

Special protection for special places

On a remote slope in the dead of night, a moist, smooth-skinned creature emerges to feed. Leaving strange, web-toed tracks on the ground, the amphibious thing moves along silently, slowly, crawling on its belly. Later, having eaten its fill, the creature slinks quietly into cracks in the limestone, waiting to return another night...

A scene from science fiction? No, it's real life at Limestone Salamander

By Colleen Flannery

Ecological Reserve, one of the few California Department of Fish and Game (DFG) ecological reserves which limit public access during all or part of the year. The amphibious "creature" is one of California's three-inch limestone salamanders (*Hydromantes brunus*)! Like many species protected by California's ecological reserve system, the limestone salamander has a small, specialized range, and in this case, habitat too fragile for human visitors.

DFG manages 119 ecological reserves statewide, ranging from the China Point Ecological Reserve near the Oregon border to Otay Mountain, just a few miles north of the international border with Mexico. Of these, just a handful limit or preclude public access.

"Some resources are too sensitive for public use," said Kari Lewis, DFG senior biologist, who coordinates the ecological reserve system. "In some cases the best course of action is to close a reserve or limit access to protect sensitive species and natural communities, especially during critical periods."

"Closing a reserve is a tough call and the regions struggle with it," said Teresa Le Blanc, a DFG senior biologist who managed ecological reserves in DFG's Central Coast Region for nine years. "Your first responsibility is to the resource and it's important to explain that to the public. In most cases after they know the reasons why a closure is necessary, they have a better understanding and an appreciation for what the Department is trying to do."

Resources needing protection include some of the most specialized species and habitats in the world. Besides the limestone salamander, the Santa Cruz long-toed salamander (*Ambystoma macrodactylum croceum*) and the desert slender salamander (*Batrachoseps aridus*) also require protection from activities which would significantly alter or destroy their habitat. Impacts to water sources, geological features and vegetation in salamander habitat can hinder the ability



Back, eastside Sierra Nevada dry talus slope near Bishop.

Photo © Will Funk

Inset, desert slender salamander habitat.

DFG photo by Kari Lewis



Sandhill crane.

DFG file photo

of the amphibians to survive and reproduce. In order to protect peninsular bighorn sheep watering areas, managers close two reserves in the Eastern Sierra - Inland Deserts Region from June 15 to Sept. 30 each year. Managers also close reserves during peregrine falcon and shorebird nesting periods so these birds can care for their young without disturbance. The rarity of the plant communities protected at Pine Hill, Phoenix Field and Apricum Hill ecological reserves in the Sacramento Valley - Central Sierra Region necessitates caution on the part of reserve managers to minimize habitat disturbances such as soil erosion, fires at the wrong time of year, and vegetation damage, all of which adversely affect the health of these plant communities.

Seeking the Limestone Salamander

Steep, mossy ridges beside a river in the Sierra Nevada hide the limestone salamander during the day. Slippery rocks and slopes greater than 30 degrees comprise the habitat of this secluded amphibian, of which there are fewer than two dozen populations worldwide. Scientists estimate each of these populations have fewer than 100 individuals - many populations with only one or two at last count. Walter Tordoff, a California State University Stanislaus biologist who completed a census of areas likely to support limestone salamander populations, stressed the sensitivity of the habitat.



Bighorn sheep.

Photo © Fred Ebert

"The habitat is very fragile," he said. "The salamanders are found deep down in talus slopes, underneath rocks. Disturbing these rocks is very destructive to the habitat."

Talus slopes earn the nickname "rock rivers" due to accumulation of loose and sometimes falling rock. These qualities make scaling these slopes a difficult, if not impossible feat.

"It's very steep," said Tordoff. "There's no easy access to it. It's probably too dangerous for people to get to it," adding that there are better places to explore the Sierras without damaging salamander habitat.

"No easy access" describes other sensitive salamander habitat as well. The Hidden Palms Ecological Reserve supports desert slender salamanders. Discovered in 1969 by DFG Game Warden Russell Murphy, the amphibians live in only a couple of moist areas of the California Colorado Desert. A steep, narrow desert canyon with a trickle of spring water, Hidden Palms is also closed year-round to

protect the salamanders.

Deserting the bighorn

The peninsular bighorn sheep relies on food and water it finds deep in desert canyons and along lower elevation alluvial fans. Unfortunately, many such areas are impacted by human activities. Additionally, human disturbance can cause the sheep to avoid water sources critical to their survival.

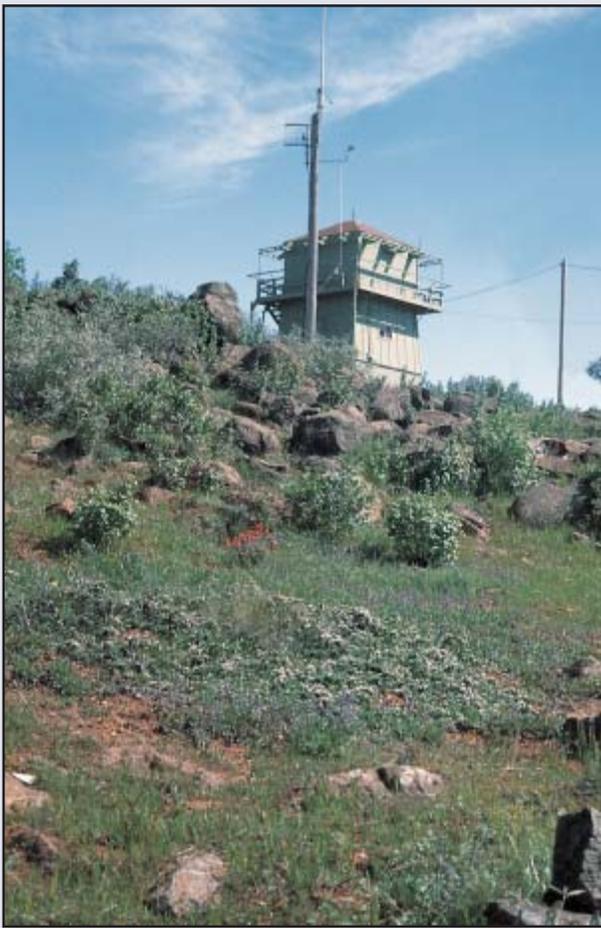
"They are very shy of people," said Senior Biologist Dee Sudduth, who manages southern lands in the Eastern

