

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

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

Hoogmoed, M.S., & T.C.S. Avila-Pires. Annotated checklist of the herpetofauna of Petit Saut, Sinnamary River, French Guiana.

Zool. Med. Leiden 65 (5): 31.vii.1991: 53-88, figs. 1-8.— ISSN 0024-0672.

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 so far. 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'herpétofaune 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 grâce 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. Additionnellement on étudiait intensivement l'erpétofaune terrestre avec le résultat que nous avons rencontré 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

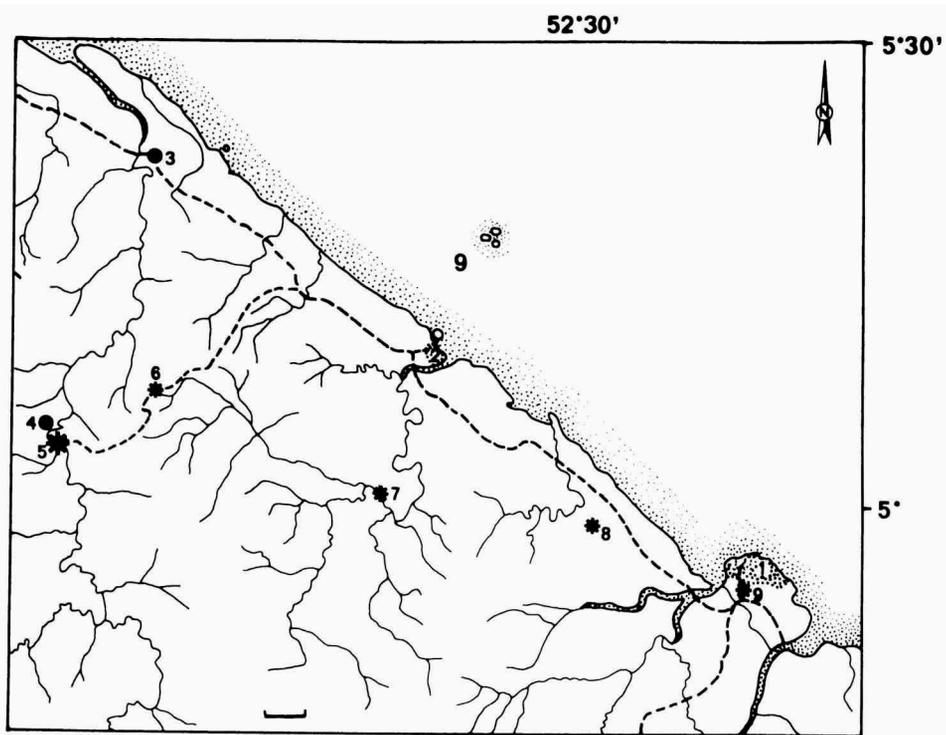


Fig. 1. Map of coastal French Guiana, showing localities mentioned in the text. Dots indicate localities used as reference points and stars localities from where new material is mentioned. 1. Cayenne, 2. Kourou, 3. Sinnamary, 4. Crique Grégoire, 5. Petit Saut, 6. 20 km NE Petit Saut, 7. Dégrad Saramacca, 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 bistrriata* (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,

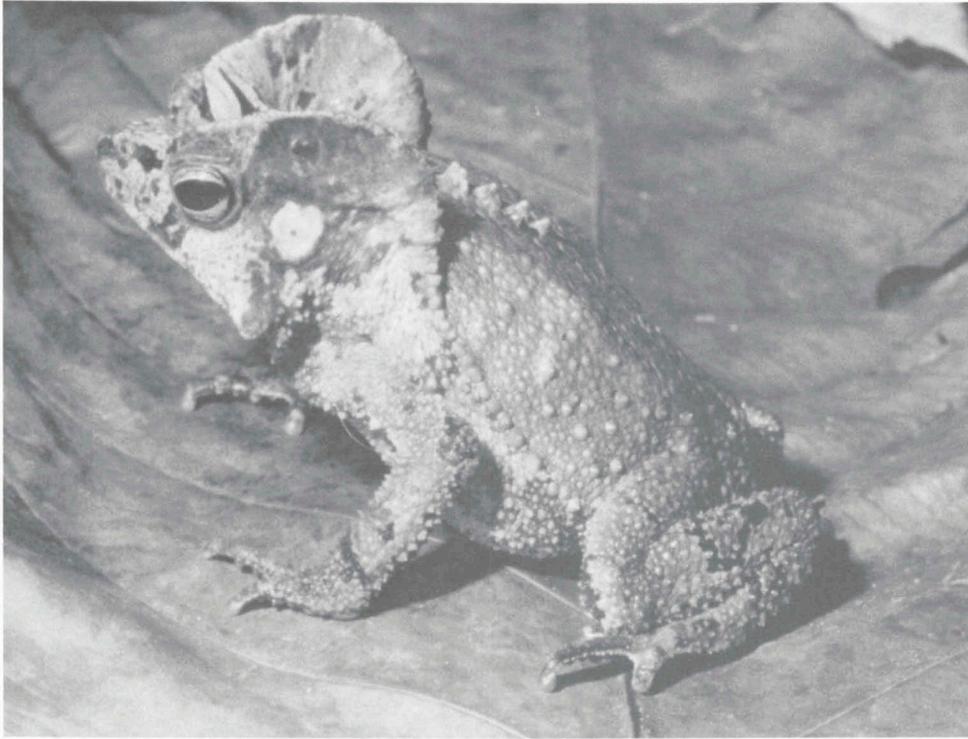


Fig. 3. A female *Bufo margaritifera* (Laurenti) (MSH5355) with well developed vertical bony crests on the head (MSH).

but a few were found at night, sitting on leaves and branches up to 100 cm above the ground.

The colour of this species is highly variable, ranging from light brown through dark brown to orange, purple or beige, with black, grey or green spots, with or without a wide or narrow cream coloured vertebral stripe. The iris is golden, and this character, together with size, is most useful to separate it from *Bufo spec.*

The taxonomic position of this taxon for a long time has been confused because several taxa were joined under the name *Bufo typhonius* Linnaeus. Hoogmoed (1989) showed that the correct name for the taxon that occurs in the Guianas and has well developed bony crests on the head, was *Bufo margaritifera*. For further comment on the problems connected with the position of this species we may refer to Hoogmoed (1986, 1989, 1990).

### ***Bufo marinus* (Linnaeus, 1758)**

*Bufo marinus*; Lescure, 1976a: 480.

Material.— MSH5248 (1 ex), 5275 (1 ex); TCAP1340 (1 ex), 1357 (1 ex, 20 km NE).

This anthropophilous species was collected near human habitations, but also in primary forest.



Fig. 4. Female *Bufo margaritifera* (Laurenti), MSH5355 (above) and MSH5336 (below) with well developed vertical, respectively horizontal bony crests on the head (MSH).

