

**HERPETOFAUNAL EXPEDITION
TO PARQUE NACIONAL PATUCA:
A NEWLY ESTABLISHED PARK IN
HONDURAS**

KIRSTEN E. NICHOLSON¹, JAMES R.
MCCRANIE², AND GUNTHER KÖHLER³

¹*Department of Biology, P.O. Box 249118,
University of Miami, Coral Gables, Florida
33124-0421, USA*

²*10770 SW 164th Street, Miami, Florida,
33157-2933, USA*

³*Forschungsinstitut und Naturmuseum
Senckenberg, Senckenberganlage 25, D-60325
Frankfurt a.M., GERMANY*

INTRODUCTION

This article presents the results of an expedition to survey the herpetofauna of a newly established Honduran national park, Parque Nacional Patuca (PNP). This 3750 km² park is located in east-central Honduras (Departamento de Olancho) and was officially established on 20 October 1999. Under the auspices of Fundación Patuca (an organization cooperating with Honduran and German non-governmental organizations concerned with conservation and sustainable development of the remaining forests in Central America) an expedition was undertaken to survey the amphibians and reptiles in a portion of the park. The east-central region of Honduras contains some of the largest tracts of primary forest remaining in Central America and has not been well explored previously. The Fundación Patuca is actively attempting to document the biodiversity within the park's boundaries. In this article, we present the results of the expedition.

Because this region consisted of steep hills difficult to traverse, most sites were explored by locating and following streams and investigating as much stream and adjacent border area as possible. All areas were explored during the day and at night. Daytime collecting consisted of surveying low vegetation and the forest floor for

active amphibians and reptiles, turning rocks and logs, and raking through leaf litter. Nocturnal surveys were conducted by walking along or within streams and searching low vegetation and the forest floor for active and sleeping reptiles and amphibians. Species that could be positively identified but not captured or located (e.g., crocodiles, calling amphibians) were noted. Surveys were generally conducted for at least 8 hours daily and 6 hours nightly. Representatives of all species collected were preserved and deposited at the United States National Museum, Washington, D.C., USA (USNM) or the Forschungsinstitut und Naturmuseum Senckenberg, Frankfurt, Germany (SMF).

Surveys were conducted from 2 to 12 November 1999 by exploring four areas along the Río Cuyamel and Río Patuca. The first site, Matamoros (14° 40' 21", 85° 23' 11"), is located at 150 m elevation adjacent to the Río Cuyamel and is largely deforested for about one to two kilometres inland from the river's edge. It is in this area that pilot projects for sustainable yield agriculture are being initiated. Matamoros is located in an area of steep hills interspersed with small, steep-sided streams. Secondary forest surrounds most of the small streams but much of the hillsides are deforested. Streams were small and contained clear, rapid water-flow with rocky or sandy bottoms interspersed with occasional leaf-litter. The second site, Quebrada El Mono (14° 38' 49", 85° 19' 52"), lies at 100 m elevation and is located down river from Matamoros near the confluence of the Río Cuyamel with the Río Patuca. Cattle were present at the river's edge and on hillsides directly above the river. This area was explored by following a stream approximately 1 km inland. The first 200 m of stream closest to the Río Cuyamel is surrounded by secondary forest with some flat terrain along the banks, but the remainder of the stream explored has steep hillsides covered by primary forest. The stream contains a muddy bottom near its confluence with the Río Cuyamel, but further inland the bottom is rocky with clear, rapid water-flow. The third site surveyed, Quebrada El Guasimo (14° 34' 38", 85°

17' 54"), lies at 140 m elevation along the Río Patuca upriver from its confluence with the Río Cuyamel. This site consists of steep slopes adjacent to the river's edge followed by relatively flat areas alongside several streams. One stream was surveyed for approximately 3 km upstream where the elevation increased only ca. 10 m. The entire area around the Quebrada El Guasimo locality contains primary lowland rainforest. The streams at the Guasimo locality are clear and slow-flowing with rocky bottoms interspersed with pools containing leaf litter. Similar to the stream at the Quebrada El Mono locality, the streams at the Guasimo locality contain muddy bottoms near their confluence with the Río Patuca. The last site, Caobita (14° 39' 22", 85° 17' 43"), is located at 100 m elevation along the Río Patuca downriver from the Río Patuca's confluence with the Río Cuyamel. There was substantial deforestation evident along the river's edges and cattle were present, but the bordering vegetation is comprised of primary forest. There were few streams at this site but the surrounding forest was made amenable to exploration via trails and passable topographic relief.

