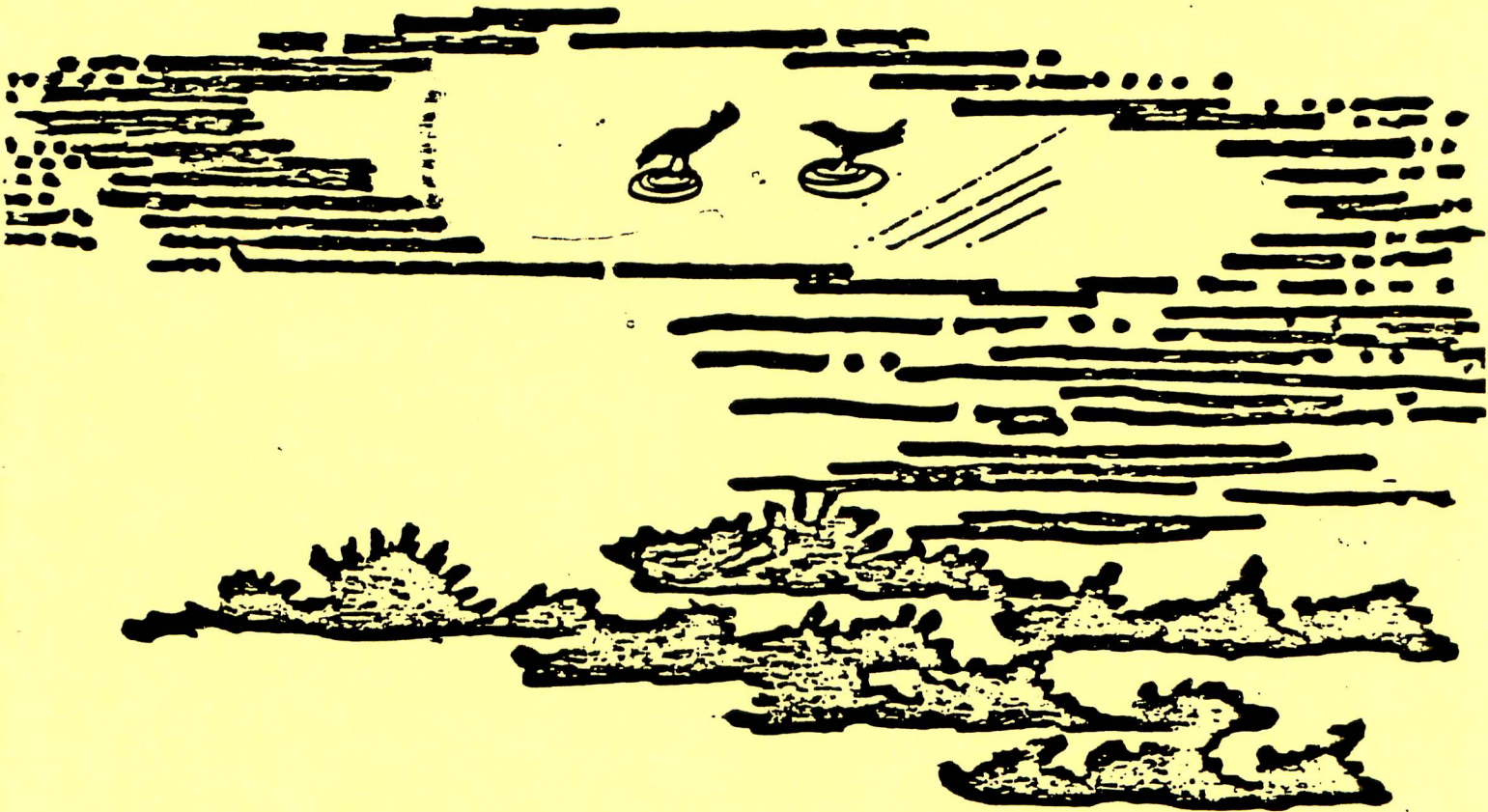


# BIOTA OF THE BALLONA REGION LOS ANGELES COUNTY

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Supplement I

Marina Del Rey/Ballona Local

Coastal Plan

LOS ANGELES COUNTY NATURAL  
HISTORY MUSEUM FOUNDATION

THE BIOTA OF THE BALLONA REGION, LOS ANGELES COUNTY.

Edited by

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THE BIOTA OF THE BALLONA REGION, LOS ANGELES COUNTY

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THE BIOTA OF THE BALLONA REGION, LOS ANGELES COUNTY, CALIFORNIA:  
A SUMMARY OF THE NATURAL HISTORY MUSEUM STUDY.

