

## BIRDS OF PREY AND THE BAND-TAILED PIGEON ON ISLA GUADALUPE, MEXICO

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**ABSTRACT:** We noted eight species of birds of prey at Isla Guadalupe during ten visits from 1991 to 2003. The most abundant species was the Burrowing Owl (*Athene cucularia*), found throughout the island; second most numerous was the American Kestrel (*Falco sparverius*), widespread but uncommon. The frequency of the kestrel paralleled the population of mice, peaking 1992, a year of El Niño. We observed the Red-tailed Hawk (*Buteo jamaicensis*), Osprey (*Pandion haliaetus*), and Peregrine Falcon (*Falco peregrinus*) two or three times each, the Prairie Falcon (*F. mexicanus*) once. Our records of the Northern Harrier (*Circus cyaneus*) and Band-tailed Pigeon (*Patagioenas fasciata*) are the first for Isla Guadalupe.

Early publications on the birds of Isla Guadalupe (Gaylord 1897, Anthony 1925, Hanna 1925) were devoted largely to the endemic species that “fascinated biologists” (Jehl and Everett 1985). Thus the history of some of the taxa now extinct, such as the Guadalupe Caracara (*Caracara lutosa*) are well documented, but some others remain scarcely known. Luna-Mendoza et al. (2005) and Quintana-Barrios et al. (2006) summarized the island’s avifauna most recently. Here, on the basis of 10 visits to Isla Guadalupe from 1991 to 2003, we report our observations of the island’s raptors and owls, their relationships with their prey, and an accidental occurrence of the Band-tailed Pigeon (*Patagioenas fasciata*).

### STUDY SITE AND METHODS

Isla Guadalupe (29° 00' N, 118° 20' W), of volcanic origin, lies within the waters of the California Current, 260 km off Baja California. Northwesterly winds predominate (Berdegué 1957). The orientation of the island and its elongated shape (37 km long and 6.5–9.5 km wide) act as a barrier against the prevailing winds and generate updrafts at various altitudes. Fog covers the mid-northern portion of the island almost daily. The climate is semi-arid to temperate, the annual mean temperature is 28° C, and winters are cool, mean temperature in the coldest month (January) being <17° C (Montañez et al. 2000).

The northern part of the island is high, culminating at Monte Augusta (1370 m). This area of the island has a relict forest of cypress trees (*Callitropsis guadalupensis*), an almost extinguished stand of pines (*Pinus radiata* var. *binata*), fan palms (*Brahea edulis*), island oaks (*Quercus tomentella*), grasslands dominated by several introduced species (*Hordeum murinum*, *Avena barbata*, *A. fatua*, *Bromus* spp.), and the introduced tree tobacco (*Nicotiana glauca*). Most of the middle part of the island is a large grass-covered plateau,

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culminating at Monte Esther (1250 m). To the south, the terrain is lower, with numerous small cinder cones, and vegetated largely by shrubs such as *Ambrosia camphorata* and introduced grasses (Rico-Cerda 1983).

Our observations were made during expeditions to census the Guadalupe Fur Seal (*Arctocephalus townsendi*), California Sea Lion (*Zalophus californianus*), and Northern Elephant Seal (*Mirounga angustirostris*) along the eastern coast of the island and while censusing Laysan Albatrosses (*Phoebastria immutabilis*) at Punta Sur (Gallo-Reynoso and Figueroa-Carranza 1996, Pitman et al. 2005). Aided with 10 × 50 binoculars, our observations were made from a 24-foot fiberglass skiff and spread over 213 days and 10 expeditions: 11–21 February, 16 June–22 July, and 27 November–7 December 1991, 3–25 February, 21 June–16 August, and 11–26 November 1992, 21 June–26 August 1993, 6–12 January 2000, 12–23 February, 2003, and 6–18 July 2003. Birds were also observed from our campsites, one on the southeastern coast of the island in the area called “Sealer’s ruins” or Corralitos, the other at the barracks of Campo Norte, and while we were traveling by the dirt roads from Punta Sur to Campo Norte, from Caleta del Oeste (west anchorage) to the airstrip in the island’s middle and from Campo Norte to El Aguaje.

### ANNOTATED LIST

Osprey (*Pandion haliaetus*). Visitor. Two birds observed flying together near Dos Arroyos (Twin Canyons) on the northeastern coast of the island in February and July 1992. No nests were observed, and no other birds were observed in 2000 and 2003. The Osprey has not been reported from Isla Guadalupe since specimens were collected on 11 July 1922 (Anthony 1925, Hanna 1925) and 25 July 1941 (Bond and Meyer de Schauensee 1944). Karl W. Kenyon visited Guadalupe in 1965 and saw no ospreys but reported two presumed nests near the north end of the island (Jehl and Everett 1985), near where we observed the species.

