

Chapter 4
A CENSUS OF AVIFAUNA ON THE SITE OF THE MARATHON PROJECT
IN HAYWARD, CALIFORNIA

Rebecca Dowdakin

Introduction

The Marathon Project is a 134-acre development site comprising 90 acres of seasonal wetland and 44 acres of ruderal upland (see frontispiece map). It lies in an area zoned for industrial use by the City of Hayward and by the county of Alameda. Although the site is currently used for the grazing of livestock, it also functions as a habitat for migratory shorebirds and waterfowl, and many species of upland birds. For a description of historic land uses and development proposals, see Maria Laxo's paper in this report.

A wetland is an area that is saturated or inundated by water such that it supports vegetation adapted to life under these conditions. A seasonal wetland is one which is inundated or saturated only during the seasonal rains. In the San Francisco Bay Area, seasonal wetlands are inundated only during the few months of winter and early spring, and for a period dependent upon the amount of rainfall.

San Francisco Bay is the largest wintering ground on the West Coast for shorebirds and waterfowl (Kelly, pers. comm., 1985). But valuable wetlands are continually being lost to development. Although one-third of the historic Bay has been diked or filled over the last century, it still contains 89 percent of the remaining coastal wetland acreage of California (Kelly, pers. comm., 1985). The Bay wetlands continue to disappear as communities develop their shoreline properties into industrial parks such as the one proposed for this site. All privately-owned seasonal wetlands in Alameda County are currently slated for development (Kelly, pers. comm., 1985).

Diked salt marshes, such as the Marathon development site, have been shown to be even more productive than natural salt marshes (Kelly, pers. comm., 1985). They are known to provide refuge for shorebirds at high tide (BCDC, 1969), and some species which inhabit San Francisco Bay waters in winter, such as the cinnamon teal, are found only in seasonal wetlands (Drabelle, 1985). Seasonal wetlands are valuable to humans not only for their recreational possibilities, but also as filters and purifiers of water (Kelly, pers. comm., 1985). Furthermore, because many of the birds which inhabit these wetlands feed on small invertebrates, they can serve as biological indicators of serious environmental changes, such as poisoning of the food chain (Curry-Lindahl, 1971).

The goal of the bird census undertaken for this report is to provide baseline data for the evaluation of this site as a habitat for birds.

Past Studies

The only previous study of the Marathon site is the Draft Environmental Impact Statement prepared by TRS Consultants for Marathon U.S. Realities (TRS, 1985). The methodology chosen by the consultants for habitat assessment was a modification of the U.S. Fish and Wildlife Service Habitat Evaluation Procedures (HEP). The procedure involved selecting ten species (including eight bird species) believed to represent various wildlife groups found on the site based on similar feeding behaviors and "other habitat requirements" (TRS, 1985, p. B-2).

The values of the various habitats to the selected species were subjectively judged and ranked on a scale of 1 to 3 (high, medium, and low). The habitats were evaluated during both the wet season and the dry season; the values were combined and weighted to reflect the number of dry months versus wet months (months of inundation) in a year.

The methodology developed by TRS Consultants is a useful way of evaluating a site when little quantitative information about the habitat being evaluated is available, and when the analysis must be done in a short period of time. However, this method indicates nothing about the great variety of birds found on the site, nor the daily fluctuations in the number of species or individuals present. Furthermore, averaging the value of a seasonal wetland over the entire year to include the less hospitable dry season, unfairly diminishes the true value of such a wetland to overwintering waterfowl and shorebirds.

TRS Consultants also conducted a bird census on two days in March, 1983, on the proposed mitigation parcel owned by Hayward Area Recreation District, located near the proposed development site. The census showed the presence of 33 species and 454 individuals on the first day, and 32 species and 473 individuals on the second. This included 28 species of water birds.

Site Description

A seasonal wetland before the rainy season appears desolate and barren. The bare tops of the dikes and the salt pans are cracked and brittle earth. The annual upland grasses and the pickleweed lie dry and mostly dead. The winter rains breathe new life into the seasonal wetlands; ponds form between the dikes and the vegetation begins to grow again. Waterfowl and shorebirds arrive to feed and rest. Such is the nature of the Marathon Project site.

This relatively level parcel of land is marked by shallow depressions in which rain water collects. It is crossed by several dikes a few feet in height. The duration of inundation defines the habitats on the site, as this is the factor that determines which plants will grow.

