

AMPHIBIANS OF THE CORN ISLANDS, CARIBBEAN NICARAGUA

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ABSTRACT: The following amphibians are known from the Corn Islands, Nicaragua: *Bufo valliceps*, *Hyla loquax*, *H. phlebodes*, *H. staufferi staufferi*, *Agalychnis callidryas* and *Rana pipiens*. One is known only from Little Corn Island: *Rana pipiens*. A key to the adults is presented.

THE only paper dealing with the entire herpetofauna of Corn Islands is that of Barbour and Loveridge (1929), who studied the material obtained by James Lee Peters and Edward Bangs in December 1927 and January 1928. After Peters and Bangs' four visits by members of the University of Kansas in 1964, the University of Utah in 1964, the American Museum of Natural History in 1966 and by the author in 1969 have yielded a wealth of herpetological material that has notably increased our knowledge of the island's herpetofauna.

Several papers subsequent to Barbour and Loveridge (1929) have dealt with Corn Island specimens: Dowling (1952), Duellman (1970), Duellman and Fouquette (1968), Dunn (1940), Keiser (1967), Leon (1969), Roze (1967), Savage and Heyer (1967), Villa (1967, 1969, 1970, 1971) and Zweifel (1967) but these have generally dealt with only one species. The present one deals with

the amphibians insofar as they are known to me. The reptiles will be dealt with separately and a final paper is intended to cover the zoogeography and important aspects of the ecology of the islands, pending the availability of certain data.

The Corn Islands (or Islas del Maíz) lie in the Caribbean Sea approximately 77.5 km east-north-east of Bluefields, Nicaragua. Great Corn Island is about 4 km long and 3 km wide; Little Corn Island is roughly less than half the size of Great Corn Island. Presently the ecological situation is basically the same as described by Peters (1929) but there is now much less arboreal vegetation due to clearing done by the growing human population.

ABBREVIATIONS AND ACKNOWLEDGMENTS

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and James A. Peters, United States National Museum, loaned me much comparative material. Lawrence M. Hardy permitted me to use his field notes from the Corn Islands. Larry D. Wilson read the manuscript critically. Finally Jánis A. Roze, Edward B. Seligmann and Richard G. Zweifel made my first visit to the Corn Islands a truly unforgettable one.

SPECIES ACCOUNTS

Bufo valliceps Weigmann

This toad was first recorded from the Corn Islands by Barbour and Loveridge (1929) on the basis of four specimens (MCZ 14851-54) and is very common on both islands. Several individuals were taken after brief rains, under logs, abandoned termite nests, and in trees up to 2.5 m above the ground (Villa, 1971).

Hyla loquax Gaige and Stuart

Duellman's (1970) monograph provides the first record of this species from the Corn Islands. Little Corn Island's individuals were taken while calling from emergent vegetation in freshwater swamps on January 22, 1966 by Roze, Seligmann, Villa and Zweifel. On Great Corn Island the species was found calling by Hardy on June 29, 1966 and by Villa on July 22, 1969.

Corn Island specimens exhibit reddish-brown dorsal surfaces with little or no melanophores, in contrast to those from mainland Nicaragua (environs of Jinotega and Matagalpa), many of which are brownish gray dorsally with much black pigment forming varied patterns.

Hyla phlebodes Stejneger

This species was first recorded from the Corn Islands by Barbour and Loveridge (1929) as *Hyla miotypanum* (MCZ 14848). Individuals were taken while calling from emergent vegetation on Little Corn Island on January 22, 1966. At this time no calls were heard on Great Corn Island, but they were heard on July 22, 1969.

Hyla staufferi staufferi Cope

Leon (1969) reported this species on the basis of four specimens (KU 85357-60) from Great Corn Island. It has not yet been found in Little Corn Island. Hardy collected a clasping pair on a leaf about 20 to 50 cm above water on June 20, 1964. I found a gravid female under a decaying termite nest inside an old house on January 22, 1969. Other gravid females were taken on July 22 and 23, 1969 from under moist logs, crevices and holes on trees and posts. No individuals were heard calling at that time.

