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Historical Distribution of the Extinct Tropical Seal, *Monachus tropicalis* (Carnivora: Phocidae)

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The earless (or hair seals) of the phocid subfamily Monachinae were widespread in the Northern Hemisphere and were the dominant seals of the North Atlantic in the late Miocene and Pliocene (King 1983). Of this diverse group only three species of monk seals (*Monachus*) survived to the Recent, with disjunct, subtropical distributions in the Northern Hemisphere. Mediterranean monk seals (*Monachus monachus*) occur in the Mediterranean, Adriatic, and Black seas, on the Atlantic coasts of Morocco and Mauritania, and on the Canary Islands; Hawaiian monk seals (*M. schauinslandi*) are endemic to the Hawaiian Islands; and the tropical monk seal (*M. tropicalis*) occurred in the Caribbean Sea and the Greater Antilles. These three species were the only post-Pleistocene seals in the subtropics of the Northern Hemisphere.

Monk seals were heavily persecuted as a source of meat by mariners and later were sought by commercial sealing operations primarily as a source for oil (Allen 1880). Other human-caused factors, such as entanglement and drowning of seals in fishing gear and slaughter by fishermen who viewed them as competitors, contributed to their decline (Rice 1973). Tropical monk seals were suspected to be critically endangered as early as the turn of the century (Gaumer 1917) and were considered extinct by Kenyon (1977, 1981) and Le Boeuf et al. (1986). The last reliable sighting of *M. tropicalis* was a small colony observed in 1952 at Serranilla Bank (Rice 1973), a remote cay about midway between Jamaica and Honduras. The other two species are highly endangered (Nowak 1991), with population estimates for *M. schauinslandi* of 500–1000 and for *M. monachus* of fewer than 500 individuals (Anonymous 1994). *Monachus* rank among the least known and most endangered of all seals.

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Little was learned of the biology of *Monachus tropicalis* before its extinction. Nowak (1991:1250) summarized its distribution as “throughout the West Indies and along the coasts of Florida, Yucatán, and eastern Central America.” In Mexico breeding populations of tropical monk seals were known to have occurred on Arrecife Alacrán and Arrecife Triángulos, off the northern coast of Yucatán, and individuals were observed occasionally along the coast of the peninsula itself (Allen 1942; Gaumer 1917). We present historical evidence for the occurrence of *Monachus tropicalis* off the coast of northern Veracruz in the 16th century, which extends its known distribution considerably westward in the Gulf of Mexico.

Hernando Cortés, leader of the Spanish conquistadors, arrived on the mainland of Yucatán in 1518 and traveled throughout the country until 1528. After conquering Mexico City (then Tenochtitlán) in 1521, he set about securing neighboring provinces. Conflicts among indigenous groups in the Pánuco region near modern Tampico, Tamaulipas, led Cortés to mount a large-scale expedition in 1524, with troops traveling both overland and by sea. A ship loaded with supplies sank en route from the city of Veracruz to the Pánuco region, losing all on board except for three sailors. These survivors made their way to a small islet off northern Veracruz and survived for more than two months. Cortés described this incident as follows (Delgado Gómez 1993:471; our translation):

A ship loaded with supplies of meat, bread, wine, oil, vinegar, and other provisions, was lost with everything, and left only three men on an islet in the ocean that is five leagues from land, for whom I later sent a ship. And they were found alive, having maintained themselves on many seals that are on the islet, and on a fruit that they said was like a fig.

The contemporary description of the Conquest provided by Bernal Díaz del Castillo, who set out to correct details of Cortés’s account for posterity, gives independent documentation of this event (Ramírez Cabañas 1972:384; our translation):

The ship on its way to the defeat of Pánuco, loaded with what had been sent for, appears to have met severe

storms which destroyed it, from which only three persons were saved, who floated on boards to a small islet where there were some great sandy beaches, which were three or four leagues from land, where there were many seals that came out at night to sleep on the sand . . . and also there was a fruit that was like a fig, and with the meat of the seals and the fruit and the water they maintained themselves for more than two months.

The seals in these passages are referred to as *lobo marino*. The fact that the reference is to *Monachus tropicalis* is confirmed by other attributions of the term *lobo marino* to this species (e.g., Allen 1887) and by the absence of other pinnipeds in the region.

Monachus tropicalis is known to have occurred throughout the Greater Antilles, west to Dominica, Cuba, and the Florida Keys (Allen 1942; Townsend 1923), and on keys and reefs along the coast of northern Central America and the Yucatán Peninsula (Allen 1887). Additional sightings place individual seals near Pensacola, Florida (Allen 1942) and near Galveston and Point Isabel, Texas (Davis 1966); these occurrences, however, are unlikely to represent breeding populations. Bones recovered near Charleston, South Carolina, likely represent a stray or drifting carcass considerably north of the breeding range.

