

NEST RECORD AND DIETARY ITEMS FOR THE BLACK HAWK-EAGLE  
(*Spizaetus tyrannus*) FROM THE YUCATAN PENINSULA

J. LUIS RANGEL-SALAZAR

*Departamento de Ecología Terrestre, Centro de Investigaciones de Quintana Roo,  
Apdo Postal 424, 77000 Chetumal, Quintana Roo, México*

PAULA L. ENRIQUEZ-ROCHA

*Apdo Postal 4-071, 06400 México, D.F., México*

Most large tropical raptors are poorly known, particularly those species that inhabit New World tropical forests. We believe that the continuing decline of raptor populations in tropical forests is due to habitat loss, shooting, trade, pesticide use, and exotic competitors (Ramos 1985, Thiollay 1985). However, little is known regarding the life history and ecology of large raptors that inhabit those forests.

The Black Hawk-eagle (*Spizaetus tyrannus*) is a large Neotropical species inhabiting lowland forests, forest edges, and partially cleared woods. The species is resident from central Mexico to Bolivia, Paraguay, and north-eastern Argentina and southeastern Brazil (Blake 1977, Amadon and Bull 1988). Black Hawk-eagles are uncommon to common in Belize (Clinton-Eitniear 1986) and Guatemala (Vannini 1989). Their populations are decreasing in Mexico due to habitat loss (Ramos 1986), but it is not considered to be a vanishing species (Burton 1987) nor is it listed as threatened in Mexico (SEDUE 1991). It has, however, been reported less frequently on the Yucatan Peninsula than the endangered Ornate Hawk-eagle (*S. ornatus*; Paynter 1955, López-Ornat et al. 1989). Almost no information is available on breeding biology or food habits and only one nest site has been described in Panama (Smith 1970). In this paper we describe a Black Hawk-eagle nest and document some dietary items for the species.

#### SITE LOCATION AND METHODS

The nest was in a tropical deciduous forest in the central part of Quintana Roo on the Yucatan Peninsula (19°40'N 88°05'W). Terrain there is flat and less than 40 m above sea level. The mean annual temperature is 27°C and mean annual precipitation is 1200 mm falling mainly from May–October.

We measured the nest and collected food remains in and below the nest. Prey were identified using bird and mammal reference collections of the Instituto Nacional de Investigaciones Forestales y Agropecuarias in Bacalar. Nest construction materials were also collected and identified in the Centro de Investigaciones de Quintana Roo herbarium in Chetumal City.

#### RESULTS

The nest was found on 7 March 1991 in a 23 m tall mahogany tree (*Swietenia macrophylla*) with a diameter at

breast high of 1.94 m and foliage beginning at 9.2 m. The nest was 17.2 m above the ground and had the following dimensions: outer diameter = 0.70 m, outer depth = 0.66 m, bowl diameter = 0.4 m, and bowl depth ranged from 5.1–7.6 cm. An immature bird was seen on 8 March close to the nest. On 7 April we measured the nest and collected prey items. Adult birds were heard but not seen near the nest on that date.

Nest materials were identified as zapote (*Minilkara zapote*), txalam (*Lysiloma latisiliquia*), and a vine (*Styzyphyllum riparium*). Sticks ranged from 20–45 cm in length and from 0.5–1.5 cm in diameter.

Keel-billed Toucans (*Ramphastos sulfuratus*) were the most abundant prey species (Table 1). Mammals represented 17.6% of the total prey remains.

#### DISCUSSION

The eagle nest we report was in a fork of one of the tallest trees in the area. A nest of the Black Hawk-eagle found in Panama was in the crown of a royal palm (*Roystonea* sp.) 13.5 m above the ground (Smith 1970), and was double the outer diameter but considerably shallower than our nest. The nest we describe was similar to those reported for the Ornate Hawk-eagle in Tikal (Flatten et al. 1989), but only about half as large.

In contrast to our dietary results, Clinton-Eitniear (1986) reported small mammals as the most common food for the Black Hawk-eagle. Although the Ornate Hawk-eagle eats primarily small mammals, toucans also represent an important resource in the breeding season (Madrid et al. 1991). Both eagles commonly eat several bird and mammal species, and reptiles have been identified in their diet a few times (Smith 1970, Clinton-Eitniear et al. 1991).

The nest we describe was also occupied in the 1990 breeding season (M. Cab pers. comm.); a juvenile and adults were seen on four occasions near the nest. It is possible that the Black Hawk-eagle breeds only every third year in Yucatan as it does in Panama (Smith 1970). The Ornate Hawk-eagle also nests every third year in Tikal (Madrid et al. 1991).

Tourism and deforestation for cattle ranching and the timber industry are reducing habitat for large eagles such as the Black Hawk-eagle in the Yucatan Peninsula. Future studies should be focused on the ecology of this species so that conservation efforts may follow. Particularly needed is information on breeding biology, diet, and home range size.