Agalychnis callidryas Cope

Barbour and Loveridge (1929) first reported this species from Little Corn Island on the basis of two specimens (MCZ 14849-50). Until July 21, 1969, when I collected the only specimen known from Great Corn Island (JV 69075) no others were available. The latter specimen has numerous bright yellow tubercles on the dorsum, unlike several hundred specimens I have examined from mainland Nicaragua which may have a few small white spots (not tubercles) on the dorsum (Fig. 1).

Most local residents of Great Corn Island I spoke with are unaware of the presence of this distinctively-colored species. A few claimed it is seldom seen because it lives high on the mango trees. I collected my specimen in the morning, after a heavy rain, on the forest floor.

Rana pipiens Schreber

Barbour and Loveridge (1929) described *Rana miadis* from Little Corn Island on the basis of a single specimen (MCZ 14847). Zweifel (1967) working with freshly collected material (AMNH 15599-603, JV 66123-24) has shown *Rana miadis* to be nonspecific with *R. pipiens* and, although the Little Corn Island population may deserve subspecific status, I agree with him that "it would be premature to recognize an insular subspecies while the populations of the mainland are so poorly understood" (Zweifel 1967).

KEY TO ADULTS

- 1a. Cranial ridges prominent; paratoid glands well defined; skin strongly tuberculate *Bufo valliceps*
- 1b. No cranial ridges; paratoid glands absent or inconspicuous; skin smooth or slightly granular 2
- 2a. First finger longer than second; digits pointed, without adhesive terminal pads; males with paired vocal sacs *Rana pipiens*
- 2b. First finger shorter than second; digits with obvious adhesive terminal pads; males with a single subgular, vocal sac 3
- 3a. Pupil vertical in bright light or preservative; a distinct, well developed fold or ridge extending along forearm onto finger iv; fold with free edge at elbow *Agalychnis callidryas*
- 3b. Pupil horizontal; a row of tubercles or thickened skin along anterior edge of forearm but never a free-edged fold 4
- 4a. Axillary web present 5
- 4b. Axillary web absent *Hyla staufferi*
- 5a. Dorsum in life usually reddish-brown with scattered small dark flecks or not; digital webs red; shanks not barred; fingers at least half webbed . . . *Hyla loquax*
- 5b. Dorsum pale yellowish tan with faint elongate, somewhat interconnected, dark markings; digital webs not red; shanks barred; fingers less than half webbed . . . *Hyla phlebodes*

LITERATURE CITED

BARBOUR, T. & A. LOVERIDGE. 1929. Reptiles and amphibians [of the Corn Islands]. Mus. Comp. Zool., Bull. 69 138-146.

DOWLING, H. G. 1952. A taxonomic study of the ratsnakes, genus *Elaphe* Fitzinger, II. The subspecies of *Elaphe flavirufa* Cope. Occ. Pap. Mus. Zool., Univ. Michigan, 540: 1-14.

DUCELLMAN, W. E. 1970. The hylid Frogs of Middle America. Monogr. Mus. Nat. Hist. Univ. Kansas, 1: 1-753.

DUCELLMAN, W. E. & M. J. FOUQUETTE. 1968. Middle American Frogs of the *Hyla microcephala* group. Univ. Kansas Publ. Mus. Nat. Hist., 17: (12) : 517-557.

DUNN, E. R. 1940. Notes on some American lizards and snakes in the Museum of Goteborg. Herpetological 1 (7) : 189-194.

KEISER, E. D. 1967. A monographic study of the neotropical vine snake *Oxybelis aeneus* Wagler. Unpubl. Ph. D. Thesis, Louisiana State University.

LEÓN, J. R. 1969. The systematic of the frogs of the *Hyla rubra* group in Middle America. Univ. Kansas Publ. Mus. Nat. Hist. 18 (6) : 505-545.

PETERS, J. L. 1929. Introduction [to "Vertebrates of the Corn Islands"]. Mus. Comp. Zool. Bull. 69: 127-129.

