McLaughlin Reserve (MLA)

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Location: 38.862 -122.415
Elevation: 366 - 732 m
Vegetation: oak woodland and savanna, grassland, shrubland, chaparral, serpentine grasslands, serpentine shrublands, streams, reservoirs

The Donald and Sylvia McLaughlin Natural Reserve (http://nrs.ucdavis.edu/mclaughlin.html) is one of few sites in California that protects unusual serpentine habitats. Chemically hostile to most plants, serpentine deposits cover one third of the reserve, creating islands that support rare and endemic plants, which have adapted to these harsh soils, and numerous associated endemic insects. Where there are nonserpentine soils, the vegetation shifts suddenly to more typical coast range habitats, including riparian woodland, blue oak woodland and savannah, grassland, and chaparral. The reserve and adjacent lands are owned by the U.S. Bureau of Land Management (BLM), California Department of Fish and Game (DFG), and the Homestake Mining Company. Homestake is in the process of decommissioning an innovative open-pit gold mine which includes extensive reclamation of disturbed lands.

The reserve is the repository of over 20 years of environmental monitoring data collected by Homestake. The Reserve was established in 1992 and is located at the junction of Napa, Yolo, and Lake Counties. It spans the boundary of Putah Creek and Cache Creek watersheds, northwest of Davis; two hours from the UC Davis campus, and about the same distance from UC Berkeley. It is one of the UC-NRS largest reserves and includes 2,776 hectares (6,940 acres) ranging in elevation from 366 to 914 meters (1,200 to 3,000 feet). Surrounding the reserve are 30,000 hectares (75,000 acres) of accessible public land managed by the BLM. Mean annual precipitation is 62 cm essentially all as rain and falling mainly from October to April. Average temperature in July is 25° C and in January it is 8° C. There are over 575 species of vascular plant species on the reserve and at least 38 mammal species, with an additional 16 mammal species expected to occur. A total of 187 bird species in 53 families have been sighted at the reserve. Of these, 20 species were seen prior to 1984 but have not been recorded on the reserve since then. An additional 16 species have only been recorded once in the past 15 years. The number of species sighted at the reserve has increased since the construction of the Davis Creek Reservoir, which has provided habitat for at least 36 species of water birds and shorebirds.

Facilities include a research station with computers, bunkroom, classroom, and kitchen. Facilities expansion is underway. Excellent database and monitoring systems are available on site, with logistical support from the Homestake Mining Company personnel and the on-site reserve managers

The site is ideal for study of ecological and evolutionary aspects habitat fragmentation with numerous edaphic serpentine islands in the reserve. The site is expected to be especially responsive to climate change because of the great diversity and proximity of various habitats. In addition to the serpentine vegetation types the reserve includes both grazed and pristine grasslands and shrublands, oak woodlands and riparian systems. Its location north of major urban centers means that both atmospheric pollutant loading and disturbance is less than at other sites such as BOR, SFT, and the Central Valley sites.

The McLaughlin Reserve contains Davis Creek in the Cache Creek drainage, Knoxville and Hunting Creeks in the Putah Creek drainage, and the many intermittently flowing tributaries of these three streams. There are two large manmade water bodies, Davis Creek Reservoir and the tailings pond, both created in the 1980s. The aquatic ecosystems of the reserve have been the focus of a great deal of research and monitoring, because of the strict water quality regulations that federal and state agencies impose on mining operations. Long-term research and monitoring, sponsored by Homestake and conducted by UC Davis and UC Berkeley scientists, has borne out

the company's promise to create an environmentally sound mine with minimal impacts on the aquatic ecosystems of the region. This work has led to advances in the understanding of mercury uptake in aquatic food chains and provides considerable baseline data for future research on aquatic ecology at the McLaughlin Reserve.