A total of forty-six species of amphibians and reptiles were observed within the park. A list of these species is presented below. Terms defining habitat, diel activity, and abundance included in this list are: terrestrial (active on the ground or under surface debris); arboreal (active on low vegetation); aquatic (active and feeding in water); diurnal (active during the day); nocturnal (active at night); common (many individuals can be found); infrequent (unpredictable, few individuals seen, found at only one or two localities); rare (rarely seen).

CLASS AMPHIBIA

FAMILY BUFONIDAE

Bufo haematiticus Cope

Remarks: Terrestrial; nocturnal/diurnal; infrequent; found near streams in primary forest.

Localities: Quebrada El Guasimo; Quebrada El Mono.

Bufo marinus (Linnaeus)

Remarks: Terrestrial; nocturnal; infrequent; found around human habitation and river edges.

Localities: Matamoros; Quebrada El Mono.

Bufo valliceps Wiegmann

Remarks: Terrestrial; nocturnal; common; found in highly disturbed areas and in primary and secondary forests.

Localities: Caobita; Matamoros; Quebrada El Guasimo; Quebrada El Mono.

FAMILY CENTROLENIDAE

Cochranella albomaculata (Taylor)

Remarks: Arboreal; nocturnal; rare; found along a stream within primary forest.

Localities: Caobita.

Cochranella granulosa (Taylor)

Remarks: Arboreal; nocturnal; rare; found along a stream within secondary forest.

Localities: Matamoros.

Hyalinobatrachium cardiacalyptum McCranie and Wilson

Remarks: Arboreal; nocturnal; common; found along streams within primary and secondary forest, particularly during or after rainshowers.

Localities: Caobita; Matamoros; Quebrada El Guasimo.

FAMILY HYLIDAE

Agalychnis calcarifer Boulenger

Remarks: Arboreal; nocturnal/diurnal; rare; only eggs and tadpoles found in a water-filled depression of a fallen log in primary forest; adults reside in the canopy and males descend to call during the late night-early morning hours (1900 - 0530 h; Marquis et al. 1986), although eggs are sometimes deposited during late morning (about 0800 - 1200 h; Caldwell, 1995). We heard a single male make several calls between 0800 - 0900 h from high up a tree near the fallen log containing the eggs and tadpoles. Another male made a single call at 0445 h from a tree about 50 m from the fallen tree.

Localities: Quebrada El Guasimo.

Hyla microcephala Cope

Remarks: Arboreal; nocturnal; rare; several males heard calling from an inaccessible lagoon formed by an overflow from the Río Cuyamel; none collected.

Localities: Matamoros.

Smilisca baudinii (Duméril and Bibron)

Remarks: Arboreal; nocturnal; infrequent; a few males heard calling and tadpoles collected in pools left behind by a receding large stream; found in disturbed areas.

Localities: Caobita (calling males); Matamoros (tadpoles).

Smilisca phaeota (Cope)

Remarks: Arboreal; nocturnal; rare; found along a stream through secondary forest.

Localities: Matamoros.

FAMILY LEPTODACTYLIDAE

Eleutherodactylus fitzingeri (Schmidt)

Remarks: Terrestrial (or perched on vegetation less than 0.5 m from ground); nocturnal; common; found near streams through primary and secondary forest.

Localities: Caobita; Matamoros; Quebrada El Guasimo; Quebrada El Mono.

Eleutherodactylus lauraster Savage, McCranie, and Espinal

Remarks: Terrestrial; diurnal; infrequent; found in primary forest in areas with much leaf litter.

Localities: Caobita; Quebrada El Guasimo.

Eleutherodactylus noblei Barbour and Dunn

Remarks: Arboreal; nocturnal; rare; found in primary forest.

Localities: Caobita.

