

Native Revival: Efforts to Protect and Restore the Burrowing Owl in the South Bay Area

by Lynne Trulio

As you hurry by, a pair of golden yellow eyes traces your every step. You probably didn't see them, but if you had looked carefully groundward on your way through Bixby Park, Shoreline at Mountain View or Mission College, you would have found you were being watched by a western burrowing owl (*Athene cunicularia hypugaea*).



The burrowing owl is not easy to spot. With its mottled brown and white feathers, this small bird - only 9 inches tall - is virtually invisible in its grassy or bare soil habitat. The burrowing owl is also difficult to find because it is becoming rare in the South and East San Francisco Bay Area. You may want to see this endearing bird while you still can. The best places to look are large, open treeless fields with plenty of ground squirrel burrows.

The burrowing owl is the only owl that nests underground and is active both day and night. During the day, the owl will stand by its burrow. At dusk and into the night the bird becomes an active hunter. The burrowing owl does not hoot like other owls, but it does have a variety of different calls, from mating "coos" to alarm "chirps" The burrowing owl is a bird of the open, short-grass prairie. In California, almost none of the owl's original prairie habitat remains. Fortunately for us and the owl, this species has adapted to living in human-altered landscapes. Throughout the state, this bird is found on the margins of agricultural fields, in grazed pastures, and in urban areas on golf courses, airports, open fields and parks. The basic habitat requirements are adequate foraging lands adjacent to nesting burrows, usually dug by prairie dogs or ground squirrels. In our region, the owl typically lives in California ground squirrel (*Spermophilus beecheyi*) colonies, in burrows which were originally excavated by the squirrels. Since the western burrowing owl does not dig its own burrow, the appellation "burrowing" owl is something of a misnomer. It might be better named the "borrowing" owl, since it appropriates squirrel burrows.

While the owl and squirrel do not live in the same burrow, they are often close neighbors. The burrowing owl clearly benefits from the ground squirrel's prolific digging prowess. Not only does the squirrel dig the owl's home, but it cleans out the burrow in

the winter time, when the owl vacates it and moves to other lodgings nearby. The squirrel will move into the owl's nest burrow for the winter and even dig it out in the process. In the spring, the keen observer will notice that the owl has moved back into its renovated home. The displaced squirrel will use one of its many other burrows.

What does the squirrel get from this arrangement? It may be that the squirrel benefits from the owl as an alarm system. Both the owl and the squirrel have a wide complement of predators, from coyotes and introduced red foxes to snakes and large hawks. During the day, while the squirrel is foraging with its nose to the ground, the owl is standing at its burrow keeping an eye out for trouble. When it sees a potential predator, the owl may call and bob up and down. It is likely that the squirrel responds to these calls and benefits from this alarm.

It is interesting to note that the squirrel has many defenses against predators in its colony, but it does not use them against the owl. It treats the owl very much like another squirrel, and not as a possible predator. Although the burrowing owl is a raptor, it weighs only a quarter of a pound - one-fifth that of a full-grown ground squirrel - and is no threat to an adult squirrel. A burrowing owl could potentially kill a newly-emergent ground squirrel pup, but if this ever happens, it is very rare.



As a bird of prey, the burrowing owl is an efficient hunter of small rodents and large insects. It is especially fond of Jerusalem crickets, but is opportunistic in its dietary selections. To find enough prey year-round, the owl requires large areas of open space adjacent or very near the nest burrow. How much area a pair of owls needs is not well known. They tend to spend much of their time within about a 150 foot radius of their nest burrow, but will go further afield to

hunt. In surveys at Moffett Federal Airfield, I have found approximately one owl pair per 30 acres of grassland habitat.

The owl has chicks once a year. By February, owls are pairing up and careful observation will often reveal two birds standing at their burrow, cheek to cheek. The pair is monogamous for at least a season. Females typically begin laying eggs in March. The burrowing owl lays up to 11 eggs, the largest clutch of any raptor species. Chicks hatch in just under a month. The juveniles generally emerge after two to three weeks underground, beginning in mid-May through as late as early August. Observers are most likely to see owls during this season; often four to six chicks can be seen clustered together at their burrow. The youngsters fly within a month of emergence and by mid-September they molt into adult plumage and head off to find their own burrows. The western burrowing owl is distributed from the Mississippi to the Pacific, north into the

prairie provinces of Canada and south into Mexico. While still found throughout much of its original range, the owl has declined significantly in the last 150 years. Agricultural conversion has destroyed 99% of the original prairie and our war on the prairie dog has reduced this friend of the burrowing owl to just 2% of its historic number. As a result of these factors, the burrowing owl is a bird in trouble. It is listed as endangered in Minnesota and Iowa. Last year, the species was listed as endangered in all the Canadian provinces in which it breeds. In California, the bird is considered a Species of Special Concern by the California Department of Fish and Game, indicating the species is in decline.

Unfortunately, current state and federal laws have proven inadequate to protect the owl and arrest the loss of habitat. The species benefits from some legal protection in the U. S. through the Migratory Bird Treaty Act, which forbids the destruction of the birds and active nests. Since the owl has no status under the federal Endangered Species Act, it receives no protection from this powerful law. The California Environmental Quality Act requires mitigation when projects impact owl nest sites. While these laws protect active nests, they do little to protect burrows in the non-nesting season and they do not protect foraging habitat.

