

## **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 14 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 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 14 rare, threatened, or endangered 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*) 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 sand quarrying operation, and a recreation area featuring the largest RV campground on the California coast along with boat storage and repair facilities.

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 has been in operation since 1976. Every year 60,000 tons of sand are taken from the dunes for use in concrete, dairy barns, gardens, and golf courses. In 1990, Marin County issued a permit for expansion of the operation from 23 to 39 acres without requiring the preparation of an environmental impact report. The rationale for enlarging the quarry area was to create two quarry sites that could be alternated, in order to allow the sand to be replenished by wind deposition. But the foredunes are now largely overrun by European beachgrass, which traps all onshore-blown sand, so the mined dune is no longer a renewable resource, but one of finite proportions.

There are three quarry sites: one is abandoned; a second has not been worked since 1991 but may be brought back into action in the future, and the third is still active. 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.

Despite a requirement by the County, no reclamation work has been done at the abandoned quarry, which is now more than half covered with European beach grass and iceplant. Consultants hired by the quarry owners state that "any attempts now to rid the quarry of this species (European beachgrass) would probably be futile." European beach grass has overrun more than one-quarter of the second site and, according to the consultants, "is slowly encroaching upon the open sand and native vegetation."

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 within the dunes houses 233 RVs, most of which are here year-round, though not permanently occupied. Creation of the RV park required the destruction of a significant area of dune habitat. 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. There is no limit on the number of day users allowed on the site. In good weather, several thousand people come to Lawson's each day, with a considerable impact on the dunes, wetlands, and bay. The intense human use, especially the perpetual presence of free-ranging dogs, has driven sensitive bird species, including snowy plovers, from the area.

The tidal mudflats off Tomales Dunes are rich in shellfish. They are also an important breeding and pupping ground for harbor seals. When harbor seals are disturbed, their breeding rates fall and abandonment of immature pups rises. Clam digging, fishing, and boating are the major causes of disturbance. For years, Lawson's Landing's "Clam Clipper" took large numbers of tourists to the mudflats and seal pupping grounds. As a consequence, reproduction rates of harbor seals off Lawson's Landing have been 50% lower and pup mortality 70% higher than elsewhere in Point Reyes. These figures have improved somewhat in recent years due in part. One reason is Lawson's Landing has recently suspended its "Clam Clipper" service, due to overharvesting, which has caused an alarming drop in the clam population. Visitors can still take their own or rental boats out to the mudflats to clam, however, and Fish and Game wardens report many incidents of illegal harvesting and cases of disturbance.

There is ample evidence that Tomales Dunes is suffering under the current level of use. Among the signs of overuse are the low reproductive rate and high mortality rate among harbor seals; the local extinction of Tidestrom's lupine; the decline and possible disappearance of the Pacific sand bear scarab beetle from the site; the damage to dunes and dune wetlands by RVs and campers; the encroachment of alien vegetation onto the mobile dunes; and the loss of snowy plover nesting sites.

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 California black rail (*Laterallus Jamaicensis coturniculus*), 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.

### **Master Plan**

The most pressing problem facing Lawson's Landing's owners is the fact that none of the roughly more than 100 primitive septic systems serving the RV park are legal or permitted by the County or any other agency. To meet Marin County requirements, the owners have submitted a Master Plan that calls for the installation of a new septic system. The new system would collect wastewater from the entire site and pump it to a recirculating sand filter for treatment before sending it to a leachfield. But there are many problems with this proposal. The septic system (both the sand filter and the leachfield) would be near the campground in the mobile dunes where moving sands could bury or expose them. To prevent this, the plan entails planting to stabilize the dunes, an action that would seriously damage the integrity and ecological dynamics of the mobile dune system. An alternative plan is to put the leachfields under one of the seasonal wetlands. However, this would create a year-round wetland and drive out species that are adapted to the special conditions of a seasonal wetland. Another problem is that the percolation rates for dune sands are too fast to allow for purification by soil bacteria and are well outside the limit established by both Marin County and Regional Water Quality Control Board regulations.

The other main features of the Master Plan are two new 100,000 gallon water tanks, a new garage, store, and office facility, a new boat washdown area, two RV dumping stations, and many new restrooms. 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. If the Master Plan is approved, Tomales Dunes could be exposed to even more intensive use. The availability of more water,, 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. So far there has been no oversight, no opportunity for public comment, and no environmental review of the dramatic growth that has taken place at Lawson's Landing since it opened to camping in the late 1950s.

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