**Bufo spec.**  
(fig. 5)

Material.— MSH5313-24 (4 ♀, 4 ♂, 2 ex, samples of tadpoles), 5358-65 (1 ♂, 7 ex), 5202-5 (4 ex), 5421-2 (1 ♀, 1 ♂), 5428-9 (1 ♂, 1 juv), 5440-1 (1 ♀, 2 ♂), 5444 (2 ex), 5447-58 (1 ♀, 11 ex); TCAP1372-3 (1 ♀, 1 ♂), 1411 (4 ex), 1413 (1), 1419 (2 ex, 1 juv).

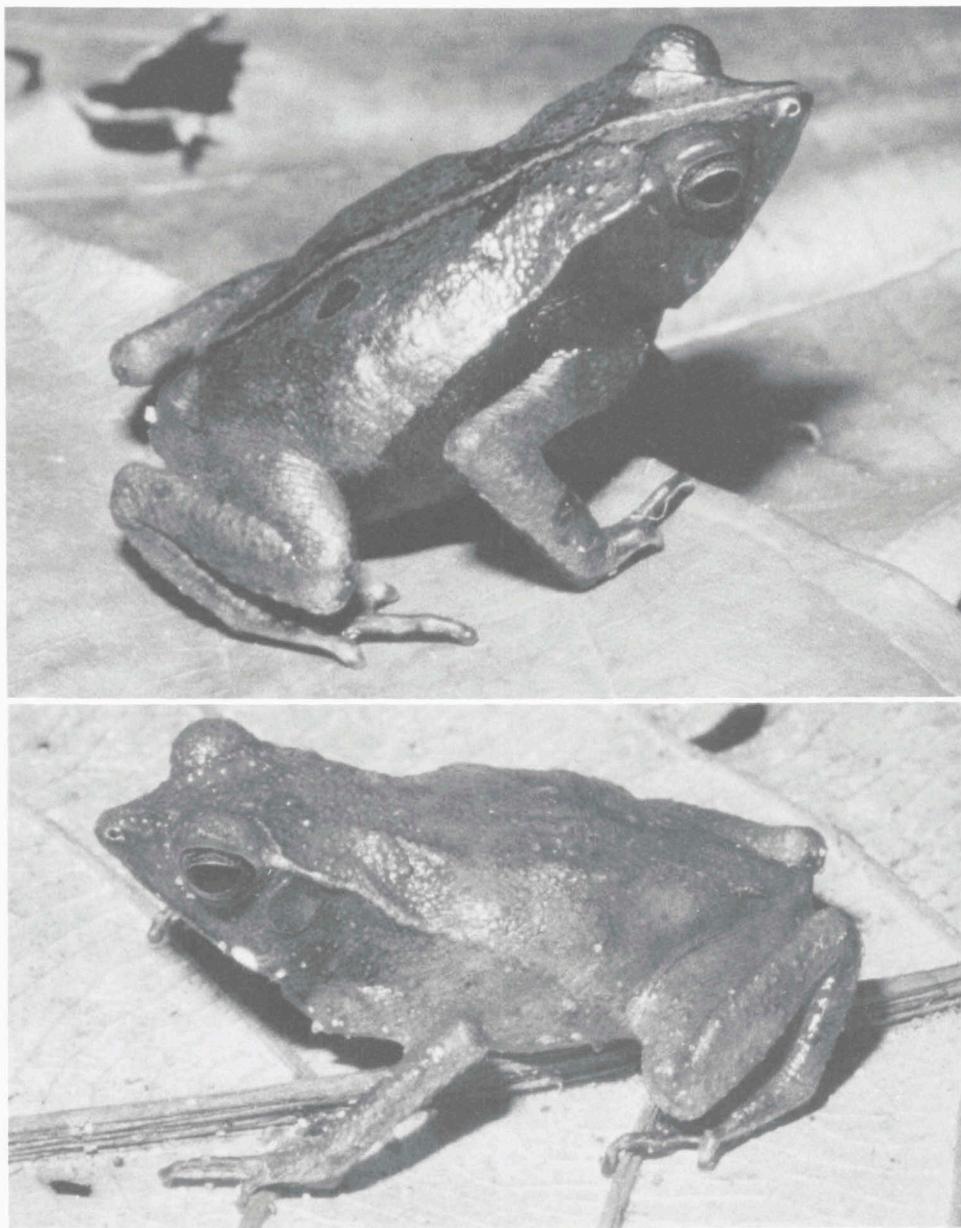


Fig. 5. *Bufo* spec., a species still to be described, that lacks any bony crests on the head, ♂ MSH5317 (above) and ♀ MSH5314 (below) (MSH).

This is another species of the so-called "*Bufo typhonius*" group. It differs from *B. margaritifera* in being much smaller (adult females weighing at most 5.2 grams, adult males 2.8 grams), in lacking bony crests on the head and in having a green iris. No name is available for this species and it will be described as a new species in a forthcoming publication by MSH. All specimens were found in primary forest, mostly in swampy parts of a small creek or close to it. Some specimens were found on top of a low, dry crest in an open type of forest, though still close to the creek. The species was heard calling throughout the day between 9.00 h and 17.00 h and could be recorded. MSH5313-20, four males and four females, formed amplexing pairs that were found at 16.30 h in a shallow pool on top of a large, flat boulder with concave surface, that was in the middle of the creek bed. The pairs were hiding on the bottom among some debris and had produced egg strings. The egg strings were collected and hatched in the laboratory. A developmental series is available. MSH5441 also formed an amplexing pair that was found in a swampy part of the creek valley at 17.00 h. No specimens were found at night.

This species was only found in a rather restricted area, viz. in primary rainforest where large granite boulders were exposed on the slopes of a creek and in the creek itself.

The colour and pattern of this species are very variable and range from pale orange brown to dark brown, with or without light vertebral stripes and dark marks. The iris is bright green and this character serves to distinguish most specimens (even small juveniles) from *B. margaritifera*, which has a golden iris.

#### Family Centrolenidae Taylor, 1951

#### *Centrolenella oyampiensis* Lescure, 1975

*Centrolenella oyampiensis* Lescure, 1975c: 386; 1976a: 482.

Material.—MSH5290 (1 ♂); TCAP1389 (1 ♂).

This species was found together with its sympatric congener in the valley of a small creek. Males were calling at night from the upper surface of leaves of small trees, 150-170 cm above the surface of the water. In life the back is green with minute black spots, the belly is transparent. The heart is not visible, but is covered by a white integument that also covers the intestines. The bones are green. There is a golden ring around the pupil, followed by grey and golden rings.

#### *Centrolenella taylori* Goin, 1968

*Centrolenella taylori*; Lescure, 1975c: 300, 1976a: 481.

Material.—MSH5378 (1 ♂); TCAP1386 (1 ♂).