The vegetation map prepared by TRS Consultants shows four habitat types based on vegetation associations, upland grasses, salt marsh, transition zone, and Salicornia-Polypogon (Figure 1). Forty-four acres of the site are considered ruderal uplands (U), which are characterized by the presence of foxtail (Hordeum hystrix) and alkali heath (Frankenia grandifolia). The upland acreage comprises the two areas at the north and south margins of the property, and the tops of the dikes.

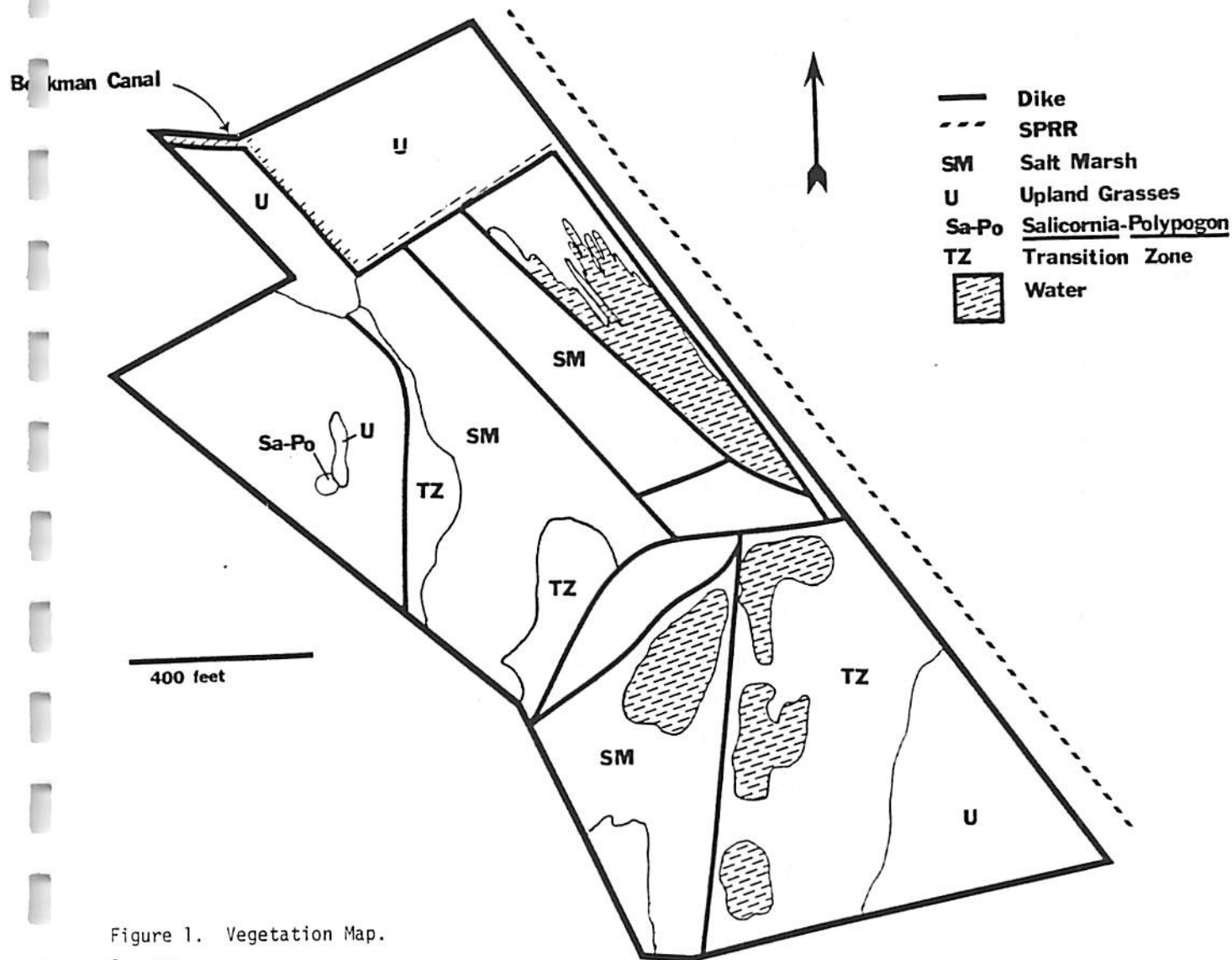


Figure 1. Vegetation Map.

Source: TRS Consultants, 1985.

The remaining 90 acres are dominated by two species of the obligate wetland plant pickleweed (*Salicornia virginica* and *S. europa*). In the areas labelled salt marsh (SM), pickleweed is found in association with brass buttons (*Cotula coronopifolia*). The transition zone (TZ) is characterized by pickleweed, brass buttons, and foxtail. Beard grass (*Polypogon monspiliensis*) is associated with pickleweed and foxtail in the habitat labelled *Salicornia-Polygon* (Sa-Po). An additional habitat not accounted for directly by water regime, is provided by a row of willow trees along the eastern border of the property.

