis* group, *S. mundururu*, *S. furfurosa* and *S. solaris* have white and ferruginous scales, but only in *S. mundururu* is any trace of diagonal vittae visible. The other species assigned to the *grandis* group, *S. glomerata*, *S. pullipes*, and *S. nigripes*, do not have ferruginous and white scales, and their assignment is questionable.

32(in) *Femora uniformly, markedly inflated, ventral channel absent; round white scales and elongate bright ferruginous scales intermixed.* — This is expressed in *S. grandis*, *S. mundururu*, *S. furfurosa*, and *S. solaris* of the *grandis* group, but the shape is similar to that in many different *Sibinia* and is thus a weak indicator of relationship.

33(ex) *Sternum 5 of female broadly constricted, posteromedian portion of segment pro-ducted posteriorly.* — This is expressed in *grandis* group members. It is markedly distinct from the condition exhibited in species assigned to the "Itychus" stock which have sternum 5 short and narrowly constricted subapically, but similar conditions are exhibited in other *Sibinia*.

34(in) *Internal sac with minute asperities in extreme proximal portion, with moderately large to large spines distally (Figs. 113-115).* — This particular arrangement of spines is common in various modifications to *S. mundururu*, *S. pullipes*, and *S. nigripes* and these may be derived from a condition similar to that exhibited by the presumably plesiotypic *S. grandis* which has small asperities on the proximal 0.50, and dense fine spines distally (Fig. 111).

35(ex) *Protarsus and sometimes mesotarsus of male black.* This is known only among Tychiinae in females of *S. pullipes* and *S. nigripes*.

36(in) *Spermatheca as in Fig. 112.* — This particular spermathecal shape is known only among Tychiinae in females of *S. furfurosa* and *S. solaris*.

37(ex) *Sutural elytral interspaces prominent, with raised fuscous to black scales (Fig. 141A).* — This is known among *Sibinia* only for adults of species near the base of the *rotundata-championi* lineage, but was apparently secondarily lost in more distal members of the lineage (probably in ancestor 28). It is expressed in *S. rotundata*, *S. tropidorhyncha*, and *S. altensis*, all of which retain several distinct though reduced "Itychus" characters. Dark scales are present but not raised, the sutural interspaces not prominent, in the seed predator *S. dorsena*, a species in which "Itychus" characters are less evident, and also in bud predators *S. barberi* and *S. calvata* in which no "Itychus" characters except slightly raised eyes are apparent. These are all interpreted as secondary reductions. The bud predator *S. santarem* is a probable sister to *S. dorsena*, but lacks dark scales.

38(ex) *Frons much narrower than rostrum at base.* — This is expressed in those species which express apotypic state 37.

39(ex) *Rostrum prominently keel shaped at base, especially in female.* — This is also expressed in species which exhibit apotypic state 37.

41(in) *Median lobe narrow, broadly constricted; internal sac with large spines.* — As expressed in *S. candidata* (Fig. 150) and *S. suturalis* (Fig. 153), seed predators which retain the robust "Itychus" body form (apotypic state 12), this is inferred in ancestor 30. The shape of the median lobe is similar in most *championi* lineage members, but species in other groups also have similar median lobes. The only *championi* lineage member with large spines through the entire length of the internal sac is *S. candidata*, but *S. suturalis* has large spines in the distal portion, and sparser, somewhat larger spines in proximal 0.50.

42(in) *Basal lobe of spermatheca divided into two distinct lobes.* — As with apotypic state 41, this is distinct in females of *S. candidata* and *S. suturalis* (Figs. 130, 133), but not expressed or less distinct in any other *championi* lineage members. Similar spermathecal structure was apparently convergently acquired in *S. sparsa* (Fig. 308), and *S. ingenua*, South American species assigned to the *pulcherrima* group.

43(ex) *Hosts in plant genus Mimosa.* — All known *championi* lineage member hosts are species of *Mimosa*.

44(ex) *Female rostrum as described for apotypic state 27.* — This is inferred in ancestor 34 and is common to all species assigned to the *hispida* stock.

45(ex) *Metafemur greatly enlarged.* — This is inferred in ancestor 34 because it is exhibited in *S. stricticomula*,

S. inflata and *S. obrienorum*. It is apparently reduced in other ancestor 34 descendants. Some species in other groups also have enlarged metafemora, notably *S. tepaneca* of the *chichimeca* group, the apparent result of convergence.