Eleutherodactylus ridens (Cope)

Remarks: Arboreal; nocturnal; infrequent; found in primary forest.

Localities: Caobita; Quebrada El Guasimo.

Leptodactylus pentadactylus (Laurenti)

Remarks: Terrestrial; nocturnal; infrequent; found

in primary and secondary forest near small streams.

Localities: Matamoros; Quebrada El Guasimo.

FAMILY RANIDAE

Rana berlandieri Baird

Remarks: Terrestrial; nocturnal; infrequent; found near a large stream in a highly disturbed area and in secondary forest.

Localities: Matamoros.

Rana maculata Brocchi

Remarks: Terrestrial; nocturnal; infrequent; found near streams through secondary forest.

Localities: Matamoros; Quebrada El Mono.

Rana vaillanti Brocchi

Remarks: Terrestrial; nocturnal; infrequent; found alongside Río Cuyamel; seen, but not collected near a lagoon formed by an overflow of the Río Cuyamel.

Localities: Matamoros (not collected); Quebrada El Mono.

Rana warszewitschii (Schmidt)

Remarks: Terrestrial; nocturnal/diurnal; infrequent; found near streams through primary forest.

Localities: Quebrada El Guasimo.

FAMILY PLETHODONTIDAE

Bolitoglossa striatula (Noble)

Remarks: Arboreal; nocturnal; infrequent; found near streams through secondary and primary forest.

Localities: Quebrada El Guasimo; Quebrada El Mono.

CLASS REPTILIA

FAMILY CROCODYLIDAE

Crocodylus acutus (Cuvier)

Remarks: Aquatic; nocturnal/diurnal; common; this species was not collected, but was frequently seen sunning along the banks of the Ríos Cuyamel and Patuca; a juvenile was seen at night in a shallow back water area of the Río Cuyamel at Quebrada El Mono and an adult was seen at night at the mouth of a large stream at Caobita.

FAMILY BOIDAE

Boa constrictor Linnaeus

Remarks: Terrestrial/arboreal; nocturnal; rare; no specimens encountered, but a clearly identifiable shed skin was found in vegetation alongside the Río Patuca.

Localities: Quebrada El Guasimo.

FAMILY COLUBRIDAE

Dendrophidion percarinatum (Cope)

Remarks: Terrestrial; diurnal; rare; one specimen found sleeping at night about 1.5 m above the ground along a stream through primary forest.

Localities: Quebrada El Guasimo.

Dryadophis melanolomus (Cope)

Remarks: Terrestrial; diurnal; rare; one specimen was found in secondary forest.

Localities: Quebrada El Mono.

Imantodes cenchoa (Linnaeus)

Remarks: Arboreal; nocturnal; rare; one specimen found in primary forest.

Localities: Caobita.

Lampropeltis triangulum (Lacépède)

Remarks: Terrestrial; diurnal; rare; one specimen found active during the day in primary forest.

Localities: Caobita.

Leptophis ahaetulla (Linnaeus)

Remarks: Terrestrial/arboreal; diurnal; rare; one specimen found crawling up a tree trunk in primary forest.

Localities: Caobita.

Oxybelis brevirostris (Cope)

Remarks: Arboreal; diurnal; rare; one specimen found sleeping at night on a palm leaf about 2.5 m above a stream through primary forest.

Localities: Quebrada El Guasimo.

FAMILY VIPERIDAE

Bothrops asper (Garman)

Remarks: Terrestrial; nocturnal/diurnal; rare; one specimen found at night coiled on a log above a stream in primary forest.

Localities: Caobita.

FAMILY EMYDIDAE

Rhinoclemmys annulata (Gray)

Remarks: Terrestrial; diurnal; rare; found sleeping at night while half buried in mud in a small, shallow side pool of a small stream in primary forest.

Localities: Quebrada El Guasimo.

Rhinoclemmys pulcherrima (Gray)

Remarks: Terrestrial (semi-aquatic); nocturnal/diurnal; rare; the single specimen found was active at night in a stream within primary forest, an unusual habitat for this species.

Localities: Quebrada El Guasimo.

Trachemys scripta (Schoepff)

Remarks: Aquatic; nocturnal/diurnal; common; frequently seen sunning on banks of Río Patuca, one specimen collected during the day.

