Biological and physical characteristics of the University of California Natural Reserve System’s San Joaquin Marsh Reserve.

Species Richness and Biodiversity:
Vascular plants: 237 species (including 31 introduced for restoration); 109 or 45.9% non-natives (several of these have been eliminated completely)
Amphibians: 5 species (one native salamander, one native frog, one native toad; two non-native frogs)
Turtles: 4; one native turtle and 3 non-native turtle species have been recorded
Snakes and Lizards: 5; 2 native snake species and 3 native lizards
Birds: 265 species for the wetland system, including IRWD (most are migratory waterfowl or shorebirds)
Mammals: 21, including 3 non-natives
Lichens: 12 Species
Fungi (Non-lichenized): 5 species
Freshwater Mollusks and Landsnails: 4 native snail species; 3 non-native landsnails; one native slug
Ants: 3 species, one non-native

Species of Particular Concern for Management of the Reserve
Pacific Pond Turtle (Sensitive Species), Least Bell’s Vireo (Endangered; Nesting), California Gnatcatcher (Threatened; Nesting), Light-footed Clapper Rail (Endangered; Nesting some years), California Least Tern (Endangered; foraging)

Other Species of Special Interest
Trapdoor spider population (rare coastal disjunct), large predators (coyotes and bobcats), wading birds and their shallow shelf habitats, osprey and many other bird species, Helminthoglypta tudiculata (native landsnail), 1 harvester ant species, Centromadia parryi ssp. australis (Southern tarplant; Asteraceraceae CNPS Rare Plant Rank 1B.1), Lycium californicum (California boxthorn; Solanaceae CNPS Rare Plant Rank 4.2), Suaeda esteroa (Estuary seablite; Chenopodiaceae CNPS Rare Plant Rank 1B.2), Atriplex coulteri (Coulter’s saltbrush; Chenopodiaceae CNPS Rare Plant Rank 1B.2)

Teaching Use between July 1, 2017 and June 30, 2018
During Fiscal Year 2017-18, there were 10 university class titles with a total of 1320 students that reported visits to the Marsh Reserve – some with many sectional offerings, many with multiple uses, and several Independent Study titles with on-going enrollees each quarter. The Marsh Reserve saw a total of 1,754 users and 2083 users.

Research Use between July 1, 2017 and June 30, 2018
In addition to several graduate classes and research projects, at present one graduate student in Civil Engineering is conducting doctoral research in the Marsh.
Physical Characteristics:


Location:
City of Irvine, Orange County; 75 km (45 mi) southeast of Los Angeles, 30 km (20 mi) west of the Santa Ana Mountains; 2 km (1.25 mi) upstream from Upper Newport, adjacent to the Irvine campus

Latitude: 33 deg. 39 min. 30 sec N
Longitude: 117 deg, 51 min, 30 sec W
Size: 81.75 ha (202 acres)

Township; Range; Section: T6S; R9W (SBB&M); Land Grant (no government survey)

USGS Maps: Tustin 7.5’ 1:250,000

Elevation
2 to 3 m (7 to 10 ft) in the vegetated wetlands and bluffs; the channelized San Diego Creek within the Reserve, the uppermost estuarine reach of Upper Newport Bay, has a channel bottom depth of 0 m elevation, or sea level

Mediterranean Climate/Mediterranean Type Ecosystem

Average Precipitation: 30 cm (12 inches) per year

Mean Temperatures:
September maxima: 29 degrees C (86 degrees F), but with extremes much higher
January minima: 4 degrees C (40 degrees F), but with extremes as low as 25 degrees F
Annual: 17 degrees C (62 degrees F)

Topography:
Upland bluffs along low-elevation wetlands lying in an ancient wetland channel at the head of a coastal estuary.

Habitats:
Wetlands, ranging from cattail and bulrush dominated ponds, broad flats of seasonal coastal bulrush and pickleweed, and created vernal pools; upland bluff habitats of restored coastal sage scrub

Management Strategy:
Upper, Middle and Lower Marsh Ponds (three large cells) – over 100 acres are flooded to a depth of 3 – 4 feet deep in late December or January and this series of ponds become dry by mid-July. This area is dominated by cattail stands. Up to an estimated 500 acre feet are accepted each year.

The Experimental Ponds were designed to have 60% shallow shelf habitat (1 foot deep) and 40% deeper water (4 feet deep). In the fall, the shallow shelf habitat is mowed and water is pumped in from San Diego Creek. The shallow shelf areas are dominated by coastal bulrush and Olney’s bulrush. The edge of the deep zone is occupied by the tall California bulrush and cattails. About 100 acre feet are pumped in from San Diego Creek to fill them each year in January; water can also be pumped from the Middle Marsh into the 11 Experimental Ponds – and they are topped off to retain their aquatic habitats for class and wildlife use during both Summer Sessions, and they gradually dry down before being re-filled in January.
Roughly two-thirds of the Marsh Reserve lies with the Coastal Zone.
The 11 Experimental Ponds in the UC Natural Reserve System’s San Joaquin Marsh Reserve
UC Irvine NRS - San Joaquin Marsh Bibliography


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