46(ex) *Elytral interspaces with median rows of long, straight, erect, setae-like scales*. — This is common to *S. stricticomula* (Fig. 199) and *S. albiduloides*, but a similar condition is also exhibited by *S. albidula*, an apparently unrelated species, as a result of convergence.

47(ex) *Pygidium of male with anterolateral angles extended, straplike*. — This is well developed in *S. obrienorum*, less strongly so in *S. inflata*, and is apparently confined to these species among Tychiinae.

48(ex) *Metatibia unarmed*. — This characterizes *hispidula* stock members descended from ancestor 39. The metatibia is distinctly mucronate in *Tychius* and most other *Sibinia* except a few apparently unrelated species in which all tibiae are unarmed or only minutely mucronate (eg. *S. peruana*, *S. dissipata*).

49(ex) *Sterna 1–5 of male channeled medially, scales on median portion of channel reduced to fine setae or with finely dissected margins*. — As expressed in *S. bothrosterna* and *S. aulacis*, this is inferred in ancestor 39, and was apparently secondarily lost from *S. hispidula* and *sibinioides* complex members.

50(ex) *Pronotum and elytra with long, linear, feebly raised scales and oval, recumbent somewhat lighter scales intermixed*. — Ancestor 42 is inferred to have had scales similar to those of *championi* and *aspera* group members, although most *championi* lineage members have various apparently secondarily modified scale forms and patterns.

51(ex) *Internal sac long, extended to or beyond apices of median struts in repose (Figs. 215-217, 261)*. — This is characteristic of *S. championi*, *S. foveolata*, and *S. peniculata* of the *championi* group, but is also exhibited in *S. asulcifera* (Fig. 46) and in *S. castoroides* (Fig. 85), species apparently not related to each other or to *championi* group members.

52(ex) *Article II of male protarsus concave on internal surface (Figs 259, 260)*. — This is expressed in most descendants of ancestor 45, but apparently has been secondarily reduced or lost for most bud predator members of the lineage, as well as from some seed predator members, including *S. seminicola*. Two *pulcherrima* group members, *S. sparsa* and *S. anfractoides*, apparently through convergence, have similarly modified tarsi.

53(ex) *Eye oblong, flat, hind margin not at all raised*. — This is characteristic of *zapoteca* group members, but *sulcifera* group members *S. transversa*, *S. setosa*, and *S. cuauhtemoc*, have similarly shaped eyes, apparently the result of convergence.

54(in) *Median lobe broad at apex, apical orifice very large (Figs. 270, 271, 286-288, 291, 293, 296)*. — This condition is markedly distinct from that expressed in other *championi* lineage members which have the median lobe almost entire or with only a small apical orifice, but is expressed only in some ancestor 49 descendants (*S. vagabunda*, *S. varga*, *S. geminata*, *S. fastigiata*, *S. seminicola*, *S. ochreosa*, *S. peruana*, *S. hirticrus*). Species assigned to other groups which also have the apical orifice large are *S. galbina* whose affinities are uncertain, and *pulcherrima* group members *S. valenciana*, *S. anfracta*, and *S. anfractoides*.

55(ex) *Pygidium of male markedly convex*. — This probably characterized ancestor 51, but is not exhibited in all species inferred to have descended from that ancestor. It is markedly expressed in *S. caatingensis*, *S. hirtitus*, *S. prolata*, *S. seminicola*, *S. vatricosa*, and *S. fastigiata* (and probably in *S. subulirostris* and *S. fastidiosa*, whose males are unknown), but not in males of the *latissima* and *peruana* groups apparently because of secondary reduction.

56(ex) *Proximal portion of rostrum broadly concave in dorsal profile (Fig. 318)*. — This is characteristic of *S. seminicola*, *S. subulirostris*, and *S. vatricosa*. If *S. ochreosa* is a member of the *seminicola* group, it must have secondarily lost this feature.

57(ex) *Male protarsus with dense brush of wide scales on inner surface of article III (Fig. 325)*. — This is unique among *Sibinia* to *latissima* and *peruana* group members.

58(ex) *Body broad, posteroventral portion of pleuron concave*. This is unique to *latissima* group members; other *Sibinia* are considerably narrower in form.

59(ex) *Some scales on pronotum and elytra with metallic edges*. — This is also unique to *latissima* group members, but is not expressed in the bud predator *S. quinquemembrata* which apparently secondarily lost it.

60(ex) *Distal portion of rostrum short, stout, feebly sexually dimorphic* (Fig. 323). — This characterizes *peruana* group members; other *championi* lineage members have the distal portion of the rostrum more or less acuminate.

