

Burrowing Owl *Athene cunicularia*

No bird in San Diego County is more endearing than the Burrowing Owl. And no bird is in more imminent danger of being extirpated from the county. Living mainly in grassland and open scrub, the Burrowing Owl was once common here but is now reduced to a few scattered sites, some threatened by development. If the population crash continues at its current rate the Burrowing Owl will be the next species extirpated from coastal southern California. Intensive management such as provision of artificial burrows, habitat modification, and reintroduction of captive-bred birds may already be the owl's only hope.

Breeding distribution: Breeding Burrowing Owls remain tenuously in only five areas of San Diego County. Perhaps the most viable site is North Island Naval Air Station (S8). Though there is no thorough census, there are several pairs scattered over various parts of the station, including the golf course, around runways, and near Zuñiga Jetty. The maximum single-day count there was of seven on 26 May 2000 (R. T. Patton). At the Imperial Beach Naval Auxiliary Landing Field (Ream Field; V10), two pairs nested in 1999 (C. Winchell), and one pair fledged four young in 2001 (L. and M. Polinsky). The largest numbers occur probably on Otay Mesa. Again, there is no complete census; the maximum count, of 11 in square V14 and two in V13 on 15 April 2000 (S. D. Cameron, P. Unitt), did not include the site of four nests in V13 monitored in 1998 (and possibly eliminated by 2000). Two pairs of Burrowing Owls are on or near navy property

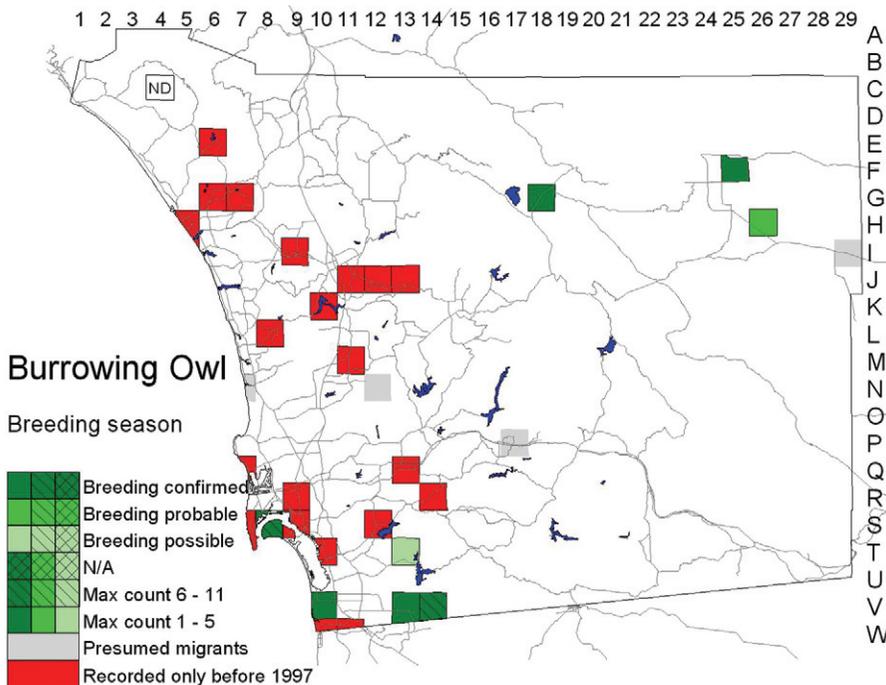
not accessible to the public at the northwest corner of Brown Field (V12; J. L. Lincer). The greatest concentration on Otay Mesa is at the mesa's extreme east end, at the southwest base of Otay Mountain, where the scrub is kept very open by frequent fires, started by children in Tijuana tossing burning objects over the international fence to taunt the Border Patrol.

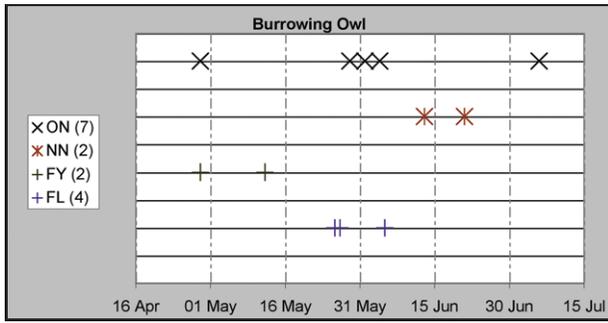
A few Burrowing Owls may persist in Warner Valley. From 1997 to 2001, however, our only record during the breeding season was of one pair carrying food items to a burrow just northwest of the intersection of highways 79 and S2 (G18) 12 May 2001 (G. L. Rogers). In the Borrego Valley, two pairs nested northeast of the intersection of Palm Canyon Drive and Borrego Valley Road (F25) in 1998 (M. C. and P. D. Jorgensen), up to five were at burrows along Coyote Creek Wash (F25) 1–27 March 1999 (P. D. Ache), and a pair was at a burrow near the Borrego