Ralph W. Schreiber

INTRODUCTION

Coastal wetlands and estuaries are rapidly disappearing in the United States, and especially so in Southern California. Therefore, the value of such areas as habitat for wildlife and as open space for human aesthetics increases yearly.

The Ballona region near Marina del Rey contains one of the few remaining sizable marshlands in Los Angeles County. Prior to European colonization, this region was an ecologically diverse habitat; now it is greatly reduced and degraded by gradual urbanization. The construction of the Ballona Creek flood control channel in 1932 was the single most important factor reducing the wetlands areas. Construction of the Small Craft Harbor (Marina del Rey) in 1960-1962 also contributed to reduction of these marshes, and displaced considerable land used for agricultural purposes. Although some data exist on wildlife habitat use of the Ballona region (summarized by Jones and Stokes, 1981), the study reported here more fully documents the flora and fauna of the region than did previous studies. This work also provides the Department of Regional Planning of Los Angeles County with the data on which to base portions of the Marina del Rey Local Coastal Plan.

This final report incorporates comments made by staff members of the California Coastal Commission, California Department of Fish and Game, and

the United States Fish and Wildlife Service Biological Services section.

#### METHODS AND RATIONALE

In discussing the Ballona region, we find it convenient to divide the region into four units as indicated on figure 1: Units 1, 2 and 3 and the Agricultural Lands. In describing our results, comments are directed to those specific units. The outlines and major features of those units are presented in the following section, Site Description.

Under contract to the California Coastal Commission, the initial bird surveys of the Ballona region began in February, 1979. Early data clearly indicated the need for a more extensive biological study of the region and in July, 1980, the Natural History Museum Foundation began a one-year study under contract to the Department of Regional Planning of Los Angeles County, as approved by the California Coastal Commission. The studies reported here were carried out by the staff, assistants and collaborators of the Life Sciences Division of the Los Angeles County Natural History Museum:

Plants: Robert J. Gustafson

Mollusks: Martin G. Ramirez and Dr. James H. McLean

Insects: Christopher D. Nagano, Dr. Charles L. Hogue, Roy R. Snelling  
and Julian P. Donahue

Fishes: Dr. Camm C. Swift and Gretchen D. Frantz

Reptiles and Amphibians: Marc P. Hayes and Craig Guyer

Mammals: Drs. Richard D. Friesen and Donald R. Patten, and W. Kelly  
Thomas

Birds: Drs. Charles F. Dock and Ralph W. Schreiber

The methodology for each discipline is described in each section report which summarize our findings. These individual studies were aimed at determining what species were present; their numbers, distribution, and biology.

We interpret those data collectively here to advise the Department of Regional Planning on the biotic interactions present on the property, to determine the extent of wetlands present and to advise on the extent of the surrounding habitats and what their interactions with the wetlands are. Our goal is to preserve a sufficient space with ecologically diverse habitats for long-term stability of the functional ecosystem.

#### SITE DESCRIPTION

The region that we studied is owned by Summa Corporation of Las Vegas, Nevada, and is bordered on the north by Fiji Way; on the east by Lincoln Boulevard; on the south by the bluffs, the Southern California Gas Company facilities, Culver Boulevard, and the horse stables and houses; and on the west by the dwelling units of Playa del Rey. The following are brief, introductory descriptions of the units used in this study. Details are contained in each section report, and especially the Botany description.

UNIT 1: Bounded on the west by a series of apartment complexes, on the north by a footpath paralleling the south bank of Ballona Creek Channel, on the east by agricultural fields, and on the south by a horse corral, and an embankment paralleling Culver Boulevard. Lower elevations support fairly homogeneous stands of pickleweed, while higher portions support mixed pickleweed and herbaceous vegetation. A large expanse of saltflat lies in the east-central portion of the unit, and an extensive mudflat lies adjacent to much of the northern boundary. When the flap gates are open, both habitats are flooded at high tide. Ditched saltwater canals are connected to the flood gates and connect throughout the unit and under Culver Boulevard into Unit 2. The western border of the unit is marked by a remnant dune system with a small, temporary pond within its willow stand. Elevated Southern California Gas Company access roads extend into the flats from the

southeastern border of the unit.

