

First record of Red-footed Boobies nesting in the Gulf of Mexico

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THE RED-FOOTED BOOBY (*SULA sula*), a widespread, pantropical seabird, may today be the world's most abundant booby (Nelson 1978). The species occurs widely in the Caribbean, breeding on many small islands near Belize, Puerto Rico, and the Virgin Islands (Clapp *et al.* 1982; A.O.U. 1983). However, it has rarely been observed in the Gulf of Mexico (Lowery and Newman 1954; Duncan and Havard 1980) and has not been known to nest there (Paynter 1955; Nelson 1978).

While one of us (Tunnell) was conducting ecological studies of the mollusk fauna associated with the coral reefs around the Yucatán Peninsula, several opportunities were taken to examine the

seabird colonies on the islands. Late in the afternoon of January 28, 1986, and early the following morning, I found and photographed two nesting Red-footed Boobies on Isla Desertora (22°30'N, 89°45'W), Alacrán Reef Complex, Campeche Bank, Mexico. Another nest and adult of the same species were photographed on the island July 9, 1986. These observations represent the first nesting records of the Red-footed Booby in the Gulf of Mexico. This locality extends the known breeding range of the species approximately 600 kilometers northeast of the northernmost Caribbean colony, Half Moon Cay, which is situated 80 kilometers east of Belize City, Belize (Verner 1961).

Alacrán Reef is located approximately 100 kilometers north of Progreso Yucatán, and is the largest of several coral reef complexes situated on the Campeche Bank to the north and west of the Yucatán Peninsula (Kornicker *et al.* 1959; Bonet 1967; Logan 1969). The reef complex is about 23 kilometers long and 11 kilometers wide, with six emergent cays along the western and southern rim. Five of the sand-coral cays offer ideal nesting habitat for seabirds. Reports on the avian fauna of these islands have been published at intervals for nearly three centuries (Dampier 1699, Millspaugh 1916; Kornicker *et al.* 1959; Bonet and Rzedowski 1962; Fosberg 1962; Bonet 1967; Folk 1967; Logan