Based on the 16th century writings of Hernando Cortés and Bernal Díaz del Castillo and on the sightings of tropical monk seals from Texas we believe *Monachus tropicalis* was originally more widely distributed in the western Gulf of Mexico. An indirect but independent and suggestive source of information regarding the distribution of *M. tropicalis* is a variety of place names referring to seals, or *lobos marinos* (Allen 1887). Islets named "Cayo de Lobos," "Cayo Lobo Marino," or "Seal

Key" are found in the Bahamas and off Belize, Cuba, Quintana Roo, and Nicaragua (Fig. 1). Particularly intriguing is an "Isla de Lobos," about 90 km south of the mouth of the Pánuco, in the general vicinity where Cortés's men may have been stranded. Although these place names do not constitute scientific documentation, they may provide an indication of the original extent of the geographic distribution of *M. tropicalis*.

Because tropical monk seals lacked both fear of humans and escape responses, they were easily killed for food or oil. Cortés's soldiers may have been familiar with the sister species, Mediterranean monk seals (*M. monachus*), as a meat source from travels in the Mediterranean or along the coast of northwestern Africa. Seals using haul-out and pupping sites along the Mexican coast would have been decimated easily by the early Spanish conquistadors and colonists. Thus, tropical monk seals probably qualify as the first species to be extirpated from Mexico by Europeans.

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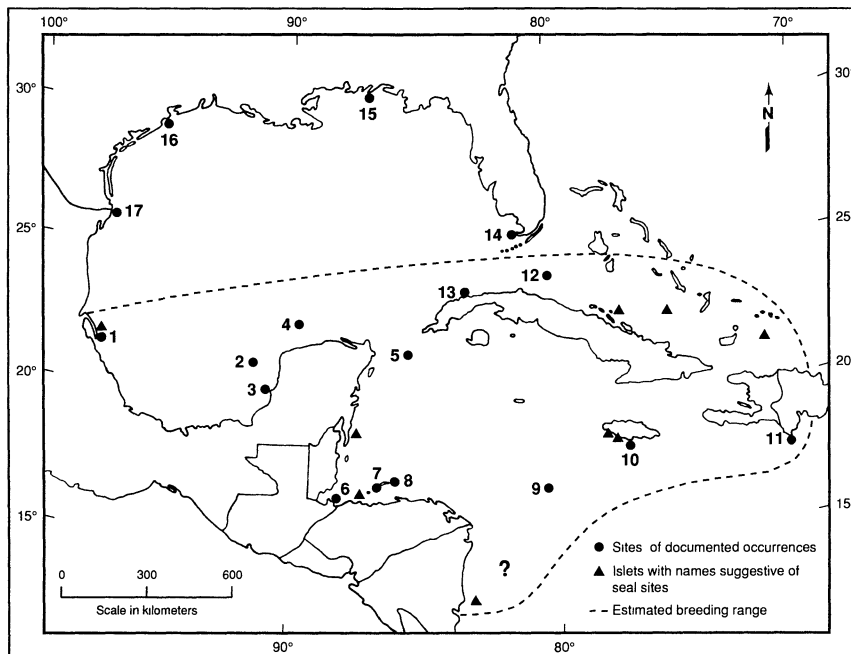


Figure 1. Known geographic distribution of the extinct tropical seal, *Monachus tropicalis*, including documented occurrences (numbered circles) and the probable breeding range (dashed line). Numbers refer to localities specified in the Appendix. Also shown are islets with names suggestive of seal sites (triangles) along the Caribbean coast of Mesoamerica and in the West Indies: Bahamas: Lobos Cay, Seal Cay, Seal Cays, Seal Keys (SW of Turks Islands; Allen 1942); Belize: Seal Cays; Cuba: Lobos Cay; Honduras: Seal Keys; Mexico: Cayo Lobos (Quintana Roo), Isla de Lobos (Veracruz); and Nicaragua: Cayo Lobo Marino.

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Appendix

Listing of sites where occurrence of the extinct tropical seal (*Monachus tropicalis*) has been documented.*

Locality Code	Site
1	Mexico: Veracruz; Pánuco region (this paper)
2	Mexico: Arrecife Triángulos (Allen 1887; Gaumer 1917)
3	Mexico: Campeche; near the city of Campeche (Allen 1887)
4	Mexico: Arrecife Alacrán (Gaumer 1917)
5	"islands (Anina Islands) situated between the Isle of Pines and Yucatan" (Allen 1942:453)
6	Guatemala/Honduras: islands in Gulf of Honduras (Gaumer 1917)
7	Honduras: Isla Roatán
8	Honduras: Isla Barbareta (Gaumer 1917)
9	Colombia: Serranilla Bank (Rice 1973)
10	Jamaica: Pedro Keys (Allen 1887)
11	Dominican Republic: Alta Vela (where Columbus's crew first encountered and killed seals in 1494)
12	Bahamas: Salt Key Bank (Allen 1887)
13	Cuba: near Habana (Allen 1887)
14	United States: Florida; Key West (Townsend 1923)
15	United States: Florida; Pensacola region (Allen 1942)
16	United States: Texas; Galveston (Davis 1966)
17	United States: Texas; Point Isabel (Davis 1966)

*Primary references are given in parentheses.

