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REVISION OF THE GENUS *QUEDA* SHARP (COLEOPTERA:
DYTISCIDAE)¹

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ABSTRACT

This revision of the genus Queda Sharp, 1882 (occurring in Central and South America) is based on examination of adult specimens. The systematic position of the genus is briefly reviewed. Structural features of adults are described and figured. Q. youngi n.sp. is described from Panama, Venezuela and Brazil. A lectotype is designated for Q. compressa Sharp and Q. hydrovatoides Zimmermann.

INTRODUCTION

This revision is a part of a larger taxonomic study of members of the dytiscid tribe Hydrovatini of the subfamily Hydroporinae. Examination of material of the genus *Queda* revealed an undescribed species and additionally it was discovered that no lectotype designations were made for the two previously recognized species. Thus an evaluation of the present taxonomy of *Queda* Sharp is justified.

Few authors have discussed the systematics of the genus *Queda*. The genus was introduced by Sharp (1882), with only one species, *Q. compressa* Sharp. The genus *Queda* was assigned to Hydrovatini, a tribe which includes only two genera: *Queda* and *Hydrovatus* Motschulsky. According to Sharp (1882) adult members of this tribe are distinguished from other hydroporines by having the posterior coxal cavities widely separated, each with an elongate coxal excision, and extra rimal lobe. Since Sharp, few studies have been published, that deal with classification of *Queda*. Zimmermann (1921) introduced a second species. A phylogenetic investigation of some plesiomorphic hydroporines by Wolfe (1988) considered also the position of Hydrovatini and the two genera attributed to it. He concluded that *Hydrovatus* and the tribe Methlini could form a monophyletic unit, and that assignment of *Queda* to Hydrovatini may be uncertain (*cf.* also Wolfe 1985). With present state of knowledge, *Queda* could still be monophyletic, exhibiting characteristics not found in other Hydrovatini. I am, however, not able to decide if these character states are apomorphies or plesiomorphies - only that these characteristics distinguish *Queda* from the genus *Hydrovatus*.

¹Contribution to the study of Dytiscidae 51.

MATERIAL AND METHODS

The material (in all 27 specimens) for the present study came from a number of collections abbreviated in the text as follows:

BMNH	British Museum (Natural History), Cromwell Road, London, England (dr. Martin Brendell)
CY	Coll. Young, Indiana Univ., Dept. Biology, Bloomington, Indiana, USA (Prof. Frank N. Young)
MNHN	Museum National d'Histoire Naturelle, Rue de Buffon 45, Paris, France (Mlle Hélène Perrin)
MZH	Zoological Museum, University of Helsinki, N. Järnvägsg. 13, Helsingfors, Finland
ZSM	Zoologische Staatssammlung, Münchhausenstr. 21, München, FRG (dr. Gerhard Scherer)

The methods for examination of material and presentation of literature follow the same format as Biström (1982). Illustrations of genitalia are made with the technique explained in Biström (1988).