Sierra - Inland Deserts Region. "In the summertime, if people are near the water, they'll stay away."

With desert summer temperatures exceeding 100 degrees, avoiding water could harm or kill the bighorns. So DFG closes off ecological reserves important to bighorns in the summer months. DFG also limits access to areas of the reserves during the sheep's lambing season.

As is the case with such closures, DFG scientists and wardens may enter the reserves. At Magnesia Spring and Carrizo Canyon, they often do, checking the water supply to make sure it is not contaminated or blocked. Others may occasionally enter as well, such as emergency personnel, when necessary. Research scientists may enter reserves with written permission to study animal or plant life. Photographers and sightseers may be granted written permission to enter, as long as their presence will not threaten the sensitive species or habitats the reserves are designed to protect.

At Magnesia Spring and Carrizo



Left, Pine Hill.

DFG file photo.

Above, Pine Hill Ceanothus.

Photo © James T. Vale.

Canyon, DFG scientists manage lands to minimize problems between visitors and the bighorn.

"They try to keep sheep-human conflicts to a minimum," Sudduth said.

She promises would-be summer visitors they are not missing much.

"Seasonally, the areas don't change much, really," she said, stressing the hot, dry conditions of the desert during summer. Summer high temperatures commonly exceed 100 degrees Fahrenheit in these areas, and there is no potable water available. The winter is a better time to visit, when daytime temperatures are milder.

Special Tours

If ecological reserves need to be closed to protect sensitive species and communities, then why do DFG scientists lead tour groups to some of them? Sometimes, ecological reserves not only protect a resource, but also provide educational opportunities for the public. At Woodbridge Ecological Reserve near Lodi, visitors follow the sound of wintering sandhill cranes, and a DFG guide onto an area usually closed to the public. Interpreters and docents are careful not to disturb the birds, guiding visitors to a blind constructed to conceal them as they view the cranes.

"The birds are just too sensitive to keep the reserve open all the time," said Bruce Forman, a Sacramento Valley-Central Sierra Region interpreter. "People want to get closer to the cranes. It's not good for them to be disturbed; cranes are migratory and they need to save their energy for the big migration ahead of them. On tours, visitors are kept at a safe distance."

While completely opening the ecological reserve could cause excess disturbance to the birds, allowing the public to periodically view the cranes gives Forman a chance to educate the public about the importance of wetlands and of the role of the DFG at Woodbridge.

"They (visitors) learn about Fish and Game, about what we do to make the wetlands usable for the cranes," Forman said. "It's not just a recreational experience. People are learning, they increase their appreciation for the area. They learn about wildlife and they learn about keeping their distance for the protection of the animals."

Educational aspects of ecological reserves which limit access go beyond occasional crane tours. Limited tours at Pine Hill Ecological Reserve allow occasional educational groups to view plants so rare, they are found in only a small portion of the Sierra Nevada foothills, concentrated in a 40-square mile area of western El Dorado County. According to DFG Botanist Daniel

Burmester, the limited number of the plants and the fact that private property surrounds most of the reserve's parcels limits the DFG's ability to open Pine Hill to the public.

"The primary reason for restricting access to the ecological reserve is the rarity of the plants," he said, noting that most of the world's population of Pine Hill flannelbush (*Fremontodendron decumbens*), an endangered species, grows on slopes of the reserve. "Although these plants are fire-adapted, a fire at the wrong time of the year could be devastating to one or more of these rare species."

Burmester said the relatively small size of the reserve, which consists of three separate units totaling less than 600 acres, means next to nothing when compared to its diversity.

According to Burmester, Pine Hill Ecological Reserve provides a view of the Pine Hill gabbro soil community, found nowhere else in the world. In this rare community, gabbro and serpentine rocks underlie a surface that supports sensitive plants. Besides the flannelbush, the reserve contains populations of three plants federally listed as endangered: Stebbins' morning-glory (*Calystegia stebbinsii*), Pine Hill ceanothus (*Ceanothus roderickii*) and El Dorado bedstraw (*Galium californicum ssp. sierrae*). It has one plant listed as threatened, Layne's butterweed (*Senecio layneae*). Also present is the federal species of concern, El Dorado mule-ears (*Wyethia reticulata*). Except for the morning glory, which is also state-listed as endangered, all of these plants have been listed by California as rare, or are considered rare by experts.

"Approximately 10 percent of the native plant species (about 740 species) known from California are represented within this tiny fraction of El Dorado County, making it a significant location of species diversity," he said. Protecting Pine Hill and other ecological reserves needing special protection sometimes means helping people learn about the diversity of California's natural communities.

"Education plays a key role in the conservation of these sensitive areas," said Lewis.

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