This small centrolenid was only found in the valley of a small creek, where males were calling at night from the underside of leaves of small trees, 170—200 cm above

the water. Specimens were found in close proximity of specimens of the other species of *Centrolenella* occurring in the valley. In life the back is green with yellow spots, the underside is colourless and transparent. The heart is visible, the intestines are covered by a chalky white integument. The bones are not green. The iris is very dark brown around the pupil, the rest is dark grey.

#### Family Dendrobatidae Cope, 1865

#### *Colostethus beebei* (Noble, 1923)

*Colostethus beebei*; Lescure, 1976a: 482.

Material.— MSH5257 (1 ex), 5332 (1 ex), 5354 (1 ex), 5369 (1 ex), 5398 (1 ♂), 5443 (1 ex); TCAP1342 (1 ♂), 1361 (1 ex), 1408 (1 ex).

Males of this species have a thick ridge on the inside of the 3rd finger, thus causing it to be extremely thick. The gular sac has a suffusion of brown dots, rest of belly immaculate, white. A pair of distinct light lines across the thighs, one at each side of the cloaca. Colour of back varies from light to dark brown, a narrow cream dorsolateral stripe from the eye to the middle of the groin. A dark brown stripe from the snout through the eye and the upper part of the tympanum, widening till the anterior part of the flanks and from there narrowing again, ventral delimitation not sharp.

Unfortunately, both species of *Colostethus* in the field were not separated, and the information on habitat therefore is scanty. It is clear however that this species has the widest distribution, occurring on the ground in primary forest, both near creeks (6 ex) and away from creeks (3 ex). However, as we did not notice the distance to the water, the notation "near creeks" has to be interpreted widely and may include both the area directly adjacent to the water, but also the slopes of the valley further away from the water.

Lescure (1976a) already reported this species from the lower Sinnamary River. He mentions there is still some uncertainty about the identity of this taxon, but we are convinced it does agree very well with the original description by Noble (1923: 289), and we do not hesitate to identify it as such.

#### *Colostethus degranvillei* Lescure, 1975

*Colostethus degranvillei* Lescure, 1975a: 413; 1976a: 483.

Material.— MSH5354 (1 ex), 5464 (1 ex); TCAP1376 (2 ex), 1424 (1 ex), 1425 (1 ex).

Third finger in males not thickened. Throat or entire ventral surface with large brown blotches. Back light to dark brown, a black band from the snout through the eye, suddenly widening behind the eye, bordered below by a white line to the insertion of the arms. No dorsolateral stripe. Toes with lateral fringes.

As said above, information on habitat is scanty, but all specimens were collected on the ground in primary forest along, or even inside small creeks. It seems to be more closely associated with running water than *C. beebei*. Most specimens were col-

lected in a restricted area where large granite boulders were present on the slopes of a creek valley and in the valley itself. Only TCAP1424 was collected outside this area, but not very far away from it. All specimens were collected in daytime.

### **Epipedobates femoralis (Boulenger, 1884)**

*Phyllobates femoralis*; Lescure, 1976a: 486; 1976b: 300.

Material.—MSH5394 (2 ex); TCAP1404 (1 ex), 1416 (1 ex).

Lescure (1976a) reported this species from several localities in the eastern and southern parts of French Guiana. The specimens from Petit Saut, not unexpectedly, fill a gap in the distribution, as the species is known to be abundant in adjacent areas of Suriname.

### **Family Hylidae Gray, 1825**

#### **Hyla boans (Linnaeus, 1758)**

*Hyla boans*; Lescure, 1976a: 489; Hoogmoed, 1990a: 71-93.

Material.—MSH5258 (1 ex), 5351 (1 ex); TCAP1332 (1 ex).

The species was very abundant around the encampment and specimens were found calling from the rafters of houses, from *Cecropia* trees and from the ground near roadside pools at the edge of primary forest.

Hoogmoed (1990a) showed that in Guiana only one large treefrog occurs and that its proper name is *H. boans*, whereas along the large streams near the Amazon and the Orinoco another species (*H. wavrini* Parker) occurs, which has been confused with *H. boans*.

#### **Hyla fasciata Günther, 1859**

*Hyla fasciata*; Lescure, 1976a: 493.

Material.—MSH5293 (1 ♂), 5380 (1 ♀); TCAP1387 (2 ex).

All specimens were collected in primary forest near creeks at night. Lescure (1976a) reported this species from several localities in the eastern and southern parts of French Guiana and the present specimens nicely fill the gap in the northwestern part of the country.

#### **Hyla leucophyllata (Beireis, 1783)**

*Hyla leucophyllata*; Lescure, 1976a: 495; Hoogmoed & Avila-Pires, 1990b: fig. C pl. 204/205, 225 (ed. note).

This species was not collected or observed by the authors, but Mr Patric Blanc, one of the botanists of the expedition, put at our disposal a coloured picture of a specimen of this frog that he observed at site 3, where it was actively walking on the net at 22.30 h. Another (smaller) specimen was observed at the same locality one day later sitting on the vertical surface of a leaf, directly exposed to the sun at 11.30 h.

The species was reported by Lescure (1976a) from the coastal area and from the southeastern part of the country. Its presence in Sinnamary therefore does not come as a surprise.

***Hyla melanargyrea* Cope, 1887**  
(fig. 6)

*Hyla melanargyrea*; Hoogmoed & Avila-Pires, 1990b: fig. A pl. 204/205.

Material.— MSH5298 (1 ♀, 1 ♂), 5303 (2 ex); TCAP 1351 (1 ♂), 1353 (3 ex) (all material from 20 km NE Petit Saut).

This species was not reported from French Guiana by Lescure (1976a), but Hoogmoed reported its occurrence in Suriname (Frost, 1985: 141) on the basis of three specimens that were obtained by raising tadpoles in the laboratory. The tadpoles were collected on April 29, 1975 in Zanderij, Suriname (MSH1975-888), and on May 11, 1975 on the Lely Mountains, Suriname (MSH1975-985, 1 ex). A coloured photograph of this species appeared in Hoogmoed & Avila-Pires (1990: 204/205), based on the material here reported, but it was not mentioned in the text.

All specimens were collected around a road-side pool at the edge of primary forest and roadside vegetation. MSH5298 was an amplexing pair that was collected in daytime (9.00 — 9.45 h) under the bark of a dead tree standing in the pool. TCAP1351 was collected at the same time. The other specimens were collected at night in low vegetation in and around the pool, at a height of 100-200 cm above the ground. Our attention was drawn to the pool where the species occurred, when in the early morning of November 7, 1989, after a night with heavy rain, we passed it and heard an impressive frog chorus. For further comment see *Ololygon* cf. *x-signata*. This species is very similar to *Hyla marmorata* (Laurenti) that also should occur in the area, but differs from it by the lack of any yellow colouration on the ventral parts.

***Hyla minuta* Peters, 1872**

*Hyla minuta*; Lescure, 1976a: 496.

