



# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

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## NATIONAL WETLAND INVENTORY

### NOTES TO USERS

Coastal California - Newport Beach to Mexico

1:100,000 SCALE MAPS COVERED

Santa Ana  
Oceanside  
San Diego

Santa Ana NW  
Santa Ana SW  
San Diego NW

# NATIONAL WETLAND INVENTORY

## NOTES TO USERS

### Coastal California - Newport Beach to Mexico

#### 1. PURPOSE

The purpose of Notes to Users is to provide general information regarding the production of National Wetlands Inventory (NWI) maps and wetlands found within a relatively similar geographic area. Notes to Users are not intended to include descriptions of all wetlands found in the area nor provide complete plant species information.

#### 2. AREA COVERED

The area covered is defined by the Santa Ana, Oceanside and San Diego U.S.G.S. intermediate scale maps (see attached index maps). According to Bailey's ecoregions, the subject area is within the Humid Temperate Domain, Mediterranean Division, California Chaparral Province.

The mountains of Southern California are steeply sloping to precipitous. High mountains have unstable slopes, and sharp crest and valleys are steep and narrow. A large coastal plain fronts the Pacific Ocean.

The climate is characterized by hot, dry summers and rainy, mild winters. Precipitation ranges from 12 to 40 inches (300 to 1,000 mm.) evenly distributed through fall, winter, and spring; precipitation increases with elevation. Most of this is rain; the little snow that falls in winter melts quickly. Frost and short periods of freezing weather occur occasionally in the winter. Temperatures average 32° to 60° F. (0° to 15° C.) in the mountains, always decreasing at progressively higher altitudes.

The montane vegetation of this region consists of species having thick, hard, evergreen leaves. One climax, dominated by trees, is called sclerophyll forest. The other, called chaparral, is a shrub climax. These two climaxes appear in alternating patches in almost any part of the region, but chaparral occupies the greater area. The forest consistently appears on north-facing slopes and the wetter sites, chaparral on south-facing slopes and drier sites.

The coastal plain and valleys have sagebrush and grassland communities. A riparian forest, containing many broadleaf species, grows along streams.

Montane areas are characterized by well drained mollisols and entisols. Some alluvial soils on fans and flood plains contain poorly drained and somewhat poorly drained soils of the Hueneme-Bolsa association and Chino-Omni association.

### 3. MAP PREPARATION

Wetland classification for the NWI maps is in accordance with "Classification of Wetlands and Deep-Water Habitats of the United States (An Operational Draft)," Cowardin, et al, 1977.<sup>1/</sup>

Wetland classification and delineations were produced by air photointerpretation of high level aerial photography. The following aerial photography was used for wetlands photointerpretation:

<u>Map</u>	<u>Scale</u>	<u>Film</u>	<u>Date</u>
Santa Ana	1:130,000	Color Infrared	10/74
	1:80,000	Black and White	9/75, 11/74
Oceanside	1:130,000	Color Infrared	8/72, 10/74
	1:80,000	Black and White	11/74
San Diego	1:130,000	Color Infrared	8/75, 8/72

Limited field reconnaissance was conducted in February of 1979.

Stereoscopically reviewed aerial photographs had wetland boundaries and labels delineated on the photographs. Delineations were enlarged to a scale of 1:24,000 using a zoom-transfer scope and fitted to USGS 7 1/2 minute topographic maps. The 1:100,000 scale wetland maps were prepared from the 7 1/2 minute series. Large scale NWI wetland maps (1:24,000 scale) are available for the USGS 7 1/2 minute topographic sheets indicated on the attached index map.

The Project Officer for production of the wetland maps was Dennis Peters, Regional Wetlands Coordinator, U. S. Fish and Wildlife Service, Region 1, Lloyd 500 Building, 500 NE Multnomah Street, Portland, Oregon 97232, telephone (503) 231-6154. Aerial photo interpretation was completed by Area Information Systems (AIS), Crestline, California. Maps were prepared by Martel Laboratories, Inc., and the NWI National Team in St. Petersburg, Florida.

