



LAKE EARL & THE COASTAL PLAIN

Lake Earl, California's largest coastal lagoon, is widely recognized for its diverse coastal wetlands and its fish, wildlife, and botanical resources. It is one of the most unique and valuable wetland complexes in the state. Lake Earl and Lake Tolowa (collectively, "Lake Earl") are two sections of a single lagoon system, located in western Del Norte County about three miles north of Crescent City. Lake Earl is within, and dominates, the Crescent City coastal plain, a small plain bounded by the Pacific Ocean to the west, the Smith River to the north, and coast ranges to the east and south. The Lake Earl area supports more than 5,000 acres of wetlands, a large coastal dune system, and 15 major plant communities. The ecosystem is particularly rich in rare plant and animal species, including at least 11 threatened and endangered species. Surrounding the Lake Earl ecosystem, the Crescent City coastal plain has extensive beaches and dune, and historically was dominated by Sitka spruce and redwood forests. Logging and agriculture— notably dairy, are important industries in western Del Norte County, in addition to commercial fishing in offshore waters. Much of the Lake Earl area is in State ownership, as the Lake Earl Wildlife Area and Tolowa Dunes State Park, and Highway 101 passes less than two miles to the east of Lake Earl, providing convenient public access.



I. Resource Values

Natural

- **Lake Earl** probably formed about 5,000 years ago, when expanding sand dunes dammed a shallow depression in the Smith River plain. The lake has a relatively small drainage basin of 32 square miles, but is occasionally flooded by overflow from the Smith River. The lake's surface area varies greatly with water level, ranging from about 2,200 acres at 2 feet above mean sea level to 4,100 acres at a water surface of 8 feet above mean sea-level.
- Eleven miles of **coastal dune system** from Crescent City to the Smith River mouth, including Lake Earl State Park, portions of the Lake Earl Wildlife Area, and Pala Beach County Park. Although altered by European beachgrass, the system remains important to the federally-threatened Oregon silverspot butterfly and several other rare species, including the rare sand dune phacelia (*Phacelia argentea*), a dune plant known in California from this location only, and a candidate for state listing in Oregon.
- Lake Earl supports more than 5,000 acres of **wetlands**, including more than 2,300 acres of subtidal estuarine waters within the lagoons, and about 1,600 acres of freshwater marshes with emergent vegetation, and more than 900 acres of seasonally-flooded forest and scrub-shrub wetlands. Streams also provide wetland habitat, including about 2 miles of channels along Jordan Creek and other streams within the Lake Earl Wildlife Area; additional stream habitat occurs elsewhere in the coastal plain.
- The **lagoon and streams** are important for fish, including three anadromous salmonids (coastal cutthroat trout, coho salmon, steelhead), tidewater goby, threespine stickleback, and starry flounder.
- In addition to wetland habitats, the Lake Earl area supports a **diverse mix of habitats**, including moist and dry grasslands, dwarf shrublands, shore pine woods, Sitka spruce- alder and spruce-fir forests, and barren dunes.
- Lake Earl provides foraging and nesting habitat for more than **250 species of birds**, and is an important area for waterfowl, shorebirds, and neotropical migrant birds
- Lake Earl is an important area for **waterbirds**, particularly in the fall and winter, with average annual use by water-associated birds of about 3 million bird-use days at Lake Earl alone; the area is identified in Ducks Unlimited's 2001 Conservation Plan as an important habitat priority area for waterfowl. Diving ducks, such as canvasbacks, use the lake in the winter.
- Lake Earl area is recognized by the National Shorebird Conservation Plan as a Wetland of Importance to Shorebirds. The area provides habitat for large numbers of migrating and wintering **shorebirds**, with an annual average of more than 400,000 bird-use days, and up to 13,000 shorebirds at once.
- The lake also contains a nesting colony of **western grebes**.

Plants and Animals

- Lake Earl and the coastal plain also support several **rare and local plants**, including Wolf's evening primrose, sand dune phacelia, Langsdorf's violet, and the endangered western lily.