UNIT 2: Bounded to the west by the confluence of Culver Boulevard and adjacent residential areas, to the north by Culver Boulevard, to the east by a Southern California Gas Company access road and to the south by the gas company facility and residential property with bluffs further to the south. Most of the study unit is covered by annual herbs, grasses and scattered pickleweed. The unit is crossed from west to east by two tidal canals bordered by narrow, essentially solid stands of pickleweed. A stand of eucalyptus trees and pampas grass borders the east edge of a sandy, alluvial fan opening out from a small ravine now paved as Cabora Street along the southern boundary. A small freshwater stream runs through the eucalyptus grove, receiving much of its input from street runoff. The western edge of this alluvial fan as well as much of the unit is covered by iceplant. A narrow area of exposed ground parallels Culver Boulevard along much of the northern boundary. This exposed ground, in a slight depression, fills with water after rains and high tides, forming temporary pools.

UNIT 3: Bounded to the west by residential structures and Fiji Way, to the north by Fiji Way, to the east by Lincoln Boulevard, and to the south by a road adjacent to Ballona Creek Channel. The central portion of the study unit is saltflats. These are surrounded by pickleweed and mixed pickleweed and annual vegetation. The northwestern portion of Unit 3 also supports mixed pickleweed and herbaceous vegetation. Higher elevations support grasses and scattered shrubs. A coyote brush-pampas grass shrubland dominates large portions of the east, west and north-central portions of this unit. Minimum elevations are 12 feet above mean high tide in this region, maximum is 16 feet. A drainage channel parallels Fiji Way along the north-eastern boundary. The south-central and southeastern border of this unit

