

## First nesting record of the Zone-tailed Hawk (*Buteo albonotatus*) from the center of the Peninsula of Baja California, Mexico

## Primer registro de anidación de la Aguililla Aura (*Buteo albonotatus*) del centro de la península de Baja California, México

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### Abstract

The Zone-tailed Hawk (*Buteo albonotatus*) is known to breed in northern Baja California, Mexico, and is presumed to nest further south, but the central peninsula is considered only as a migration area for this species. On 25 April 2025, we documented a nesting pair of Zone-tailed Hawks at Mesa del Carmen in Valle de los Cirios, central Baja California. The nest remained active on 5 June, and we observed two other adults nearby. On 24 June 2025, we documented one egg and a small chick in the nest, from which we estimated that eggs were laid in mid-May. This suggests that the initial clutch of 25 April failed and the pair renested, with other pairs potentially nesting in the area. This record contributes to the limited knowledge about the species in Baja California and highlights the significance for biodiversity of the Valle de los Cirios protected area.

**Keywords:** Vizcaíno Desert; first breeding record; bird of prey.

### Resumen

Se sabe que la Aguililla Aura (*Buteo albonotatus*) anida en el norte de Baja California, México, y se supone que anida en el sur, pero el centro de la península se considera solo de paso migratorio para esta especie. El 25 de abril de 2025, documentamos una pareja de *B. albonotatus* anidando en Mesa del Carmen, Valle de los Cirios, Baja California central. El nido permanecía activo el 5 de junio, cuando observamos otros dos adultos cerca. El 24 de junio de 2025 documentamos un huevo y un pollo en el nido, del que estimamos que la puesta fue a mediados de mayo. Ello sugiere que la nidada del 25 de abril fracasó, pero la pareja reanidó, y que otras parejas potencialmente anidan en la zona. Este registro aporta información al escaso conocimiento que existe sobre esta especie en Baja California y destaca la importancia para la biodiversidad del área protegida de Valle de los Cirios.

**Palabras clave:** Desierto de Vizcaíno; primer registro de anidación; rapaz.

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## Introduction

In Baja California, the Zone-tailed Hawk (*Buteo albonotatus*) is a known breeding resident from about 30° northwards, while from about 27°20' southwards it has been considered either as a year-round resident (Johnson et al. 2020), or a winter visitor (Howell and Webb 1995). The intermediate central region has been classified as a migratory corridor for the species (Johnson et al. 2020, Howell and Webb 1995). Confirmed nesting of the Zone-tailed Hawk has been reported from the Sierra San Pedro Mártir in the north and from the tip of the Baja California peninsula (Wilbur 1987, iNaturalistMX 2025). Howell (2001) considered only the northern sierras of the Baja California peninsula as having confirmed/presumed breeding by the species, while indicating that it could be expected to breed in the Vizcaíno subdivision of the Sonoran Desert in the central peninsula, and in the Cape District in the southern peninsula, but data confirming this was lacking at the time.

There is an anecdotal record of a nest of this species from Valle de Montevideo, near Bahía de los Ángeles, at about 29° (George Flicker in Erickson et al. 2008). Another nest that was recorded by George Flicker in 1980 "...in the central Baja [California] desert..." (Richard A. Erickson, pers. comm.) lacks specific locality data. Older mentions of Zone-tailed Hawks breeding further south lack support evidence in the literature (Grinnell 1928, Wilbur 1987). In his notes on breeding birds of central lower California, Bancroft (1930, p. 27) stated only "One [Zone-tailed Hawk] seen near Santa Rosalia in April and one at San Ignacio in March [1928]". Although Bancroft (1930) did not provide proof of nesting, his record appears to have been taken as a northern-breeding-boundary of the species' southern range in the peninsula (*sensu* Johnson et al. 2020). Hamilton and Erickson (2001) did not report any breeding by Zone-tailed Hawks in the central part of the peninsula, and we have not found any breeding records of the species between 29° and the species' recognized year-round range in the southern part of the Baja California peninsula (Johnson et al. 2020).

Citizen science data from iNaturalistMX (2025) reveal sparse records of Zone-tailed Hawks in the central portion of the Baja California peninsula. In addition to three records near the southern boundary of the Johnson et al. (2020) northern breeding area, and two near the northern edge of their southern presumed year-round area, only 12 records exist

