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PRELIMINARY SURVEY OF THE HERPETOFAUNA OF CONCEPTION ISLAND, BAHAMAS

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ABSTRACT

A recent field trip to Conception Island and nearby Booby Cay in the eastern Bahamas yielded observations of one amphibian (*Osteopilus septentrionalis*) and four lizard species (*Anolis sagrei*, *Anolis smaragdinus*, *Leiocephalus loxogrammus*, *Sphaerodactylus nigropunctatus*). Prior to this trip, literature reports of Cuban treefrog (*O. septentrionalis*), Bahamian boa (*Epicrates*), curly-tailed lizards (*Leiocephalus*), and least geckoes (*Sphaerodactylus*) were listed for the island. We discuss the history of the literature records and the biogeographic significance of this herpetofauna in the context of the Great Bahama, San Salvador and Rum Cay banks.

INTRODUCTION

Little is known about the herpetofauna of Conception Island Bank in the eastern Bahamas. This small bank includes Conception Island, Booby Cay, and a small series of rocks known as South Rocks. Conception Island and its associated cays are located along the southern margin of the Conception Bank about 40 km SE of the southern end of Cat Island, 25 km ENE of the north tip of Long Island, 20 km NW of Rum Cay, and 75 km W of San Salvador. Conception Island and Booby Cay are designated as a Bahamian national park and are managed by Bahamas National Trust. These islands have no resident human population, although ruins of a tabby-constructed structure, possibly a dwelling associated with a former light house, is found on the southwest side of Conception Island near a freshwater well, but its history currently is obscure.

Conception is the largest island on the bank and includes an area of about 9 km² (calculated from Bahamas Lands and Survey Department map: Conception Island Sheet 1, 1970, scale=1:25,000). The island consists of an upland limestone ring that

surrounds a large interior salt lake (Fig. 1). The lake is connected to the sea by a large creek on the southwest part of the island. The smaller Booby Cay is approximately 0.3 km² in area and lies 0.25 km east of Conception. Elevations in excess of 16 m occur on both islands. The vegetative cover is similar to that of other small limestone islands in the eastern Bahamas consisting of coastal rock, sand beach strand, coastal coppice, tidal flats, salt pond, and mangrove communities.

We visited Conception Island and Booby Cay on 19-21 September 1997 as part a trip sponsored by the Bahamas National Trust. The group traveled to the island from Georgetown, Great Exuma, via the R/V Coral Reef II, owned and operated by the John G. Shedd Aquarium Chicago, IL. We anchored for the first two days off of the northwest beach and then moved the boat to the southeast beach on the last day. Specific collection sites included (A) grassy areas behind the northwest beach, (B) coastal scrubs at the freshwater well and ruin north of the tidal creek that is the outlet for the interior lake, (C) palm-sea grape strands behind the southeast beach above Wedge Point on Conception Island, and (D) coppices behind the small beach on the northwest side of Booby Cay (see Fig. 1). Voucher specimens are deposited in the herpetological collection at the Florida Museum of Natural History (UF), University of Florida, Gainesville.

We collected specimens of one amphibian (*Osteopilus septentrionalis*) and 3 lizard species (*Anolis sagrei*, *Leiocephalus loxogrammus*, *Sphaerodactylus nigropunctatus*) on Conception Island and 2 lizard species (*Anolis sagrei*, *Sphaerodactylus nigropunctatus*) on Booby Cay. The *Osteopilus* record consists of a series of tadpoles collected in the artificial freshwater well near the outlet creek at Locality B on the west side of Conception Island. The record of one *Anolis smaragdinus* is based on a sighting of one individual on a palm near the light house ruins at