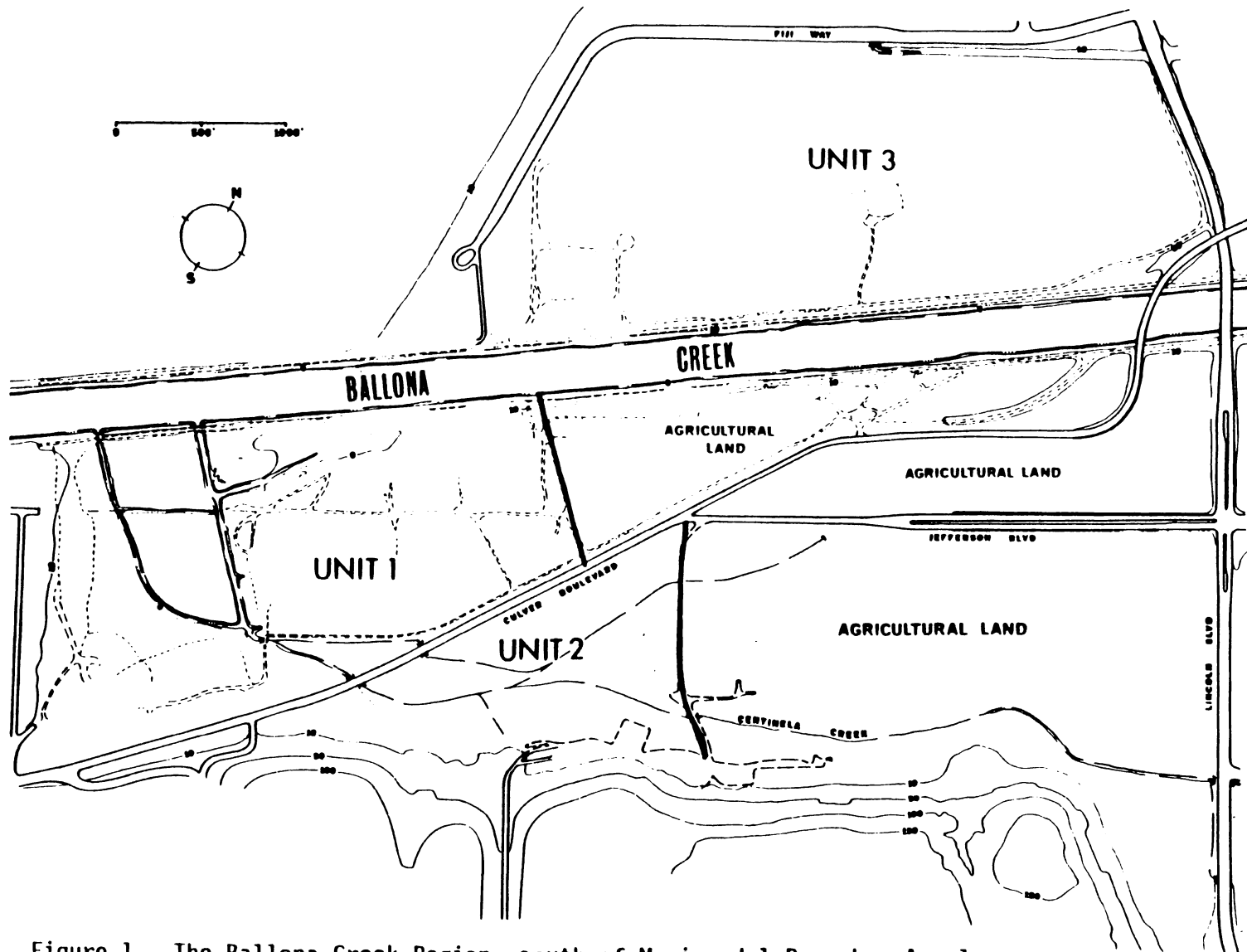


Figure 1. The Ballona Creek Region, south of Marina del Rey, Los Angeles County, California, showing study units used in the Natural History Museum study.



consists of coarse elevated fill dominated by large laurel-sumac. An access road lines the southern edge of the unit. This road connects with a complex of short, elevated access roads to gas company wells on the western edge of this unit. Unit 3 is entirely dredge spoil.

AGRICULTURAL LANDS: The Agricultural Lands (=Fields) are bounded to the west by the Southern California Gas Company access roads, to the north by the Ballona Creek Channel, to the east by Lincoln Boulevard, and to the south by the gas company facility and 150-foot bluffs. The fields are bisected by Jefferson Boulevard and the eastern portion of Culver Boulevard. Most of the area consists of periodically plowed and cultivated fields with scattered patches of grasses and herbs. In the western portion just south of Jefferson Boulevard, the Jefferson storm drain connects to a canal of Unit 2 under the gas company road. The western and eastern portion of the southeast section of fields is slightly lower in elevation and fills with storm water runoff during rainy periods. The southern border of the unit is a steep, sandy bluff dominated by large stands of castorbean and California sage. Sandy alluvial fans form at the terminus of two ravines on the south border. One ravine, at the southeast corner of the unit, contains Lincoln Boulevard. The other, in the south-central bluff area just east of the gas company facility, is eroded by the runoff from Hastings Avenue. A partly channelized freshwater drainage (Centinela Creek) flows through the southern portion of this unit from east of Lincoln Boulevard. Another freshwater habitat is a bulrush-dominated patch on the east edge of the Hastings Avenue ravine, which is fed by a seep at the base of the bluffs. Cabora Street is located midway up the bluff.

The California Coastal Act of 1976 defines wetland in Section 30121 of the Public Resources Code as follows:

"'Wetland' means land within the coastal zone which may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, and fens."

To provide guidance in the practical application of this definition, the California Coastal Commission adopted Statewide Interpretative Guidelines for Wetland and Other Wet Environmentally Sensitive Habitat Areas ("Guidelines") as a decision of the Commission on February 4, 1981.

According to the Guidelines, the Commission will make an independent conclusion using all relevant information available for a specific site, determining whether it will be considered wetland under the Coastal Act. Appendix D of the Guidelines, "Technical Criteria for Identifying and Mapping Wetlands and Other Wet Environmentally Sensitive Habitat Areas" ("Criteria") provides further guidance. The Criteria indicate that the U.S. Fish & Wildlife Service hierarchical system of wetland classification will be used "as a guide".

We have applied these Guidelines, Criteria and the Coastal Act to the data base gathered for this site to reach our conclusions of what specific areas should be defined as wetlands, and what areas should be defined in other descriptive terms for planning purposes in the Local Coastal Plan. This region is a biologically diverse area with many habitat communities, and the property must be considered acre by acre. Biologists must use several characteristics for designations of any habitat and must look for and find functional interactions between components of habitat.

Based on our data and their evaluation, we have concluded that the portions of the property which should be determined to be wetlands are the lower