Material.— MSH5260 (5 ♂), 5307 (3 ex) (20 km NE), 5343 (4 ex) (20 km NE); TCAP 1334 (4 ♂), 1360 (3 ex) (20 km NE), 1366 (4 ex) (20 km NE).

This species, though abundant throughout Suriname, only has been reported from three localities in adjacent French Guiana (Lescure, 1976a). The present locality nicely fills the gap between the two western localities and Cayenne.

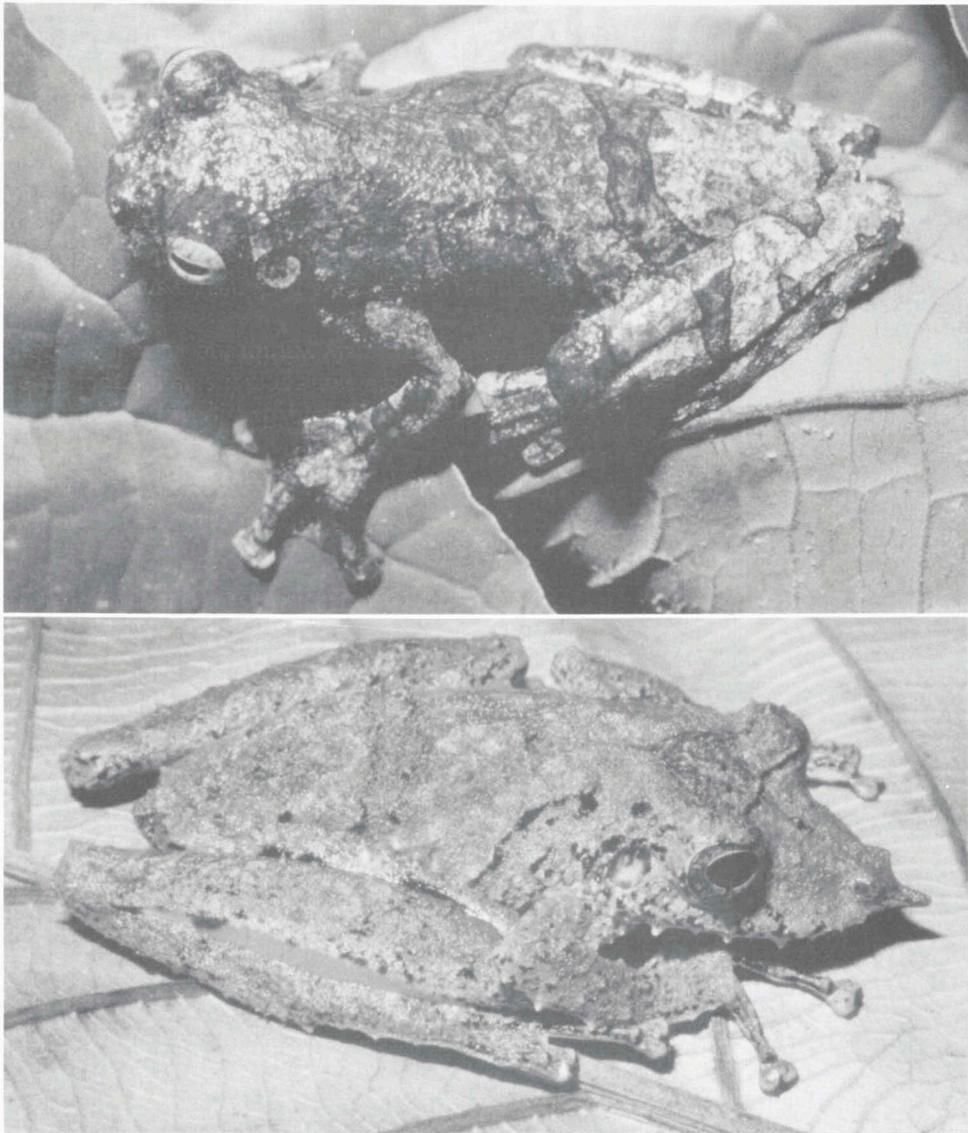


Fig. 6. The rare treefrogs *Hyla melanargyrea* Cope (MSH5298), a new species for French Guiana (above), and *Ololygon proboscidea* (Brongersma) (MSH5371), a peculiar looking species (below)(MSH).

#### *Ololygon boesemani* Goin, 1966

*Hyla boesemani*; Lescure, 1976a: 491.

Material.— MSH5350 (1 ex); TCAP1384 (1 ex) (both from 20 km NE).

Lescure (1976a) reported this species from several localities in French Guiana, some of which quite close to the present one.

***Ololygon proboscidea* Brongersma, 1933**  
(fig. 6)

*Ololygon proboscidea*; Lescure, 1976a: 499.

Material.— MSH5371 (1 ex), 5383 (1 ex); TCAP1391 (1 ex).

All specimens were found in primary forest, MSH5371 and TCAP1391 in daytime, the first in leaf litter, the second on a tree trunk during heavy rain. MSH5383 was found at night sitting on a branch 100 cm above the ground. The species can easily be recognised because of the pointed dermal flap at the tip of the snout.

The back is greyish brown with black markings. Dermal ridges of the triangle between the eyes reddish brown. Groins lemon green. Posterior aspect of thighs and shanks yellow with black bars, anterior aspect of thighs dorsally with narrow rim of lemon green, more ventrally yellow, with black bars. Ventral parts pale yellow. Iris golden.

According to Lescure (1976a) only seven specimens were known from four localities, but in 1975 several more already had been collected in the Lely Mountains, Suriname (material in RMNH), where they aggregated around a forest pond in a depression at an altitude of about 650 m.

***Ololygon rubra* (Laurenti, 1768)**

*Hyla rubra*; Lescure, 1976a: 500 (partly).

Material.— MSH5259 (1 ♀), 5302 (2 ♂) (20 km NE), 5342 (1 ♂) (20 km NE); TCAP1333 (1 ♂), 1352 (1 ♂) (20 km NE), 1356 (1 ♂) (20 km NE).

This is a perianthropic species, very common in and around houses, but also occurring in secondary growth. Most specimens were collected in a shallow pool along the road to Kourou, but MSH5259 was collected close to the basecamp.

In the shallow pool 20 km NE of Petit Saut this species occurred microsympatrically with *O. cf. x-signata*, and in the field was not distinguished from it.

***Ololygon cf. x-signata* (Spix, 1824)**

*Hyla rubra*; Lescure, 1976a: 500 (partly).

Material.— MSH5294 (1 ♂), 5297 (2 ♀, 3 ♂) (20 km NE), 5302 (1 ♂) (20 km NE), 5342 (1 ♀, 1 ♂) (20 km NE), TCAP1350 (2 ♀, 2 ♂) (20 km NE), 1352 (2 ♂) (20 km NE), 1365 (1 ♀, 2 ♂).