- The **tidewater goby**, a federally-endangered fish, lives in the shallow waters of Lake Earl, which supports a large goby population.

- Coastal meadows around Lake Earl support one of the largest remaining populations of the **Oregon silverspot butterfly**, a federally-threatened species. The U.S. Fish and Wildlife Service has identified the Lake Earl population as essential to the species' conservation and recovery.

- **Bald eagles** winter around Lake Earl, with up to four recorded at one time.

- Lake Earl provides habitat for the federally threatened **coho salmon, steelhead, and coastal cutthroat trout**. The lake and its main tributaries, Jordan and Younkens Creeks, support cutthroat trout, which the California

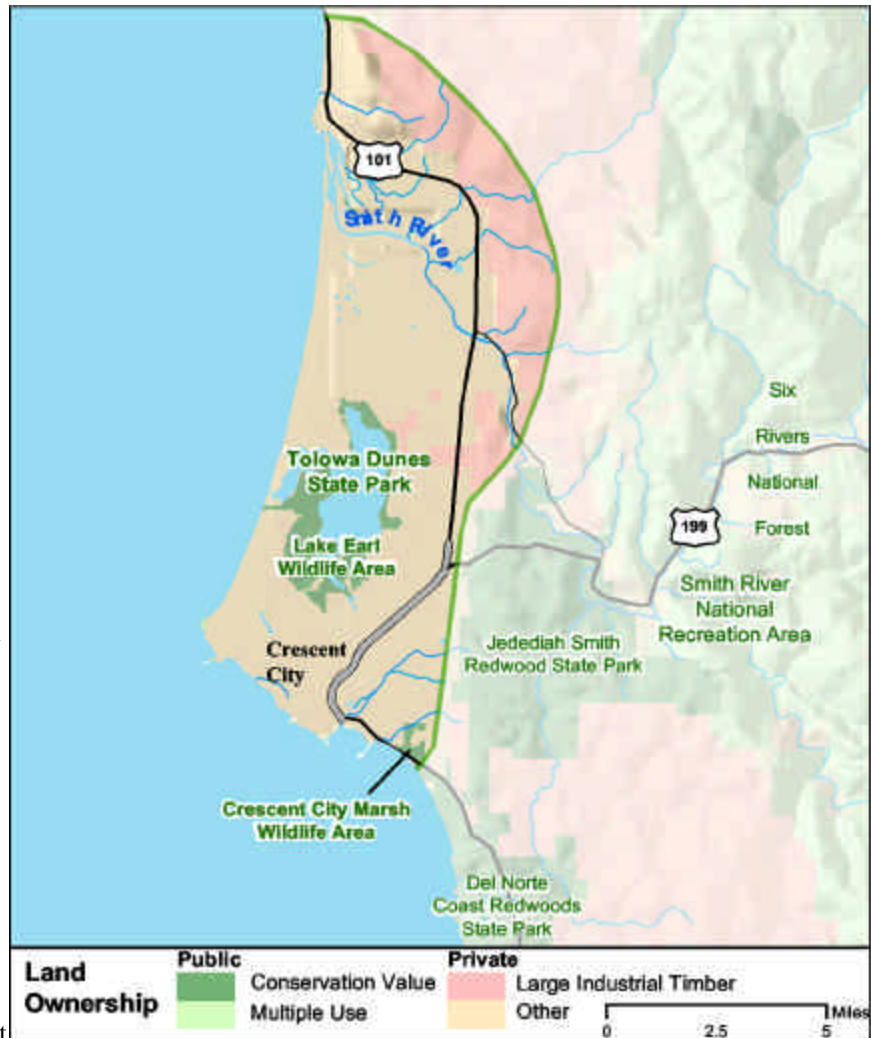
Department of Fish and Game identifies as a species of special concern.

- The federally-threatened **western snowy plover** has nested along Lake Tolowa, and use the beaches between the Smith River and Crescent City in the winter.

- The federally-endangered **western lily** occurs on the Crescent City Coastal Plain on poorly-drained coastal soils with scrubby or marsh vegetation. Seven populations are known from the coastal plain, including a population just south of Lake Earl.