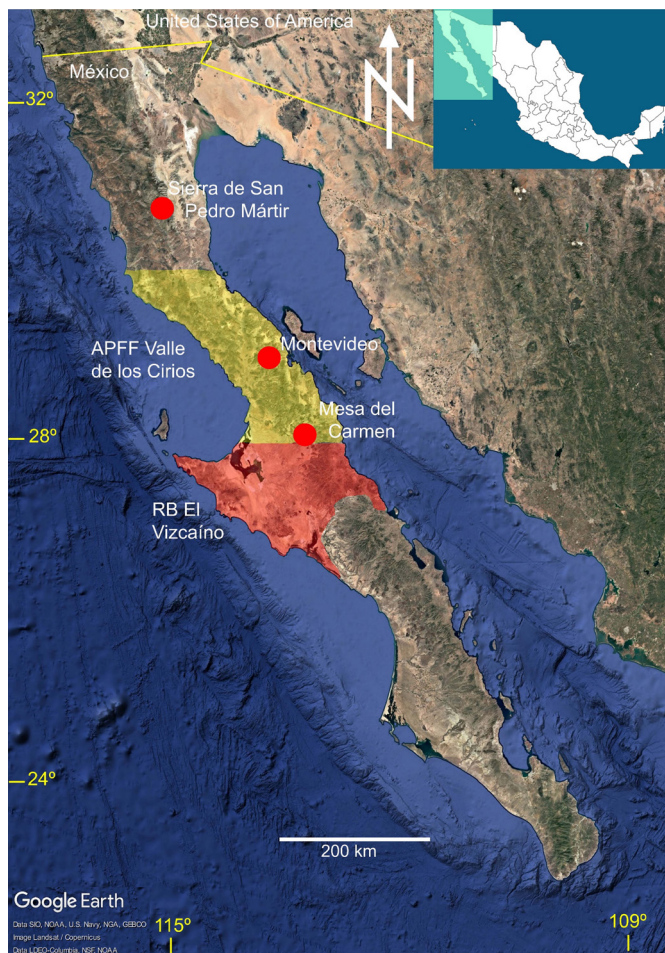
from the region between these two zones: 11 from near Guerrero Negro and 1 from Santa Gertrudis. These records span from 26 September to 1 April which falls largely outside the species' known breeding season (Bent 1937, Howell and Webb 1995, Kennedy et al. 1995, Johnson et al. 2020). To date, confirmed nesting by Zone-tailed Hawks in the Baja California peninsula is limited to the Sierra the San Pedro Mártir in the northern peninsula and Valle de Montevideo between the northern and central peninsula. All mentions of this species nesting further south lack support.

## Methods

The vegetation of the central peninsula of Baja California corresponds to the Vizcaíno subdivision of the Sonoran desertscrub biome (Turner and Brown 1982), and is dominated by cirio (or boojum tree; *Fouquieria columnaris*), cardón cactus (*Pachycereus pringlei*), palo verde (*Parkinsonia* sp.), torote (*Bursera* sp.), and palo adán (*F. macdougallii*). This area is characterized by its arid landscape and sparse human population. The region hosts two of the largest natural protected areas in North America: the Área de Protección de Flora y Fauna Valle de los Cirios, and the Reserva de la Biósfera El Vizcaíno, which together cover close to 5 million hectares of terrestrial habitats (CONANP 2025). The region is remote with limited or difficult access, and biological inventorying has been largely insufficient, especially in the protected area of Valle de los Cirios.

During 2025, we made three visits to Mesa del Carmen in the protected area of Valle de los Cirios, central Baja California (Fig 1). On 25 April 2025, we first registered a pair of Zone-tailed Hawks nesting (28° 7.0019', -113° 18.1674', 458 m above sea level). We returned on 5 and 24 June to monitor the nest. All our observations were carried out between 10:00 and 14:00 h.

The site of the nest was 30-40 m from the trail that leads to the Mesa del Carmen rock paintings. On each occasion we observed the behavior of the adult Zone-tailed Hawks from the trail while walking at a steady pace. We also observed the nest directly from a cliff at a height of about 20 m above the nest. Observation time from this vantage point varied by visit. On 25 April we observed the nest for about 30 min, on 5 June, 60 min, and on 24 June we observed the nest during three periods of 20-30 min each, separated by about an hour. In this last visit,



**Figure 1.** Image of the Baja California peninsula depicting the site the Zone-tailed Hawk (*Buteo albonotatus*) nest at Mesa del Carmen reported in this article, as well as the two previously confirmed nesting sites for this species (red-filled points) on the Baja California peninsula. Also indicated are the two mid-peninsula protected areas: El Vizcaíno (reddish-brown polygon) and Valle de los Cirios (yellow polygon).

we also observed the nest at a distance of 280 m from the vehicle parking site for visitors to the rock paintings. On all occasions we made observations with the aid of binoculars, and during the last visit, also with a spotting scope.

## Results

On 25 April 2025 at approximately 11:00 h, we observed a pair of Zone-tailed Hawks tending a nest located on the terminal fork of a *F. columnaris* tree (Fig. 2), about 8 m above the ground. The female (the largest of the pair; Johnson et al. 2020) was sitting low within the nest, while the male was perched atop the tallest *P. pringlei* cactus 40-50 m away. Neither of the two adults was seen carrying nest material during our observations, and the nest did not change its appearance from 25 April to 24 June, allowing us to conclude the nest was fully

built by 25 April. The nest was the typical bulky mass of sticks of this species (Johnson et al. 2020). We visually estimated the sticks employed to build the nest to be 40-50 cm in length.