61(ex) *Median lobe with pair of ventolateral denticles* (Figs. 293, 294). — This condition is confined among Tychiinae to *peruana* group members.

62(ex) *Internal sac with large spines arranged in distinct groups*. — The armature of the internal sac in ancestor 62 was probably similar to that in *S. pulcherrima* (Fig. 358) which has more in common with the plesiotypic “*Itychus*” stock than do any other *pulcherrima* group members. The armature is variously modified in other *pulcherrima* group members, but the conditions in *S. sparsa* (Fig. 361), *S. valenciana* (Fig. 368), *S. anfracta* (Figs. 381, 382), *S. anfractoides* (Fig. 383), and *S. viridula* (Fig. 384), are interpreted as modifications of the armature exhibited in *S. pulcherrima*. Other species assigned to the *pulcherrima* group have apparently secondarily lost the complex armature.

63(ex) *Median lobe with apicodorsal portion broadly sclerotized* (Figs. 358, 360). — This is unique among Tychiinae to *S. pulcherrima* (Fig. 358), and *S. fessa* (Fig. 360).

64(ex) *Median lobe with large apical orifice*. — This is exhibited in *pulcherrima* group members *S. valenciana*, *S. anfracta*, and *S. anfractoides* (Fig. 368, 381, 382); the more broadly opened apex of the median lobe in *S. viridula* (Fig. 384) and *S. dissipata* (Fig. 378-380), are interpreted as conditions derived from a similar condition possessed by ancestor 64. Similarity in the apex of the median lobe in these *pulcherrima* group members and in *championi* lineage members (apotypic state 54) is probably due to convergence.

65(ex) *Elytra with sparse erect scales*. — The inferred descendants of ancestor 65 are the only *pulcherrima* group members with erect scales, but similar scales have apparently convergently arisen in several other *Sibinia*.

66(ex) *Female rostrum as described for apotypic state 27*.

67(in) *Median lobe strongly bent, internal sac with complex armature of large crescent shaped bars and smaller spines and asperities* (Fig. 382). — This condition is unique among Tychiinae to *S. anfracta* and *S. anfractoides*.

68(ex) *Pronotum and elytra with white, fulvous, and ferruginous to fuscous scales, dark scales forming prominent dorsomedian elytral macula* (Figs. 418, 427, 428, 430, 431). — This is characteristic of several American as well as Old World subgenus *Sibinia* members, but has apparently been secondarily lost in the American *S. tanneri*, and in most Old World members of that subgenus.

69(ex) *Tarsal claws small, basal process short*. — This is expressed in *sellata* group members, *S. sellata* and *S. argentinensis*. In most *Sibinia* the claws are larger, the basal process nearly as long as claw as in *Tychius*, presumably the plesiotypic condition. Tarsal claws of the American *S. texana* and *S. tanneri* and most Old World *Sibinia*, however, cannot be distinguished from the plesiotypic condition, the apparent result of reversal.

70(ex) *Pygidium with median prominence*. — This is most markedly developed in *S. texana* but is also distinct in *S. sellata* and to a lesser extent in *S. argentinensis*. It was apparently secondarily lost in *S. albovittata* and *S. tanneri*. All other Tychiini have the pygidium broadly, evenly concave, or flat.

71(in) *Ovipositor with well developed styli*. — Small styli associated with the ovipositor are well developed in *S. tanneri*, *S. texana* and *sellata* group members but cannot be distinguished in other Tychiini. It is not certain whether or not these are homologous to the styli of the ovipositor exhibited in most other Curculionidae (see Morimoto 1962), but if they are they must have been greatly reduced or lost in *Tychius* and other *Sibinia*.

72(in) *Internal sac with prominent paired “inter-aedeagal” structures*. — These are exhibited in *texana* (Figs. 421), *tanneri* (Figs. 419, 420), and *sellata* group members (Fig. 422, 424). In other *Sibinia* the armature of the internal sac consists of variously modified spines or asperities, and most *Tychius* examined have only asperities or the internal sac unarmed. Whether or not these structures are homologous to the “transfer apparatus” (Barber 1935), or the “basal sclerites” (Kuschel 1964) of other Curculionidae or the “seminal rod” in Scolytidae (Cerezke 1964) is uncertain and I have chosen to use Bruhn’s (1947) general term for them. The inter-aedeagal structures in *Sibinia* appear to be formed from coalescence of spines; perhaps their precursor resembled *S. pulcherrima* (Fig. 358) or *S. viridula* (Fig. 384).

