

Gambel's Quail *Callipepla gambelii*

By and large, Gambel's Quail replaces the California Quail in the desert Southwest, but in San Diego County the situation is far more complex. Both species occur in the Anza–Borrego Desert, leading to considerable hybridization. Gambel's is always common in the Borrego Valley, in mesquite thickets, saltbush, orchards, and residential areas alike. But elsewhere its distribution is unstable, perhaps varying with rainfall. Its occurrence in San Diego County at all may be a recent colonization.

Breeding distribution: The Borrego Valley is the core of the distribution of Gambel's Quail in San Diego County. The species is found throughout the valley but during the breeding season appears most numerous in the mesquite bosque in the center of the valley (G25), with up to 30 on 11 March 1997 (R. Thériault). Mesquite seeds are a major component of the quail's diet (Brown et al. 1998). The birds also occur in mesquites on the west and north sides of Clark Dry Lake (D25/D26), with up to 15 in D26 on 11 March 2000 (P. K. Nelson). From there they extend in a narrow zone around the base of the Santa Rosa Mountains, where they are sparse except in the northeastern corner of the county (C29; up to 24, including 17 juveniles, on 23 June 1998, R. Thériault). On the east side of the Vallecito Mountains Gambel's Quail is rare and irregular; the only records from this area are of one calling male in Cactus Garden (I27) 26 April 2000 (P. K. Nelson) and three at the mouth of the canyon of Alma Wash (K28) 4 May 1999 (L. J. Hargrove).

In other parts of the Anza–Borrego Desert the California is the predominant or exclusive species of quail. Gambel's, however, colonized the area of Yaqui Well (I24) apparently beginning in 1982 (ABDSP database). We found it in this area in the breeding season regularly, with up to eight on 25 April 1999 (P. K. Nelson), as well as just to the southeast on Mescal Bajada (J25), with up to eight on 12 June 1998 (M. and B. McIntosh), and once just to the west on Yaqui Flat (I23), with a pair on 26 May 1998 (P. K. Nelson).

Gambel's Quail has also invaded the range of the California by spreading up into the canyons draining into the Borrego Valley, going as high as 3400 feet at Peña Spring (G23; up to five on 10 April 1999, M. L. Gabel; one photographed 6 November 1999, L. J. Hargrove). It has occurred in small numbers in Culp Valley (G23/H23) at least since 1992 (M. L. Gabel). One had cleared the mountain crest by about 0.5 mile and was at about 4100

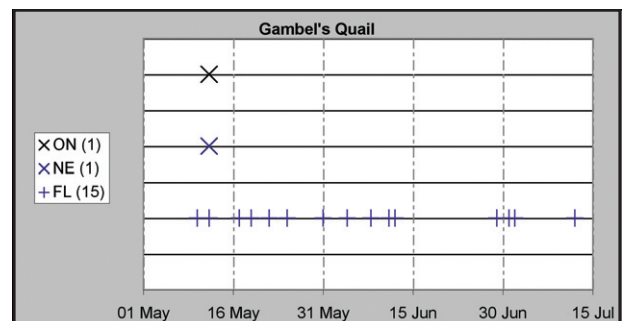


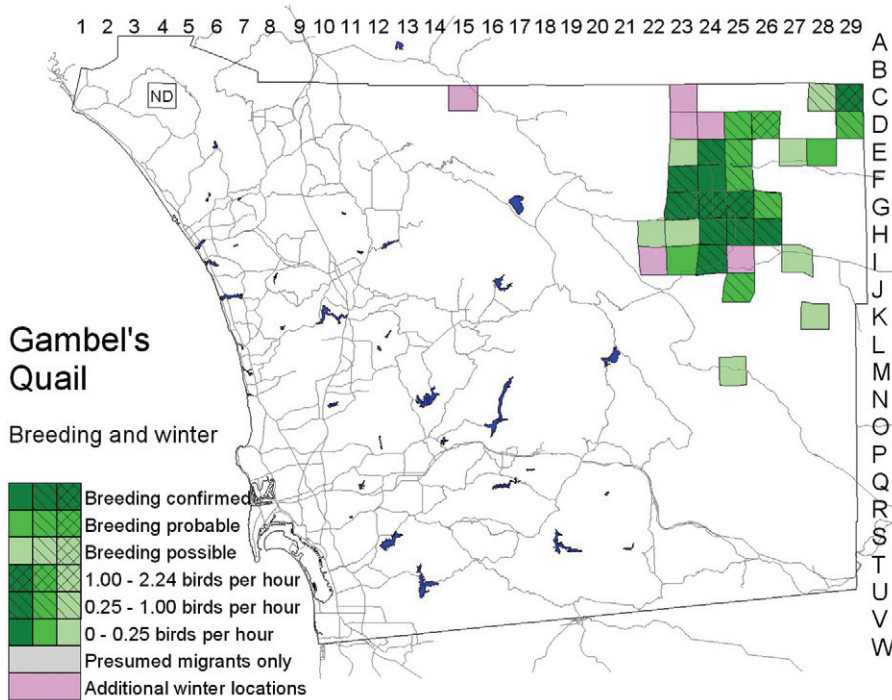
Photo by Anthony Mercieca

feet elevation at the east edge of Montezuma Valley (H22) 26 May 2000 (P. D. Jorgensen).