TAXONOMY

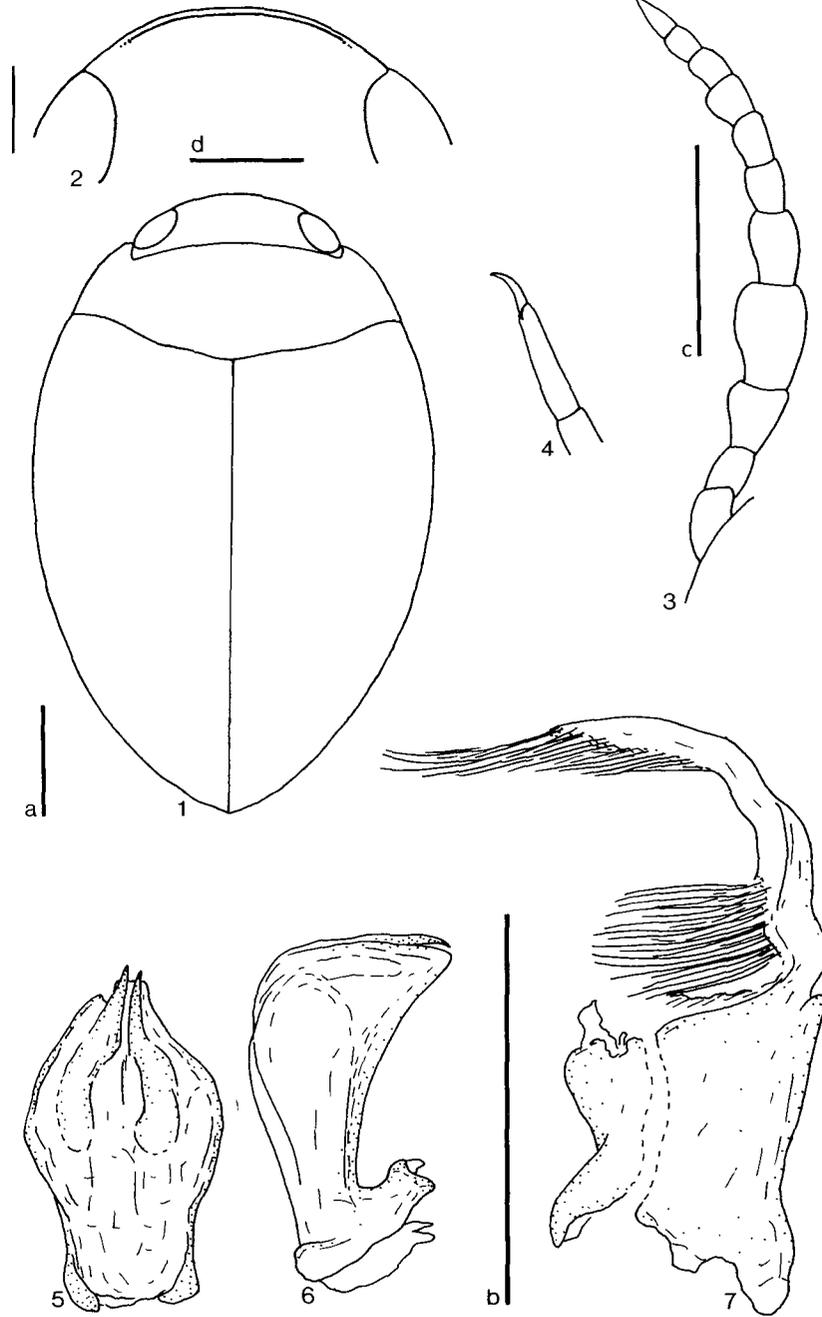
Queda Sharp

Queda Sharp 1882:320, 336, 849; Zimmermann 1919:126; 1920:36; Blackwelder 1944:75; Omer-Cooper 1965:93; Wolfe 1988:327-344. Type species: *Queda compressa* Sharp, 1882 by monotypy.