- Public and private lands of the coastal plain near Lake Earl are a key fall and spring staging area for migrating **Aleutian Canada geese**. Formerly endangered, it has recovered sufficiently to be removed from the federal endangered species list in March 2001.

- **Other listed species** recorded from the area include the state-threatened bank swallow, state-endangered willow flycatcher, and the state and federally-threatened brown pelican.



Cultural

- The Crescent City plain was part of the ancestral home of the **Tolowa people**, the most recent Native Americans to inhabit the area. At least nine known archaeological sites occur around Lake Earl, including 2 large village sites near Lake Earl's shore, and other sites associated with seasonal resource gathering. Today, Tolowa members are among the residents of the Smith River and Elk Valley Rancherias, located near the Smith River mouth.
- Former village of **Etculet** considered highly significant Tolowa site, eligible for National Register of Historic Places.
- The Crescent City plain contributed significantly to Del Norte County's agricultural development in the **latter 19th century**, when it was transformed from one dominated by native habitats and peoples to large-scale dairy and grazing operations. Historic values include 1800s McLaughlin dairy site and barn, and old mill ponds on the south end of Lake Earl, which mark the site of the county's first commercial sawmill, Wenger's mill.

Recreation

- Lake Earl is **fished** for cutthroat trout, steelhead, and other species
- Waterfowl **hunting** allowed in parts of the wildlife area.
- The area provides a wide array of **recreational opportunities**, including hiking, mountain biking, walk-in camping, horse-riding, ranger-guided tours, and nature observation and photography.
- Lake Earl State Park, together with Lake Earl Wildlife Area, includes about 11,000 acres of the **coastal plain** between Point Saint George and the mouth of the Smith River
- **Crescent City Marsh Wildlife** Area along Highway 101 provides access to about 230 acres of coastal wetlands, grasslands, and beach near Crescent City.

Visual

- The **coastal dunes and beaches** of the Lake Earl region offer vistas of the ocean, lagoon system, wetlands and forests, as well as opportunities to view marine mammals, including sea lions, harbor seals, and gray whales.
- The area has great **wildflower displays** in spring and early summer.
- County roads, foot trails and boat launch areas provide access to picturesque **Lake Earl** and its surroundings.

II. Community Values

Land Ownership

- Most of the area surrounding Lake Earl and Lake Tolowa are **state lands**. About 5,100 acres of lake and adjacent shoreline are managed as the Lake Earl Wildlife Area by the California Department of Fish and Game. An additional 5,000 acres to the north and south of the wildlife area is managed by the California Department of Parks and Recreation as the Lake

Earl Project.

- **Private lands** near Lake Earl include scattered residences and large agricultural areas. The area to the south is residential. In the 1960s, the Pacific Shores subdivision was planned for the area between Lake Earl's northwest shore and the ocean. A road system (about 27 miles) was built and lots sold, but building permits have not been issued because of soil and high groundwater conditions.

Economics

- The **natural resources** of the area were very important to the economy and life of the Tolowa people, the most recent Native Americans to occupy the area.

- **Traditionally**, the region's economy was based on **timber and commercial fishing**, with the dairy industry important around Lake Earl. Today, major industries in the coastal plain include dairy and other agriculture, as well as recreation and tourism.

- **Nursery products**, including lily bulb production, have become an important part of the local economy, as has employment at the Pelican Bay State Prison north of Lake Earl.

- The **Lake Earl Wildlife Area and Tolowa Dunes State Park** receive around 25,000 visitor-days per year, with primary uses including waterfowl hunting, fishing, hiking, birdwatching and other nature study, and education.

- Del Norte County has high unemployment, with the major employers being the **County and State Prison**.

III. Opportunities and Threats

- **Lake level management** has created conflict. The lake level naturally fluctuates, increasing during the fall and winter, until the sand bar at the lake's outlet breaches. Currently, the bar is breached artificially to lower the lake level and reduce inundation of private properties around the lake and within the historic lake zone. Parties disagree on the appropriate level at which to breach and maintain the lake. Breaching protects private property, but impacts the lake ecosystem and many species dependent upon it.

