

AMPHIBIANS AND REPTILES OF THE JOINT SERVICES SCIENTIFIC EXPEDITION TO THE UPPER RASPACULO, BELIZE, 1991

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INTRODUCTION

An account is given of the reptiles and amphibians observed during an expedition to the river basin of the Upper Raspaculo, Belize (formerly British Honduras). The expedition was a joint operation between the British Services and the Natural History Museum, London, and was organised with the principal aim of conducting the first field study of the area and providing a written record of its biological resources for the Belizean Government, underwriting the value of its protection. As far as the scientific program was concerned, the main objectives were to compile a biodiversity inventory and conduct more detailed studies on the forest, its flora, fauna and soils. A full account of the expedition and its findings will be produced as a special report; the herpetological contribution is reproduced here as a condensed version.

The expedition took place between January and February 1991, which in Belize corresponds to the end of the wet season/beginning of dry season. Rainfall in the area varies from 2032 mm to 2450 mm per year, and during the course of the expedition temperatures ranged from 52°F (night-time low) to 80°F (day-time high). In the context of Belizean vegetation, the forest is classified as "semi-evergreen seasonal forest" (Wright *et al* 1959). Common forest trees in the area were Quamwood (*Schizolobium parahybum*), Prickly yellow (*Zanthoxylum* sp.), Ironwood (*Dialium guianense*) and Cramantree (*Guarea* cf. *excelsa*). Also present were large Mahogany (*Swietenia macrophylla*), an indication of the area's remoteness from logging operations. Conspicuous in the understorey were small palms (*Bactris* sp., *Chamaedorea* ssp. and *Geonoma* sp.), aroids and lianes. Riparian vegetation was dominated by various secondary growth tree species such as Bribri (*Inga edulis*), Trumpet (*Cecropia obtusifolia*), Salmwood (*Cordia alliodora*) and Cottonwood (*Ceiba pentandra*), with tall herbaceous plants such as *Heliconia* spp.

The herpetofauna of Belize was first documented by Schwartz in 1941, and further investigations have revealed a number of additional species (Neill and Allen, 1959a, 1959b, 1960), with the publication of a comprehensive checklist and keys for their identification in 1975 (Henderson and Hoervers). A number of other species have since been recorded (Henderson, 1976; Iverson, 1976; Lee, 1976; Henderson, Hoervers and Wilson, 1977). The herpetology of surrounding countries has also received considerable attention. The reptiles of Chiapas, southern Mexico were treated by Alvarez del Toro (1983); the distribution of the herpetofauna of the Yucatán Peninsula was reviewed by Lee (1980); a number of regional accounts have been made of the Guatemalan herpetofauna including a major checklist by Stuart (1963); and more recently the herpetofauna of Honduras has been summarised by Wilson and Meyer (1985). The upper reaches of the Raspaculo River and forested interior of Belize north of the Maya Mountain divide however, is an area which has remained for the most part largely unexplored.

Campbell and Vannini (1989) described the distribution of amphibians and reptiles in Belize and Guatemala in terms of eight faunal areas (based on Stuart, 1964), in which all of Belize is encompassed together with the northern portion of Guatemala and the lower Polochic and Motagua valleys in a division referred to as the "Petén area" (consisting in part of El Petén, Guatemala). The Maya Mountain range of Belize with its peaks of higher elevation may perhaps form a separate biological sub-area, but in general the herpetofauna of Belize and Guatemala have much in common, together totalling 326 species. Some 135 species are known from Belize, its islands and adjacent marine waters, of which almost one half are known to occur in rainforest and jungle, with some 20 or more species restricted more or less completely to primary rainforest typical of that in the Upper Raspaculo.



Plate 1. *Bufo valliceps*



Plate 2. *Iguana iguana rhinolopha*

A significant number of reptiles and amphibians were recorded during the course of the expedition. Unless otherwise stated the species were all observed in the vicinity of the camp at an altitude of 445 metres. Specimens collected for verification are denoted by JSSEUR and a sequential number, and have been deposited in the collection of the Natural History Museum, London.

CLASS AMPHIBIA

Family Caeciliidae

Gymnopsis syntrema (Peters). JSSEUR 38.

Remarks: Semi-fossorial; rainforest. One specimen found representing a new departmental record for the species.

Family Plethodonidae

Bolitoglossa m. mexicanus Duméril. Bibron and Duméril Vernacular names: *Galliwasp* (this name also applies to a number of lizards in Belize).

