

## **Tomales Dunes SUMMARY**

At the mouth of Tomales Bay is Marin County's least-known ecological treasure, Tomales Dunes, the largest unprotected dune system in central California. This extraordinary site supports at least 9 rare, threatened, or endangered species. It is one of a dwindling number of dune systems in California that are not overrun by alien grasses and that retain a healthy population of native dune grasses. It also has some true mobile dunes, the kind we think of when we call to mind the classic dune—completely unvegetated and constantly shifting.

Tomales Dunes is also one of the few dune systems in the state that is still wholly in private ownership. Most is within the 980-acre property known as Lawson's Landing, which includes a ranch, a sand quarrying operation, and a recreation area featuring an RV campground and boat storage and repair facilities. Most of the site's recreational facilities were built without permits, including about 100 primitive septic systems that serve the RV campground.

In the late 1990s, the owners submitted to the County a Master Plan for the property which would, among other things, replace the existing illegal septic systems with a new system. The plan would have put a leachfield in the unvegetated dunes and stabilize them by some form of planting, an approach that would cause more environmental problems than it would solve.

Approval of the plan would also give the County's imprimatur to existing uses whose environmental impacts have not been thoroughly studied, including the quarrying, ranching, and RV camping, as well as providing more recreational facilities. If the Master Plan is approved, Tomales Dunes could be exposed to even more intensive use. The availability of more water, a reliable power supply, more septic capacity, more restrooms, new RV dumps, and a modernized shop, garage, and office—not to mention the need to recoup the cost of those investments—will be a powerful inducement to growth.

Initially, the County indicated that the Master Plan did not require an Environmental Impact Report (EIR), but in 1999, in response to pressure from a coalition of environmental groups led by EAC, it agreed that an EIR should be prepared. We are still awaiting completion of the EIR.

EAC's partners in the Coalition to Protect Tomales Dunes include the Tomales Bay Association, Sierra Club (Marin Group), Marin Conservation League, California Native Plant Society, Marin Audubon Society, Planning and Conservation League, Friends of the Earth US, League for Coastal Protection, and the Wilderness Society—California/Nevada Office. Nationally, regionally, and locally, more than 25 organizations are part of the Coalition to Protect Tomales Dunes.

## **BACKGROUND**

### **Natural History**

Just where Tomales Bay meets the Pacific Ocean lies Marin County's least-known ecological treasure, Tomales Dunes, the largest unprotected dune system in central California. Tomales Dunes is actually a complex of several distinct habitats: mature mobile dunes, central dune scrub, dune prairie, and dune wetlands. And it is surrounded by and connected to a rich coastal environment that includes coastal prairie, coastal scrub, salt marsh, tidal flats, bay, and ocean. This extraordinary site, which includes a 230 foot high dune known as Little Sugarloaf, supports at least 9 special-status species.

These dunes are responsible for much of the unique character of Tomales Bay and the surrounding area. They provide a buffer to the prevailing westerly winds and modify the tides, creating a relatively protected bay, one that is more complex, hospitable, and biologically diverse than a simple marine inlet. In addition, the rich variety of dune and coastal environments adds to the diversity of habitats in the Bay, making it a year-round home and an important migratory stop-over for a variety of bird species. More than 40 species of waders and waterfowl find their winter roosting and feeding grounds at Tomales Dunes. And it is one of only eight sites in North America where Pacific golden plovers (*Pluvialis fulva*) have been known to overwinter.

The aggressive alien, European beachgrass (*Ammophila arenaria*), which dominates many other California dune systems has not yet overtaken Tomales Dunes, though it is threatening to do so. So far, however, this still is one of the few dune systems in California that has a vital population of native dunegrasses, including a recently discovered and still-undescribed species. In addition, there are mobile dunes here, the kind we think of when we call to mind the classic dune—completely unvegetated and constantly shifting. As winds push these mobile dunes slowly inland, an ever-changing series of new habitats is created.

Winds also carve depressions in the exposed sands of the bare dunes. Where these depressions are fed by groundwater, rain, or intermittent surface streams, they develop into rich and unique seasonal wetlands, ranging from freshwater ponds, to marshes, to wet meadows". Tomales Dunes is a wetland paradise, with the richest collection of these seasonal wetlands--known collectively as "dune slacks"--in central California. The same subterranean waters that feed the slacks have also created an amazing "Grand Canyon of the Sands", which is recut and reshaped in wet winters by a rain-fed underground spring, the only such dune canyon in central California.