This species was not reported from French Guiana as such by Lescure (1976a), though under *Hyla rubra* he mentions that in the interior of the country another species, closely related to *O. rubra*, occurs which is larger, browner, has more orange in the groins, and lacks the longitudinal dorsal bands. This description fits *O. cf. x-signata*. The specimens have large, rather dark-brown spots on the back, sometimes merging to a longitudinal band. A light dorsolateral band is never present. The

underside is suffused with brown points, especially in females. *O. x-signata* from Brasil have two pairs of dark-brown spots. Time did not yet permit to thoroughly investigate these differences further.

Most specimens were collected in and around a shallow pool along the road to Kourou. We first noticed this pool in the early morning of November 7, 1989, after a night with prolonged and heavy rainfall. When we passed it we heard a large frog chorus (9.00 h., slightly overcast sky) and upon closer inspection we saw many, moving yellow objects on the branches and stems of felled trees lying in the pool. These objects turned out to be brightly coloured males of this species that were fully active. Collecting was difficult because the animals moved away at a fair distance and sought refuge under the bark of dead trees and in the water. Several other species of frogs (*Hyla melanargyrea*, *H. minuta*, *Chiasmocleis shudikarensis*) were also active at this time.

After capture the bright yellow colour of the males disappeared soon, the back becoming grey with black marks, the belly remaining pale yellow.

#### *Ololygon* spec. nov.

Material.—MSH5339-41 (1 ♀, 5 ♂), 5374 (1 ♂); TCAP5341 (6 ♂), 1383 (1 ♂) (all from 20 km NE).

This small species already was known to MSH from specimens collected in Suriname in 1975. Its description is pending. One calling male could be recorded.

#### *Osteocephalus taurinus* Steindachner, 1862

*Osteocephalus taurinus*; Lescure, 1976a: 503.

Material.—MSH5263 (1 ex), 5273 (1 ♀) (20 km NE), 5304 (1 ex), 5344 (1 ♀) (20 km NE), 5382 (1 ♀); TCAP1349 (1 ♀), 1354 (2 ex) (20 km NE), 1367 (1 ♂).

This large hyloid was found in primary forest near creeks and along forest edges.

#### *Osteocephalus* spec.

Material.—MSH5384 (1 ♂); TCAP1393 (1 ♀).

This species resembles *O. taurinus*, but is slightly smaller. It is also known from Suriname and Brazil. Our colleague J. Lescure has been studying this taxon for some time.

Specimens were collected at night in primary forest, TCAP1393 on low branches in chablis near a temporary pool of rainwater, and MSH5384 was calling from a hole in a tree riddled with holes, 300 cm above the ground. Both were collected during light rain, after it had rained all afternoon.

**Phyllomedusa bicolor** (Boddaert, 1772)

*Phyllomedusa bicolor*; Lescure, 1976a: 504; Hoogmoed & Avila-Pires, 1990b: fig.B pl.204/205.

Material.— MSH5300 (1 ♂) (20 km NE).

Lescure (1976a) reports this species only from one locality in the deep south of French Guiana. In Suriname the species is common in the coastal zone and distributed throughout the country. Its presence northeast of Petit Saut therefore does not come as a surprise, and we can safely assume that it is distributed throughout the country.

**Phyllomedusa tomopterna** (Cope, 1868)

*Phyllomedusa tomopterna*; Lescure, 1975b: 118; 1976a: 505; Hoogmoed & Avila-Pires, 1990b: fig.D pl. 204/205.

Material.— MSH5261 (1 ♂), 5301 (1 ♂), 5338 (1 ♀, 3 ♂) (20 km NE), 5432 (1 ex); TCAP1335 (1 ex), 1346 (1 ex), 1363 (4 ♂) (20 km NE), 1392 (1 hgr).

Specimens were collected at night in primary forest and at the forest-edge, in low vegetation up to 300 cm above the ground.

The back is green with small white dots. Flanks, hands, upper arms, thighs and feet orange with purple bars, belly orange. There is a remarkable variation in the size of the dermal flap on the heel, which is independent of size or sex. The flap may be a small, hardly discernible triangle, it may be a distinct pointed triangle and it may be an extended half oval. This variation occurred in series collected in one locality at the same time. Males have a rounded patch of nuptial asperities on the first finger.

Lescure (1976a) reports this species from a few localities in northwestern, central and southeastern French Guiana. The present locality completely falls within this area.

**Phyllomedusa vaillanti** Boulenger, 1882

*Phyllomedusa vaillanti*; Lescure, 1976a: 505.

Material.— MSH5349 (1 hgr).

The only specimen of this species was collected early in the morning on the plastic sheets covering the landing area for the hot-air balloon used to transport the canopy raft. This was a large open area without vegetation, surrounded on one side by secondary vegetation and on the other three sides by primary forest.

Lescure (1976a) only reports this species from Cayenne and from around Saül. The present locality extends the known distribution slightly to the northwest.

## Family Leptodactylidae Werner, 1896

**Adenomera andreae** (Müller, 1923)

*Adenomera andreae*; Lescure, 1976a: 506.

Material.— MSH5271 (1 ex), 5333 (2 ex), 5393 (1 ♂), 5419 (1 ex); TCAP1348 (1 ex), 1362 (1 ex), 1403 (1 ex), 1409 (1 ex), 1418 (2 ♂).

Lescure (1976a) mentions this species from throughout the country. It is characterised by the flattened discs at the tips of the toes and by the males having pointed snouts, caused by a white, transverse ridge (Heyer, 1973: 29).

All specimens were collected among leaf litter in primary forest.

**Eleutherodactylus chiastonotus** Lynch & Hoogmoed, 1977

*Eleutherodactylus chiastonotus*; Lescure, 1981: 26.

Material.— MSH5265 (1 ex), 5386 (1 ♀); TCAP1395 (1 ♀, 1 ♂ in amplexus).

Lynch & Hoogmoed (1977) in their original description listed ten localities from French Guiana. Lescure (1981) in his review of the genus in French Guiana listed one more locality.

All specimens were collected at night in primary forest or at the forest edge.

**Eleutherodactylus inguinalis** Parker, 1940

*Eleutherodactylus inguinalis*; Lescure, 1981: 31.

Material.— MSH5292 (1 ex).

Lescure (1981) only reported this species from one locality near Saül in the centre of French Guiana. The present specimen is the second one known from the country. In the Guianas only a few localities are known, most in Suriname (Lely Mountains, Brownsberg, Right Kabalebo River, Loë Creek, New River)(material all in RMNH).

The specimen was collected between 20.00 and 24.00 h in primary forest where it was found on the buttresses of a tree growing partly in a small creek, at a height of 400 cm above the ground. Specimens in Suriname were found in daytime hiding between leaves on the forest floor and under a log, and at night sitting on leaves or on tree trunks, 180—400 cm above the ground.