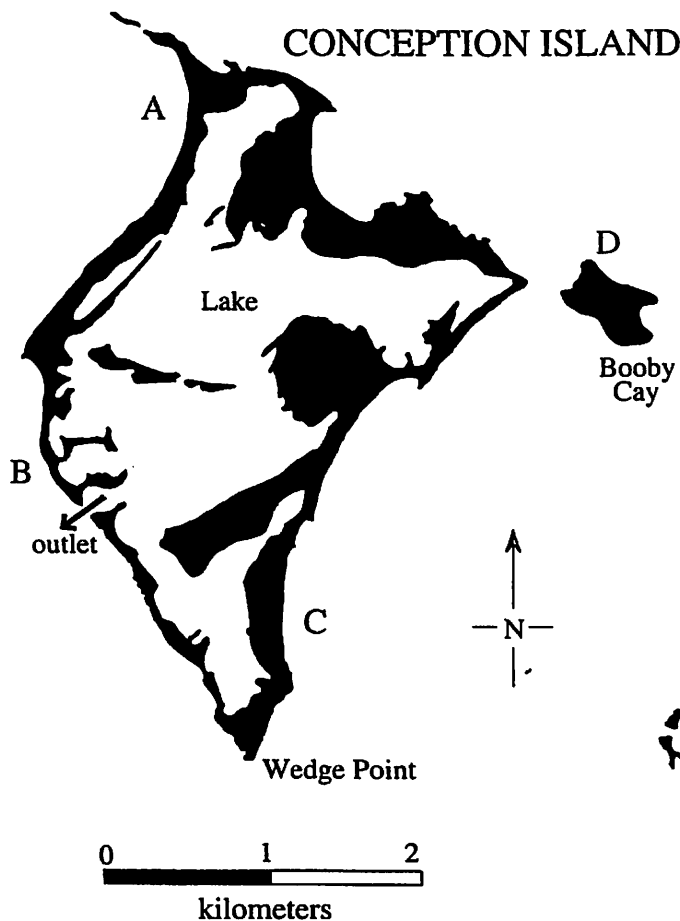


Fig. 1. Map of Conception Island and Booby Cay showing major features and location of collection sites A-D.

Locality B by S. D. Buckner. Because of the significance of *A. smaragdinus* on Conception, vouchers are necessary to determine its taxonomic status.

Prior to this collection, *Osteopilus* was documented from Conception Island (McLean et al. 1977, Schwartz and Henderson 1991). The presence of other species on the island (*Leiocephalus loxogrammus*, *Sphaerodactylus nigropunctatus*, and *Epicrates striatus*) is based on material collected in the mid-1970s by Ronald A. Ober and the crew of the yacht SNAFU. Unfortunately, the SNAFU material was lost before it could be studied. Schwartz et al (1978), who first reported this collection, consulted the collectors' field notes for identification of the material. The SNAFU field notes clearly list *S. nigropunctatus* as part of the fauna, but Schwartz et al. (1978) suggests that the Conception specimens were actually

Sphaerodactylus corticola, presumably basing their opinion largely on biogeographic considerations, since *S. corticola* is more widespread than *S. nigropunctatus* in the eastern Bahamas. The SNAFU field notes also indicate the capture of a "5 foot" *Epicrates* on Booby Cay. The field notes described this boa as unusually pigmented, which prompted Schwartz et al. (1978) to consider the Conception Bank population to represent an undescribed form of *Epicrates striatus*. The Booby Cay record, not only represents the first report of *Epicrates striatus* from the Conception Bank, but also the first record of this species east of the Great Bahama Bank. It is essential that vouchers of *Epicrates* be obtained from Conception Island and/or Booby Cay to resolve the taxonomic status of this boa.

SPECIES ACCOUNTS

Osteopilus septentrionalis. We found tadpoles of the Cuban treefrog in a freshwater pool in an artificial well at Locality B on Conception Island. This pool may represent the only freshwater source on the island and may have been the site of the previous collection.

Anolis sagrei. Specimens of the Bahama brown anole were collected only at locations B and D on Conception Island and Booby Cay, although the species were common throughout the islands. Males are unique in this population by possessing a dusky yellow throat fan and an exaggerated tail crest that begins about 10 mm below the vent and extends for about 2/3 the length of the tail. The crest is supported by a series of reinforcement structures located about every 3 mm along the tail. The crest is tallest about 25-30 mm below the vent, and the height represents from 16-19% of the snout-vent length (SVL). Based on these aberrant features, we believe that this population requires further studies, which ultimately might lead to the taxonomic recognition of this distinctive population.

Anolis smaragdinus. An individual of a Bahamian green anole was observed at Locality B on Conception Island. This observation indicates the presence of an isolated *A. smaragdinus* population in the eastern Bahamas. This species previously was reported in the Bahamas only from the Great Bahama Bank, specifically Andros Island, Berry Islands, Bimini Islands, Eleuthera and its cays, Exuma Cays, New Providence Island, and Ragged Islands (Schwartz and Henderson 1991, Franz et al 1996). The collection of vouchers from this population is essential to resolve its taxonomic status.

Leiocephalus loxogrammus. One adult female (62 mm

Table 1. Lists of amphibians and reptiles recorded for Conception Island (and Booby Cay) and other pertinent nearby islands.