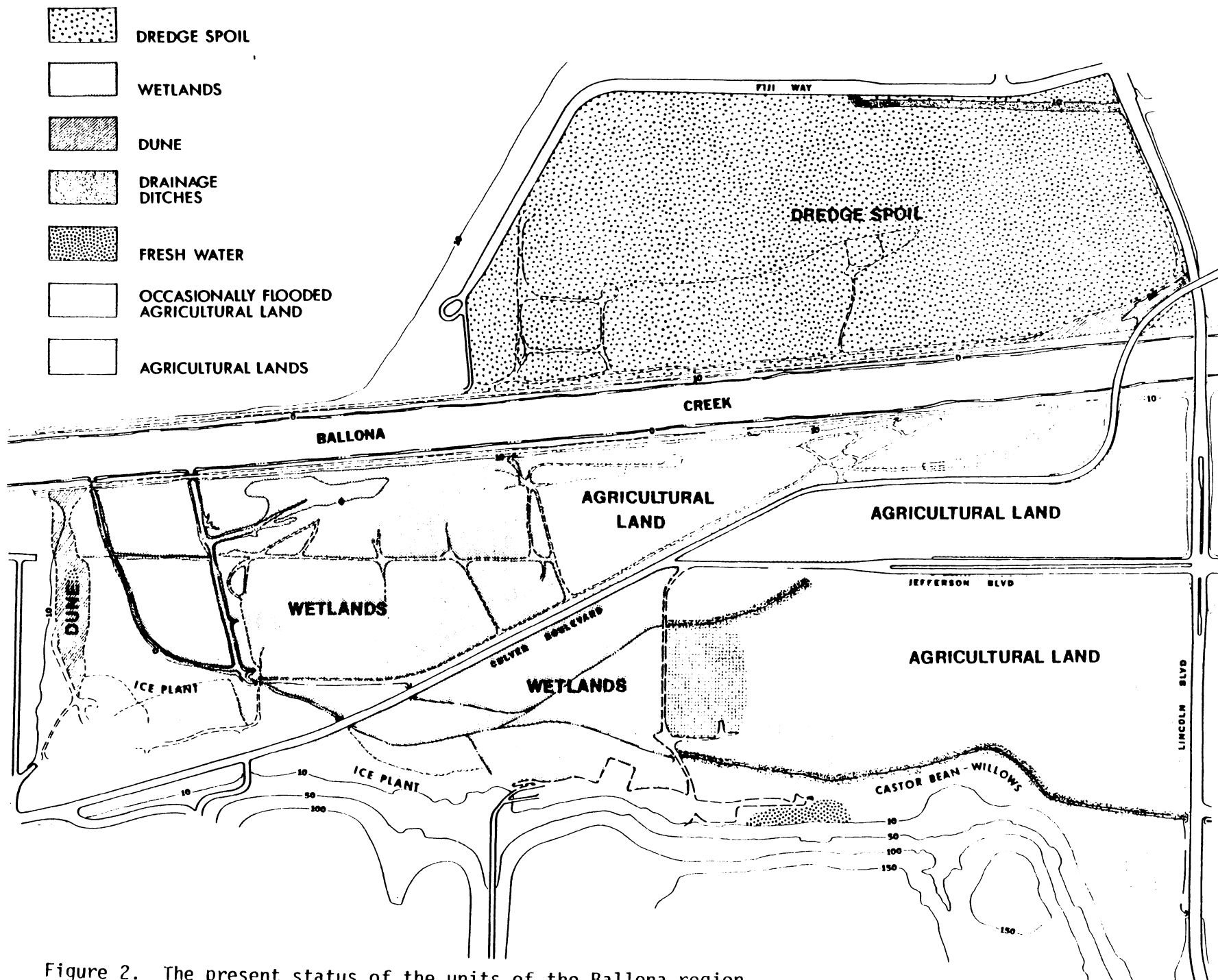


Figure 2. The present status of the units of the Ballona region.

elevations in Units 1 and 2 (Figure 2) considering the following factors:

1. the variety, high quality, and quantity of the saltwater marsh plant indicator species present.
2. the diversity of the animal populations present;
  - a, the presence of fishes and marine mollusks which cannot exist out of water,
  - b, the presence of aquatic insects, waterfowl, shorebirds, and the endangered Savannah Sparrows,
  - c, the presence of mammals and reptiles/amphibians.
3. the presence of tidal influence.
4. the diversity, interactions, and productivity of the organisms present, and
5. the indications and prognosis that a viable, self-sufficient ecosystem is present and has a high probability of long-term continued existence with reasonable amounts of protection and management.

Based on our data and their evaluation, we have concluded that the portions of the property which should not be determined to be wetlands are the dredged spoil area north of the flood control channel and most of the agricultural lands considering the following factors:

1. the historical aspects and obvious ecological old field succession that has occurred on the dredged spoils.
2. the lack of diversity and productivity in populations of plants and animals found there, and
3. the obvious lack of tidal influence.