73(in) *Spermatheca with distal lobe elongate, slender, basal lobe slender, rounded; structure at point of attachment of spermathecal gland slender, not cup-shaped* (Figs. 409, 413). — If the subgenus *Sibinia* arose from *Microtychius*, the structure of the point of attachment of the spermathecal gland in *tanneri*, *texana*, and *sellata* group members may be a modification of the cup-shaped structure exhibited by subgenus *Microtychius* members (Figs. 26-45, 121-140, 225-244, 297-313, 402-408). Several *Microtychius* (eg. *S. alvarengae* (Fig. 40), *S. rotundata* (Fig. 125), and *S. tropidorhyncha* (Fig. 126) have similarly shaped spermathecae.

74(in) *Inter-aedeagal structures elongate, slender, simple*. — This distinguishes two *sellata* group members, *S. argentinensis* (Fig. 423), and *S. albovittata* (Fig. 424). *S. sellata* itself has the inter-aedeagal structures somewhat modified (Fig. 422).

75(ex) *Protibia of male with dorsal margin curved in distal 0.50*. — This distinguishes *S. argentinensis* and *S. sellata*. The protibia is straight in other Tychiini.

76(ex) *Tarsal claws without basal process*. — This characterizes *S. argentinensis* and *S. sellata* and is probably a stage in a morphocline beginning with apotypic state 69. The basal process is present in all other Tychiini examined except *S. cupulifer* of North Africa.

77(in) *Spermatheca without structure at base of spermathecal gland, distal lobe short, bulbous*. (Fig. 414, 415). — This appears to be unique to members of the *viscaria* group of the subgenus *Sibinia*. The structure at the base of the spermathecal gland (apotypic state 7) must have been secondarily lost in this group.

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REFERENCES

- Axelrod, D.I. 1958. Evolution of the Madro-Tertiary Geoflora. *Botanical Review* 24: 433–509.
- Axelrod, D.I. 1970. Mesozoic paleogeography and early angiosperm history. *Botanical Review* 36: 227–319.
- Axelrod, D.I., and P.H. Raven. 1975. History of the flora and fauna of Latin America. *American Scientist* 63: 420–429.
- Ball, G.E. 1975. Pericaline Lebiini: notes on classification, a synopsis of the New World genera, and a revision of the genus *Phloeoxena* Chaudoir (Coleoptera: Carabidae). *Quaestiones Entomologicae* 11: 143–242.
- Barber, H.S. 1935. The tobacco and *Solanum* weevils of the genus *Trichobaris*. USDA Miscellaneous Publication 226. 28p.
- Barbour, M.G. 1969. Patterns of genetic similarity between *Larrea divaricata* of North and South America. *American Midland Naturalist* 81: 54–67.
- Barneby, R.C. 1964. Atlas of North American *Astragalus*. *Memoirs of the New York Botanical Garden* 13: 1–1188.
- Bedel, L. 1885. Recherches sur les Coléoptères du nord de l'Afrique. *Annales de la Société Entomologique de France*. (6)5: 85–90.
- Benson, L. 1941. The mesquites and screw-beans of the United States. *American Journal of Botany* 28: 748–754.
- Blackwelder, R.E. 1947. Checklist of the coleopterous insects of Mexico, Central America, the West Indies, and South America, Part 5. *Bulletin of the United States National Museum* 185: 765–925.
- Blanchard, C.E. 1851. Fauna Chilena, Insectos, Coleopteros. p. 285–563, *In* Gay, Historia física y política de Chile, vol. 5.
- Boheman, C.H. 1839. (Descriptions of new species) *In* J.C. Schönherr, Genera et species curculionidum, cum synonymia hujus familiae. Vol. 5, part 1. Roret, Paris. 456 p.
- Boheman, C.H. 1843. *Ibid.* Vol. 7, part 2. Roret, Paris. 461 p.
- Boheman, C.H. 1859. Coleoptera species novas descripsit. p. 113–218, *In* Klongliga Svenska Fregatten *Eugenies* resa omkring Jorden. . . . Zoologi, I. Insecta.
- Bondar, G. 1949. Notas entomologicas da Baia, XXI. *Revista de Entomologia*, Rio de Janeiro 20: 173–228.
- Brisout, C. de Barneville. 1861. Espèces nouvelles de Coléoptères Français. *Annales de la Société Entomologique de France* (4)1: 597–606.
- Bruhn, A.F. 1947. The external male genitalia of some Rhynchophora. *Great Basin Naturalist* 8: 1–35.
- Buchanan, L.L. 1935. Thomas Lincoln Casey and the Casey collection of Coleoptera. *Smithsonian Miscellaneous Collections* 94. iii-iv+15 p.
- Burke, H.R. 1960. A new genus and two new species of weevils from Texas, with notes on others (Curculionidae). *Coleopterist's Bulletin* 14: 121–127.
- Burke, H.R. 1976. Bionomics of the Anthonomine weevils. *Annual Review of Entomology* 21: 283–303.
- Cabrera, A.L., and A. Willink. 1973. Biogeografía de América Latina. Programa Regional de Desarrollo Científico y Tecnológico, Departamento de Asuntos Científicos, Secretaría General de la Organización de los Estados Americanos, serie biología, monografía 3. 120 p.
- Casey, T.L. 1892. Coleopterological notices, IV. *Annals of the New York Academy of Sciences* 6: 359–712.
- Casey, T.L. 1897. Coleopterological notices, VII. *Annals of the New York Academy of Sciences* 9: 285–684.
-
- Quaest. Ent.* 1978 14(2)

