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Annotated checklist of the herpetofauna of Petit Saut, Sinnamary River, French Guiana

M.S. Hoogmoed & T.C.S. Avila-Pires

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Key words: Reptilia; Amphibia; tropical rainforest; canopy; forest floor; Neotropics; French Guiana.

The Mission Radeau des Cimes to Petit Saut, French Guiana, offered the opportunity to study the herpetofauna of the canopy of the tropical rainforest, an area hardly studied sofar. Two localities at heights of 30 and 35 m could be studied, whereas data on a third site were obtained through information from other participants. The herpetological results of the research in the canopy were meagre. Only the frog *Hyla leucophyllata* (Beireis) and the lizard *Mabuya bistriata* (Spix) were observed in the canopy. Additionally the terrestrial herpetofauna was studied extensively and turned out to contain some species that had not been reported before from French Guiana. Also, for many species new distribution data within French Guiana were obtained.

Le Mission Radeau des Cimes à Petit Saut, Guyane française, offrait l'opportunité d'étudier l'erpétofaune de la canopée d'une forêt pluviale tropicale, un domaine presque non étudié jusqu'à présent. On étudiait deux sites à altitudes de 30 et 35 m, et on obtenait des dates sur un troisième site grace à d'information des autres participants. Les résultats erpétologiques de l'étude de la canopée étaient pauvres. Seulement la rainette *Hyla leucophyllata* et le lézard *Mabya bistriata* étaient observés dans la canopée. Additionellement on étudiait intensivement l'erpétofaune terrestre avec le résultat que nous avons encontré quelques espèces nouveaux pour la Guyane française et aussi plusieurs pour lesquelles les dates de distribution constituaient d'information nouveau.

Marinus S. Hoogmoed, Nationaal Natuurhistorisch Museum, Postbus 9517, 2300 RA Leiden, The Netherlands.

Teresa C.S. de Avila-Pires, Museu Paraense Emílio Goeldi, DZO, Caixa Postal 399, Belém, Pará, CEP 66001, Brazil.

Introduction

The "Mission Radeau des Cimes" to Petit Saut, French Guiana (fig. 1), during October - November 1989, offered the opportunity to study the herpetofauna of this locality of tropical rainforest. This expedition, organized by a French group under the direction of Francis Hallé, and supported by funds from France, Japan and EEC, had as objective the study of the canopy, by using a raft of inflated rubber tubes with a net in between, that was temporarily installed on the top of trees, and that was transported from site to site by a navigable hot-air balloon in the shape of a zeppelin (Cleyet-Marrel, 1990; Ebersolt, 1990). During our stay with the expedition between November 3 and 16, 1989 our aim was to study the herpetofauna of the canopy, a habitat that has hardly been studied herpetologically, due to its difficult accessibility. Only few data are available about denizens of the canopy of Guiana (Hoogmoed & Avila-Pires, 1990b).

The results in the canopy, here presented briefly, were very meagre. A combination of several factors probably was responsible for that: (1) the time spent on the raft

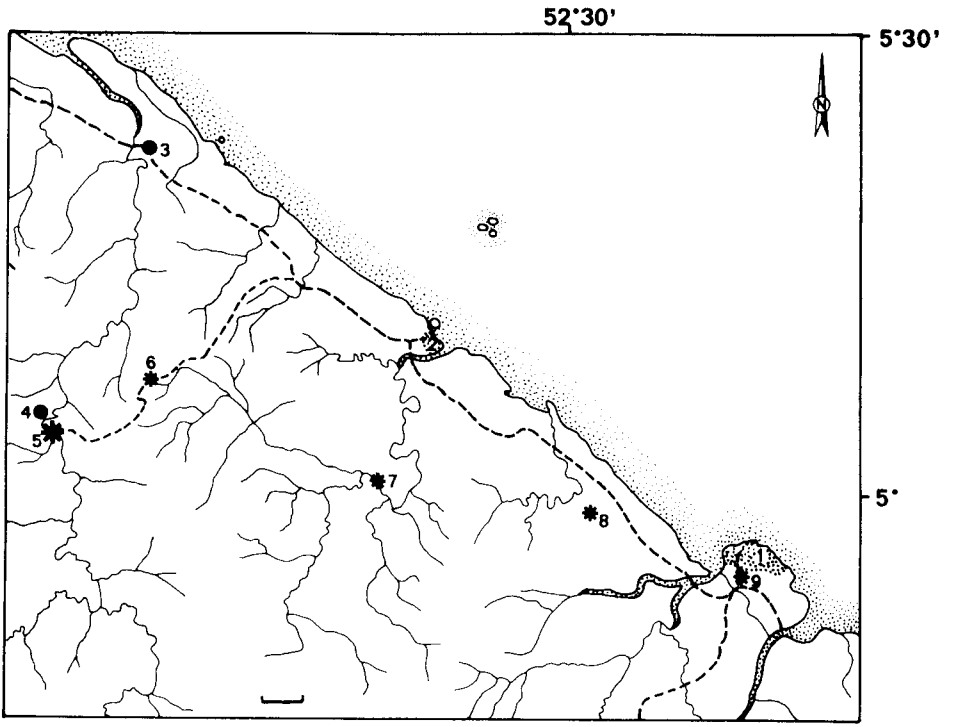

Fig. 1. Map of coastal French Guiana, showing localities mentioned in the text. Dots indicate localities used as reference points and stars localities from where new material is mentioned. 1. Cayenne, 2. Kourou, 3. Sinnamary, 4. Crique Grégoire, 5. Petit Saut, 6. 20 km NE Petit Saut, 7. Dégrad Saramacca, 8. Mornes de Macouria, 9. Lac des Américains. The bar (1 cm) represents 5 km.