Remarks: Terrestrial and arboreal; rainforest. One specimen recorded.

Family Bufonidae

Bufo marinus (Linnaeus)

Vernacular names: *Spring chicken*, known in Carib as "hua".

Remarks: Terrestrial; riparian habitats and rainforest. Common.

Bufo valliceps Wiegmann

Remarks: Terrestrial; rainforest. Common.

Family Leptodactylidae

Three different forms of the genus *Eleutherodactylus* were recorded; JSSEUR 22 and 26 may be variations of the same, unknown form, and have consequently not been given full species names.

Eleutherodactylus cf. rugulosus (Cope). JSSEUR 16.

Remarks: Terrestrial in leaf litter and semi-aquatic; rainforest. A fairly abundant species both in the forest and near streams. Olive green to brown above with prominent supernumery tubercles on plantar surface; posterior surface of hind legs dark with yellow-gold spots and black reticulations; iris gold-brown with network pattern of fine black reticulations; call a short but unbroken soft warble.

Eleutherodactylus sp. JSSEUR 22.

Remarks: Terrestrial in leaf litter and semi-aquatic; rainforest. The most abundant form (also at alt. 720 metres). Head proportionately larger than in aforementioned species and supernumery tubercles much less distinct. Uniformly pale brick-red above with dark brown cheeks; some specimens with a small dark spot either side of cloacal opening; hind legs faintly barred; upper half of eye pale bronze with fine dark reticulations; call a series of usually four sharp croaks rising gradually in pitch.

Eleutherodactylus sp. JSSEUR 26.

Remarks: Terrestrial in leaf litter and semi-aquatic; rainforest. This form was recorded only on a few occasions (also at alt. 720 metres) and in many ways resembled JSSEUR 22. Colouration pale grey-brown above with dark symmetrically-arranged linear blotches extending on to underside; two small blotches either side of cloacal opening; posterior surface of hind legs dark with peppering of lighter dots. Upper half of eye bright orange-red; lower half black.

Family Hylidae

Smilisca baudini (Duméril and Bibron). JSSEUR 2.

Remarks: Arboreal in understorey growth on the banks of a seasonal stream; rainforest. Common.

Family Ranidae

Rana berlandieri Baird. JSSEUR 14.

Vernacular names: Probably *Spring chicken*.

Remarks: Terrestrial; small seasonal pool in rainforest. One specimen recorded.

Rana palmipes Spix

Vernacular names: *Spring chicken*.

Remarks: Terrestrial; riparian jungle and riverbanks. Common.



Plate 3. *Anolis humilis uniformis*



Plate 4. *Anolis biporcatus*

CLASS REPTILIA

Family Crocodylidae

Crocodylus moreleti Duméril and Bibron

Vernacular names: *Alligator*; known in Carib as “*agarei*”.

Remarks: Aquatic; deep, slow-moving stretches of the main river. Seven specimens recorded (in a 55 km stretch of the Raspaculo and Macal River).

Family Kinosternidae

Kinosternon scorpioides (Linnaeus)

Remarks: Aquatic in rather fast-flowing stretches of the main river; rainforest. Three specimens recorded.

Family Iguanidae

Anolis biporcatus (Wiegmann); JSSEUR 27.

Remarks: Arboreal in canopies of large trees; rainforest. Three specimens recorded.

Anolis humilis uniformis Cope. JSSEUR 7.

Remarks: Terrestrial and arboreal; rainforest. Common.

Basiliscus vittatus Wiegmann

Vernacular names: *Maklakka*, *Cock lizard*, *Cock maklala*.

Remarks: Arboreal; riparian jungle. Common.

Corytophanes cristatus (Merrem)

Vernacular names: “*Old man*”; the names for *Basiliscus* probably apply here also.

Remarks: Arboreal; rainforest. One specimen recorded.

Iguana iguana rhinolopha Schmidt

Vernacular names: *Bamboo chicken*, *iguana*.

Remarks: Mostly arboreal in large trees and vines; an abundant lizard in riparian habitats.

Family Scincidae

Scincella cherriei (Cope)

Vernacular names: *Galliwasp*.

Remarks: Terrestrial and semi-fossorial in leaf litter; rainforest. Common.

Family Teiidae

Ameiva festiva (Lichtenstein and Von Martens)

Remarks: Terrestrial; rainforest. Common.

Family Boidae

Boa constrictor imperator Daudin.

Vernacular names: *Wowla*, *Wowler*, *Owla*, *Boa*; also known to Caribs as “*wanasai*”.