Furthermore, when we passed by on foot about 30-40 m from the nest, the female flew off the nest and engaged in vigorous distraction displays during overhead flights and vocalizations, being joined by the male some minutes later (Fig. 3). This behavior ceased once we continued along the path ascending Mesa del Carmen. For the entire 30 min that we observed the nest from the cliff above, the female remained sitting low in the nest without moving, a behavior concordant with incubation. On our return from the cliff observation station, the female displayed defensive behavior, while the male remained perched atop the same *P. pringlei* cactus consuming unidentified prey. We could not observe the contents of the nest on this date.

On 5 June 2025, when we revisited the nest, the female was again observed sitting in the nest, while the male perched on the same *P. pringlei* cactus as on 25 April. Upon approach, the female displayed aggressive defense, including a close dive 50 cm over one of us. The male joined in the defense behavior, and within minutes two other adults flew in from elsewhere and joined in distraction displays.

On our third visit on 24 June 2025, we observed the nest again. The female was in the nest, and upon



**Figure 2.** Adult Zone-tailed Hawk (*Buteo albonotatus*) in its nest at Mesa del Carmen, Baja California. Photograph taken on 25 April 2025 by Mónica E. Riojas-López.

approach she flew off and performed vocal and visible distracting behavior, perching and calling on a branch as close as 30 m from us and 60-70 m from the nest, while the male remained at his usual perch. Once again, distracting behavior ceased as we walked to our vantage point on the cliff above the nest.

From the cliff we observed one egg and one chick in the nest (Fig. 4). The egg was whitish and faintly spotted. The chick, estimated at <15 cm, had white down on the head and black-speckled grayish white down on the body, based on which we estimated that the chick was about a week old (Johnson et al. 2020). Back-dating from 24 June, we further estimated that the chick would have hatched about 17 June, and the eggs would have been laid in mid-May. The chick vocalized a few times audibly. A Turkey Vulture (*Cathartes aura*), one of which seemed to be nesting on higher cliffs of Mesa del Carmen, flew to about 25 m from the Zone-tailed Hawk nest and was chased away by the nesting female. Between 10:30 h and 14:00 h, we observed the male Zone-tailed Hawk feed the chick twice, but we did not monitor constantly, and it could have fed several more times. We could not identify the food items delivered to the chick.

## Discussion

Our observations provide evidence of nesting by Zone-tailed Hawks in central Baja California, particularly in Valle de los Cirios, approximately 100 km from the previous southernmost confirmed



**Figure 3.** Zone-tailed Hawks (*Buteo albonotatus*) during overhead flights and vocalizations on 25 April 2025 to distract us from their nest at Mesa del Carmen, Baja California. Photograph taken on 25 April 2025 by Mónica E. Riojas-López.

breeding record in Valle de Montevideo in the peninsula of Baja California. Our confirmation of successful breeding by the Zone-tailed Hawk in this area enables incorporation of actions to secure persistence of the species as a regional breeder in the management plan of the Valle de los Cirios protected area. Furthermore, our observation on 5 June of two additional Zone-tailed Hawk adults, suggests other pairs could occur in the same area. Therefore, it would be useful to search for other breeding pairs of the Zone-tailed Hawk.

Our observation confirms the suggestion by Howell (2001) that Zone-tailed Hawks could breed in the Vizcaíno subdivision of the Sonoran Desert. The geographical proximity of the site to the Reserva de la Biósfera El Vizcaíno supports the possibility that the species may also breed there, where it would be worthwhile to conduct surveys. At this point, we cannot determine whether Zone-tailed Hawks have historically nested sparsely in the region and been overlooked, or whether they have only recently begun to breed there.

We estimated that the chick we observed on 24 June was about a week old, whereby eggs would



**Figure 4.** Zone-tailed Hawk (*Buteo albonotatus*) nestling and egg photographed in the nest at Mesa del Carmen, Baja California. Photograph taken on 24 June 2025 by María del Socorro Zárte-Martínez.

have been laid in mid-May. Furthermore, all our observations were of the female sitting low in the nest, which is concordant with incubation behavior (Johnson et al. 2020), and the female was the first to start distraction and deterrence behavior. This suggests that the nest observed on 25 April probably failed and the pair renested. Zone-tailed Hawks renest if their first brood fails early during incubation (Johnson et al. 2020), although no precise cases were provided by these authors.

Despite being in a protected area, a very large-scale mining project, expected to produce 190,000 tons of copper and 105,000 ounces of gold annually, is currently under development. The infrastructure will include an open-pit mine, concentration facilities, and a solvent extraction and electroplating plant (Morales 2024). Although the exact locations of these facilities and the access roads are not available to us, flagging tape hung from trees was observed within 100 m from the Zone-tailed Hawk nest, and many more mine vehicles were encountered in the area compared with those observed before 2024. Undoubtedly, intense human activity will increase notably in the area and could threaten the Zone-tailed Hawk nesting pair and additional pairs that might be in the area. Special dispositions should be established to protect them.

We recommend targeted surveys in Valle de los Cirios and Reserva de la Biósfera El Vizcaíno to locate additional breeding pairs and evaluate population status. Whether Zone-tailed Hawks have long bred in this region undetected or have recently expanded their range remains unclear. Nonetheless, their confirmed presence reinforces the ecological importance of central Baja California and the urgency of its protection.

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