We believe that Unit 3, or even portions thereof, should not be

designated wetlands because in a biological sense the definition lacks heuristic (predictive) value. Unit 3 should not be classified a saltwater marsh, a freshwater marsh, a brackishwater marsh, a swamp, mudflat, or fen. Early in the 20th century, this unit may have been marsh but the available aerial photographs clearly indicate that by the 1950's it had been converted to agricultural land. During construction of Marina del Rey in 1960-1962, the dredged spoils were placed on this unit and the agricultural use was destroyed. The marine bottom material was conducive to Salicornia growth in the central, lower portions of the dredged material. However, a series of historical aerial photographs since 1962 clearly indicate this community is deteriorating and breaking up into small pockets. Our subjective impression over the past two years of work on the Unit also indicates qualitative deterioration and comparison with the obviously healthy vegetation on Unit 1 clearly shows the poor quality of the hydrophilic plants on this dredged material. The present mean minimum elevation of 12 feet above mean high tide precludes long-term wetlands interactions as a functional community. Our entomological data confirm the absence of insects and other arthropods which require wet conditions and thus the lack of a true "wetlands" in this unit. These data indicate this unit is rapidly undergoing old field successional stages. In the Unit 3 dredged spoil area, the presence of Salicornia today is not a significant indicator of wetlands but merely indicates the remnants of the conditions created by bay bottom dredging. We believe this unit is properly simply called dredged spoil. With the presence of functional wetlands in Units 1 and 2, we believe that efforts should be placed on management and restoration of those areas rather than expending efforts on a community that was artificially constructed and will never serve as a wetlands habitat.

The California Coastal Act defines environmentally sensitive area in Section 30107.5 as follows:

"'Environmentally sensitive area' means any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments."

As noted in the "Guidelines," the Coastal Commission will make an independent determination based on all available data of whether a specific site is to be designated as an environmentally sensitive area. We believe that the following recommendations will assist in defining the specifics of this property in relation to such designations and in determining consistency with Section 30240 of the Coastal Act, which contains standards for siting development both within and adjacent to environmentally sensitive areas.

1. Preserve adequate large diverse space. Wetlands are not isolated, independently functioning systems and are dependent on associated watersheds and upland transition areas. Additionally, since ecological stability is related to habitat diversity and sufficient space, we believe that maintenance of a large contiguous area is the only alternative that meets the criteria of preserving the maximum number of species and a viable wetlands system within this region. Preserving small portions of various areas that are not connected by open, native habitat will not provide the stability needed in this region for long-term maintenance of the marsh. Units 1 and 2 are the center of the area to be protected. The portions of land needed to buffer and protect the wetlands and provide the ecological diversity necessary for stability in this region are: the bluffs and slopes to the south of Units 1 and 2 and extending to the east beyond Lincoln Boulevard; the dunes to the west of Unit 1 (see 5 below); the slightly higher portions of land immediately surrounding the wetlands; and the occasionally wet

agricultural lands immediately to the east of Unit 2 which grade onto the slopes and along the Centinela Creek drainage ditch. These areas might or might not be designated as ecologically sensitive habitat or buffer but they clearly fit the ecosystem concept and thus should not be separated from the wetlands. The dunes and slopes will provide buffer to the wetlands on the south and west and the Ballona Creek flood control channel on the north provides adequate buffer there. To the east we believe the construction of a nature center north of Culver Boulevard will buffer Unit 1. A road along the present gas company access road and construction of a tidal-influenced, freshwater lake with its mud flats area immediately east of that road would provide adequate buffer to Unit 2. Maintenance of open space with proper fencing along the north side of Centinela Creek after its relocation will provide protection to the north side of the bluffs. With protection of this total region incorporating the following recommendations we believe that both the spirit and letter of the Coastal Act laws are met in regards to habitat protection. Outside of these areas, any reasonable construction, under 60 feet, will probably not affect the wildlife within such a protected zone.

2. Increase saltwater flow and enhance littoral zone. The littoral zone is the area subject to tidal influence. Pickleweed (Salicornia spp.) is characteristically the dominant plant of the upper littoral zone along the southern California coast. Increasing the amount of tidal water entering the system would increase the productivity of the Salicornia, and the addition of the water onto Unit 2 would increase the density and health of these plants while causing the weedy higher-elevation plants there to decrease. With added water into Unit 1, the Salicornia would increase the area on which it grows and thus provide important additional habitat for Belding's Savannah Sparrows, one of the endangered species present on the wetlands.

As discussed below, breeding populations of Belding's Sparrows are limited to pickleweed. Expansion of stands of that plant could potentially increase the size of the Ballona population of the sparrow. This could be an important factor in the long-term survival of the species. Enhancing pickleweed quality and extent and its associated insect fauna would be beneficial to the total ecosystem stability. Increasing tidal flow with resultant stands of salt grass would also allow the Wandering Skipper, a rare insect, to increase the size of its current population. Pickleweed is also essential as primary foraging habitat for the Alligator Lizard.