- Casey, T.L. 1910. On some new species of Balanini, Tychiini and related tribes. *Canadian Entomologist* 42: 114–144.
- Cerezke, H.F. 1964. The morphology and functions of the reproductive systems of *Dendroctonus monticolae* Hopk. (Coleoptera: Scolytidae). *Canadian Entomologist* 96: 477–500.
- Champion, G.C. 1903. *Biologia Centrali-Americana, Insecta, Coleoptera* (Curculionidae: Curculioninae). 4(4): 145–312.
- Champion, G.C. 1910. *Biologia Centrali-Americana* (Curculionidae: Calandrinae, appendix to Curculioninae). 4(7): 79–212.
- Clark, W.E. 1971. A taxonomic revision of the weevil genus *Tychius* Germar in America north of Mexico (Coleoptera: Curculionidae). *Brigham Young University Science Bulletin, Biological Series* 13. 39p.
- Clark, W.E. 1976. Review of the genus-group taxa included in the genus *Tychius* Germar (Coleoptera: Curculionidae). *Entomologica Scandinavica* 7: 91–95.
- Clark, W.E. 1977a. The male genital complex of some Curculionoidea (Coleoptera): description of associated musculature and discussion of function. *Coleopterist's Bulletin* 31: 101–115.
- Clark, W.E. 1977b. North American *Tychius*: new synonymy and observations on phylogeny and zoogeography (Coleoptera: Curculionidae). *Entomologica Scandinavica* 8: 287–300.
- Clark, W.E., and H.R. Burke. 1977. The curculionid genus *Tychius* Germar: natural history and co-evolution with leguminous host plants. *Southwestern Entomologist* 2: 106–126.
- Clark, W.E., D.R. Whitehead, and R.E. Warner, 1977. Classification of the weevil subfamily Tychiinae, with a new genus and species, new combinations, and new synonymy in Lignyodini (Coleoptera: Curculionidae). *Coleopterist's Bulletin* 31: 1–18.
- Darlington, P.J. 1957. *Zoogeography: the geographical distribution of animals*. J. Wiley and Sons, New York. 675 p.
- Elias, T.S. 1974. The genera of Mimosoideae (Leguminosae) in the southeastern United States. *Journal of the Arnold Arboretum* 55: 67–118.
- Fall, H.C. 1901. List of the Coleoptera of southern California, with notes on habits and distribution and descriptions of new species. *Occasional Papers of the California Academy of Sciences* 8: 1–282.
- Fall, H.C., and T.D.A. Cockerell. 1907. The Coleoptera of New Mexico. *Transactions of the American Entomological Society* 33: 145–272.
- Faust, J. 1893. Reise von E. Simon in Venezuela, Curculionidae. *Stettiner Entomologische Zeitung* 54: 313–368.
- Germar, E.F. 1817. Miscellen und correspondenznachrichten. *Magazin der Entomologie* (Germar) 2: 339–341.
- Gilbert, E.E. 1964. The genus *Baris* Germar in California (Coleoptera, Curculionidae). *University of California Publications in Entomology* 34. 153 p.
- Griffith, H.G. 1900. Coleopterous fauna of Pheonix, Arizona, and surrounding regions. *Entomological News* 11: 561–570.
- Griffiths, G.C.D. 1974. On the foundations of biological systematics. *Acta Biotheoretica* 23: 85–131.
- Gyllenhal, L. 1836. (Descriptions of new species), *In* J.C. Schönherr, *Genera et species curculionidum, cum synonymia hujus familie*. Vol. 3, part 1. Roret, Paris. 505 p.
- Haffer, J. 1969. Speciation in Amazonian forest birds. *Science* 165: 131–137.
- Haffer, J. 1974. Pleistozäne differenzierung der Amazonische Vogel Fauna. *Bonner Zoologische Beiträge* 25: 87–117.
- Halfter, G. 1974. Elements anciens de l'entomofaune Neotropicale: ses implications biogeographiques. *Questiones Entomologicae* 10: 223–262.