ROZE, J. A. 1967. A checklist of the New World venomous coral snakes (Elapidae) with descriptions of new forms. Amer. Mus. Novitates 2287: 1-60.

SAVAGE, J. M. & R. HEYER. 1967. Variation and distribution in the tree-frog genus *Phyllomedusa* in Costa Rica. Central America. Beitrage zur Neotropischen Fauna, Band 5 Heft 2: 11-131.

VILLA, J. 1967. A new cloubrid snake from the Corn Islands, Nicaragua. Rev. Biol. Trop., 15: 117-121 (1968).

— 1969. Two new insular subspecies of the natricid snake *Tretanorhinus nigroluteus* Cope from Honduras and Nicaragua. J. Herpetol. 3: 145-150.

— 1970. Notas sobre la historia natural de la serpiente de los pantanos, *Tretanorhinus nigroluteus*. Rev. Biol. Trop. 17: 97-114.

— 1971. Arboreal habits of *Bufo valliceps* and other bufonids. Herpetol. Rev., 3 (5) : 96.

ZWEIFEL, R. G. 1967. The systematic status of the Central American frog *Rana miadis*. Herpetological 23: 54-56.

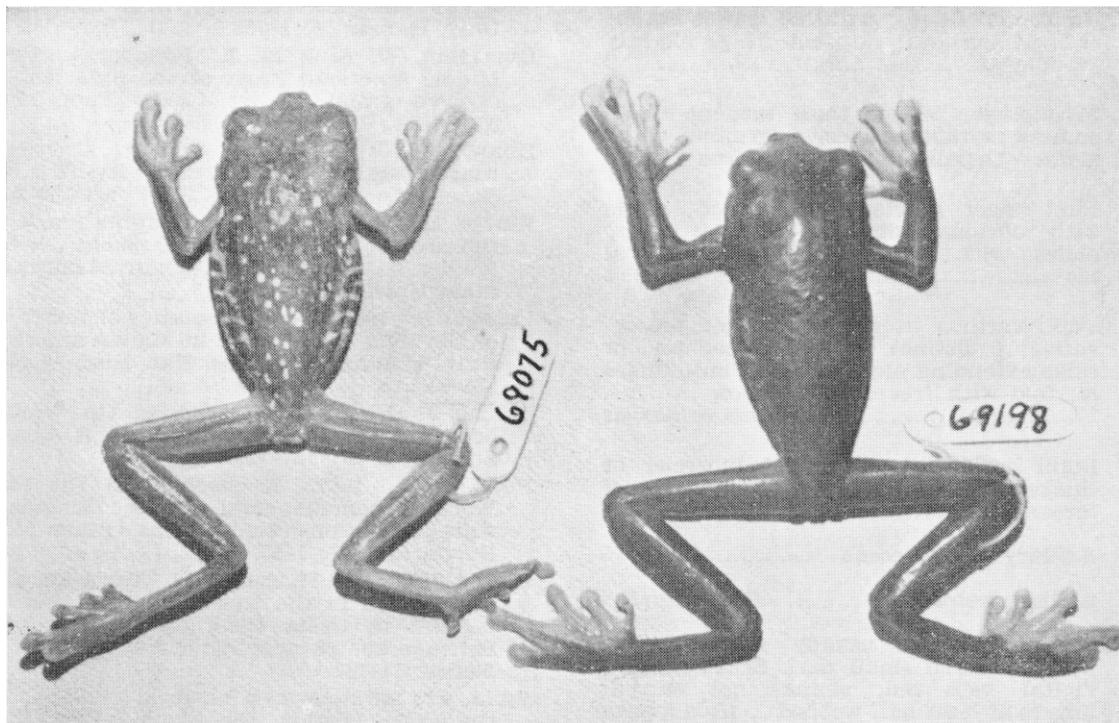


FIG. 1. *Agalychnis callidryas*, dorsal view JV 69075 from Great Corn Island, with numerous yellow tubercles. JV 69198 from Casa Colorada (Managua), Nicaragua, with only a few white spots (not tubercles) on dorsum