The five ponds shown in Figure 1 were present on all our census visits. The four ponds on the southern half of the property did not contain much vegetation, suggesting that the period of inundation

is too long to support plant life. The large pond on the eastern margin of the site was perhaps only six inches deep and thick with vegetation. The ponds remained approximately the same size during the first four census days, but had increased dramatically during the last two census days following a major rain storm.

Methodology

The census was conducted on eight days in January and February, 1986. The tides, weather, and time of day vary for each of the visits. Maria Laxo assisted me on the first five census counts. The first two counts are not included here because I do not believe our bird identifications were accurate on those days.

The census was conducted by walking through the development site and making direct counts of all birds visible on the site with the aid of 7x35 binoculars. Although we had planned to do the census from the railroad tracks which run along the eastern border of the property, we quickly found that the topography of the site made this an inadequate vantage point.

Birds spotted overhead were noted, but included in the census only if they landed on the site. Because some of the birds were easily flushed to other locales by our presence, we were careful not to count the same birds twice. Behavior of the birds was not recorded.

Birds were identified with the aid of Water Birds of California (Cogswell, 1977), the Audubon Master Guide to Birding (Farrand, 1983), and the Field Guide to the Birds of North America (National Geographic Society, 1983). The inaccuracy of some of our identifications is a likely source of error in this census. In particular, starlings and blackbirds commonly fed together but were difficult to distinguish; all were counted as starlings in this census. There was also some difficulty in distinguishing the females of different duck species from each other. Furthermore, the coloration of many birds, especially ducks and meadowlarks, made them difficult to identify, resulting in a low count.

Results

The first census was conducted under cloudy skies on January 26, from 9:45 to 11:30 a.m. (Table 1). Eleven bird species were counted on this day. The European starling was overwhelmingly dominant, with 96 individuals. Sixteen canvasbacks and 12 American wigeons were present. In all, 156 individuals were observed.

On January 28, we conducted the census from 7:15 to 9:00 a.m. under cloudy skies. Three species were observed that were not seen again on later visits. These were green-winged teal (5), sandpipers (40), and Say's phoebe (1). The populations of cinnamon teal and American wigeon rose dramatically to 73 and 69, respectively. The census was at low tide, and 12 species were observed. The number of individuals on this day, 367, was more than twice the number counted in the previous period.

DATE	Jan 26	Jan 28	Feb 2	Feb 10	Feb 15	Feb 22
TIME	9:45-11:30	7:15-9:00	11:45-1:15	3:30-5:00	2:00-3:15	11:30-1:30
SKY	clear	overcast	rain	p. cloudy	rain	clear
TIDE	HW 11:46a.m.	LW 7:42a.m.	LW 12:57p.m.	HW 12:42p.m.	HW 5:37p.m.	HW 10:10a.m.
great egret	2	1	1	1		1
snowy egret			2			
mallard			7	6	8	2
green-winged teal		5				
cinnamon teal	4	73	25	23	36	
Northern shoveler	1		8		10	7
American wigeon	12	69	82	2	56	38
canvasback	16					
black-necked stilt			4			
killdeer	2		2	100	3	18
long-billed curlew				10		1
sandpiper sp.		40				
gull spp.				8		
red-tail hawk	1				1	1
burrowing owl		3		1		2
Western meadowlark		63	7	19	40	46
mourning dove	1		3			
Northern flicker				3		
American goldfinch	12					
purple finch	9	8		8		38
Anna's hummingbird		3		1		1
Say's phoebe		1				
Bewick's wren		1				
European starling	96	100		12	80	
TOTAL # OF SPECIES	11	12	9	13	8	13
TOTAL # OF INDIVIDUALS	156	367	138	197	234	175

Table 1. Census Results.

The third census day, February 2, was stormy with high winds blowing a heavy rain. Upland birds were rare, but American wigeons and cinnamon teal were again abundant. Two snowy egrets were observed. This census was conducted at low tide from 11:45 a.m. to 1:15 p.m. Nine species and 138 individuals were observed.

The February 10 census was conducted at high tide from 3:30 to 5:00 p.m. under partly cloudy skies. Killdeer dominated on this day with 100 individuals. Ten long-billed curlews were also observed. Cinnamon teal remained abundant, but the population of American wigeons declined precipitously to only two individuals from the previous 82. This census included 197 individuals of 13 species.