- **Invasive introduced plants** have degraded dune and wetland habitats. European beach grass, planted to stabilize dunes, has greatly reduced biological diversity in the dunes, impacting rare plants and plant communities, and habitat for the snowy plover. Canary reed grass has invaded and dominated meadow/grassland areas, reducing plant diversity. Grazing and fire suppression are thought to have favored the reed grass.

- Acquisition of **flood-prone private lands** around Lake Earl, by fee title or easement, would lessen conflict over lake level management. The California Department of Fish and Game is revising their acquisition plan to identify flood prone properties to be acquired and incorporated into the State Wildlife Area.

- Management of **vehicle use** of beach and dune areas would reduce conflict with management and restoration of habitat and wildlife.

IV. Conservation Actions

Current

- Lake Earl Wildlife Area, Tolowa Dunes State Park, and Crescent City Marsh Wildlife Area currently provide habitat for an array of **biological communities and species**.
- The California Wildlife Conservation Board has approved acquisition of 2,500 acres within the **Lake Earl/Tolowa lagoon system**, and has begun negotiations with willing sellers.
- The Coastal Conservancy is currently negotiating with willing sellers to acquire properties at **Point St. George**. If acquired they will provide new coastal access and protect endangered species, cultural and wetland resources.
- California Department of Fish and Game is currently updating its **management plan** for the Lake Earl Wildlife Area.
- The “**Lake Earl Working Group**” was formed to develop a management plan for the Lake Earl area. The plan would address issues including lake level management, as well as depredation by Aleutian Canada geese on private pastures in the area.
- The California Department of Fish and Game is working to acquire, from willing sellers, **lands adjacent to the Lake Earl Wildlife Area** which support unprotected coastal dune, lagoon, and wetland habitats. Acquisition of properties around the lake would allow managing the Lake Earl/Tolowa lagoon system to function more naturally, and reduce conflict over manipulation of lake levels.

Prospective

- Develop a plan to **monitor and remove invasive plants**, particularly from dune communities, which are very sensitive to invaders. Initial efforts should focus on protecting the surviving native plants and on restoring the least-degraded areas. A long-term goal would be removal of European beachgrass and restoration of the dune ecosystem.
- Efforts to acquire from willing sellers **flood-prone lands around Lake Earl**, to reduce conflict over lake level management and to improve management for fish and wildlife.
- Formation of a **Resource Conservation District**, currently underway, will enhance opportunities for partnerships with land owners for managing private lands for fish and wildlife benefits.
- **Survey** public lands for **rare and threatened plants**, and for Oregon silverspot butterflies and their host plants (native violets).
- Develop and implement an area-wide management plan for the **Oregon silverspot butterfly**, in concert with management of the lagoon-dune ecosystem for other species.
- Develop a Del Norte County **Weed Management Area**, including contractor standards (to prevent spread of noxious weeds), inventory, mapping and treatment.

- Improve **management of grassland/meadow** systems to favor native plants; evaluate use of burning and/or grazing to manage canary reedgrass and other nonnative species.
- Remove abandoned roads and restore plant communities in **dune areas**.

V. Potential Partners

Army Corps of Engineers
 California Department of Parks and Recreation
 California Department of Fish and Game
 California Department of Food and Agriculture
 California Native Plant Society-North Coast Chapter
 California Wildlife Conservation Board
 Chamber of Commerce
 Crescent City
 Coastal Conservancy
 Del Norte County
 Ducks Unlimited
 Farm Bureau
 Friends of Del Norte
 Lost Coast 4x4s
 National Audubon Society
 National Marine Fisheries Service
 Redwood National and State Parks
 Resources Conservation District
 Point Reyes Bird Observatory
 Save-the-Redwoods League
 Sierra Club (Redwood Chapter)
 Smith River Advisory Council
 The Nature Conservancy
 U.S. Fish and Wildlife Service

VI. Linkages

- The Smith River area is to the east, and the Coastal Redwood National Park to the south

VII. References

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