Air Ranch (H26) 26 March–27 April 1998 (M. L. Gabel). In the last two cases, the burrows were dug out by dogs or coyotes before any young fledged. Two individuals along Highway 78 between Ocotillo Wells and the Imperial County line (I29) 15 June 1999 (A. Lotz) may have dispersed from the Imperial Valley.

Nesting: Burrowing Owls take over the burrows of mammals, especially those of the California Ground Squirrel. In the Imperial Valley, and probably in the Borrego Valley, the Round-tailed Ground Squirrel provides the owls' burrows (Patten et al. 2003). The owls maintain the burrows after appropriating them; if the owls are permanent residents (probably many

Photo by Anthony Mercieca



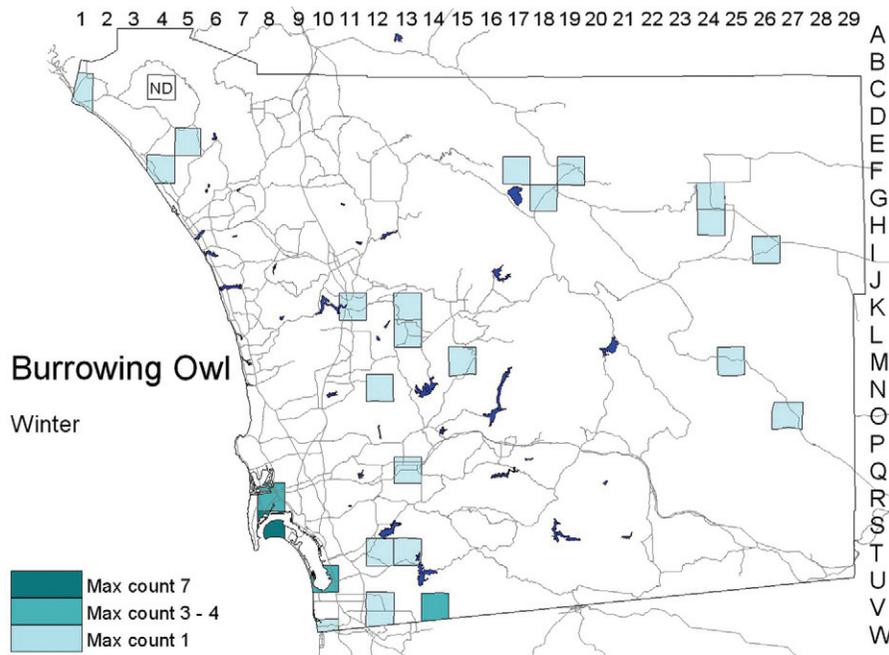


of those breeding in San Diego County) they use their burrow year round. Burrowing Owls also use culverts and artificial burrows designed for them (Collins and Landry 1977).

Because of the species' rarity its breeding schedule is not well represented by our atlas data. Sharp (1907) found eggs at Escondido from 23 March to 16 June. On the basis of an incubation period of 29 days and a nestling period of 44 days fledglings at North Island 27 May 1998 (T. Plunkett) hatched from eggs laid as early as 17 March.

Migration: The Burrowing Owl is migratory over much of its range and far from sedentary even in southern California. In the Imperial Valley it is considerably more numerous in summer than in winter, but in San Diego County, with the breeding population almost gone, it is more frequent in winter. Young still in juvenile plumage can disperse soon after fledging, as suggested by one at Los Peñasquitos Lagoon (N7) 6 August 2000 (P. A. Ginsburg). Observers covered this area regularly, not finding the species there earlier in the year. In the northeastern corner of the Miramar Air Station (N12), Burrowing Owls occurred regularly on ridge tops through the winter of 1996–97, with the last individuals being three on 18 March (W. E. Haas).