Localities: Quebrada El Guasimo.

FAMILY KINOSTERNIDAE

Kinosternon leucostomum (Duméril and Bibron)

Remarks: Terrestrial (semi-aquatic); nocturnal/diurnal; rare; found active during the day in primary forest near a small stream.

Localities: Quebrada El Guasimo.

FAMILY CORYTOPHANIDAE

Basiliscus plumifrons Cope

Remarks: Arboreal; diurnal; common; frequently encountered perched on limbs or vegetation along waterways. Also can be found sleeping at night in the same situations.

Localities: Matamoros; Quebrada El Guasimo; Quebrada El Mono.

Basiliscus vittatus Wiegmann

Remarks: Arboreal; diurnal; common; commonly found sleeping at night on vegetation near watercourses through highly disturbed areas and secondary forest.

Localities: Matamoros; Quebrada El Mono.

FAMILY GEKKONIDAE

Sphaerodactylus millepunctatus Hallowell

Remarks: Terrestrial/arboreal; diurnal; infrequent;

Herpetofaunal expedition to Honduras

found in the vicinity of a dwelling, either walking on building supports or under debris on the ground.

Localities: Matamoros.

Thecadactylus rapicauda (Houttuyn)

Remarks: Arboreal; nocturnal; infrequent; found in a single dwelling; local people call this species "talconete" and believe that they will kill you with a sting from their tail.

Localities: Matamoros.

FAMILY IGUANIDAE

Iguana iguana (Linnaeus)

Remarks: Terrestrial/arboreal; diurnal; common; seen in vegetation and on the ground along the Ríos Patuca and Cuyamel; not collected.

FAMILY POLYCHROTIDAE

Norops capito (Peters)

Remarks: Arboreal; diurnal; infrequent; their dorsal coloration is lichen - like, thus camouflaging them against trees and making them difficult to see; found in primary forest.

Localities: Quebrada El Guasimo.

Norops cupreus (Hallowell)

Remarks: Arboreal (never perched higher than 1 m above ground); diurnal; infrequent; found in primary forest.

Localities: Quebrada El Guasimo.

Norops humilis (Peters)

Remarks: Terrestrial; diurnal; common; usually found in primary forest, occasionally in secondary forest.

Localities: Matamoros; Quebrada El Guasimo.

Norops lemuringus (Cope)

Remarks: Arboreal; diurnal; rare; these lizards are known to inhabit trunks of trees and may ascend higher, making observations difficult; one specimen was found in secondary forest.

Localities: Caobita; Quebrada El Mono.

Norops limifrons (Cope)

Remarks: Arboreal; diurnal; common; found frequently on small perches of shrubs, saplings, palms or other vegetation less than 2 m above the ground; also commonly found sleeping on low vegetation at night; found in primary and secondary forest.

Localities: Matamoros; Quebrada El Guasimo; Quebrada El Mono.

Norops oxylophus (Cope)

Remarks: Terrestrial; diurnal; common; this species is considered 'semi-aquatic' and is frequently encountered along small streams or their banks while active during the day or sleeping at night; found in primary and secondary forest.

Localities: Caobita; Matamoros; Quebrada El Guasimo; Quebrada El Mono.

FAMILY SCINCIDAE

Sphenomorphus cherriei (Cope)

Remarks: Terrestrial; diurnal; common; found running through leaf litter in primary forest.

Localities: Caobita; Quebrada El Guasimo.

FAMILY TEIIDAE

Ameiva festiva (Lichtenstein and Von Martens)

Remarks: Terrestrial; diurnal; common; found in open areas along watercourses and in sunny spots in primary and secondary forests.

Localities: Caobita; Quebrada El Guasimo.