The census of February 15 was conducted during a light rain and a rising tide from 2:00 to 3:15 p.m. European starlings and Western meadowlarks dominated on this day, with 80 individuals and 40 individuals, respectively. Other upland species were absent. Eight species and 234 individuals were counted.

The final census day was February 22. Skies were clear and the census was conducted during high tide from 11:30 a.m. to 1:30 p.m. Western meadowlarks, American wigeons, and purple finches dominated;

European starlings were curiously absent. Thirteen species comprising 175 individuals were observed.

A total of 24 species and 1067 individuals were observed; there was no temporal trend in the increase or decline in the number of species or individuals observed. The species total comprises five species of dabbling ducks (Anatinae), one diving duck (Aythinae), two raptors, seven shorebirds (Ciconiforms and Charadriiformes), and nine others (primarily Passeriformes). Red-tailed hawks, turkey vultures, black-shouldered kites (an endangered species), ravens, great blue herons, and numerous gulls were observed overhead but were not included in the census.

Although populations of starlings and meadowlarks often dominated in terms of numbers of individuals, American wigeon, killdeer, and cinnamon teal were also very common. Other species, such as the great egret and burrowing owl, were not found in large numbers, but it was not uncommon to see one or two on each visit. Several species were observed only once. Among these were the snowy egret, Say's phoebe, canvasback, black-necked stilt, and green-winged teal.

The meadowlarks and starlings were commonly found among the grasses of the transition zone and in the drier parts of the salt marshes. The ducks and shorebirds were always found in and around the ponds, although some of the mallards foraged in Bockman Canal as well. The burrowing owls hunted from perches near their burrows in the dikes. The Say's phoebe and Bewick's wren were also found on the dikes. The remaining upland birds were active in the willow trees (Figure 2).

No written record was kept during our census periods of the activities of the birds. The general impression, however, is that they were foraging most of the time, although the ducks often just floated on the ponds. The long-billed curlews were the only birds observed roosting.

Discussion

Birds found on seasonal wetlands commonly utilize many sites for resting and foraging. Their stay at a single site may be a few hours or a few days. This behavior can explain some of the variation in the count of individuals within a particular species. For example, on February 10, the American wigeon population dropped to two, and the killdeer population rose to 100. The total number of individuals also varied greatly, even within the space of a couple days. Such large fluctuations cannot be accounted for by weather, tides, or time of day.

The tides and time of day do not appear to have had any significant influence on the results. Perhaps a study conducted over a longer period, or conducted during particular tides or times of day would show some effects of these factors.

On February 2 and February 15 there was a notable dearth of upland bird species. This can be attributed to the rain, during which the upland birds apparently sought refuge. Although it is possible that many remained sheltered on the site, they were not found.

Seasonal wetlands are known to be important to birds for roosting, but little roosting was observed here. It is possible that disturbance from the occasional grazing cattle and low-flying aircraft is