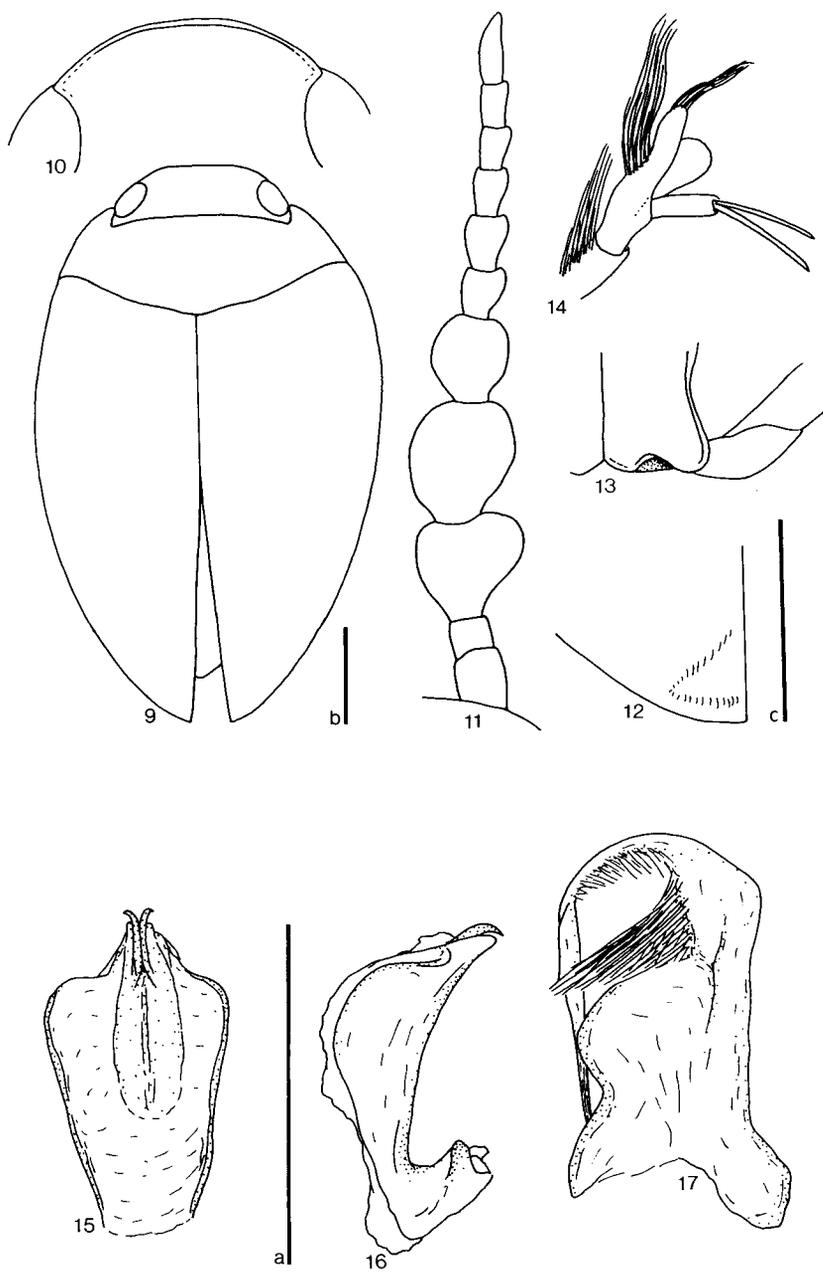
Diagnosis of Hydrovatini and Queda.—Hydroporines with base of trochanter partially concealed by apicolateral portion of metacoxal process, pronotum without longitudinal, lateral impressed lines, metatarsal claws, equal, prosternal process with apex broad, subtriangular or spatulate, mesocoxae widely separated, metacoxal process with posterior margin incised are assigned to Hydrovatini. Adult specimens of *Queda* are distinguished from these of *Hydrovatus* by form of the metacoxal excision, which in members of *Queda* are shorter in the longitudinal than in the transverse direction (Fig. 13, 21). Additionally, only the fringes of labrum are visible (in *Hydrovatus* labrum visibly exerted), and the body apically is not acuminate, as are most *Hydrovatus* species, and finally members of *Queda* always lack a stridulatory apparatus on ventral side of body (in males of some *Hydrovatus* species a distinct stridulatory apparatus visible on ventral side of body).

Queda is restricted geographically to Central and South America.

The natural history of *Queda* is unknown.



Figs. 1-7. *Queda compressa* Sharp. 1, habitus; 2, head; 3, male antenna; 4, apex of male metatarsus; 5, penis, dorsal view; 6, penis, lateral view; 7, paramere. Scale bars: Figs. 1 (a), 5-7 (b) = 1.0 mm; Figs. 2 (d), 3, 4 (c) = 0.5 mm.



Figs. 9–17. *Queda youngi* n.sp. 9, habitus; 10, head; 11, male antenna; 12, apex of elytron; 13, male metacoxal region.; 14, apex of male metatarsus; 15, penis, dorsal view; 16, penis, lateral view; 17, paramere. Scale bars: Figs. 11, 14–17 (a), 9 (b), 10, 12, 13 (c) = 1.0 mm.