Taxa	Cat	Long	Conception	Rum	San Salvador
<i>Eleutherodactylus planirostris</i>	X	X			X
<i>Osteopilus septentrionalis</i>	X	X	X	X	X
<i>Ameiva auberi</i>	X	X			
<i>Anolis distichus</i>	X	X		X	X
<i>Anolis sagrei</i>	X	X	X (X)	X	X
<i>Anolis smaragdinus</i>	X	X	? ¹		
<i>Cyclura rileyi</i>					X
<i>Leiocephalus carinatus</i>	X	X			
<i>Leiocephalus loxogrammus</i>			X	X ²	X ³
<i>Sphaerodactylus corticola</i>			? ¹	X ⁴	X ⁵
<i>Sphaerodactylus nigropunctatus</i>	X	X	X(X)	X ⁶	
<i>Sphaerodactylus notatus</i>	X	X		X ⁷	
<i>Tarentola americana</i>					
<i>Alsophis vudii</i>	X	X			
<i>Epicrates striatus</i>	X	X	? ¹		
<i>Tropidophis canus</i>	X	X			
<i>Leptotyphlops columbi</i>					X
<i>Typhlops lumbricalis</i>	X	X			

1/ Possible presence on Conception Bank based on this paper or SNAFU notes.

2/ *Leiocephalus loxogrammus loxogrammus* Cope 1887 from Rum Cay.

3/ *Leiocephalus loxogrammus parnelli* Barbour and Shreve 1935 from San Salvador.

4/ *Sphaerodactylus corticola corticola* Garman 1888 from Rum Cay.

5/ *Sphaerodactylus corticola soter* Schwartz 1968 from San Salvador.

6/ *Sphaerodactylus nigropunctatus decoratus* Garman 1888 from Rum Cay.

7/ *Sphaerodactylus notatus amaurus* Schwartz 1966 from Rum Cay in Schwartz and Henderson (1991) with no further information in text.

SVL) of this curlytail lizard was obtained from a coastal scrub at Location B, and two juveniles (both 37 mm SVL) were found in palm-sea grape thickets at Location C. We did not find this lizard on Booby Cay, although we expended considerable effort to locate this species. Specimens from Conception Island are similar to lizards from Rum Cay and San Salvador, having a series of light and dark bands and stripes running the length of their bodies. More material is needed from Conception Island before a thorough morphological assessment is possible to determine the taxonomic status of these three populations.

Sphaerodactylus nigropunctatus. Two juveniles (17-21 mm SVL), 3 females (26-32 mm SVL), and 2 males (32 mm SVL) of the black-spotted least gecko were collected on Conception Island and Booby Cay at Locations A, C, and D. The populations on the Conception Bank show the typical sexual dimorphism associated with this species with banded juveniles and females and spotted (and occasionally unspotted) males. The seven specimens are pigmented similarly to those collected in the Exuma Cays with juveniles and females having complete collars (except for one female) and four unbroken body bands. We observed no ocelli in the collar bands of this sample. As with other Conception species, there is need for a thorough comparison between the Conception specimens and material from Cat and Long Islands and Rum Cay to resolve questions concerning the taxonomic status of the Conception Bank population.

DISCUSSION

The herpetofauna of Conception Island and Booby Cay includes four documented species (*Osteopilus septentrionalis*, *Anolis sagrei*, *Leiocephalus loxogrammus*, and *Sphaerodactylus nigropunctatus*). The presence of two additional species (*Anolis smaragdinus* and *Epicrates striatus*) needs verification. Other species, notably *Anolis angusticeps*, *A. distichus*, *Sphaerodactylus corticola*, *S. notatus*, *Tarentola americana*, *Alsophis vudii*, *Tropidophis canus*, *Typhlops lumbricalis*, and *Leptotyphlops columbi*, eventually may be found on this bank, given the mixture of recorded species from the Conception Bank islands. The species associated with Cat, Long, Rum, and San Salvador islands that lie in the vicinity of Conception are reviewed in Table 1.

The presence of *Anolis smaragdinus*, *Sphaerodactylus nigropunctatus*, and *Epicrates striatus* on the Conception Bank indicates a strong affinity with the herpetofauna of the Great Bahama Bank.

Sphaerodactylus nigropunctatus occurs primarily on the Great Bahama Bank, but also is known from Rum Cay. *Leiocephalus loxogrammus* is linked with San Salvador and Rum Cay. *Osteopilus septentrionalis* and *Anolis sagrei* provide little or no biogeographic information because of their wide distribution, unless *A. sagrei* population on Conception proves to be taxonomically distinct.

More collecting obviously is needed on the Conception Bank to fully appreciate this bank's herpetofauna and its relationship with other island banks. We strongly recommend that voucher specimens from these islands be preserved and the material be placed in museum collections.

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