was very short, because a maximum of only five persons could work on the raft simultaneously and since there was a large number of participants, access to the raft was only in shifts of limited duration; (2) continuous work on the raft by many persons causes destruction of the vegetation on which it rests, and causes disturbance that very likely has a negative effect on relatively large animals as vertebrates; (3) the most interesting area for herpetological investigations seems to be just below the top of the canopy, and that could not be reached with the techniques here employed; (4) mobility was severely limited.

The only reptiles observed by us in the canopy were two specimens of the lizard *Mabuya bistriata*, one adult and a subadult, both in the same, sunny spot in a patch of humus in the leaf-rosette of a large fern, at about 35 m above the ground (fig. 2). They were observed on site 5, on November 10, 1989 between 13.00 and 13.45 h, shortly after the raft had been deposited in this place. Consequently the area was relatively undisturbed. This species is a well-known inhabitant of open, sunny spots on the forest-floor (e.g. chablis = windfalls), both in primary and secondary forest and in perianthropic situations, where it may climb short distances above the ground on felled trees and on horizontal branches (Hoogmoed, 1973: 213; Gasc, 1990: 24, 63). No observations of elaborate climbing activity are known. Its presence high in the canopy thus comes as a surprise because of the altitude, not because of the microhabi-

Fig. 2. Two specimens of *Mabuya bistriata* (Spix) sunning themselves in the canopy at an altitude of 35 m (TCAP).

tat in which it was found as, in fact, this is completely comparable to that of chablis (relatively open, dry and sunny). This observation calls attention to the fact that the canopy for several "terrestrial" species may represent a "second forest-floor" with perfectly suitable conditions for living. This is an important point to keep in mind when trying to understand the dynamics of the rainforest, as well as in any study involving population densities and interactions among species.

Before our arrival in Petit Saut, Mr. Patrick Blanc observed two specimens of the frog *Hyla leucophyllata* on site 3, one walking at night (22.30 h) on the net of the raft, the other sleeping during the day (11.30 h) on the underside of a vertical leaf near the raft.

During the entire period we stayed in Petit Saut we made collections of herpetofauna on the more accessible places of the forest as well, e.g. forest-floor and associated structures (rocks, rotten logs, fallen trees), creeks and low vegetation. The results are presented below in the form of an annotated checklist, with references limited to the most recent publication(s) dealing with the group in the general region. Where no locality is mentioned, the material was collected in the immediate surroundings of the base camp of the expedition in Petit Saut, Sinnamary River. The numbers used are our fieldnumbers, as time was too short and technical help insufficient to incorporate the material in the museum collections. MSH numbers are part of the collection of the National Museum of Natural History, formerly Rijksmuseum van Natuurlijke Historie (RMNH), in Leiden, The Netherlands, those of TCAP of the Museu Paraense Emílio Goeldi (MPEG) in Belém, Brazil. The collection obtained certainly is not a complete representation of the herpetofauna of the area (especially the Iguanidae seem to be undercollected), but it adds some species not (or only recently)

registered in the literature for the country, as well as some new data on distribution, ecology, life colouration and frog calls.

Class **Amphibia**
Order **Anura**
Family **Bufonidae** Gray, 1825

Atelopus franciscus Lescure, 1973

Atelopus franciscus Lescure, 1973: 131; Lescure, 1976a: 478.

Material.— MSH5308 (1 ♂), 5366 (3 ♂) , 5379 (1 ♂); TCAP1379 (4 ♂).

All specimens were collected in primary forest along a short stretch of a small creek, where it formed a small cascade over some rocks. Most specimens were collected in the afternoon, walking on rocks or vegetation, but MSH5379 was found at night, sitting on a leaf 10 cm above the water of the creek.

Bufo guttatus Schneider, 1799

Bufo guttatus; Lescure, 1976a: 480.

Material.— MSH525491 (1 hgr); TCAP1401 (1 ex).

Both specimens were collected in daytime on the bank of the Sinnamary River.

Bufo margaritifera (Laurenti, 1768)
(figs. 3, 4)

Bufo typhonius; Hoogmoed, 1985: 63 (partly); Hoogmoed, 1989: 169.
Bufo margaritifera; Hoogmoed, 1990b: 118, 119, 120.