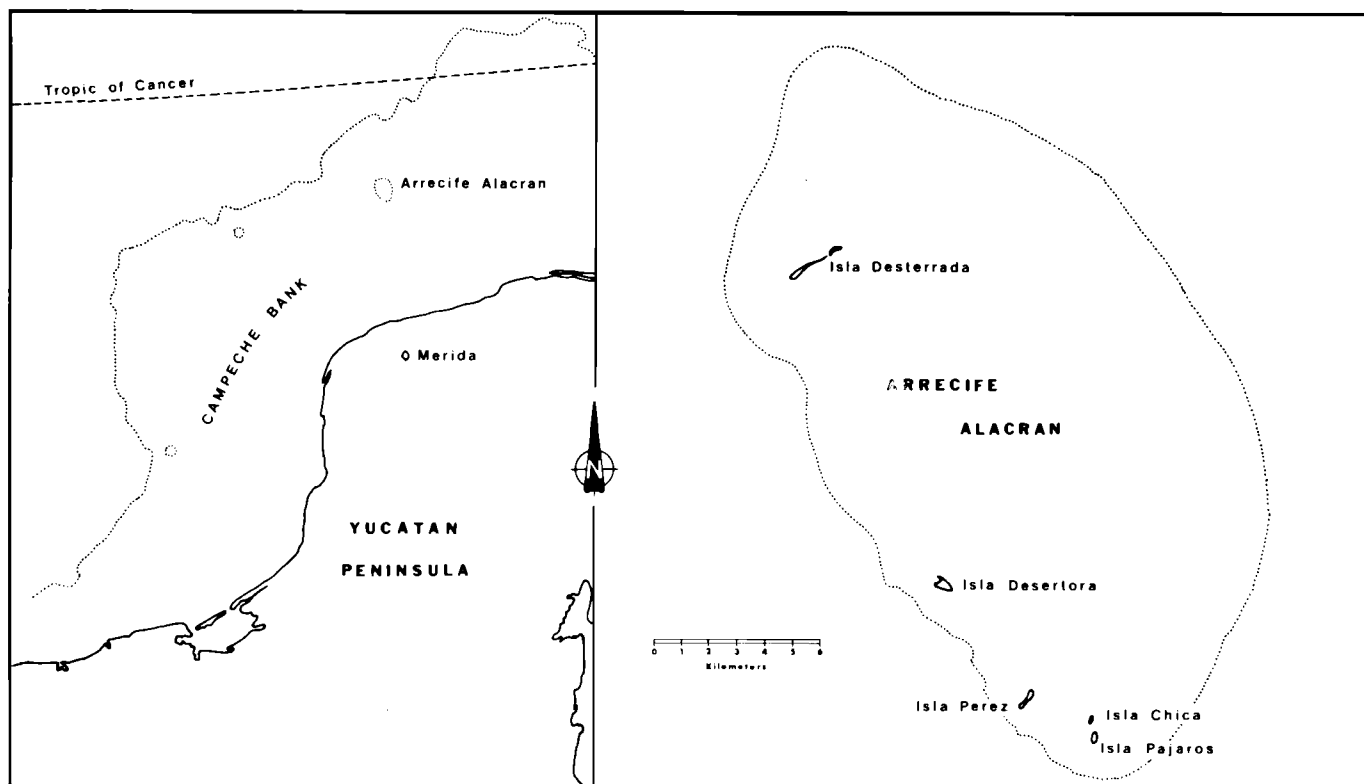


Figure 1. Alacrán Reef and its location on the Campeche Bank off Yucatán, Mexico. Detail map shows the location of Isla Desertora in relation to the other islands in the reef.

1969; Boswall 1978) but no account has included mention of Red-footed Boobies.

Isla Desertora is located on the leeward edge of the Alacrán Reef platform and is approximately one-third the distance (nine kilometers) from the southern end of the reef to the northern end. The island is bordered on the north by shallow, submerged sand flats. The extensive shallow reef waters to the east and southeast contain extensive beds of seagrass (*Thalassia testudinum*) and scattered coral heads. To the south and southwest of the island lie the deeper waters over the continental shelf.

The island is shaped like an elongated triangle, measuring approximately 700 meters along an east-to-west axis and 300 meters across the widest end (Folk 1967). Gently to steeply sloping white sand beaches that range from ten to 15 meters in width surround the low, central portion of the island. Most of the island, which nowhere exceeds 2.5 meters in elevation, is covered by scattered low vegetation consisting mainly of grasses and succulent herbs interspersed with large barren sandy areas. The northeastern periphery and southwestern corner of the island are flanked by a dense hedge of 0.5-meter-high *Tournefortia gnaphalodes* bushes.

The two Red-footed Booby nests found in January were situated atop the *Tournefortia* bushes on the northeastern edge of the island. The nests, which were similar in construction to those described by Verner (1961), were located approximately 50 meters from the shoreline and were about three meters apart. An adult attended the single egg in each nest during each visit to the site.

The Red-footed Boobies shared the *Tournefortia* bushes with 122 Magnificent Frigatebirds (*Fregata magnificens*) which had arranged themselves into four distinct subcolonies. One of the subcolonies with 19 frigatebird nests was in the same clump of *Tournefortia* as the Red-footed Booby nests but the nearest frigatebird nests were at least five meters away. Approximately 2000 Masked Booby (*Sula dactylatra*) nests were scattered throughout the low vegetation and open sandy areas on the center of the island.

During a return visit to the island on July 9, 1986, another Red-footed Booby nest was found and photographed atop a one-meter-tall *Tournefortia* bush immediately to the east of the previous nest locality. This nest also contained a single

egg and was continuously attended by an adult. No other nesting birds were found in the immediate vicinity, but there were 17 nests containing large Magnificent Frigatebird chicks and approximately 1000 Masked Booby nests elsewhere on the island.