Increasing the extent of the littoral zone would be accomplished by (1) installing tidal flow systems to allow unrestricted water movement from the Ballona Creek channel into the wetlands; (2) breaching the berms along the channels within the wetlands; (3) installing additional culverts under Culver Boulevard; and (4) by creating several additional channels. These steps should be carried out in Units 1 and 2. Wide culverts, including normally dry areas suitable for passage of terrestrial animals are essential to allow the organisms present to increase their populations and allow easy movement over the property. Increasing tidal flow would also provide the input of nutrients and flushing action necessary to support larger invertebrate and fish populations in Units 1 and 2.

While increased saltwater flow is generally desirable, flooding in some areas should be restricted so as to produce drier, higher habitats required for egg-laying and refuge sites by the herpetofauna and other animals. To this end, we suggest that the access roads to the gas company wells in the central area be modified to provide more gradual slopes and be planted with native vegetation; similar modification of the channel berms would also enhance their value to wildlife.

3. Preservation of mudflats. Mudflats provide exceedingly important



habitat for many organisms, most spectacularly the wintering water and shorebirds in the Ballona region. Many herbivorous-detrital-eating mollusks move about on the surface of the mudflats, and many invertebrates (i.e., polychaetes and insects) provide a source of food below the surface. The flats are also habitat for the Mudflat Tiger Beetle, which is greatly reduced from its original range in the United States. Many species of estuarine flies and beetles breed or develop in the mud. Preservation and enhancement of the flats are important to the stability of the ecosystem. The mudflats most important to the birds occur in Unit 1. In addition, the fields on the western portion of the agricultural lands are occasionally flooded during winter rains and at those times provide an important foraging area for the wintering shorebirds. The rainy period coincides with the presence of large numbers of wintering and migrant shorebirds in southern California. There is substantial movement of birds between Unit 1 and these occasionally flooded agricultural fields. It seems advisable to preserve an open flyway between these two regions. It is probable that an even more favorable situation could be created by providing for regular (or even permanent) flooding of this area. This would require grading and construction to allow tidal flow and freshwater intrusion. Any construction in the area should be undertaken in the dry season to avoid disturbance to the bird populations.

4. Limit access by humans and human artifacts. The Ballona wetlands show obvious degradation due to traffic by vehicles, domestic animals and humans on foot. The negative effects of such intrusion are particularly obvious in Units 1 and 2, where the disturbance to the natural functioning of the system cannot be overemphasized. Unit 1 is frequently used by horse-back riders, presumably emanating from the stables immediately adjacent to the marsh on Culver Boulevard. Horse and other traffic severely damage

the existing vegetation and definitely inhibit growth of new plants by compacting the soil and crushing subterranean animal forms. Food and cover for animals are removed, and invertebrate and vertebrate life killed. Human intrusion also disturbs the activity cycles of all animals, especially the birds. Dogs and cats cause serious disturbance and actually kill wildlife.

Off-road vehicular- (ORV) caused mortality to animals and plants is a major problem in this region. Such traffic has increased during the two years of our study, and the effects of ORV's are potentially even more serious than those of horses or dogs, because of the deeper disturbances and much larger area they are able to cover.

We suggest that the wetlands in Unit 1 and 2; the buffer areas, especially the dunes; and the remainder of the management-support area should be restricted to allow only human-foot traffic for scientific and education purposes under strictly controlled conditions (see below #10 for nature center recommendation). All vehicular traffic and domestic animals must be entirely excluded.

5. Preservation and enhancement of dune habitat. Like marsh and estuarine systems, coastal dunes are becoming increasingly more rare in California. The west end of Unit 1 is an important dune habitat. The highest number of insect species restricted to the sea coast are found there. This area is inhabited by the California Legless Lizard (Anniella pulchra), which can only survive in areas of loose sand. We found this lizard only on the dune and the sandy alluvial fan near the southwest corner of the Ballona region, but we suspect it is also present on the large alluvial fan near the southeast corner of the region. Maintenance and protection of these areas is strongly recommended, and as noted we suggest

that access by humans should also be prohibited in the dunes and alluvial areas.