Only a few years ago, this attractive little owl was a much more common sight in the Bay Area. Research by the Institute for Bird Populations in Point Reyes indicates that there has been a 50% decline in the owl population in the San Francisco Bay Area in the last 10 to 15 years. Only about 175 pairs of owls are estimated to live between Palo Alto and Union City south to Morgan Hill. The bird has all but disappeared from most Bay Area counties and is headed for the same fate in Contra Costa, Alameda, and Santa Clara Counties. The primary causes of the decline are the rapid conversion of open lands to urban uses, the poisoning of ground squirrels, and destructive weed control practices. Burrowing owl advocates have been fighting these three forces for years, and each issue requires different tactics. Weed control is a problem for the owl because, to prevent fires, open fields are usually disked. Disking, or tilling of the land, destroys burrows and potentially any owls in those burrows. Mowing is a viable alternative to diskings which controls weeds and prevents fires, but does not destroy burrows or birds. Save BOTH, a burrowing owl habitat protection group, has worked since the early 1980s to change weed abatement policies in the county and encourage mowing. Several entities, such as Moffett Federal Airfield and the Cities of Palo Alto and Mountain View, have changed from diskings to mowing on their own lands to prevent the destruction of owls. In addition, the Santa Clara County Fire Marshall's Office has been encouraged by the Santa Clara Valley Audubon Society to mow, rather than disk, lands in populous owl areas. The Fire Marshall's Office is reviewing its weed abatement policy. However, even when municipalities switch to mowing, private landowners are still permitted to disk their lands to control weeds.

Preserving the owl means protecting ground squirrels. The burrowing owl appears to be dependent on this species in our area. The Santa Clara Valley Water District, Moffett Federal Airfield, and the Shoreline Golf Course regularly work with owl specialists to control ground squirrel populations while protecting the owl at the same time.

Urbanization is perhaps the most difficult protection issue of all. Owl habitat which exists on private land is rapidly being converted to business parks, parking lots, and housing. Mitigation measures under THE California Environmental Quality Act are but small efforts to rectify an untenable situation. Mitigation, such as moving owls or providing habitat elsewhere, has not stemmed the precipitous decline of the owl population in our area. As development proceeds at breakneck pace, the burrowing owl is becoming increasingly confined to publicly-owned parcels. Most Bay Area owls are now found in the parks and open spaces, such as the Don Edwards National Wildlife Refuge, that hug the Bay. Specific methods for preserving the burrowing owl are being tested by owl specialists. Long-distance relocation, in which the owl is captured and moved to a new habitat, is an appealing approach. But, the owl is not easily moved. This species shows great site fidelity, coming back to the same burrow year after year and during the breeding season the owl is very difficult to evict from its chosen nest burrow (site tenacity). These two traits combine to make the burrowing owl an unlikely candidate for relocation. Owls taken to new locations miles from their chosen homes often fly back to their original site or disappear completely.

Allowing the owl to move itself to nearby burrows can be effective if enough habitat exists adjacent to the doomed owl burrow. Janis Buchanan, long-time owl advocate, and I are using this method in an effort to preserve an owl population at Mission College in the face of extensive development. We are enhancing dedicated owl nesting habitat adjacent to ball fields to provide local, displaced birds with their basic nesting and foraging needs.

For any owl protection or relocation plan to work the bird must have land for foraging, and our area is quickly running out of this. The situation is dire, but there is hope for preserving the burrowing owl in our region. Two opportunities exist to stabilize owl numbers: enhancing existing public and private lands, and creating habitat for the owl on limited use lands, such as landfills.

Public lands may be managed through mowing, tree removal and other owl-attracting techniques to enhance habitat in currently marginal areas. Land management agencies, including the Santa Clara County Parks and East Bay Regional Park District, are very interested in this approach. Eventually, some private landowners may also be interested in enhancing some of their lands for owls.

Habitat can also be created in places where it does not currently exist. In an ironic twist, landfills present such a growth opportunity for owl habitat. Although no environmentalist wishes for more mountains of trash, upland habitat created on closed landfills can be made amenable to the burrowing owl. Useful, newly created habitat must be within two miles of occupied owl lands, so that the owl can easily reach it, and it must be managed for the owl. One place this process has inadvertently occurred is at Bixby Park in Palo Alto. Mounds of dirt placed on the landfill as part of the artistic sculpturing of the land were colonized first by ground squirrels and then by burrowing owls. Two to four pairs of birds can now be found in this new habitat. The Bixby Park experience suggests we need to let the birds move themselves.

Burrowing owl specialists and wildlife biologists from the California Department of Fish and Game currently believe the best way to save the burrowing owl in our region is to have the municipalities form a Regional Burrowing Owl Management Plan which enhances, creates and sets aside habitat in Santa Clara and Alameda Counties. Site-by-site and city-by-city mitigation has proven unsuccessful. The species needs a large, multi-county regional plan that recognizes the amount of habitat to be lost to development and then lays out new owl sites to compensate for those losses. A comprehensive plan may be the only way to prevent the current scenario from playing out - one in which owl habitat is whittled away until none remains. The decline of the burrowing owl is a loss to those who watch owls as a way to escape urban pressures and rejuvenate their spirit. But, the majority of people who never watch owls will also feel their loss. The burrowing owl is a harbinger of open grasslands and as this habitat is lost to development, open space decreases and traffic increases. Protecting burrowing owl habitat not only preserves the owls, but also our own quality of life.

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