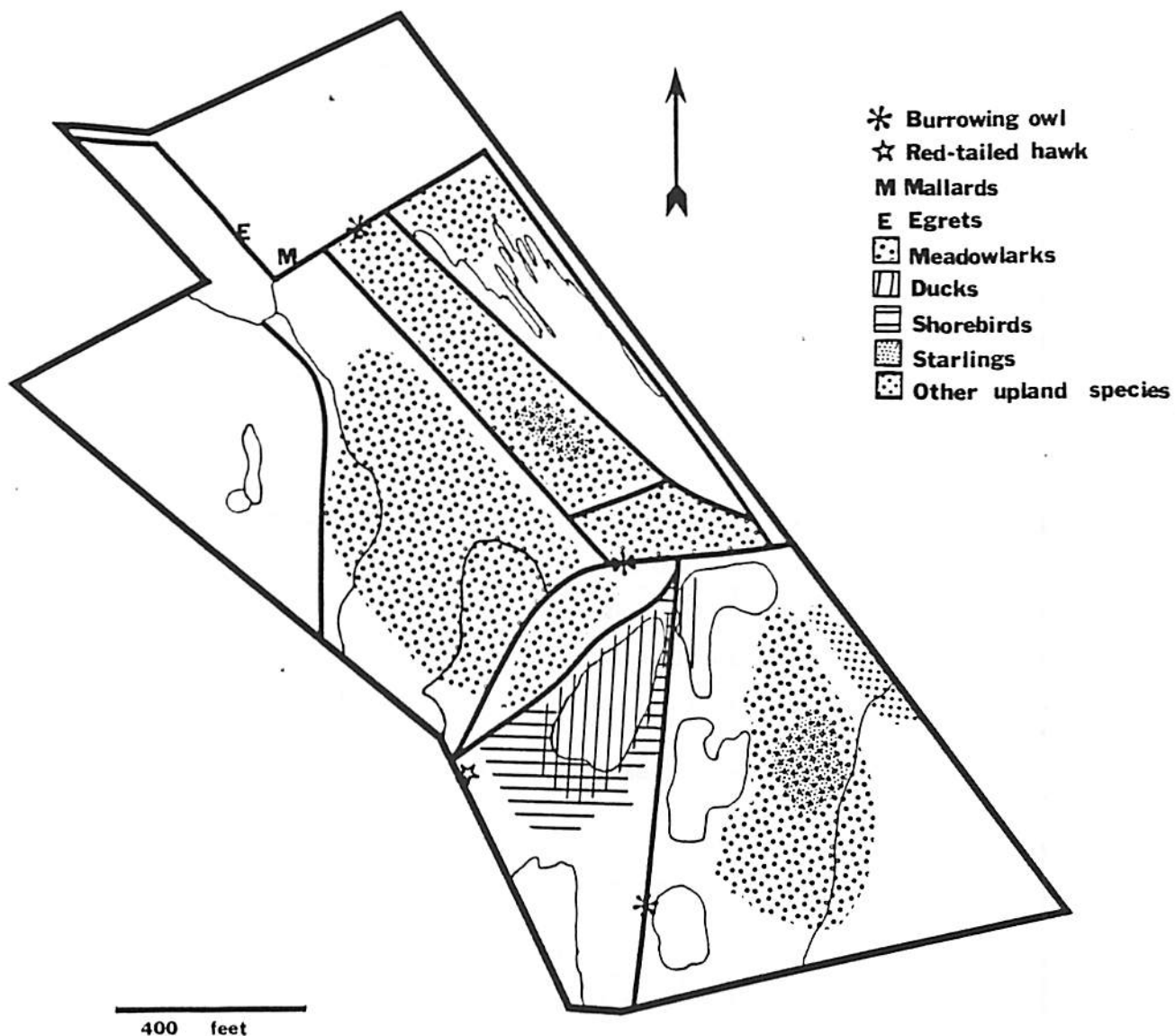


Figure 2. Common Locations of Birds on Census Visits
Base Map: TRS Consultants, 1985

enough to make other sites preferable for roosting. In particular, wetlands lying closer to the shoreline within Hayward Shoreline Park might be more attractive.

Most significantly, the variety of vegetation associations and water regimes found on this site provides several habitats for birds. This variety can explain the diversity of bird life encountered here.

Summary and Conclusions

The Marathon development site was found to be inhabited by at least 24 species of birds, including six species of waterfowl and seven species of shorebirds. The site contains several different habitats which provide for a variety of avifauna.

The Marathon project would effectively destroy this site in terms of the usefulness to any birds now present. It is not possible to develop the site in some way that is sensitive to the needs of wildlife. There is a finite amount of these valuable wetlands around San Francisco Bay, which is continually being threatened by encroaching development. If there exists a true need in the City of Hayward for a project such as Marathon, it would be better to find a location where the land has already been relieved of its value to wildlife.

REFERENCES CITED

- Cogswell, Howard, 1977. Water Birds of California; University of California Press, Berkeley, 399pp.
- Curry-Lindahl, Kai, 1978. Conservation and Management Problems of Wading Birds on Their Habitats: A Global Overview; pp. 83-97 in Wading Birds; Alexander Sprunt IV, John C. Ogden, and Suzanne Winckler, eds., National Audubon Society, Research Report No. 7, New York, 381pp.
- Drabelle, Dennis, 1985. Life on the Edge; Express, v. 7, no. 48.
- Farrand, John Jr., 1983. The Audubon Society Master Guide to Birding; Alfred A. Knopf, New York, 3 volumes.
- Kelly, Paul, wildlife biologist, California Department of Fish and Game, personal communication, October 23, 1985.
- National Geographic Society, 1983. Field Guide to the Birds of North America, Washington, D.C., 464pp.
- San Francisco Bay Conservation and Development Commission (BCDC), 1969. San Francisco Bay Plan and Supplement.
- TRS Consultants, Inc., 1985 Draft Environmental Impact Report/Environmental Impact Statement for the Proposed Marathon Industrial/Commercial Business Center, Tract 5167, Hayward, California. Prepared for the City of Hayward Planning Commission and the U.S. Army Corps of Engineers.