Key to species

- 1 Smaller specimens (length of body 2.50-2.76 mm).....
*Q. hydrovatooides* Zimmermann. p. 219
- 1' Larger specimens (length of body 5.00-6.20 mm).....2
- 2 Male metatarsomere 4 modified, bilobed (Fig. 14); male antennomeres 3
 to 5 broader, antennomere 3 wider than long (Fig. 11).....
*Q. youngi* n.sp., p. 216
- 2' Male metatarsomere 4 not modified, similar in shape to metatarsomere 3
 (Fig. 4); male antennomeres 3 to 5 narrower, antennomere 3 longer than
 wide (Fig. 3).....*Q. compressa* Sharp, p. 216

Queda compressa Sharp

Figs. 1-7

Queda compressa Sharp 1882:336; Zimmermann 1920:36; 1921:206; Blackwelder 1944:75;
 Wolfe 1985:132-155; 1988:329.

Queda conspersa; Zimmermann 1921:191 (lapsus).

Type locality.— Santa Rita, Brazil.

Type material.— Lectotype, ♂, by present designation: *Queda compressa* ♂
 Type Santa Rita 1850 D.S./Type/Type 25/S. America Brazil/Sharp Coll. 1905-
 313/*Queda compressa* Brazil (BMNH). - Paralectotypes. *Queda compressa* Ind.
 typ. D.S./Cotype/S. America Brazil/Sharp Coll. 1905-313 (1 BMNH); Cotype/S.
 America Brazil/*Queda compressa* Sharp co-type (1 BMNH).

Additional material studied. Brazil: Minas Gerais/F. Sahlb./*Q. compressa*
 Sharp det. A. Zimmermann (1 MZH).

Diagnosis.— See below under diagnosis of *Q. youngi* n.sp.

Only features which differ from those given for *Q. youngi* are listed below.

Description.— Length of body 5.20-5.48 mm, breadth 3.44-3.52 mm. Habitus (Fig. 1).

Head. Frontal margin at eyes not visible from above (Fig. 2). Antennal segments 3 to 5
 moderately flattened (Fig. 3).

Legs. Metatarsus simple, not modified (Fig. 4).

Male genitalia: Fig. 5-7. Only minor differences from male genitalia of *Q. youngi*
 recognized. Their diagnostic value is unclear. Paramere with a dense hairtuft above basal part (cf.
Q. hydrovatooides).

Female. Antennae slender, without flattened segments.

Distribution.— Brazil (Fig. 8).

Queda youngi n.sp.

Figs. 9-17

Type locality.— Encruzilhada, Brazil.

Type material.— Holotype, ♂. Brazil Bahia Encruzilhada XI.7. 72 960 m M. Alvarenga (CY). - Paratypes. Panama Tocumen IX.7-11. 70 D Navas BLT/*Queda compressa* Zimm. Det. F.N. Young (1 MZH). Panama Tocumen vi. 1-5. 70 BLT Diego Navas (2 CY, 1 MZH). Venezuela: S. Maria de Ipire (Edo. Guarino) m. 200/Bordon leg. 21-10-1961 (1 CY). Brazil: Sao Paulo Piracicaba 10 Jan. 1966 Blacklight A. Triplehorn (1 CY). Minas Gerais Aguas Vermelhas xii. 1983 BLT M. Alvarenga (1 CY). Matto Grosso Caceres xii. 1955 M. Alvarenga leg. (1 CY).

Derivation of specific epithet.— The new species is named after Professor Frank N. Young (Indiana), who on several occasions kindly has loaned material for my studies on Dytiscidae.

Diagnosis.— Specimens are very similar to those of *Q. compressa*, but male specimens at least are very easily distinguished by comparison of form of metatarsus (markedly modified in *Q. youngi*) and by the more flattened, broader third to fifth antennomeres in *Q. youngi*. Females of the two species are difficult to distinguish. Those of *Q. youngi* are almost totally black to blackish ferruginous in dorsal colour while those of *Q. compressa* have a ferruginous head and dark ferruginous to ferruginous pronotum. Additionally, the pronotal punctation is generally coarser in *Q. youngi* than in *Q. compressa*. Possibly *Q. youngi* is identical to the undescribed species mentioned by Sharp (1882:336).

Description.— Length of body 5.00-6.20 mm, breadth 3.20-3.96 mm. Habitus (Fig. 9).

