New World Vultures — Family Vulturidae or Cathartidae

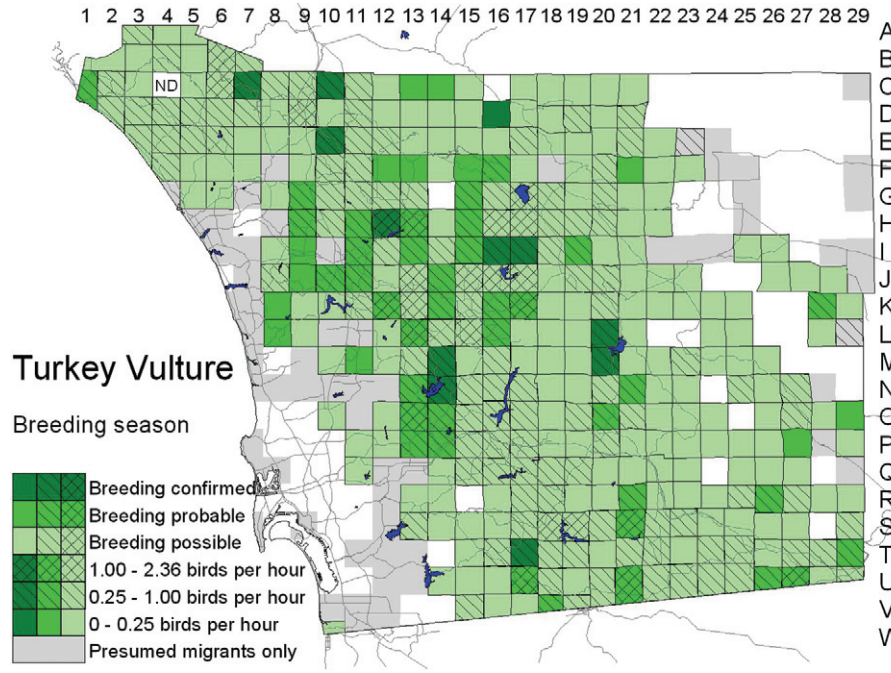
Turkey Vulture *Cathartes aura*

Soaring on raised wings, rocking from side to side, the Turkey Vulture is a familiar sight. Yet it is also an enigma—its nests are so difficult to find that its breeding distribution is still known only roughly. Assembling in communal roosts instead of at nest sites, a substantial fraction of the population apparently does not breed, perhaps because the birds take several years to mature. The usual nest is in a crevice among granite boulders, with which San Diego County's mountains are well supplied. Both the breeding and winter distributions have retract-

Photo by Anthony Mercieca

ed from heavily developed areas, virtually eliminating the species along the coast.

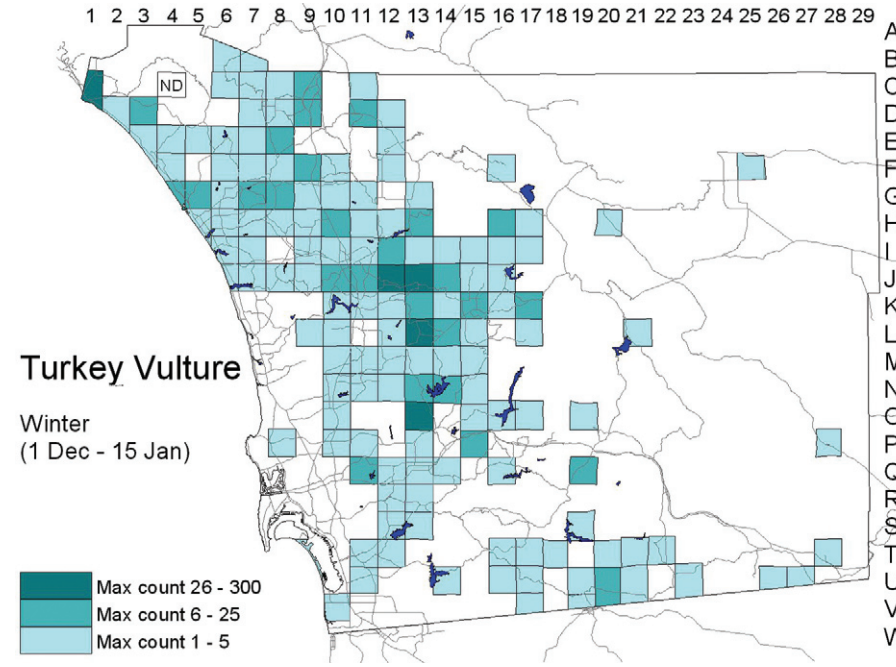
Breeding distribution: In spite of our effort toward this atlas, the Turkey Vulture's breeding distribution in San Diego County remains poorly known. The birds carry no nest material, feed their young largely by regurgitation, visit their nests infrequently, and nest largely in rugged rocky hills, making them one of the most difficult species to confirm nesting. In the areas mapped for possible breeding there are possible nest sites and observations after 15 April, by which date almost all migrants have continued north. Nevertheless, in many of these areas the species may not actually nest.