- Hatch, M.H. 1971. The beetles of the Pacific Northwest, part V: Rhipicerioidea, Sternoxi, Phytophaga, Rhynchophora, and Lamellicornia. University of Washington Press, Seattle. 662 p.
- Hennig, W. 1966. Phylogenetic systematics. University of Illinois Press, Urbana. 263 p.
- Hoffmann, A. 1954. Faune de France, Coléoptères, Curculionides II. Lechevalier, Paris. 59: 487–1208.
- Horn, G.H. 1894. The Coleoptera of Baja California. Proceedings of the California Academy of Sciences (2)4: 302–449.
- Hueck, K., and P. Siebert. 1972. Vegetations karte von Sudamerika. Gustav Fischer Verlag, Stuttgart. 69 p. + 1 map.
- Hustache, A. 1928. Contribution a l'étude des curculionides de la Republique Argentina (premiere note). Anales del Museo Argentino de Ciencias Naturales "Bernardino Rivadavia" 34: 155–261.
- Hutchinson, J. 1964. The genera of flowering plants, (Angiospermae) Dicotyledones I. Clarendon Press, Oxford. 516 p.
- Isely, D. 1969. Legumes of the United States, I. Native *Acacia*. Sida 3: 365–386.
- Isely, D. 1973. Leguminosae of the United States: I, subfamily Mimosoideae. Memoirs of the New York Botanical Garden 25: 1–152.
- Janzen, D.H. 1975. Interactions of seeds and their insect predator/parasitoids in a tropical deciduous forest, p. 154–186, *In* P.W. Price (ed.), Evolutionary strategies of parasitic insects and mites. Plenum Press, New York. 224 p.
- Johnson, C.D. 1970. Biosystematics of the Arizona, California, and Oregon species of the seed beetle genus *Acanthoscelides* Schilsky (Coleoptera: Bruchidae). University of California Publications in Entomology 59.
- Johnston, M.C. 1962. The North American mesquites *Prosopis* sect. *Alborobia* (Leguminosae). Brittonia 14: 72–90.
- Kingsolver, J.M., and D.R. Whitehead. 1976. The North and Central American species of *Meibomeus* (Coleoptera: Bruchidae: Bruchinae). USDA Technical Bulletin 1523. 54 p.
- Kissinger, D.G. 1962. The curculionid beetles collected on the Explorers Club-American Museum of Natural History Entomological Expedition to Yucatan, Mexico, 1952 (Coleoptera, Curculionidae). American Museum Novitates 1086. 28 p.
- Kissinger, D.G. 1964. Curculionidae of America north of Mexico, a key to the genera. Taxonomic Publications, South Lancaster, Massachusetts. 143 p.
- Klima, A. 1934. Subfamily Tychiinae, *In* Junk, Coleopterorum Catalogus, Berlin, pars 138. 61 p.
- Knaus, W. 1903. The Coleoptera of the Sacramento Mountains of New Mexico. Entomological News 14: 172–180.
- Knaus, W. 1907. Coleoptera of New Mexico. Transactions of the Kansas Academy of Science 21: 152–154.
- Kuschel, G. 1950. Nuevas sinonimias, revalidaciones y combinaciones (9° aporte a Col. Curculionidae). Agricultura Tecnica (Santiago) 10: 10–21.
- Kuschel, G. 1964. Insects of Campbell Island, Coleoptera: Curculionidae of the subantarctic islands of New Zealand. Pacific Insects Monograph 7: 416–493.
- LeConte, J.L. 1876. Tychiini. *In* J.L. LeConte and G.H. Horn. The Rhynchophora of America north of Mexico. Proceedings of the American Philosophical Society 15: 1–455.
- Leng, C.W. 1920. Catalogue of the Coleoptera of America north of Mexico. Sherman, Mount Vernon, New York. 470 p.
- Lowe, C.H., J.W. Wright, C.C. Cole, and R. Bezy. 1970. Natural hybridization between the Teiid lizards *Cnemidophorus sonora* (parthenogenetic) and *Cnemidophorus tigris* (bisexual). Systematic Zoology 19: 114–127.