DISCUSSION

We recorded 46 species of amphibians and reptiles from Parque Nacional Patuca. The forests of this park belong to the Lowland Moist Forest formation (as slightly modified from Holdridge, 1967). A total of 171 species of amphibians and reptiles are known from this forest formation on the mainland of Honduras (McCranie, unpub. data). However, some of these species occur only in western to north-central Honduras, and would not be expected to occur in the Patuca region. Thus, the total number of species known from this forest formation in Honduras and expected to be found in the Patuca region is 105 species

(McCranie, unpub. data). Therefore, our expedition only encountered 43.8% of the species expected to occur in the Patuca region (a few 'weed species' that occur in highly disturbed areas may be found in such areas of the park that are already completely deforested; these 'weed species' are not included in the total of 105 species). The segment of the herpetofauna most lacking from our expedition is the snakes. We recorded only 8 of the 45 species (17.8%) expected to occur in the Patuca National Park. Additionally, a few herpetofaunal species not presently known to occur in Honduras, but recorded from nearby in the Bosawas Biosphere Reserve in northern Nicaragua, may eventually be found in the Parque Nacional Patuca (e.g., *Eleutherodactylus cerasinus*, *E. diastema*, *Leptophis depressirostris*, and *Sibon annulatus*; Köhler, 1999).

Three species of amphibians, each previously known in Honduras from single specimens, were collected on this expedition. The first species, *Cochranella granulosa*, was recently documented in Honduras from 680 m elevation in a Premontane Wet Forest formation locality (McCranie et al., 1999). The Patuca locality for *C. granulosa* lies ca. 65 airline km SSW of the previous known Honduran locality, and ca. 50 airline km NNW of the nearest known Nicaraguan locality (ca. 3 km SE Ayapal at Río Curinwás, Departamento de Jinotega; Köhler, 1999). The second species, *Agalychnis calcarifer*, is known from the Lowland Moist Forest formation, but has only recently been documented from the country. The single Honduran adult was collected in 1992 near Baltituk, Departamento de Gracias a Dios, in eastern Honduras (Cruz Díaz & McCranie, 1999). Previous to the discovery of that specimen, the closest known locality for *A. calcarifer* was Río San Juan, Departamento de Río San Juan, Nicaragua (Caldwell, 1995). Our collection of *A. calcarifer* eggs and tadpoles on this expedition extends the range in Honduras ca. 140 airline km SSW of the Baltituk locality. The Patuca locality lies ca. 420 airline km NNW of the Río San Juan locality for *A. calcarifer*. The third species,

Bolitoglossa striatula, is known from the Lowland Moist Forest formation along the Atlantic versant from northeastern Honduras to central Costa Rica. The previous known Honduran specimen was collected in 1933 at Kropunta (4 km north of Ahuás), Departamento de Gracias a Dios, in northeastern Honduras. The individuals we collected extend the known range in Honduras ca. 150 airline km SW of Kropunta. Additional collecting in Parque Nacional Patuca will likely document the occurrence of other poorly known Honduran species in this national park.

ACKNOWLEDGEMENTS

Hauke Hoops, of the Fundación Patuca, provided logistical and monetary support, which made our expedition both successful and enjoyable. Collecting and exportation permits were provided by A. Barahona and C. Romero of COHDEFOR, Tegucigalpa. Field assistance was provided by D. Aparicio, A. Banegas, O.A. Espinal, and E. Köhler.

REFERENCES

- Caldwell, J.P. (1995). Natural history and survival of eggs and early larval stages of *Agalychnis calcarifer* (Anura: Hylidae). *Herpetological Natural History* 2, 57-66 (1994).
- Cruz Díaz, G.A. & McCranie, J.R. (1999). Geographic Distribution. *Agalychnis calcarifer*. *Herpetological Review* 30, 49.
- Holdridge, L.R. (1967). *Life Zone Ecology*. Revised Edition. San José, Costa Rica: Tropical Science Center.
- Köhler, G. (1999). The amphibians and reptiles of Nicaragua. A distributional checklist with keys. *Courier Forschungsinstitut Senckenberg* 213, 1-121.
- Marquis, R.J., Donnelly, M.A. & Guyer, C. (1986). Aggregations of calling males of *Agalychnis calcarifer* Boulenger (Anura: Hylidae) in a Costa Rican Lowland Wet Forest. *Biotropica* 18, 173-175.
- McCranie, J.R., Wilson, L.D. & Williams, K.L. (1999). Geographic Distribution. *Cochranella granulosa*. *Herpetological Review* 30, 106.