The back is brown with darker and lighter spots and lines, a light W-shaped mark on the scapular region, some darker stripes radiating from the eye to the mouth. The anterior aspect of the thigh is grey. Limbs with darker bars. A black-margined yellow spot in the groins. Upper part of iris greyish brown with brown lines, lower part of iris brown.

***Eleutherodactylus marmoratus* (Boulenger, 1900)**

*Eleutherodactylus marmoratus*; Lescure, 1976a: 507, 1981: 31.

Material.—MSH5291 (1 ex); TCAP1347 (1 juv).

Lescure (1976a, 1981) reported this species from southern and eastern French Guiana and from a single locality near Sinnamary. The present specimens do not add significantly to our knowledge of the distribution of the taxon.

Both specimens were found during the same night in primary forest, sitting on leaves about 50 cm above the ground, not near water.

***Eleutherodactylus zeuctotylus* Lynch & Hoogmoed, 1977**

*Eleutherodactylus zeuctotylus*; Lescure, 1981: 28.

Material.—MSH5264 (1 ex), 5387 (1 ♂), 5420 (1 ♀); TCAP1390 (1 ♀), 1412 (1 ex).

Lynch & Hoogmoed (1977) reported this species from five localities in French Guiana, Lescure (1981) from 11, essentially from the same regions as mentioned by the former authors. The present locality falls completely within the known distribution.

Specimens were found at night in primary forest on a rock near a small cataract, on a felled tree at the forest edge, and on rocks in secondary vegetation near houses. During the period of our stay specimens were heard calling most nights, both from secondary vegetation around houses and from forest edges. MSH5420 was found in daytime, hiding among leaf litter in an open trail through disturbed primary forest. This species seems to have a preference for the edge of clearings, as was already indicated by Lynch & Hoogmoed (1977: 438) and also by Lescure (1981: 31), who reports it to be perianthropic in the village of Saül.

***Leptodactylus fuscus* (Schneider, 1799)**

*Leptodactylus fuscus*; Lescure, 1976a: 508.

Material.—MSH5274 (3 ex); TCAP1339 (2 ex), 1355 (1 ♂) (20 km NE).

Lescure (1976a) reported this species from a few localities near Cayenne and in the coastal savanna belt. The present specimens extend the known range further south. Their presence at this locality is not unexpected, because savannas occur close to the general area and their influence generally extends along roads into forested areas.

Most specimens were collected at night in or near a dry, roadside ditch, where some of them were calling from burrows in the moist mud. TCAP1355 was sitting on the ground at the edge of a large, shallow pool (see *Ololygon cf. x-signata*).

**Leptodactylus knudseni** Heyer, 1972

*Leptodactylus pentadactylus*; Lescure, 1976a: 509 (probably partly).  
*Leptodactylus knudseni*; Heyer, 1979: 20.

Material.— MSH5262 (1 ♂), 5345 (1 ♂) (20 km NE); TCAP1336 (1 ♂).

The specimens were collected at night in and around roadside pools.

A large orange spot on the posterior part of the flanks on a glandular area just in front of the groin. Anterior part of flank red. Back of thighs orange red. Throat dark grey with white spots. Warts with keratinized tips on throat, chest, ventral surface of upper arms and sides of belly. Apparently there is a relation between size and development of chest spines: MSH5262 (s-vl 16 cm) has two large, tricuspid spines on the chest, MSH5345 (s-vl 13.5 cm) has one group of three (one larger central, two small laterals) and one of four rather small spines (one larger central, three small), and TCAP1336 (s-vl 12.5 cm) has one group of three and one of four very small spines. All three have a well developed spine on the inner surface of the thumb.

As we did not have the opportunity to study the material reported by Lescure (1976a), we are not certain whether his *L. pentadactylus* is not a mixture of two species, viz. *L. pentadactylus* and *L. knudseni* Heyer, as the two were confused under the name *pentadactylus* till Heyer (1979) pointed out the differences. Heyer (1979: 21) reports the species from only one locality (Maripasoula) in French Guiana.

**Leptodactylus mystaceus** (Spix, 1824)

*Leptodactylus mystaceus*; Lescure, 1976: 509.

Material.— MSH5346 (2 ex) (20 km NE), 5392 (1 ex), 5431 (1 ex), 5438 (1 ex); TCAP1368 (2 ex) (20 km NE), 1402 (1 ex), 1421 (1 ex).

Three specimens (MSH5392, MSH5438, TCAP1402) were collected in daytime on the forest floor among leaf litter in primary forest. The other specimens were collected at night, MSH5431 and TCAP1421 in primary forest between leaf litter on the ground, MSH5346 and TCAP1368 on the ground around a roadside pool and on dead trees lying in that pool (see *Ololygon x-signata*).

**Leptodactylus rhodomystax** Boulenger, 1883

*Leptodactylus rhodomystax*; Lescure, 1976a: 510.

Material.— MSH5368 (1 hgr), 5385 (1 ex); TCAP1394 (1 ex).

All specimens were collected on the forest floor in primary forest. MSH5368 in the early morning, the other two at night after an afternoon of heavy rain, with a light rain continuing into the evening. One specimen regurgitated a mass of rain-worms.

Lescure (1976a) already reported the species from the general area.

The back is brown, groins orange, back of thighs and spot in groin black with white spots. Throat grey with white spots, chest white with grey reticulation.

**Leptodactylus wagneri** (Peters, 1862)

*Leptodactylus wagneri*; Lescure, 1976a: 510.

Material.—MSH5347 (2 ex); TCAP1369 (1 ex) (all from 20 km NE).

All specimens were collected the same night, on the ground and on pieces of bark lying on the ground on small islands in a shallow pool at the edge of primary forest (also see *Ololygon* cf. *x-signata*).

These small specimens (s-*vl* 17.2 mm) are tentatively referred to this species, as they have well developed lateral fringes along the toes. The *podicipinus-wagneri* group at the moment is being studied by W.R. Heyer.

Lescure (1975a) reported *L. wagneri* from many localities throughout the country.

Family Microhylidae Günther, 1859

**Chiasmocleis shudikarensis** Dunn, 1949

*Chiasmocleis shudikarensis*; Lescure, 1976a: 512.

Material.—MSH5299 (1 ♀, 4 ♂) (20 km NE), 5348 (1 ♀, 1 ♂) (20 km NE), 5370 (1 hgr), 5395 (1 ♂), 5439 (1 ♀); TCAP1359 (1 ♀, 4 ♂) (20 km NE), 1370 (1 ♂) (20 km NE), 1405 (2 ♂), 1417 (1 ♂).