<sup>1/</sup>The classification system was published in 1979: Cowardin, Lewis M., Virginia Carter, Francis C. Golet, and Edward T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States, Fish and Wildlife Service, U. S. Department of the Interior, Washington, DC, December 1979.

#### 4. USER CAUTION

The map documents were prepared primarily by stereoscopic analysis of high altitude aerial photographs. Wetlands were identified on the photographs based on vegetation, visible hydrology, and geography. The aerial photographs typically reflected conditions during the specific year and season when they were taken. In addition, there is a margin of error inherent in the use of aerial photographs. Thus a detailed on-the-ground and historical analysis of a single site may result in revision of the wetland boundaries established through photographic interpretation. In addition, some small wetlands and those obscured by dense forest cover may not be included in the map document.

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define limits of proprietary jurisdiction of any federal, state, or local government or to establish the geographical scope of regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specific agency regulatory programs and proprietary jurisdictions that may affect such activities.

#### 5. WETLAND COMMUNITIES

All five wetland systems, Marine, Estuarine, Lacustrine, Riverine, and Palustrine are represented in the subject area. Deepwater habitats are areas that are permanently flooded (except during periods of extreme drought) and are characterized by open water on the aerial photography. These habitats are present in the Marine system (M1OW), Estuarine system (E1OW, E1UBL), Riverine system (R1OW, R2OW, R3OW), Lacustrine system (L1OW), and Palustrine system (POW).

Unvegetated wetlands, present in all systems, include the classes beach/bar (BB), flats (FL), and rocky shore (RS). Beach/bar and rocky shore are generally restricted to the open coast within the marine system (M2BB, M2RS). Estuarine flats may support communities of aquatic bed (E2AB) which may be present as algal mats (Ulva spp., Enteromorpha spp.). Tidal creeks which are dewatered at low tide are classified as Estuarine streambed (E2SB).

Emergent wetlands (persistent) are present in the Estuarine and Palustrine system. Estuarine emergent wetlands (E2EM) are dominated by such species as pickleweed (Salicornia spp.), saltgrass (Distichlis spicata), salt cordgrass (Spartina foliosa), frankenia (Frankenia grandifolia), jaumea (Jaumea Carnosa) and salt bush (Artiplex spp.).

Palustrine emergent wetlands (PEM) are characterized by numerous and various species; some of the most common being bulrush (Scirpus spp.), sedges (Carex spp.), rushes (Juncus spp.), spike rushes (Eleocharis spp.), cattail (Typha spp.), reed grass (Calamagrostis spp.), nutgrass (Cyperus spp.), mannagrass (Glyceria spp.), and bentgrass (Agrostis spp.). Vernal pool wetlands (PEMW) are a wetland type essentially unique to California, and in particular the San Diego area. These wetlands contain certain species of Carex, Juncus, and Scirpus as well as species found only in vernal pools. Such site specific species include quillwort (Isoetes nuttallii), popcorn flower (Plagiobothrys acanthocarpus), downingia (Downingia), orcutt grass (Orcuttia californica), hairgrass (Deschampsia danthonoides) and meadow foxtail (Alopecurus howellii).

Palustrine scrub shrub (PSS) wetlands are characterized by woody species. Common wetland shrub species include willow (Salix spp.), red alder (Alnus rubra), white alder (A. rhombifolia), and baccharus (Baccharus spp.). Typical forest (PFO) species are red alder, sycamore (Plantanus racemosa) and cottonwood (Populus fremonti). Some forested wetlands of a temporary nature (PFOW) contain cottonwood or eucalyptus (Eucalyptus spp.). The classification of scrub/shrub or forested wetlands is determined by height-forested greater than 6m. and scrub/shrub less than 6m.

The Riverine system includes the classes open water (OW), flats (FL), and streambeds (SB). Open water and flats are restricted to the Riverine tidal (R1OW), lower (R2OW), and upper (R3OW) perennial subsystems. While the flats are not covered by a perennial flow, they are associated with the reach of the river that contains permanent water and are included in the perennial subsystems.

Streams which do not flow year round are classified as Riverine intermittent Streambeds (R4SB). Some riverine systems have their banks lined with trees or shrubs. In cases where streamside palustrine scrub/shrub or palustrine forested wetlands cannot be separately delineated from the riverine system, the wetlands are mapped as linear palustrine wetland features (PSS or PFO).