By far the most thorough study of Turkey Vulture nesting in San Diego County is by Manning (1997a, b), who searched for nests in the county's northwestern quadrant, from the Santa Margarita River to Lake Hodges, from 1993 to 1996. In this region, he found 19 nest sites distributed among six areas: eight sites in Rainbow Valley (C9), one along the Santa Margarita River (D6), one in the Merriam Mountains (G9), seven in the south fork of Moosa Canyon (G10), one in San Marcos Canyon (J8), and one in San Elijo Canyon (J9). From 1997 to 2001 we continued to see the vultures in all these areas and located two apparent nest sites near them: birds entering caves in steep rocky hills along Sandia Creek (C7) 11 April 1998 and at the northeast end of Rainbow Valley (C10) 16 and 21 May 2001 (K. L. Weaver).

Elsewhere in San Diego County the only definite nests reported were from Boulder Oaks Ranch (M14), the northeast corner of San Vicente Reservoir (N14), Black Canyon (I16, D. Bittner), and near Pringle Canyon (T17), where a Border Patrol agent told D. C. Seals of finding a Turkey Vulture chick when he followed the scent of a suspected decaying human body. Some areas of concentration with likely nest sites are around Starvation Mountain (K12; up to 25 on 10 May 1997, E. C. Hall), the south end of Pamo Valley (J15; up to 25 on 24 May 1998, L. E. Taylor), and Barrett Lake (S18/S19; up to 22 on 28 May 1998, J. Hannan). Over most of San Diego County the vulture appears to be uncommon and rather uniformly distributed through the foothills and mountains.

Whether the Turkey Vulture nests in the mountains of the Anza–Borrego Desert is still unclear. There are no confirmations of nesting, yet small numbers have been seen repeatedly during the breeding season in the Vallecito Mountains and the southern part of the park (up to nine in Indian Valley, O27, 15–16 May 1999, P. R. Pryde). In the canyon of Alma Wash near Starfish Cove (K28), L. J. Hargrove noted apparent family groups (juvenile included) of three or four on 4 May 1999 and 20–21 May 2000. An exceptional concentration of 55 drawn to a



dead coyote along Highway S2 in Vallecito Valley (M24) 30 April 1999 (D. C. Seals) seems about two weeks late for a flock of migrants.

Nesting: In San Diego County, as elsewhere in western North America (Kirk and Mossman 1998), the Turkey Vulture usually nests in caves or crevices on steep rocky slopes. Of 16 nest sites studied by Manning (1997b), 14 were in crevices among granite boulders; the mean slope at these sites was 44°. All nests were on the ground in some kind of dark recess. Semicolonial nesting in areas with multiple suitable sites is implied by up to five pairs active within a radius of one-quarter mile. Yet these areas had up to eight sites among which the birds shifted (Manning 1997a).

On the basis of observed hatching dates ranging from 8 April to no later than 1 June, Manning (1997a) estimated that the Turkey Vultures he observed laid eggs from 28 February to at least 23 April. This range corresponds well with that of 61 egg sets collected 1894–1939, 2 March–12 May.