Head. Blackish ferruginous to dark ferruginous. Punctation rather fine, distinct, fairly dense, head posteriorly almost impunctate. Shiny, not microsculptured, except posterior to eyes where fine reticulation discernible. Head frontally rounded, finely margined, but margin slightly developed close to eyes (Fig. 10). Surface of head posterior to frontal margin and between eyes somewhat uneven. Antenna pale brown, segments 3 to 5 broadly flattened (Fig. 11).

Pronotum. Blackish to dark ferruginous. Punctation rather fine, fairly dense, somewhat irregularly distributed. Shiny, not microsculptured. Sides of pronotum rounded.

Elytra. Black to dark ferruginous, palest laterally, but without colour pattern. Punctation rather fine, dense, slightly irregularly distributed. Without distinct rows of punctures. Shiny, not microsculptured. Apically elytral surface depressed (Fig. 12). Epipleuron dark ferruginous, punctation rather fine and dense, surface shiny, not microsculptured.

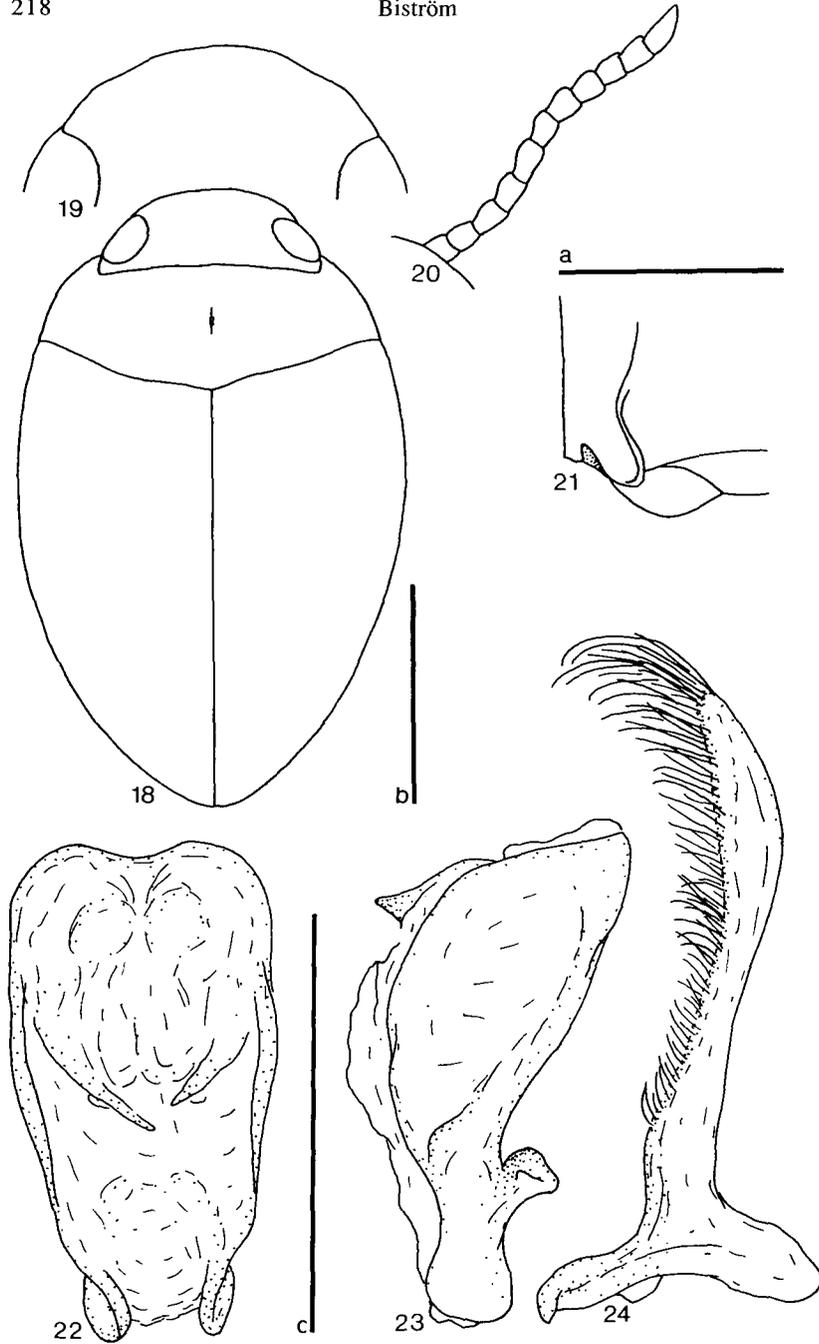
Ventral surface. Black to dark ferruginous. Punctation fairly coarse to rather fine, fairly dense but somewhat irregularly distributed. Shiny, not microsculptured. Prosternal process laterally margined, medial area slightly uneven, densely punctate.