Natural or artificial basins greater than 20 acres are in the Lacustrine system. The Lacustrine system on the NWI maps includes the classes lacustrine open water (L1OW, L2OW), aquatic bed (L2AB), and flats (L2FL). The open water areas are covered by water whereas the flats are exposed at some time during the growing season. Common lacustrine aquatic bed (L2AB) species include duck weed (Lemna spp.), pond weed (Potamogeton spp.), and water lily (Nuphar spp.). Basins less than 20 acres are classified as palustrine, with classes as described above; i.e., palustrine open water (POW), palustrine aquatic bed (PAB), and palustrine flat (PFL).

## Modifiers

The intermediate-scale (1:100,000) NWI maps' legends do not include water regime nor special modifiers. Mapping codes for these modifiers are indicated in parentheses in the discussion that follows.

Hydrologic characteristics are an important aspect of wetlands. The water regime modifiers describe in general terms the duration and timing of surface inundation, as well as groundwater fluctuations. These modifiers are grouped under two major headings: Tidal and Nontidal.

### Tidal

Subtidal (L). The substrate is permanently flooded with tidal water.

Irregularly Exposed (M). The land surface is exposed by tides less often than daily.

Regularly Flooded (N). Tidal water alternately floods and exposes the land surface at least once daily.

Irregularly Flooded (P). Tidal water floods the land surface less often than daily.

In Tidal Riverine, Lacustrine, and Palustrine areas, a nontidal modifier is used with a tidal suffix to describe the water regime more appropriately: Temporarily Flooded-Tidal (S), Seasonally Flooded-Tidal (R), Semipermanently Flooded-Tidal (T), or Permanently Flooded-Tidal (V).

### Nontidal

For the purpose of mapping, nontidal water regime modifiers have been lumped into three broad categories. These are:

Intermittently flooded-temporarily flooded (W). The substrate is usually exposed, but surface water is present for variable periods without detectable seasonal periodicity, or surface water is present for brief periods during the growing season.

Saturated/Seasonally-flooded/Semipermanently flooded (Y). The substrate is saturated to the surface for extended periods during the growing season, or surface water is present for extended periods especially early in the growing season but is absent by the end of the season in most years, or surface water persists throughout the growing season in most years.

Intermittently exposed/Permanently flooded (Z). Surface water is present throughout the year except in years of extreme drought, or water covers the land surface throughout the year in all years.

An artificially flooded (K) water regime modifier can be applied with all water regime modifiers. In this case, flooding is under the direct and purposeful control of man.

Special modifiers included on these 1:100,000 scale NWI maps, where applicable, are:

Diked/impounded (h). Created or modified by a barrier, dike, or dam which obstructs the inflow or outflow of water

Excavated (x). Lies within a basin or channel excavated by man.

## 6. SOURCES OF ADDITIONAL INFORMATION

Since the purpose of the Notes to Users is to provide a general overview of a relatively large geographic area, in this case about 2,400 square miles, it is important to be aware of sources of additional information. The following is a list of reports providing information about the area of concern.

Bailey, Robert G. 1978. Description of the ecoregions of the United States. U. S. Forest Service, USDA, Ogden, Utah.

Barbour, M. G. and J. Major (eds). 1977. Terrestrial Vegetation of California. John Wiley and Sons, New York.

Cowardin, Lewis M., Virginia Carter, Francis C. Golet, and Edward T. LaRoe. 1977. Classification of wetlands and deep-water habitats of the United States (An Operational Draft), U. S. Fish and Wildlife Service, October 1977.