As the only tree- and shrub-nesting sulid, the Red-footed Booby has a distribution that is closely tied to the presence of vegetation tall enough to support an elevated nest (Murphy 1936). Since Millsbaugh (1916) found no *Tournefortia* bushes or any other shrubs on Isla Desertora during his survey of vegetation in 1899, and 60 years later only a few scattered bushes were present (Bonet and Rzedowski 1962; Fosberg 1962), we assume that the development of extensive shrub habitat on the island has been fairly recent. Boswall (1978) did not find them on any island in the Alacrán Reef complex when he apparently was the last ornithologist to visit the reef in 1975. Consequently, the appearance of nesting Red-footed Boobies on Isla Desertora must have taken place within the last ten years.

Red-footed Boobies are unusual because they occur in several different color morphs (Nelson 1978). All of the individuals nesting on Isla Desertora in 1986 were in adult plumage of the white morph which is the most common form throughout the species' range. The nesting of this booby in the Gulf of Mexico may increase the frequency of sightings of the species in Gulf waters and coastal habitats.

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LITERATURE CITED

- AMERICAN ORNITHOLOGISTS' UNION. 1983. Check-list of North American birds. 6th ed. Laurence, Kansas.
- BONET, F. 1967. Biogeología subsuperficial del Arrecife Alacranes, Yucatán. *Univ Nac. Méx., Bol. Inst. Geol.* 80:1-192.
- BONET, F., and J. RZEDOWSKI. 1962. La vegetación de las islas del Arrecife Alacranes, Yucatán (México). *Anales Escuela Nac. Cienc. Biol.* 6:15-59.
- BOSWALL, J. 1978. The birds of Alacran Reef, Gulf of Mexico. *Bull. Brit. Ornithol Club* 98:99-109.
- CLAPP, R. B., R. C. BANKS, D. MORGAN-JACOBS, and W. A. HOFFMAN. 1982. Marine birds of the southeastern United States and Gulf of Mexico. Part I. Gaviiformes through Pelecaniformes. U.S. Fish and Wildlife Service, Office of Biological Services, Washington, D.C. FWS/OBS-82/01.
- DAMPIER, W. 1699. Two voyages of Campechy. Pp. 1-132 in M. N. Penzer (ed.), *Voyages and descriptions*, Vol. 2. James Knopon, London.
- DUNCAN, C. D., and R. W. HAVARD. 1980. Pelagic birds of the northern Gulf of Mexico. *Am. Birds* 34:122-132.
- FOLK, R. L. 1967. Sand cays of Alacran Reef, Yucatan, Mexico: Morphology. *J. Geol.* 75:412-437.
- FOSBERG, F. R. 1962. A brief study of the cays of Arrecife Alacran, a Mexican atoll. *Atoll Res. Bull.* 93:1-25.
- KORNICKER, L. S., F. BONET, R. CANN, and C. M. HOSKIN. 1959. Alacran Reef, Campeche Bank, Mexico. *Publ. Inst. Mar Sci., Univ. Texas* 6:1-22.
- LOGAN, B. W. 1969. Coral reefs and banks, Yucatan Shelf, Mexico (Yucatan Reef Unit). Pp. 129-198 in Logan, B. W., J. L. Harding, W. M. Ahr, J. D. Williams and R. S. Sneed (eds.), *Carbonate sediments and reefs, Yucatan shelf, Mexico*. Am. Assoc. Petrol. Geol., Memoir II.
- LOWERY, G. H. Jr., and R. J. NEWMAN. 1954. The birds of the Gulf of Mexico in Gulf of Mexico: Its origin, waters and marine life. *Fishery Bull.* 89, *U. S. Fish and Wildl. Serv. Fishery Bull.* 55:519-540.
- MILLSBAUGH, C. F. 1916. Vegetation of Alacran Reef. *Field Mus. Nat. Hist. Publ.* 187. *Bot. Ser.*, 2:421-431.
- MURPHY, R. C. 1936. Oceanic birds of South America. Vol. II. *Amer. Mus. Nat. Hist.*, New York.
- NELSON, J. B. 1978. The Sulidae. Gannets and boobies. Oxford Univ. Press, Oxford.
- PAYNTER, R. A., Jr. 1955. The ornithogeography of the Yucatan Peninsula. *Bull. Peabody Mus. Nat. Hist., Yale Univ.* 9:1-329.
- VERNER, J. 1961. Nesting activities of the Red-footed Booby in British Honduras. *Auk* 78:573-594.
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