Legs. Dark ferruginous to pale brown. Pro- and mesotarsus fairly broad. Metatarsus strongly modified (Fig. 14).

Male genitalia. Fig. 15-17. See also under *Q. compressa*.

Female. Antenna slender, without flattened segments. Metatarsi simple, not modified.

Distribution.— Panama, Venezuela, Brazil (Fig. 8).



Figs. 18-24. *Queda hydrovatooides* Zimmermann. 18, habitus; 19, head; 20, male antenna; 21, metacoxal region; 22, penis, dorsal view; 23, penis, lateral view; 24, paramere. Scale bars: Figs. 19-21 (a) = 0.5 mm; Fig. 18 (b) = 1.0 mm; Figs. 22-24 (c) = 0.4 mm.

Queda hydrovatooides Zimmermann
Figs 18–24

Queda hydrovatooides Zimmermann 1921:191, 206; Blackwelder 1944:75.

Type locality.— Corumba, Brazil.

Type material — Lectotype, ♂, by present designation: Brasilien/Matto-Grosso Corumba/Type/Samml. A. Zimmermann (ZSM). - Paralectotypes. Principally with same data as lectotype (10 ZSM, 3 MNHN).

Diagnosis.— Specimens of *Q. hydrovatooides* are easily separated from those of the two other *Queda* species by the distinctly smaller body length.

Description.— Length of body 2.50–2.76 mm, breadth 1.64–1.78 mm. Habitus (Fig. 18).

Head. Dark ferrugineous to ferrugineous. Punctuation fine to very fine, rather sparse, head posteriorly with punctures hardly visible. Rather shiny, finely microsculptured (meshes very weakly developed, partly indistinct). Head frontally rounded and posterior to sharp outline widely and quite distinctly depressed. Head not margined frontally (Fig. 19). Antenna pale ferrugineous to ferrugineous, apically darkest, rather slender (Fig. 20).

Pronotum. Dark ferrugineous to ferrugineous. Punctuation on a single specimen, rather fine to fine, sparse to fairly dense (densest and coarsest laterally). Finer and coarser punctures intermixed. In central part with a minute but quite sharp longitudinal impression. Rather shiny, very finely microsculptured (meshes partly indistinct). Sides of pronotum rounded.

Elytra. Dark ferrugineous to ferrugineous, without distinct colour pattern. Punctuation double, consisting of mixed, very fine (sometimes partly indistinct punctures) and quite coarse punctures. Both kinds of punctures quite evenly distributed, except coarser punctures almost absent laterally. Rather shiny, microsculptured (meshes discernible but slightly developed). Epipleuron ferrugineous to dark ferrugineous, quite densely punctate, rather shiny, with indistinct reticulation.

Ventral surface. Dark ferrugineous to ferrugineous. Punctuation fairly coarse to rather fine, fairly dense. Punctuation coarsest on metacoxal plates and finest on apical sternite. Rather shiny, very finely microsculptured. Meshes very slightly developed but generally discernible. Prosternal process laterally narrowly but distinctly margined, medial area slightly convex, surface uneven, with indistinct punctuation and minute ridges.

Legs. Ferrugineous to dark ferrugineous. Pro- and mesotarsi fairly broad.

Male genitalia. Fig. 22–24. Details in outline of penis different from the two other *Queda* species. Paramere without dense hairtuft above basal part.

Female. Externally as male.

Distribution.— Brazil (Fig. 8).

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