

SHORT COMMUNICATIONS

General Biology

ORNITOLOGIA NEOTROPICAL 7: 149–151, 1996
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NEST SITE RECORDS OF THE YUCATAN GREAT HORNED OWL IN SIAN KA'AN, MEXICO

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Key words: Great Horned Owl, *Bubo virginianus* breeding, mangrove, Yucatan Peninsula, Mexico.

The Great Horned Owl (*Bubo virginianus*) is a widely distributed species in the Americas, and breeds in a variety of habitats. Nesting of the Great Horned Owl has been studied mostly in United States (e. g., Eaton 1988, Rohner & Doyle 1992). Although the Great Horned Owl occupies most Mexican states (Enríquez *et al.* 1993), few studies have been conducted on this species in Mexico (Petersen & Petersen 1979, Llinas-Gutierrez *et al.* 1991). Even less is known about the Great Horned Owl in tropical portion of Mexico. Here we present nesting observations, breeding site records and some behavioral interactions of the rare Yucatan Great Horned Owl (*B. v. mayensis*) from Sian ka'an, Quintana Roo.

STUDY AREA

The Sian Ka'an Biosphere Reserve (SKBR) is located on the eastern coast of the Yucatan Peninsula, Quintana Roo, Mexico (19°05' – 20°06'N; 87°22' – 88°00'W). The SKBR is dominated by lowland tropical forest, and mangrove swamps, marshes and savannahs are the main vegetation types along the nearby coast. The reserve com-

prises 528,000 ha and contains two major bays, Bahía de la Ascensión and Bahía del Espiritu Santo. Mangroves (*Rhizophora mangle*, *Laguncularia racemosa*, *Avicennia germinans*, and *Conocarpus erecta*) dominate the keys (small islands) in the bays. Some keys are breeding sites of waterbirds, especially herons. Annual mean rainfall is 1130 mm. The rainy season occurs from May through October.

RESULTS

We found three nests of the Great Horned Owl, two on keys and one on the mainland. We found the first one on a mangrove key, near San Juan, on 15 February 1992. This nest, 1.6 m above water level and 510 mm in diameter, resembled a nearby Bare-Throated Tiger-Heron (*Tigrisoma mexicanum*). Ten meters distant from this nest was an active Bare-Throated Tiger-Heron nest that contained two heron eggs. At this date the owl nest contained a chick (63 g), an egg (egg length: 49.6 mm; egg breadth: 43.3 mm; egg mass: 45.5 g), a heron chick (38.5 g), and remains of a mouse (*Peromyscus* sp.) (Fig. 1). During a second visit one month later, we did not find the owl's nest and we suppose that the entire nest fell into the water. Only the Tiger-Heron nest with two heron chicks remained on the key.

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FIG. 1. Nest of the Yucatan Horned Owl containing an owlet, an owl egg, a Bare-Throated Tiger-Heron chick, and remains of a mouse, at Bahía de la Ascensión, Sian Ka'an, Mexico.

We located the second nest on 15 February 1992 on a dead casuarina tree (*Casuarina equisetifolia*) at Vigia Grande, Bahía de la Ascensión. This nest was 12 m above ground, and 1200 mm diameter. It had been built by Ospreys (*Pandion haliaetus*) and was constructed with mangrove branches. An adult owl and one four-week old owlet were in the nest. A month later we found the nest blown over by the wind, and no owl remains were found.

The third nest was an abandoned Reddish Egret (*Egretta rufescens*) nest. It was found on 11 February 1993 in a small mixed-species heronry (diameter 20m) called "Gran Pin", in Bahía del Espíritu Santo. This was in a red mangrove 7.0 m above the ground, with a diameter of 430 mm, and was the smallest owl nest found. It contained two owlets about two weeks and an adult. On the key, there was an active Great Blue Heron (*Ardea herodias*) and Reddish Egret nests, and seven other empty heron nests. On a second visit on 8 March 1993, we saw both well-feathered owlets walking in the mangrove branches. A month later, no owlets were seen and we assumed they had fledged.