6. Provision for freshwater habitat. Fresh water is an important component of this region and a balance between salt water and fresh water is essential to the environmental health of the wetlands. At present, the freshwater input to the region is primarily from the highly polluted Jefferson storm drain, Centinela creek drainage ditch, and runoff along with erosion from the bluffs on the south side of the property. This fresh water is important for the maintenance of the Salicornia in the wetlands during the winter rainy season, as it provides dilution of the salt water to the brackish conditions that define a saltmarsh. The drainage ditches support freshwater aquatic plants, freshwater fishes and are breeding sites for amphibians. The Pacific Tree Frog and Western Toad are dependent on the freshwater sites. Mosquito fish (Gambusia affinis) were introduced in the freshwater system and have become an important food source for birds and are also an important predator on mosquito (Culicidae) larvae.

Although drainage ditches are important as a freshwater source and habitat on this property, they have not been designed for this purpose. We suggest that they be rebuilt, and possibly moved, so that they can provide an enhanced and functional freshwater system within the larger region. Reclaimed water from sewage treatment could also be effectively used for enhancement of the wetlands by either constant input or occasional flow over Units 1 and 2.

7. Exclude dumping of solid waste and dissolved chemical pollutants. Much of the property is badly littered with trash. While this material may provide some habitat for organisms, it is unnatural and detracts from the overall aesthetic value of the property. Dumping and accidental littering should cease and the existing refuse should be removed.

Pollution of the aquatic portions of the region by hydrocarbon pesticides, heavy metals and other chemicals is a potential source of further degradation of the wetlands. The Mullet fishes captured during this study showed a high frequency of ended fins and other abnormalities associated with high pollution levels. An adequate means must be found to minimize the present pollution sources and to minimize undesirable contaminants such as pesticides, fertilizers, and heavy metals from entering the system.

8. Construction of tern breeding site and bird roosting-loafing area.

Unrestricted tidal flow, as recommended above for augmentation and enhancement of the saltmarsh habitat, conflicts with the goal of maintaining a viable Least Tern colony in the region. Normal tidal action will flood the saltflats of Unit 1, where Least Terns nest when it is dry. The variety of breeding sites currently in use by Least Terns in California indicates that they will use a wide range of dry surfaces with a substrate appropriate for nest excavation. It should be feasible to elevate the breeding colony area above the high-tide level, thus avoiding periodic flooding. This could be accomplished by filling in the tern colony area with soil graded from the surrounding area during the early fall. This "island" should be topped by sand substrate which would be more favorable for nest construction than the existing saltflat. Any such efforts should, of course, be planned in consultation with the California Least Tern Recovery Team and timed to avoid conflict with tern breeding. This raised area would provide a permanent roosting-loafing site for shorebirds and waterbirds and would enhance the bird use of the region.

9. Increase the number of native trees, shrubs and low-growing vegetation compatible with moisture levels of the fauna. Trees and shrubs are limited

in the Ballona property and much of the area is dominated by introduced species of plants such as eucalyptus and iceplant (Carpobrotus edulis). These non-native plants are detrimental to a functional ecosystem; few animals feed on them, and the iceplant is crowding out native plants that are used by local organisms. The lack of trees and shrubs limits the foraging habitat; number of refuges and roosting-loafing sites; and prey items available for the resident and migrant vertebrates on the property. Our insect and reptile-amphibian data especially indicate that those species are most abundant in the native shrub vegetation that is available.

Additional native trees and shrubs should be planted around the margins of the wetlands, and this could be accomplished easily in areas such as surrounding berms and the access roads to the gas company wells. The iceplant should be eliminated, because it will eventually crowd out many of the native plant species. The dunes can be expanded by bringing in more sand to the south end of the system. Shrubs such as Laurel-Sumac (Rhus laurina), California Sage (Artemisia californicum), California Buckwheat (Eriogonum californicum) and lupine (Lupinus chamissonis) planted in sandy sites would greatly enhance the region as a diverse wildlife habitat.

10. Construction of nature center, observations sites and nature trails.

A nature center should be constructed on the property, and provisions made for adequate funding of a full-time staff of naturalists and custodians to carry out natural history educational programs and maintenance and ranger service in the region. Access points to the marsh should be provided to allow appropriate recreational and scientific use of the region. Such activities as nature study by school groups, bird watching and photography, and walking in a green-protective zone would not conflict with conservation goals if properly planned and should be incorporated into the

development plans for the property. Elevated walkways could be provided which allowed observations of the wetlands and dune-riparian habitats without undue physical intrusion. A model system exists in the Florida Everglades and Corkscrew Swamp, where a series of walkways extend into various habitat types with sufficient buffer to preclude disturbing native wildlife. Periodic rest points provide interpretive information on the biology, geology and climatology of the region. Such a nature center would have the obvious benefit of increasing public awareness of the importance of wetlands and other native habitats and serve as a model for other such preserves in California.