Specimens were collected in daytime and at night. MSH5299 were collected early in the morning of November 7, 1989, after a night with prolonged rain, mating in a shallow pool (see *Ololygon* cf. *x-signata*) at the edge of primary forest, with amplexing pairs in the water and individual males on floating pieces of wood. The same holds true for TCAP1359, only that they were collected in the evening, between 21.00 h and 00.45 h. MSH5348 and TCAP1370 were collected at night (22.00-01.00 h) on November 8, 1989. However, in contrast to the situation one day earlier, no amplexing pairs were observed, though males calling from hidden stations were present throughout the pool. The specimens collected were at the edge of the pool, on the ground among leaf litter or under pieces of bark. All other specimens were collected in daytime on the ground in primary forest, hiding among leaf litter or under large logs lying on the ground.

A distinct difference in colour between males and females was noted. Females have a grey back, forelimbs and feet orange, belly white with black spots, throat brown with a lighter pattern. Iris grey with an orange rim around the pupil. Males with an orange brown back and black throat.

Lescure (1976a) only mentioned the species from localities in the centre and southern part of the country. The present locality extends the known range northward.

**Hamptophryne boliviana (Parker, 1927)**

*Hamptophryne boliviana*; Lescure, 1976a: 512.

Material.— MSH5430 (1 ex).

The single specimen was collected in primary forest at night, after a period of two dry days, sitting on an oblique piece of liana 100 cm above the ground.

The back is beige with a large brown spot and two black inguinal spots. Flanks, back of thighs, soles, back of arms and palms black. Ventral parts grey with dark grey vermiculations. Iris golden with black, orange ring around the pupil, two distinct and two indistinct radiating black stripes.

Lescure (1976a) only mentioned this species from one locality on the upper Marowijne River, so the present specimen considerably extends the known range of this taxon in French Guiana. In adjacent Suriname the species is known from several localities south of the coastal savanna belt.

Class Reptilia  
Order Squamata  
Suborder "Lacertilia"

The study of the lizardfauna of French Guiana only recently saw a revival. For a short history see Hoogmoed & Lescure (1975). After this latter publication Gasc (either alone or with co-authors) published several papers on the lizards of French Guiana, which contained taxonomic, morphological, anatomical, ethological and ecological data (Gasc, 1976, 1981, 1986, 1990; Castanet & Gasc, 1986; Gasc, Betsch & Massoud, 1983). Especially Gasc (1981) is important, because it gives some kind of ecological analysis of a number of the forest inhabiting species occurring in the country. Unfortunately a number of genera (*Alopoglossus*, *Cercosaura*, *Neusticurus*, *Crocodilurus* and *Tupinambis*, of which the first four are considered to be associated with water) is not treated for reasons not clearly stated.

Gasc (1981) made a distinction in four groups of species: 1. species from open vegetations or from openings in the forest (chablis), 2. species of the vertical structures (trees), subdivided in denizens of the canopy, of the trunks and the first branches of large trees, of small trees, and of the base of trunks, 3. species from living vegetation and dead branches between the forest floor and 1.5 m above it, 4. species of the leaf litter and the upper layer of the ground. For each category some examples are given. In general we agree with this division, to which we would add a fifth one, viz., species living in and along creeks, like *Neusticurus*, *Crocodilurus*, *Alopoglossus*, *Uranoscodon*, and, probably being less aquatic than the preceding ones, *Cercosaura*.

In the 1986 paper Gasc gave a detailed analysis of the denizens of the piles of leaves accumulated at the foot of *Astrocaryum paramaca*. Among them were nine species of lizards (unfortunately not specified), three of which (*Leposoma guianense*, *Coleodactylus amazonicus* and *Pseudogonatodes guianensis*) were relatively very abundant. Based on these observations, Gasc drew conclusions on the total population of these three lizards per surface unit (60 per hectare) as well as on the total number of leaf litter dwelling lizards (80 per hectare, though he considers this estimate on the

low side). In comparing his data with those of Hoogmoed (1973) he came to the conclusion that the density of these three lizards around the palm-bases was inverse to that of lizards collected in the 'open'. In supposing that all material collected by Hoogmoed (1973) was collected in the 'open' on sight he is wrong: part of it was collected by systematically searching certain habitats like leaf-accumulations at the base of palms. Moreover, the numbers he cited are wrong and could not be correlated to numbers mentioned in Hoogmoed (1973), except perhaps to the numbers of specimens of which meristic data were published (no complete agreement). Actually the numbers of specimens reported by Hoogmoed (1973) are much different from those suggested by Gasc (1986) and resp. are 71-129-15. Thus the reverse relation in abundance does not actually exist for *L. guianense* and *C. amazonicus*, and only for *P. guianensis* Gasc's statement seems to be true, viz. the species is more abundant in the heaps of leaves at the base of the palms than out in the open. Lieberman (1986) showed that density of species in Costa Rica varied between forest types and also between seasons. Thus, any statement about density should be made with aloofness, allowing for variance in the factors mentioned and extrapolation from data obtained in a specialised habitat is likely to show only part of the picture. Scott (1976) reached the conclusion that dryness negatively affects numbers of lizards and frogs in leaf litter. As Gasc (1986) did not allow for these variables, we think that his data should be treated with much reserve and that they only can give a first indication about minimum numbers, but certainly cannot be accepted as reliable estimates of the total leaf litter inhabiting lizard fauna.

#### Family Gekkonidae Bonaparte, 1831

##### *Coleodactylus amazonicus* (Andersson, 1918)

*Coleodactylus amazonicus*; Hoogmoed & Lescure, 1975: 145; Gasc, 1976: 21, 1981: 287, 1986: 103-105, 1990: 31; Gasc, Betsch & Massoud, 1983.  
*Coelodactylus* (sic!) *amazonicus* Gasc, 1990: 21, 74.

Material.— MSH5417 (3 ex), MSH5469 (2 ex), TCAP1415 (3 ex), TCAP1429 (2 ex).

This small ground-dwelling gecko was found in a limited area only: an elevated ridge with an open type of forest with thick layers of leaf litter and rather dry conditions.

Gasc (1990) stated that this species, *Pseudogonatodes guianensis* Parker and *Leposoma guianense*, form the basic vertebrates of the leaf litter, and that the density of these species had been calculated at five per hectare (without reference to any data). However, it should be stated that this figure is most probably wrong when we compare this with Gasc (1986: 105) and that we certainly should realise that it is subject to considerable local variation. At least in certain limited areas in Suriname the density of *C. amazonicus* can be estimated at roughly two specimens per m<sup>2</sup>. Unfortunately we ourselves only possess some anecdotal data and cannot present hard data in this respect either.

Hoogmoed & Lescure (1975) report this species from several localities in the southern and eastern part of the country. Gasc (1976) adds Crique Grégoire, a locality

just downstream from Petit Saut, whereas Gasc (1981) adds three more localities in the northwestern (Saut Sabbat), the southeastern (Mont Saint Michel) and the central (Saut Pararé) part of the country. In the collections of RMNH and MPEG there is also material from Dégrad Saramacca, south of Kourou (MSH1762), from Lac des Américains, near Cayenne (MSH1770), and from the Mornes de Macouria, NW of Cayenne (MSH5911, TCAP1922) that has not been mentioned before in the literature. Thus, the species seems to occur throughout French Guiana.