- Mayr, E. 1963. Animal species and evolution. Belknap Press, Harvard University, Cambridge, Massachusetts. 797 p.
- Mayr, E. 1969. Principles of systematic zoology. McGraw-Hill, New York. 328 p.
- Mayr, E. 1974. Cladistic analysis or cladistic classification? *Zeitschrift für Zoologische Systematik und Evolutionsforschung* 12: 94–128.
- Mitchell, J.D., and W.D. Pierce. 1911. The weevils of Victoria County, Texas. *Proceedings of the Entomological Society of Washington* 13: 45–65.
- Moore, I. 1937. A list of the beetles of San Diego County, California. *Occasional Papers of the San Diego Society of Natural History* 2: 1–109.
- Morimoto, K. 1962. Comparative morphology and phylogeny of the superfamily Curculionoidea of Japan. *Journal of the Faculty of Agriculture, Kyushu University* 11: 331–373.
- Muka, A.A. 1954. The biology of the clover head weevil, *Tychius stephensi* Schoenherr, with some notes on control. Unpublished Ph.D. Dissertation, Cornell University, Ithaca, New York. *Summary in Dissertation Abstracts* 15: 12–13.
- Norris, D.O. 1956. Legumes and *Rhizobium* symbiosis. *Empire Journal of Experimental Agriculture* 24: 247–270.
- Pierce, W.D. 1907a. Contributions to the knowledge of Rhynchophora. *Entomological News* 18: 356–363.
- Pierce, W.D. 1907b. On the biologies of the Rhynchophora of North America, p. 249–319, *In Annual Report of the Nebraska State Board of Agriculture*.
- Pierce, W.D. 1908. Descriptions of new curculionid beetles of the tribe Anthonomini. *Proceedings of the United States National Museum* 34: 173–181.
- Pierce, W.D. 1912. Systematic notes and descriptions of some weevils of economic or biological importance. *Proceedings of the United States National Museum* 42: 155–170.
- Pierce, W.D. 1915. Descriptions of some weevils reared from cotton in Peru. *USDA Bureau of Entomology Report* 102. 16 p.
- Porter, D.M. 1974. Disjunct distributions in the New World Zygophyllaceae. *Taxon* 23: 339–346.
- Rabaud, E. 1913. Sur l'habitat de *Sibinia indigena* Desbr. (Col. Curculionidae). *Bulletin de la Société Entomologique de France* 1913: 95–96.
- Raven, P.H., and D.I. Axelrod. 1974. Angiosperm biogeography and past continental movements. *Annals of the Missouri Botanical Garden* 61: 539–673.
- Rogers, C.W., W.E. Clark, and H.R. Burke. 1975. Bionomics of *Sibinia sulcatula* (Coleoptera: Curculionidae) on mesquite in Texas. *Southwestern Naturalist* 20: 303–314.
- Rosen, D.E. 1975. A vicariance model of Caribbean biogeography. *Systematic Zoology* 24: 431–464.
- Ross, H.H. 1974. Biological Systematics. Addison-Wesley, Reading, Massachusetts. 345 p.
- Rzedowski, J. 1973. Geographical relationships of the flora of Mexican dry regions, p. 61–72, *In A. Graham (ed.), Vegetation and vegetational history of northern Latin America*. Elsevier Scientific Publishing Company, New York.
- Schaeffer, C.F.A. 1908. New Rhynchophora, III. *Journal of the New York Entomological Society* 16: 213–222.
- Scherf, H. 1964. Die Entwicklungsstadien der mitteleuropäischen Curculioniden (Morphologie, Biologie, Ökologie). *Abhandlungen der Senkenbergische Naturforschenden Gesellschaft* 506: 1–335.
- Scherry, R.W. 1950. Leguminosae subfamily Mimosoideae. *In R.E. Woodson, et al., Flora of Panama*. *Annals of the Missouri Botanical Garden* 37: 184–314.
- Schönherr, J.C. 1825. Tabula synoptica familiae curculionidum. *Isis von Oken* 5: 581–588.
- Scudder, S.H. 1878. The fossil insects of the Green River Shales. *Bulletin of the United States Geological Survey of the Territories* 4: 747–746.