Tomales Dunes is an ancient system, but one that is perpetually forming itself anew. Some of its dunes are very young, having developed in historic times; most are older, created after the last ice-age; and some may have originated even earlier, perhaps more than 10,000 years ago. In the last few decades, this ancient system has come under increasing pressure from ranching, quarrying, and recreation. How much longer can Tomales Dunes survive?

## Current Use

Tomales Dunes is the only dune system in the state that is wholly in private ownership. Most of this incredible site is within the 980-acre property known as Lawson's Landing, which has been in the Lawson family since the 1920s. Lawson's Landing includes a ranch, a recreation area featuring the largest RV campground on the California coast along with boat storage and repair facilities, and until recently a sand quarry.

The ranching operation, Lawson's Livestock, has roughly 100 cattle and 665 sheep. The animals range beyond the property's 550 acres of pasture onto more fragile habitats, including wet meadows and dune scrub. Agriculture is a desired use in this region, but grazing animals have the potential to increase soil erosion and sedimentation of streams. Moreover, overgrazing is a serious threat to the native flora and fauna, especially the rare Pacific sand bear scarab beetle (*Lichnanthe ursina*) and the rare plant, Pt. Reyes bird's beak (*Cordylanthus maritimus ssp. palustris*). In the early 1990s, another endangered plant species, Tidestrom's lupine (*Lupinus tidestromii*), disappeared from Lawson's Landing in part due to overgrazing.

The sand quarry at Lawson's Landing, begun in 1971, was closed in 2005 after the owners were discovered to have been removing more than the 60,000 tons of sand per year that their permit allowed. The quarry has been in operation since 1976. There are three abandoned quarry sites. Woolly headed-spineflower (*Chorizanthe cuspidata var. villosa*), considered as endangered by the California Department of Fish & Game, grows at two of the three sites. The Pacific sand bear scarab beetle, which was previously found in the quarry area, has not been recorded there since 1998.

The dunes have also been damaged by the spread of invasive alien plants, mainly European beach grass and iceplant. The spread of European beachgrass is a particular hazard for western snowy plovers, a threatened species that nests on sand. Snowy plovers need the low, sparse vegetation that native grasses provide; they will not nest in beachgrass, which grows high and dense and provides excellent cover for predators. Point Reyes National Seashore is spending hundreds of thousands of dollars on a model beachgrass eradication program. But the expensive effort could be undermined by the presence nearby of a source of grass that could re-invade the cleared areas.

The most visible activity on Tomales Dunes is recreation, mainly camping, fishing, clamming, crabbing, abalone diving, and boating. Historically, most of Lawson's Landing's vacationers come from the Valley and Delta region, seeking relief from sweltering inland summers in the relatively cool but sunny coastal zone. Many come in their own mobile homes and travel trailers. An RV park houses 233 RVs, most of which are here year-round, though not permanently occupied. In addition, another 1000 campsites are available for short-term tent and RV camping in the main meadow, a seasonal dune wetland that has been severely degraded by intensive use. The intense human use, especially the perpetual presence of free-ranging dogs, has driven sensitive bird species, including snowy plovers, from the area.

There is, however, much opportunity for restoration work in the Tomales Dunes. In 1998, for example, the U.S. Fish and Wildlife Service recommended that the endangered Myrtle's silverspot butterfly (*Speyeria zerene myrtleae*) be re-introduced to the Tomales dunes, along with Tidestrom's and several other associated plants. Other rare, threatened, or endangered species that may already exist here, or are good candidates for introduction or re-introduction include beach layia (*Layia carnosa*), Coast marsh milkvetch (*Astragalus pycnostachyus* var. *pycnostachyus*), Dune gilia (*Gilia capitata* ssp. *chamissonis*), Northern beach glehnia (*Glehnia littoralis* ssp. *leiocarpa*), and Sonoma spineflower (*Chorizanthe valida*). In addition, it is not too late to attack the problem of invasive European beach grass. The per acre cost of eradication is high (as high as \$30,000 an acre), so the sooner an eradication program is begun, the more affordable it will be.