In the southern Anza–Borrego Desert Gambel's Quail is apparently irregular, though its history could be clouded by misidentification. There is no record in the state park database from this area earlier than 1978. From 1993 to 1995 Paul and Mark Jorgensen found both the California and Gambel's Quails common at Carrizo Marsh (O29), with up to 80 Gambel's 2 May 1993. Yet from 1997 to 2002 the same observers found only the California here. Smaller numbers were noted, perhaps irregularly, to 1995 at Vallecito (M25), Agua Caliente Springs (M26), Palm Spring (N27), Indian Gorge (O27), and Bow Willow Campground (P27), but from 1997 to 2002 the only reports by a reliable observer were from Vallecito in 2000, of a remarkable 60 on 31 January followed by two on 30 March 2000 (R. Thériault).

Nesting: Like the other quails, Gambel's nests usually on the ground, under the protection of a shrub. Nearly all of our confirmations of Gambel's Quail breeding were of chicks following their parents. Dates of these observations extend from 10 May to 12 July, suggesting egg laying





before about 1980 may all represent misidentified California Quail, as none came from well-known reliable observers; all county specimens are from the Borrego Valley only. At some popular birding spots like Yaqui Well it is certain that Gambel's Quail is a recent colonist. The record from Temecula Creek recalls the occurrence of other desert birds like the Black-tailed Gnatcatcher, Ladder-backed Woodpecker, and Black-throated Sparrow in the Aguanga/Dameron Valley area. It may reflect range expansion west through Riverside County not detected until it reached San Diego County, an expansion paralleling that of the Ladder-backed Woodpecker and possibly a response to a drying climate. On the other hand,

from about mid April to early June. Both the latest and earliest dates were in 1998, suggesting that nesting begins earlier and lasts later in wet years than in dry ones.

Winter: Gambel's Quail is nonmigratory, but we found it in winter in a few places where it was lacking in the breeding season. Most notable among these were the Coyote Creek region (C23/D23/D24), where we had only three reports from 1997 to 2002, even though A. G. Morley and K. Smeltzer (in Massey 1998) found it a common breeding resident at Lower Willows (D23) from 1993 to 1995. Thus the situation at Lower Willows parallels that at Carrizo Marsh, a range expansion followed by a contraction.

In the San Felipe Creek drainage P. K. Nelson noted Gambel's Quail in winter twice at outlying localities, Angelina Spring (I22; 15 on 2 December 1999) and San Felipe Narrows (I25; 11 on 4 February 2000). By far our most remarkable Gambel's Quail record, however, is from the coastal slope, along Temecula Creek just west of Dameron Valley (C15). On 3 February 2001 K. L. Weaver studied three Gambel's loosely associated with a flock of California Quail. There are no previous records of Gambel's Quail on the coastal slope of California.

Conservation: Gambel's Quail was first reported from San Diego County in 1927, when local residents told Abbott (1928a) that the species was common in the Borrego Valley and collected two specimens. The Anza-Borrego Desert was barely explored ornithologically before then, so whether the discovery represented a recent colonization is uncertain. Reports outside the Borrego Valley

Gambel's Quail has been transplanted outside its native range as a game bird, and the record from Temecula Creek could have resulted from some unreported introduction.

In spite of an apparent trend of expansion, Gambel's Quail clearly retracted from some marginal areas in the mid 1990s. This may have continued into the atlas period, as implied by our finding the species along Alma Wash on the first visit in 1999 only. In desert wildernesses, the fluctuations are likely due to variations in rainfall and possibly to interactions with the California Quail, which are still not understood in detail. Population cycles of boom and bust are typical of Gambel's Quail (Brown et al. 1998).

Taxonomy: Hybridization between the California and Gambel's Quails is routine. Up to 11 hybrids have been reported on Anza-Borrego Christmas bird counts. Massey (1998) reported hybrids from numerous sites including Chariot Canyon (K21), well outside the known range of Gambel's Quail. Atlas observers noted mixed pairs in Borrego Palm Canyon (F23) 1 July 1998 (L. J. Hargrove) and in the Borrego Valley (E25) 24 April 2000 (P. D. Ache). Just to the north of San Diego County, in Deep Canyon in the Santa Rosa Mountains, Gee (2003) found that 60% of 500 quail trapped in a zone of overlap were hybrids. She observed mating of the two species to be random in the wild yet species-specific when tested with birds in captivity.

Nominate *C. g. gambelii* (Gambel, 1847) is the only subspecies of Gambel's Quail in California.