Remarks: Terrestrial and arboreal; riparian jungle. Three specimens recorded.

Male: 1.92 metres; weight: 3.5 kgs.

Female 1: 2.15 metres; weight: 9.0 kgs.

Female 2: 2.35 metres; weight: 7.5 kgs.

Family Colubridae

Coniophanes f. fissidens (Günther)

Remarks: Terrestrial amongst leaf litter; rainforest. Three specimens recorded.

Imantodes cenchoa leucomelas Neill

Vernacular names: *Cat-eyed snake*.

Remarks: Arboreal; rainforest. One specimen recorded.

Lampropeltis triangulum polyzona Cope

Vernacular names: Probably “*coral*” or “*coralillo*”.

Remarks: Terrestrial; rainforest. One specimen recorded.

Masticophis m. mentovarius (Duméril, Bibron and Duméril)

Remarks: Terrestrial, rainforest (Alt. 650 metres). One specimen recorded.

Mastigodryas melanolomous (Cope)

Remarks: Terrestrial amongst leaf litter; rainforest and riparian jungle. Common.

Scaphiodontophis annulatus (Duméril, Bibron and Duméril)

Vernacular names: “*Double snake*”, possibly *coral* or *coralillo*.

Remarks: Terrestrial; rainforest (alt. 500 metres). One specimen recorded.



Plate 5. *Boa constrictor imperator*



Plate 6. *Stenorhina freminvillei*

Stenorrhina freminvillei Duméril, Bibron and Duméril.

Remarks: Terrestrial; rainforest. One specimen recorded.

Tantilla canula brevis (Günther)

Remarks: Terrestrial and semi-fossorial; rainforest. Two specimens recorded.

Family Elapidae

Micrurus diastema sapperi Roze. JSSEUR 4.

Vernacular names: *Coral* or *Coralillo*.

Remarks: Terrestrial and semi-fossorial in leaf litter; rainforest. Two specimens recorded.

Micrurus hippocrepis (Peters).

Vernacular names: *Coral* or *coralillo*.

Remarks: Terrestrial and semi-fossorial in leaf litter; rainforest. One specimen recorded.

Micrurus nigrocinctus divaricatus (Hallowell). JSSEUR 8.

Vernacular name: *Coral* or *coralillo*.

Remarks: Terrestrial and semi-fossorial in leaf litter; rainforest. Nine specimens recorded.

DISCUSSION

During the course of the expedition a total of 31 species were recorded, representing some 40% of the herpetofauna in Belize known to include rainforest and jungle in their range of habitats, and some 20% of those which more or less occur only in this relatively undisturbed type of forest. It is interesting that at least 3 species of snake (*Masticophis*, *Mastigodryas* and *Scaphiodontophis*) were recorded which are more commonly associated with drier forest habitats i.e. pine parkland, cocotal and scrub forest. Snakes constitute the greatest percentage of the herpetofauna recorded (38.7%), followed by lizards (22.6%), and this pattern is known to be true of the faunal area as a whole (Campbell and Vannini, 1989). The presence of all three species of Coral snake (genus *Micrurus*), which was the most dominant terrestrial group of snakes, is indicative of the degree of speciation and richness of the herpetofauna in this area. A little known caecilian was also found which represents a new departmental record for the species and the only animal of its kind to occur in Belize. The size of some of the reptiles observed, notably *Crocodylus moreleti*, *Iguana iguana* and *Boa constrictor* is significant, as in few other areas would these animals be able to survive persecution by man and attain their full, natural adult size. It is likely that the large populations of *Iguana iguana* in particular are also important in sustaining a diverse range of predatory animals, particularly large birds of prey.

The inventory is also characterised by the absence of some species which in adjacent areas, i.e. the Cockscombe Basin, are said to be relatively common. Despite meticulous searching for the four species of pit-viper in Belize known to inhabit rainforest and jungle (*Bothrops atrox*, *Bothriechis schlegelii*, *Porthidium nasutum* and *Porthidium nummifer*), none were found. It is likely that a considerable number of other species inhabit the area but were not recorded due to the inaccessible nature of their habitat, i.e. *Laemanctus longipes* in the forest canopy, or because they remained hidden by their camouflage and were simply overlooked. The activity patterns and seasonal incidence of species may to some extent differ in the area and this would also have had some bearing on the results; in particular the low mean night-time temperatures could not be regarded as conducive to high activity amongst nocturnal reptiles, and in the wet season it is reasonable to expect that amphibian species would be more in evidence.

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