Red-tailed Hawk (*Buteo jamaicensis*). Howell and Cade (1954) considered the Red-tailed Hawk “apparently resident until at least 1932.” Anthony (1925) reported several in 1922. We observed the Red-tailed Hawk on three occasions. The first was in July 1991 at Monte Augusta, where two individuals ascended in circling flight. One captured a White-winged Dove (*Zenaida asiatica*). The White-winged Dove, known from Isla Guadalupe from only two previous reports (Howell and Cade 1954, Mellink and Palacios 1990), is a less likely prey for the Red-tailed Hawk than the Mourning Doves (*Z. macroura*), now a common resident of the island (population estimated at >2000; Barton et al. 2004, 2005). The second observation, in November 1991, was of a lone hawk flying over the mid-southern portion of the island. The third, also of a single individual, was in July 1993 near the airstrip in the middle of the island, elevation ~1000 m. In April 2007 S. Gallo-Corona (pers. comm.) observed a Red-tailed Hawk attack a fledgling Rock Wren (*Salpinctes obsoletus guadeloupensis*) that had been banded in the open area between the cypress forest and the pine grove.

Guadalupe Caracara (*Caracara lutosa*). Extinct (Anthony 1925, Jehl and Everett 1985). No report of living birds in the past 100 years. The history of this species, its taxonomy and extinction, were described by Abbott (1933) and Brown and Amadon (1968). We propose that its extinction was precipitated by the decimation of the fur and elephant seals, eliminating the pups, placental tissue, and carcasses that probably sustained these predators/carrion eaters.

American Kestrel (*Falco sparverius*). Resident. Bond (1943) described the Guadalupe population as a subspecies (*F. s. guadalupensis*), though other authors have

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not recognized this status. Jehl and Everett (1985) reported its population as small, and Barton et al. (2004, 2005) estimated a population of >15. Quintana-Barrios et al. (2006) suggested that on Guadalupe kestrels nest primarily in rock crevices. We observed kestrels regularly at all seasons from our campsite at Corralitos and along the road from the south end of the island to the cypress forest. In 1991, 1992, and 1993 we noted kestrels feeding on introduced House Mice (*Mus musculus*). Because of the abundance of grass seeds, the mouse population grew exponentially during the years of El Niño (1992–1993). In the summer of 1991, we observed only one mouse at our campsite at Corralitos, but in 1992 and 1993 mice were abundant. At our Corralitos campsite, we captured an average of 14 per night (standard deviation  $\pm 5$ , range 6–21,  $n = 25$  nights) in 1992,  $10 \pm 6$  (range 4–18,  $n = 27$  nights) in 1993, with a simple trap consisting of a 25-liter plastic bucket filled with 6 liters of sea water. We ran a steel wire through the middle of an empty tin can and secured it to the bucket's wall. For bait, we tied a bit of flour dough to the outside of the can. The trap was set near the rocks surrounding the campsite with a piece of wood to serve as a bridge and make it easier for the mouse to jump to the dough. When the mouse jumped, the can turned, and the mouse fell into the water and drowned. The number of kestrels observed per day during the summer increased significantly from 1991 (mean  $0.4 \pm 0.5$ , range 0–1,  $n = 20$  days) to 1992 (mean  $1.27 \pm 0.4$ , range 1–2,  $n = 30$  days) then decreased in 1993 (mean  $0.9 \pm 0.7$ , range 0–2,  $n = 40$  days).

Peregrine Falcon (*Falco peregrinus*). Possibly resident. In June 1991 we observed one bird flying and one bird standing on the cliffs of the mid-eastern coast of the island, at an estimated height of 45 m above sea level. In July 1992 we saw a solitary bird flying north along the coast at the Corralitos campsite. The only previous record for Isla Guadalupe is the observation of a single bird on 19 September 1896 by Gaylord (1897). Subsequently, the species has been noted in both summer and winter at the south end and on the west side of the island by Barton et al. (2004, 2005), Luna-Mendoza et al. (2005), and R. A. Erickson (pers. comm.), suggesting that it may now occur regularly and breed.

Prairie Falcon (*Falco mexicanus*). Vagrant. On 18 July 1992, near the Corralitos campsite, we noted a lone individual, identifying it as a Prairie Falcon by its size, generally pale color, and darker axillars. Bryant (1889) reported seeing the species on "two or three occasions" in 1886. Although Jehl and Everett (1985) suspected that Bryant had misidentified the Peregrine Falcon, the coloration of the individual we observed was distinct and corresponded to the Prairie Falcon.