Winter: In winter the Burrowing Owl is seen both at the



places where it breeds (up to seven at North Island 22 February 2000, R. T. Patton) and occasionally at other places (up to four at the Chula Vista Nature Center, U10, 20–24 January 1998 (B. C. Moore). We noted the Burrowing Owl wintering in 20 atlas squares where it evidently no longer breeds. At some of these sites, such as the east end of Lake Hodges (K11; six winter sightings of single birds), the owls had bred fairly recently and the habitat was little changed, though ground squirrels were in short supply (J. L. Lincer). Another area where Burrowing Owls still winter fairly regularly is along the flood-control channel at the San Diego River mouth and the southeast corner of Mission Bay (R8; up to three on 27 February 2002, L. Hughes).

Conservation: The Burrowing Owl's population collapse is well documented. Stephens (1919a) called the species a "common resident in open ground from the seashore to the higher foothills." Collections and observations in the early 20th century attest to the owls' nesting at numerous locations such as Pauma Valley, Escondido, San Pasqual Valley, Poway, Rancho Santa Fe, Point Loma, and La Presa, where they do not remain today, although at some of these suitable habitat remains. As late as the 1970s and 1980s the birds remained in the lower San Luis Rey valley, at San Marcos, near Palomar Airport, Mission Bay, Sweetwater Reservoir, Lower Otay Lake, and the Tijuana River valley (Unitt 1984, J. L. Lincer), all locations where they are now gone. The Burrowing Owl was last recorded on both the Oceanside and Escondido Christmas bird counts, where it was formerly regular, in 1993. We evidently witnessed the extirpation of the Burrowing Owl from the region east of Chula Vista during the atlas period: the last individual observed during the breeding season was one near Upper Otay Lake (T13) 29 April 1998 (J. F. Walters). Burrowing Owls were resident on the nearby campus of Southwestern College in the early 1970s (J. W. Schlotte), but the region has now been blanketed by urban sprawl. Yet even the county's most extensive grasslands, the Warner and Santa Maria (Ramona) valleys, now support few or no breeding Burrowing Owls.

Abbott (1930) provided the most interesting perspective on the history of the Burrowing Owl in San Diego: In 1921, "on El Cajon Boulevard, which was a well-traveled thoroughfare even in those days, Burrowing Owls could often be seen perched on the side-walk curb. They lived in the culvert drains under the intersecting streets. The paving of this boulevard has driven these birds away..., yet in spite of San Diego's present 150,000 population Burrowing Owls still subsist wherever there is any

extent of vacant land. . . . On Reynard Way, which is a short-cut between downtown and the Mission Hills residential district, these owls are common, because many of the sloping lots on each side have not yet been built upon. Even in broad daylight a 'ground owl' may often be seen standing upon some advertising sign, apparently unconcerned at the passing stream of automobiles. On the other hand, I have more than once seen the flattened body of one of these owls on the cement roadway. . . . Whereas such observations seem common-place and trivial, it may not be amiss to place them on record. At the speed with which some western cities are growing, remnants of primitive conditions are bound to disappear completely before long."

Thus we can infer that the Burrowing Owl suffers from the factors that afflict other grassland birds: not only direct loss of habitat but high sensitivity to habitat fragmentation, proliferation of terrestrial predators, and high mortality from collisions with cars. The Burrowing Owl provides a clear warning that conservation of habitat that seems sufficient to conserve dozens or hundreds of pairs can be insufficient to counteract bad population dynamics over a large region. All remaining Burrowing Owl sites in coastal San Diego County are on either military land or

private property largely or entirely already approved for development. Reintroduction may be necessary to establish the species on suitable public property, such as lands owned by the California Department of Fish and Game in Rancho Jamul or San Felipe Valley, or those owned by the city of San Diego in Pamo Valley, Marron Valley, Spring Canyon, or around Otay Lakes (J. L. Lincer). The Chula Vista Nature Center has raised the species successfully in captivity, and the Wildlife Research Institute has begun efforts at captive breeding as well.

The Burrowing Owl is on the decline over most of North America, suffering considerable contraction of its range. Yet in spite of much research on the species (Lincer and Steenhof 1997), the importance of the contributing factors remains unclear (Holroyd et al. 2001). In various parts of the range, low productivity, high mortality, adverse effects of pesticides, decreased food supply, and reduction of the mammals that supply the owl with burrows have all been documented (Haug et al. 1993, Wellicome and Holroyd 2001).

Taxonomy: All Burrowing Owls in western North America are *A. c. hypugaea* (Bonaparte, 1825).