- Scudder, S.H. 1893. Tertiary Rhynchophorous Coleoptera of the United States. United States Geological Survey Monograph 21: 1–206.
- Sharp, D., and F. Muir. 1912. The comparative anatomy of the male genitalic tube in Coleoptera. Transactions of the Royal Entomological Society of London 1912: 477–642, pls. 42–78.
- Shelford, V.E. 1963. The ecology of North America. University of Illinois Press, Urbana. 610 p.
- Simonds, W.E. 1931. Preliminary list of Curculionidae of southern California with ecological notes. Journal of Entomology and Zoology 23: 61–63.
- Simpson-Vuilleumeir, B.B. 1971. Pleistocene changes in the fauna and flora of South America. Science 173: 771–780.
- Smreczyński, S. 1972. Klucze do oznaczania owadów Polski, Część XIX, Chrzaszczce—Coleoptera Zeszyt 98d, Ryjkowce—Curculionidae. Polskie Towarzystwo Entomologiczne 77: 195 p.
- Solbrig, O.T. 1972. New approaches to the study of disjunctions with special emphasis on the American amphitropical desert disjunctions. p. 85–100, In D. Valentine (ed.), Taxonomy, Phytogeography, and Evolution. London.
- Solbrig, O.T. 1973. The floristic disjunctions between the “Monte” in Argentina and the “Sonoran Desert” in Mexico and the United States. Annals of the Missouri Botanical Garden 59: 218–223.
- Solbrig, O.T. 1976. The origin and floristic affinities of the South American temperate desert and semidesert regions. p. 7–49, In D.W. Goodall (ed.), Evolution of desert biota. University of Texas Press, Austin.
- Spilman, T.J. 1959. Notes on *Edrotes*, *Leichenium*, *Palorus*, *Eupsophulus*, *Adelium*, and *Strongylium* (Tenebrionidae). Coleopterist's Bulletin 13: 58–64.
- Suffrian, E. 1871. Verzeichniss der von Dr. Gundlach auf der Insel Cuba gesammelten Rüsselkäfer. Archiv für Naturgeschichte 37: 122–184.
- Tanner, V.M., and D.R. Harris. 1969. List of the insect type specimens in the entomological collection of the Brigham Young University, Provo, Utah No. III. Great Basin Naturalist 29: 150–164.
- Torre-Bueno, J.R. de la. 1962. A glossary of entomology. Brooklyn Entomological Society, New York. 336 p.
- Townsend, C.H.T. 1895. on the Coleoptera of New Mexico and Arizona including biologic and other notes. Canadian Entomologist 27: 39–51.
- Turner, B.L. 1959. The legumes of Texas. University of Texas Press, Austin. 284 p.
- Vanzolini, P.E., and E.E. Williams. 1970. South American anoles: the geographical differentiation and evolution of the *Anolis chrysolepis* species groups (Sauria, Iguanidae). Arquivos de Zoologica, São Paulo 19: 1–298.
- Vaurie, P. 1953. The Gregorio Bondar types of South American weevils (Coleoptera: Curculionidae). American Museum Novitates 1615. 39 p.
- Voss, E. 1958. Ein Beitrag zur kenntnis der Curculioniden im Granzgebiet der Orientalischen zur Paläarktischen Region (Col. Curc.) Die von J. Klapperich und Tschang Sen in der Provintz Fukien gessamelte Rüsselkäfer. Decheniana, Beihefte 5: 1–139.
- Whitehead, D.R. 1972. Classification, phylogeny and zoogeography of *Schizogenius* Putzeys (Coleoptera: Carabidae: Scaritini). Questiones Entomologicae 8: 131–348.
- Whitehead, D.R. 1976. Classification and evolution of *Rhinochenus* Lucas (Coleoptera: Curculionidae: Cryptorhynchinae), and quaternary Middle American Zoogeography. Quaestiones Entomologicae 12: 118–201.
- Wickham, H.F. 1896–1898. The beetles of southern Arizona. Bulletin of the Laboratories of Natural History of the state University of Iowa 4: 295–312.
- Wickham, H.F. 1917. New species of fossil beetles from Florissant, Colorado. Proceedings of the United States National Museum 52: 463–472, + pl. 37–39.

- Wolcott, G.N. 1936. "Insectae Borinquenses". A revised annotated checklist of the insects of Puerto Rico, *Journal of Agriculture of the University of Puerto Rico* 20: 1–627.
- Yunus, C.M., and C.A. Johansen. 1967. Bionomics of the clover seed weevil, *Miccotrogus picrostris* (Fabricius) in southeastern Washington and adjacent Idaho. *Washington Agricultural Experiment Station Technical Bulletin* 53: 1–16.

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