Northern Harrier (*Circus cyaneus*). Vagrant. We noted a solitary male on 18 July 2003 at an elevation of 500 m in an area of basaltic rocks and grasses along the road from the airstrip to Campo Oeste. The bird was perched on a basaltic boulder then flew away, in its typical low slow flight with wings angled up in a shallow V. We identified it by its grayish color, white rump patch, facial disk, black wingtips and trailing edge of the wing, and long tail. This is the first record of this species at Isla Guadalupe.

Barn Owl (*Tyto alba*). Status uncertain. Sweet et al. (2001) found a flank feather near the airstrip and deposited it at Colección Nacional de Aves, Instituto de Biología, Universidad Nacional Autónoma de México, providing the first documentation of the Barn Owl on the island. In 1991 we found large pellets, larger than those of the Burrowing Owl, on the navigational light tower of Caleta Melpómene. The two pellets analyzed contained cat and mouse hairs and storm-petrel (*Oceanodroma* sp.) and Black-vented Shearwater (*Puffinus opisthomelas*) feathers. Because of their large size and containing cat hair these pellets may represent the Barn Owl. The navy personnel stationed at the military base at Punta Sur and fishermen at Caleta del Oeste have reported seeing large white owls or *tecolotes* on the island, although their reports have been sporadic (1991, 1993 and 2003).

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Burrowing Owl (*Athene cunicularia*). Resident; widespread and common (Jehl and Everett 1985, Barton et al. 2004, 2005). Common around our campsite at Corralitos year round and at our campsite at Campo Norte in winter. Burrowing Owls feed on Leach's Storm-Petrel (*Oceanodroma leucorhoa*) and on Xantus's Murrelet (*Synthliboramphus hypoleucus*), as we found the wings and some other body parts of these birds in the entrances of four owl burrows at the southern end of the island (near the lighthouse in 1991), at some burrows near our campsite at Corralitos (1991–1993), and at one place where the owls perch at the Campo Norte campsite (2003). Barton et al. (2004, 2005) also observed such predation at Islote Negro and Islote Zapato. Of 31 Burrowing Owl pellets recovered from a rocky perch near the navigational tower at Campo Norte in February and July 2003 (probably representing food items of a pair of owls over several months), 11 contained crickets, moths, and other insects, including parts such as shields, antennae and legs, 10 contained hair and bones of House Mice, three contained feathers of storm-petrels, one contained the introduced cockroach *Periplaneta americana*, one contained feathers of the Guadalupe Junco (*Junco insularis*), two contained Burrowing Owl feathers, one contained sand, and, unexpectedly, two contained skin and hair of the elephant seal, which are shed each spring during the seals' molt on the beach. We infer that the owls scavenge the elephant seals' shed skin.

Band-tailed Pigeon (*Patagioenas fasciata*). Vagrant. On 12 July 2003, we saw one adult in the canyon that comes down from Aguaje to Campo Norte. It was sitting on a rock overlooking a cliff; when we approached to take photographs it took flight. The bird flew over us several times before coming to rest far away on a towering cliff. We identified it by the white band on the nape, green iridescence on the neck, purplish head and chest, yellow beak, grayish tail with a darker gray band, and grayish wings with darker primaries. It was similar in size to the Rock Pigeon (*Columba livia*), found at Punta Sur, where it was introduced by the military personnel and fishermen. This constitutes the first record of the Band-tailed Pigeon for Isla Guadalupe.

## DISCUSSION

The American Kestrel and Burrowing Owl are the only birds of prey definitely known to breed at Isla Guadalupe currently. The status of the Osprey, Red-tailed Hawk, Peregrine Falcon, and Barn Owl, possibly resident in very small numbers, requires further investigation.

Most studies of the avifauna of Isla Guadalupe have focused on seabirds and wooded areas, not the grasslands and lowlands where potential prey for raptors are more numerous. Certain insects (principally moths, crickets, and cockroaches), mice, doves, feral cats, and even feral dogs supply prey for raptors throughout the year. Still, there are no detailed studies of these birds' feeding habits, their relation to the vegetation, or their general ecology on the island. With the eradication of the feral goats responsible for extinctions of several plants (Ezcurra et al. 2005) and the ecosystem's nascent recovery, such studies should be encouraged. Mexico has taken a major step toward the island's conservation by declaring Isla Guadalupe a biosphere reserve (Diario Oficial de la Federación 2005).

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Burrowing Owl

Sketch by George C. West