Additional signs of a nesting pair of owls was also found on 29 January 1993 when we saw a pair of owls perched close to an abandoned heron nest. The nest was on a mangrove island 1.9 m above the ground and was 80 cm in diameter. It was in Gaytanes key, Bahía de la Ascensión. This nest was not active when we returned the following month.

DISCUSSION

At Sian Ka'an reserve, the Yucatan Great Horned Owl uses a variety of nests built by other coastal bird species. These include the Bare-Throated Tiger-Heron, Reddish Egret, Osprey, and, likely, Great Blue Herons. The nests utilized varied in inside diameter and height above the ground. The smallest Gran Pin nest we observed produced two owlets. In contrast to the other nests, the Gran Pin nest was in a place protected from the wind and human disturbance. Strong winds blew down waterbird and Osprey nests at Sian Ka'an, and may have also led to breeding failure of Yucatan Great Horned Owls.

The presence of a Bare-Throated Tiger-Heron chick in the Great Horned Owl nest at San Juan (Fig. 1) gives cause for some speculation. First, both the owls and herons were breeding simultaneously. It is possible that a Tiger-Heron egg or chick was moved by the owl from its original nest. The heron chick appeared uninjured and blood on the bill suggested that it might have been fed by the owl parents. Several authors (Houston & Whitfield 1975, Gossett & Smith 1993, Spofford & Amadon 1993) have discussed raptors that bring live prey to their young. The second possibility is that the Great Horned Owls took over an active Bare-Throated Tiger-Heron nest that contained one egg. The owl then laid her eggs and incubated the mixed "clutch".

In the tropics, the reproductive period of *Tigrisoma* and *Bubo* could be similar. The incubation period may be similar enough to allow the construction of a new nest for the Tiger Heron on the same key. Some bird species may aggressively expropriate active nests of other species by throwing out the owner's eggs or chicks and starting to breed (Welty 1982). Take-over of nests of other species is a poorly docu-

mented behavior in owls (Eaton 1988, Holt & Leasure 1993), although Eaton (1988) reported that the Great Horned Owl takes over nests newly built by hawks in New York.

Limited availability of old nests might lead to competitive evolution by some species for freshly built or occupied nests. Strong, enclosed nests of some passerine birds are in special demand by another bird species that do not build their own nests (Collias & Collias 1984). Limited suitable nests and competition for such sites, may pressure the Yucatan Great Horned Owl to occupy active nests of other birds (e.g., Ciconiiformes). Nest sites used by Great Horned Owls in North America are variable. They most often use old stick nests in trees of Red-tailed Hawks (*Buteo jamaicensis*), Ospreys, Bald Eagles (*Haliaeetus leucocephalus*), Great Blue Herons or American Crows (*Corvus brachyrhynchos*) (Eaton 1988, Rohner & Doyle 1992), although tree cavities, holes in cliffs, epiphytes, buildings, and even ground sites are also used.

The owls' presence possibly caused egrets to abandon their nests at SKBR. Great Horned Owls feed opportunistically on a great variety of prey, and may prey upon heron and egrets (Eckert 1987, Gretch 1987). Nisbet & Welton (1984) and Holt (1994) reported owl predation on colonially nesting seabirds. This predation caused abandonment of nests and mortality of adults and juveniles. The Yucatan Great Horned Owl may cause nest desertion in some ciconiiform colonies on the eastern Yucatan Peninsula. On the other hand, availability of old nests constructed by other birds it is probably a powerful factor that limits distribution, abundance and breeding success of the rare Yucatan Great Horned Owl at Sian Ka'an.

ACKNOWLEDGMENTS

We thank the Centro de Investigaciones de Quintana Roo for supporting our field work. We are also indebted to Juan Guzmán who provided his time and assistance for this work, and to Alfredo Marin and Felipe Coello for field assistance. Joe and Elsie Marshall, Stuart Houston, Joop van Veen, Denver Holt, and two anonymous reviewers for providing helpful comments on the manuscript.

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Accepted 16 July 1996.