RESUMEN.—Un nido del Aguila Tirana *Spizaetus tyrannus*

Table 1. Prey remains of Black Hawk-eagle ( $N = 17$ ) collected on 7 April 1991, in Central Quintana Roo, México.

PREY	NUMBER OF ITEMS	PERCENT
<b>Mammals</b>		
Yucatan Squirrel ( <i>Sciurus yucatanensis</i> )	1	5.9
Squirrel ( <i>Sciurus</i> sp.)	1	5.9
Raccoon ( <i>Procyon lotor</i> )	1	5.9
Total mammals	3	17.7
<b>Birds</b>		
Keel-billed Toucan ( <i>Ramphastos sulfuratus</i> )	7	41.2
Collared Aracari ( <i>Pteroglossus torquatus</i> )	2	11.7
Unidentified	5	29.4
Total birds	14	82.3
Total prey	17	100.0

se encontró cerca de la Reserva de la Biósfera de Sian ka'an, Quintana Roo, México. El nido se localizó a una altura de 17.18 m sobre un árbol de Caoba de 23 m de alto. El nido presentó 0.70 m de diámetro externo, 0.66 m de profundidad externa, 0.43 m de diámetro interno y 0.05 a 0.075 m de profundidad interna. Los restos alimenticios encontrados fueron principalmente del Tucán Piquiverde y del Tucancillo Collarejo. También se encontraron restos de mamíferos y otras aves. El Aguila Tirana no se ha considerado como una especie que esté amenazada y tampoco se encuentra en la lista mexicana de aves a proteger.

ACKNOWLEDGMENTS

We would like to thank M. Cab, C. Gonzalez, H. Bahena and E. Escobedo for field assistance. Thanks especially to J. Espinoza for comments and English translation, to J. Nava for identification of mammal remains, and to E. Cabrera for identification of plants. J. Clinton-Eitniear and P.H. Bloom provided helpful comments on the manuscript.

LITERATURE CITED

AMADON, D., AND J. BULL. 1988. Hawks and owls of the world: a distributional and taxonomic list. *Proceedings of the Western Foundation of Vertebrate Zoology*. Los Angeles, CA U.S.A.

BLAKE, E. 1977. *Manual of Neotropical birds*. Vol. I. Univ. of Chicago Press, Chicago, IL U.S.A.

BURTON, P. 1987. *Vanishing eagles*. Chartwell Books Inc., Secaucus, NJ U.S.A.

CLINTON-EITNIEAR, J. 1986. Status of the large forest eagles of Belice. *Birds Prey Bull.* 3:107-110.

———, M.R. GARTSIDE AND M.A. KAINER. 1991. Ornate Hawk-Eagle feeding on green iguana. *J. Raptor Res.* 25:19-20.

FLATTEN, C., J. MADRID, A. HERNÁNDEZ AND R. GERHARDT. 1989. Observaciones del nido de un Aguilucho de Penacho (*Spizaetus ornatus*). Reporte de Progreso II. Proyecto Maya. The Peregrine Fund, Inc., Boise, ID U.S.A.

LÓPEZ-ORNAT, A., J. LYNCH AND B. MACKINNON. 1989. New and noteworthy records of birds from the eastern Yucatan peninsula. *Wilson Bull.* 101:309-409.

MADRID, J., H. MADRID, S. FUNES, J. LÓPEZ, R. BOTZOC AND A. RAMOS. 1991. Biología de la reproducción y comportamiento del Aguila Elegante (*Spizaetus ornatus*), en el Parque Nacional de Tikal. Reporte de Progreso IV. Proyecto Maya. The Peregrine Fund, Inc., Boise, ID U.S.A.

PAYNTER, R. 1955. The ornithogeography of the Yucatan peninsula. *Bull. No. 9*. Peabody Museum of Natural History, Yale Univ., New Haven, CT U.S.A.

RAMOS, M. 1985. Endangered tropical birds in Mexico and northern Central America. Pages 305-318 in I. Newton and R. Chancellor [EDS.], *Conservation studies on raptors*. Vol. 5. ICBP Technical Publication, Cambridge, U.K.

———. 1986. Birds in peril in Mexico: the diurnal raptors. *Birds Prey Bull.* 3:26-42.

SEDUE. 1991. Diario Oficial de la Federación. *Tomo CDLII* (12):17-36.

SMITH, N.G. 1970. Nesting of King Vulture and Black Hawk-Eagle in Panama. *Condor* 72:247-248.

THIOLLAY, J.M. 1985. Falconiforms of tropical rain forest: a review. Pages 155-165 in I. Newton and R. Chancellor [EDS.], *Conservation studies on raptors*. Vol. 5. ICBP Technical Publication, Cambridge, U.K.

VANNINI, J. 1989. Neotropical raptors and deforestation: notes on diurnal raptors at Finca El Faro, Quetzaltenango, Guatemala. *J. Raptor Res.* 23:27-38.

Received 29 September 1992; accepted 25 February 1993