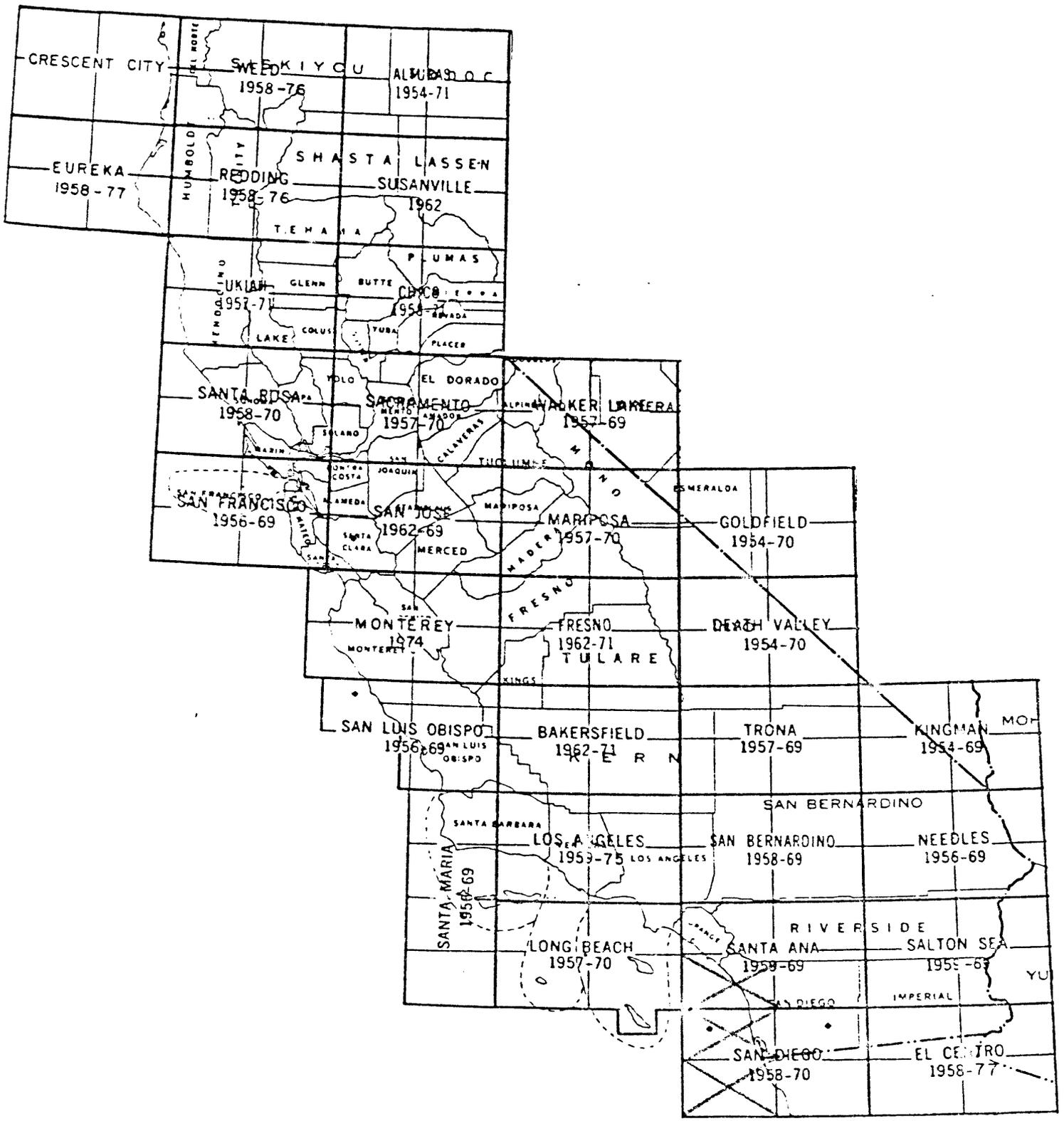
Faber, P.M. 1982. Common Wetland Plants of Coastal California. Pickleweed Press, Mill Valley, California.

