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OBSERVATIONS ON THE BREEDING OF TURQUOISE-BROWED MOTMOTS IN YUCATÁN

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Motmots typically excavate burrows in banks and lay their eggs on bare earth in terminal chambers of these burrows. The works of Skutch (1947), Klaas (1968), and Orejuela (1977) indicate that in much of Middle America, the behavior of the Turquoise-browed Motmot (*Eumomota superciliosa*) follows this pattern. In areas of the Yucatán Peninsula that possess shallow soils, however, this motmot commonly frequents the vicinity of natural wells or sinkholes (cenotes) and cave entrances during the breeding season (Gaumer 1881–1882, Klaas 1968, Orejuela 1977, Reddell 1977), using recesses in the limestone walls as sites for egg deposition. Differences among the observations of these authors and others (see also, Paynter 1955) suggest considerable plasticity in the reproductive pattern of this motmot. Here we present data on *E. superciliosa* taken at yet a different type of breeding site: elevated apertures in the walls and ceilings of rooms of archaeological ruins at Uxmal, Kabah, and Sayil, Yucatán, Mexico.

Observations were made at Uxmal on 19 June and 3 and 4 July 1979, and at Kabah and Sayil on 3 July 1979. On all dates, Turquoise-browed Motmots were abundant (at least 50) near The Governor's Palace and The Nunnery Quadrangle at Uxmal. Many of the birds were carrying food to nestlings, which were vocalizing in apertures, rectangular and circular in cross section, which had been made by the Maya in the walls and ceilings of both the inner and outer rooms of these structures. Several rooms sheltered more than one pair of motmots. Here, and at Kabah and Sayil, we saw no agonistic behavior or visible manifestation of territoriality.

On 3 and 4 July, recently fledged young (as judged by their size and flight ability) were observed at Uxmal; they uttered vocalizations similar to, but softer than, those given by adults. Twice on 3 July, and once on 4 July, an adult was flushed from the same clutch of three (clean) white eggs deposited on a thin layer of fine-particulate breakdown on the floor of a short, broad (approximately 40 cm length, 25 cm width, 14

cm height) hole located 2.5 m above floor level in the inner room of a 2-room complex within The Governor's Palace at Uxmal. This observation supports Skutch's (1945) judgment that the attribution by Gaumer (1881–1882) of relatively elaborate nests to well (cenote?)-nesting Yucatán Turquoise-browed Motmots was questionable. Together with our sightings of recently fledged young on these dates, this observation also supports the data of Klaas (1968) taken at a bank-burrowing colony near Champotón, Campeche on 9 July 1962 and his hypothesis that these motmots may rear two broods per season. Recent work on this species near Escárcega, Campeche, by Orejuela (1977), however, indicates that early July clutches in that area represent late starts and renestings. An additional observation made at Uxmal is of interest in regard to potential helpers at the nest in this motmot: On 4 July, we watched three individuals of similar size (apparently adult, but rectrices were hidden) perched on a rock within 30 cm of each other with prey in their bills; one held a large scorpion. The group appeared to be waiting to enter the chamber from which we watched. Unfortunately, they flushed at the approach of other visitors to the area, and we could not continue observation. I thank James Reddell and Norberto Gonzalez for their assistance.

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FURTHER ADVANCES OF HOUSE SPARROWS INTO THE BRAZILIAN AMAZON

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The House Sparrow (*Passer domesticus*) is advancing northward in South America in a pincer-like movement, mainly along the Pacific and Atlantic coasts. It

was introduced to Aconcagua province in Chile in 1904 (Goodall et al. 1946), reached the Peruvian coast in 1951 (Koeppke 1961) and Guayaquil at 2°S in Ecuador by 1969 (Crespo 1977). By 1977, the sparrows had crossed the equator and were thriving in Esmeraldas, in north coastal Ecuador at 1°N (Crespo 1977).

The species reached the Amazon region of Brazil in about 1964, having spread along the Belém-Brasília highway to Imperatriz and Marabá (Smith 1973). By 1971, a flourishing population had become established in the Transamazon Highway town of Marabá, whence it could readily colonize the 3,000-km pioneer highway