Migration: Over most of western North America Turkey Vultures are highly migratory, following well-defined routes. Birds commuting between the Pacific Northwest and Mexico pass through southern California. In fall their primary path, leading from Weldon on the Kern River to Victorville on the Mojave River and on to the Colorado River, bypasses San Diego County. In spring, however, the Borrego Valley is a stopover site for modest numbers, with a maximum of 85 at Borrego Springs (F24) 22 February 2000 (P. D. Jorgensen). The birds migrate throughout San Diego County, occasionally even along the coast (up to 50 at Los Peñasquitos Lagoon, N7, 28 March 1999, B. C. Moore). Records from the Anza–Borrego Desert suggest that the Turkey Vulture's spring migration begins in late January, rarely as early as mid January (six at Ocotillo Wells, I28, 12 January 1985, R. Thériault; 25 in the Borrego Valley 13 January 1973, A. G. Morley) and continues to mid April (10 at Borrego Springs 15 April 2001, P. D. Ache).

Winter: Because of the Turkey Vulture's early migration schedule, the map of its winter distribution shows locations for December and the first half of January only. During this interval the Turkey Vulture is less widespread and generally less numerous than in spring migration or the breeding season. Most of the birds concentrate at a few regular roost sites. By far the largest of these is in eucalyptus trees at the Wild Animal Park (J12). Fifty to 100 are typical here (K. L. Weaver), and the highest estimate is of 300 on 6 January 1999 (D. and D. Bylin). The next largest is in the Eucalyptus Hills area of Lakeside, at Valle Vista and Serena roads (O13), with up to 28 on 31 December 1998 and 50 on 2 March 1998 (D. C. Seals). Other sites of winter concentrations are at San Onofre State Beach (C1; up to 30 on 29 December 1997, L. Ellis), the Santa Margarita River mouth (G5; up to 20 on 27 December 1997, E. J. McNeil, T. A. Burr), and near Mt. Woodson (L13; up to 35 on 3 January 1998, P. M. von Hendy). David Bittner reports 30–40 wintering annually in the Santa Maria Valley (K13/K14/L14) and 15–20 roosting year round in the Santa Teresa Valley (K16).

In winter, vultures remain around some low-elevation nesting habitat like Rainbow Valley (up to 19 on 3 January 2000, K. L. Weaver). But few occur at this season above 2500 feet elevation. Our only winter record at a high elevation during the atlas period was of three in the basin of Cuyamaca Lake (L21) 11 December 2000 (L. and M. Polinsky). In the Anza–Borrego Desert in winter the Turkey Vulture is essentially absent. In 19 years of Christmas bird counts, 1984–2002, it was recorded just once, in count week only. Records as early as 9 January (2000; one near Sweeney Pass, P28, J. R. Barth) could represent early migrants.

Conservation: Egg collections in the early 20th century attest to the Turkey Vulture's former regular nesting along the coast of northern San Diego County, in cavities in the bluffs overlooking the valleys and lagoons. None have nested there since the 1970s (W. T. Everett in Unitt 1984, Manning 1997a, b). Human disturbance, loss of foraging habitat to urbanization, and pesticide contamination probably all contributed to the species' decrease and range retraction. Urbanization and disturbance continue to threaten the birds; for example, urban sprawl has overrun the area around the nest site in San Marcos Canyon. The almost complete lack of Turkey Vultures at any season from metropolitan San Diego shows that intensive development eliminates them. Though the ruggedness of the habitat insulates the nests from disturbance to some extent, it attracts rock climbers, which Manning (1997b) often saw within 10 meters of nests. The Rainbow colony is threatened by the proposed installation of a power-transmission line (J. A. Manning pers. comm.).

Nevertheless, in the latter part of the 20th century the general trend for the species across its range was apparently of increase (Kirk and Mossman 1998). San Diego County Christmas bird counts show no clear trend since the 1970s, but the concentration of birds around roost sites, which can shift, makes broad-scale changes difficult to track.

Taxonomy: The two subspecies of the Turkey Vulture in western North America differ in size. *Cathartes a. meridionalis* Swann, 1921, is larger and breeds at least from southern California north to British Columbia; nominate *C. a. aura* (Linnaeus, 1758) is smaller and breeds from the lower Colorado River valley east through the desert Southwest and south through Mexico. Rea (1983) found wing-bone measurements to identify the subspecies better than external measurements. The lengths of the humeri (147–156 mm) and ulnae (178 and 187 mm) of all six San Diego County specimens are greater than Rea's ranges for *aura*; four are within the range of *meridionalis*, while two are intermediate. All three July–August specimens are *meridionalis*; the other specimens are from October, November, and February.