



PLANTS

Wetland Plants

BATIQUITOS LAGOON FOUNDATION

There are many types of plants that are only found in wetlands in and near Batiquitos Lagoon, and these to various plant communities, depending on the soil and water conditions in the various areas. The distribution of these communities is also influenced by many other environmental factors such as climate, substrate, topography, water regimen, salinity, and previous disturbance. The Enhancement Project (1994-1997) made a significant difference in some of these factors for Batiquitos. For many years, wetland plant communities had been shaped by the fluctuations of flooding and salinity resulting from the lagoon **closure** (that is, inundation by fresh water during the winters; occasional saltwater coming from the ocean; evaporation, lack of water, and salt buildup during the summers). Now that the Project is completed, the water supply is influenced primarily by tidal action (that is, regular flooding by saltwater). The primary wetland plant communities at the lagoon (in order going away from the water) are: mud flats, coastal salt marsh, brackish emergent marsh, brackish woodland, and riparian woodland.



Cord Grass (*Spartina*)

Mud Flats

Closest to the water are barren flats composed of sand and/or silt. These mud flats are flooded at high tides and exposed during the low tides and are mostly unvegetated. Bare mud flats are an important part of the lagoon ecosystem since they support aquatic insects and other invertebrate animals which shorebirds feed on. However, there is an exceptional plant growing on some mud flats too wet for most plants. This is cord grass (*Spartina foliosa*), which grows in clumps on the tidal mudflats near the water.



Pickleweed

Coastal Salt Marsh

Coastal salt marsh plants can tolerate higher levels of salinity than the plants of other wetland communities. Although the salt marsh



Bulrush Flower



Willow Catkin

community is often subdivided into low, medium, and high zones, Batiquitos CSM, having experienced regular tidal action for only a short time, lacks these subdivisions. There are mostly pure stands of pickleweed (*Salicornia*). Salt grass, salty Susan, alkali weed, and alkali heath can be found at the highest edge of the salt marsh community (near the trail where it's drier).

Brackish Emergent Marsh

Brackish water areas are formed when fresh water (from runoff, groundwater, or drainage) intermingles with salty soils and/or ocean saltwater. These areas contain mixtures of coastal salt marsh species and/or freshwater marsh species, growing on soils that are frequently wet. This brackish emergent marsh is dominated by cattails, common tules, bulrushes, California bulrushes, and Olney bulrushes—taller plants that "emerge" above the rest of the marsh. The most obvious freshwater habitat exists where San Marcos and Encinitas Creeks enter the lagoon in the southeast corner (under bridges on El Camino Real and La Costa Ave., respectively). These areas have good examples of freshwater species, such as cattails, coexisting with salt marsh species, such as pickleweed and salt grass. Cattails are also visible wherever freshwater drains into the lagoon.

Brackish Woodland

Brackish woodlands, like brackish marsh, are areas influenced by both salt water and freshwater. The difference between brackish woodlands and brackish marsh is the presence of a woody overstory of trees like arroyo willow, black willow, and non-native tamarisk. The understory is typically coastal salt marsh species. The smaller plants utilize the more saline surface water, while the roots of the willow trees can take up the freshwater flow from the creek.

Riparian Woodlands

There are riparian woodlands outside the lagoon system within the natural drainages, including Encinitas and San Marcos Creeks. The dominant overstory is made up of arroyo willow and black willow accompanied by occasional elderberry, tree tobacco, and invasive tamarisk. Salt marsh and brackish marsh plants dominate the understory near the lagoon. Further upstream, the salt marsh plants are replaced by cattails, bulrushes, umbrella sedges, and watercress.