Material.— MSH5249-53 (6 ex), 5266 (1 ex), 5267-70 (3 ♂, 1 ex), 5272 (1 ♀), 5276-86 (1 ♀, 5 ♂, 4 ex), 5295 (1 ♂), 5312 (1 ♀), 5325-31 (1 ♀, 6 ex), 5336 (2 ♀, 1 ♂), 5355-7 (1 ♀, 1 ♂,1 hgr), 5367 (1 ♂), 5381 (1 ♂, 1 hgr), 5388-9 (2 ex), 5391 (1 juv), 5399-5401 (3 ex), 5406-15 (10 ex), 5423-25 (2 ♀, 1 ♂), 5433-6 (3 ♂, 1 juv), 5442 (2 ex), 5459-63 (4 ♀, 1 ♂); TCAP1329-31 (3 ex,1 juv), 1337 (1 juv), 1338 (3 hgr), 1341 (6 ex), 1358 (1 ex,1 juv), 1373-4 (1 ♀,1 ♂), 1377-8 (1 ♀, 1 ex), 1380 (1 hgr), 1388 (1 ♂), 1396 (3 ex), 1400 (11 ex), 1410 (2 ♀, 2 hgr), 1420 (2 ♀).

This is a medium-sized toad (adult females reaching a weight of 22.5 grams, adult males of 8.4 grams) with golden iris. Females have hypertrophied crests on the head, projecting knobs on the corner of the mouth and protruding dorsal spines on the vertebrae. It inhabits primary rainforest, where it was found right up till the border with secondary vegetation. At night, specimens were found on roads surrounded by secondary growth, so it may be concluded that it also inhabits secondary growth. Most specimens were found actively jumping on the forest floor in daytime,

Oxybelis argenteus (Daudin, 1803)

Oxybelis argenteus; Chippaux, 1986: 61; Hoogmoed & Avila-Pires, 1990b: fig. E pl. 204/205.

One specimen was captured in Petit Saut by one of the botanists in primary forest, about 50 m from secondary vegetation. It was on a low bush, 20 cm above the ground. The specimen was not preserved for the collection.

The species was already known from the lower Sinnamary River (Chippaux, 1986).

Tantilla melanocephala (Linnaeus, 1758)

Tantilla melanocephala; Chippaux, 1986: 65.

Material.— MSH5256 (1 ex).

The specimen was collected in primary forest between leaf litter. It was already known from the lower Sinnamary River (Chippaux, 1986).

Family **Viperidae** Gray, 1825

Bothrops atrox (Linnaeus, 1758)

Bothrops atrox; Chippaux, 1986: 122.

Material.— MSH5309 (1 ex).

The specimen was collected in daytime on the ground in primary forest, not far from secondary vegetation.

This is the most common poisonous snake of French Guiana, known from many localities. The present one falls completely within the known range.

Order **Testudines**
Family **Chelidae** Wermuth & Mertens, 1960

Platemys p. platycephala Schneider, 1792

Platemys platycephala; Fretey, 1975: 674; King & Burke, 1989: 125.
Platemys p. platycephala; Ernst, 1983: 350.

Material.— MSH5306 (1 ♀).

The specimen was found at night in a shallow pool at the edge of primary forest (see *Ololygon* cf. *x-signata*).

Order **Crocodylia**
Family **Alligatoridae** Gray, 1844

Paleosuchus trigonatus (Schneider, 1801)

Paleosuchus trigonatus; Medem, 1983: 104; King & Burke, 1989: 7.

One specimen of this species was observed on November 11, 1989 at 23.30 h in a small creek in primary forest. It was in the shallow water along the edge of the creek, completely submerged with only the head sticking out of the water.

Medem(1983) only reports the species from Cayenne and further east. The present locality extends the known range in French Guiana considerably to the west, but considering the species is widespread in adjacent Suriname, this is not surprising.

Conclusions

Though only one observation of lizards and two of frogs were made in the canopy, it drew an interesting point to our attention: lizards (and probably other animals as well) up till now considered ground-dwellers may find habitats similar to those they prefer on the ground high up in the canopy, and may live there. The consequences of this are that (1) population densities of these animals have been underestimated; and (2) the interaction and spatial distribution of animals in the forest are even more complex than supposed up till now. The main conclusion resulting from our observation thus is a re-enforcement of our starting point: to understand the dynamics of the forest it is very important to know better what is going on in the canopy.

The canopy raft as it is used at present unfortunately is not well fit for herpetological studies. It would be necessary to study the possibilities of making some adaptations to it, especially in the direction of enlarging the area of observation and the mobility into the canopy, by enlarging the number of exit openings in the raft and providing possibilities of attaching aerial walkways.

The herpetological collection obtained by us during the expedition, though not a complete representation of the herpetofauna of the area, adds some species not yet (or only very recently) registered in the literature for the country (*Lepidoblepharis heyerorum, Atractus torquatus, Hyla melanargyrea, Ololygon* sp. nov.). Besides, some valuable information about the distribution of the species in the country was obtained, as well as new data on ecology, life colouration and frog calls.

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