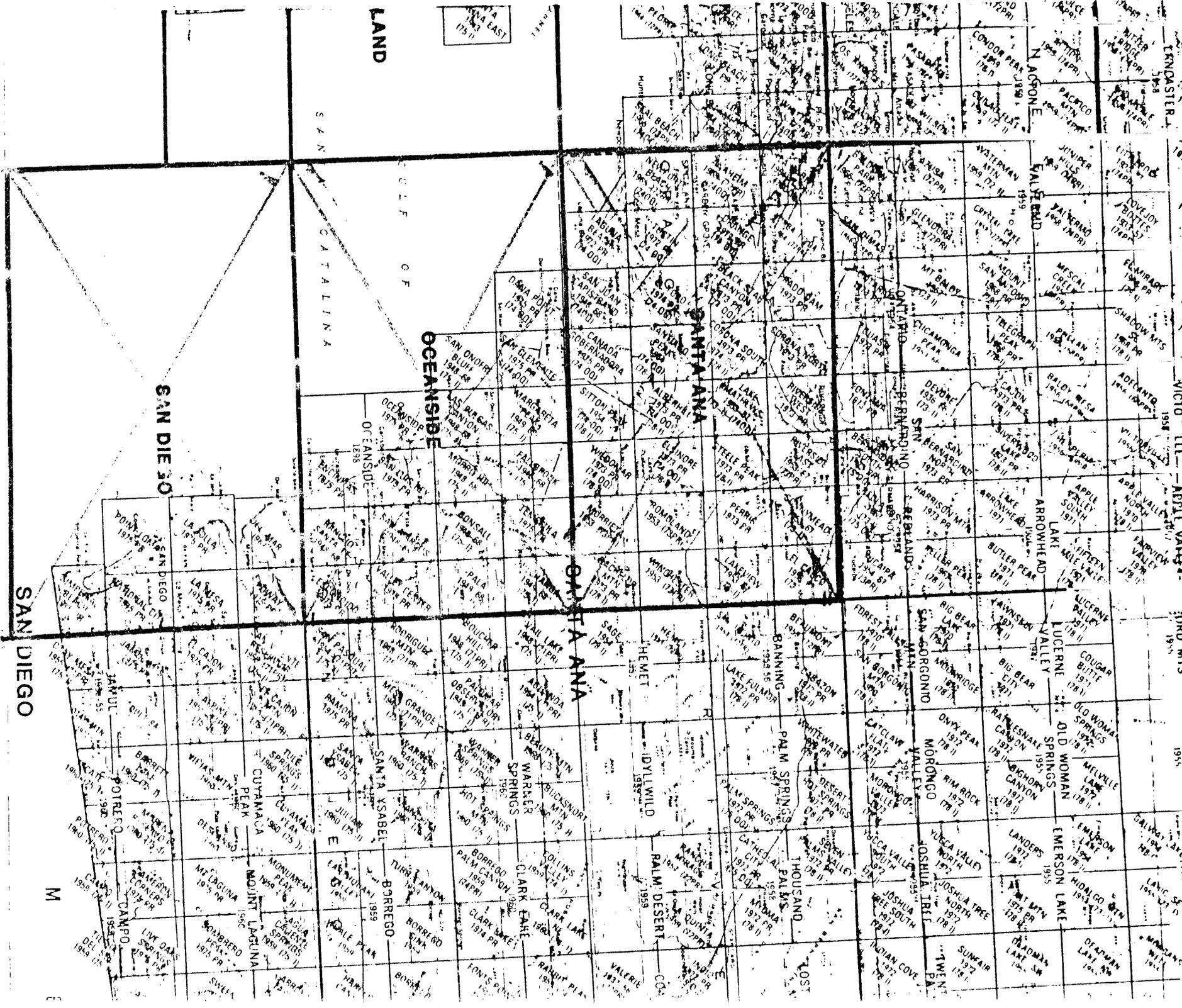
Mason, H. L. 1969. A Flora of the Marshes of California. University of California Press, Berkeley and Los Angeles.

U.S.D.A. Soil Conservation Service. Soil Survey of Orange County and western part of Riverside County, California. 1977.

U.S.D.A. Soil Conservation Service. Soil Survey of San Diego Area, California. December 1973.

Warner, Richard E. (ed). 1982. California Riparian Systems: Proceeding of a Conference on Their Ecology, Conservation and Productive Management. University of California Press.





LAND

PLATA LAST  
(175 II)

SAN CATALINA

GULF OF CALIFORNIA

OCEANSIDE

SAN DIEGO

SAN DIEGO

SANTA ANA

SANTA ANA

NAGOGNE

LENDASTER

MICHO LEE

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