**Gonatodes annularis** Boulenger, 1887  
(fig. 7)

*Gonatodes annularis*; Hoogmoed & Lescure, 1975: 146; Gasc, 1976: 23, 1981: 275, 1990: 23, 27-28, 74.

Material.— MSH5311 (1 ♀), MSH5353 (1 ♂), MSH5427 (1 ♀), MSH5466 (1 ♂), MSH5467 (1 ♀), MSH5468 (1 juv), TCAP1375 (1 ♀), TCAP1398 (1 ♂), TCAP1422 (1 juv), TCAP1427 (1 ♂), TCAP1428 (1 ♀).

The species, which in other places in its area of distribution appears to be rare, turned out to be rather abundant in Petit Saut, while its congener *G. humeralis*, generally considered the "common" species, was only found once. *G. annularis* was collected on the base of trees, on fallen tree trunks, and on boulders of granite with overhanging vegetation near a small creek, always inside primary forest. Generally the places where the specimens were found were rather shady and dark, and they were difficult to locate because of their dark colouration. These observations partly agree with those made by Gasc (1981: 275), who reported the species from the base of large trees between the buttresses and from *Astrocaryum* palms, but not from rocks. Hoogmoed (1973: 79) and Gasc (1976) also reported the species from rocks.

Hoogmoed & Lescure (1975) reported the species from around Cayenne and from some localities in central French Guiana. Gasc (1976) added localities in the southwestern (Massif du Mitaraca) and northern (Cacao, Crique Grégoire on the Sinnamary River) part of the country. Gasc (1981) listed two more localities (Mont Saint-Marcel, Saut Pararé) in the north and the southeast. In the collection of the RMNH is a specimen (RMNH 24775) from Patawa, between Roura and Kaw. Thus, the species seems to occur throughout the forested parts of the country.

**Gonatodes humeralis** (Guichenot, 1885)

*Gonatodes humeralis*; Hoogmoed & Lescure, 1975: 146; Gasc, 1976: 22, 1981: 276, 1990: 20, 23, 28, 74.

Material.— MSH5437 (1 ♂).

Only one specimen was collected, though the species is widespread all over Amazonia, where it generally is common. The specimen was found at night (22.50 h), sleeping on a leaf of a small tree, 120 cm above the ground, in primary forest.

Though Hoogmoed & Lescure (1975) supposed the species occurred throughout the country, they only had material from three localities. Gasc (1976) added localities from the Litani River and from the Crique Grégoire, Sinnamary River. Gasc (1981) did not mention any new localities, but stated that the species is present throughout the country. In the RMNH there is a specimen from the Mornes de Macouria (MSH5910).

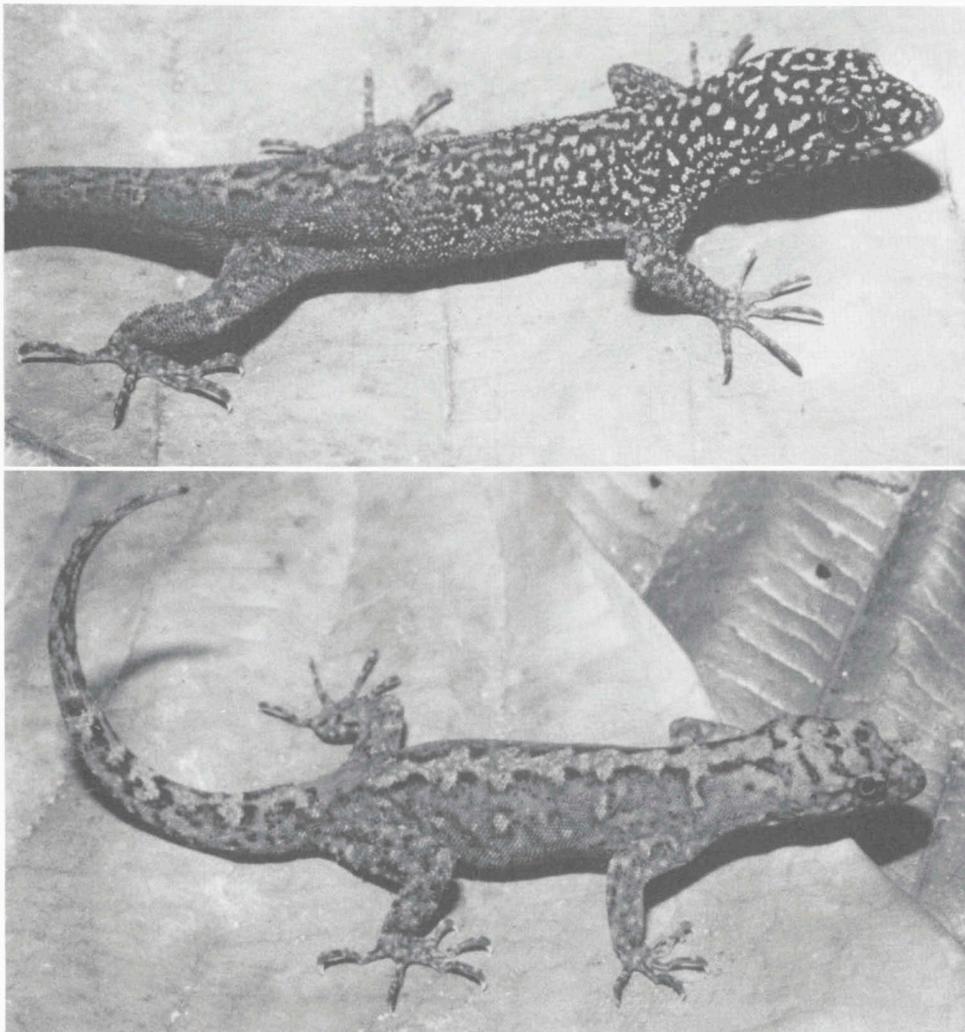


Fig. 7. *Gonatodes annularis* Boulenger, ♂ TCAP1398 (above) and ♀ MSH5427 (below), note the sexual dimorphism in pattern in this species (MSH).

***Lepidoblepharis heyerorum* Vanzolini, 1978**  
(fig. 8)

*Lepidoblepharis heyerorum* Vanzolini, 1978: 204; Gasc, 1981: 284, 1990: 29, 74.

Material.—MSH5416 (1 ♂), TCAP1414 (1 ♀).

This species until now was known only from some Amazonian localities in Brazil (our fieldwork in Brazilian Amazonia in 1988 and 1989 added several new localities, which will be further dealt with by Avila-Pires in a forthcoming publication on the lizards of Amazonian Brazil) and from central French Guiana (Saut Pararé, Arataye

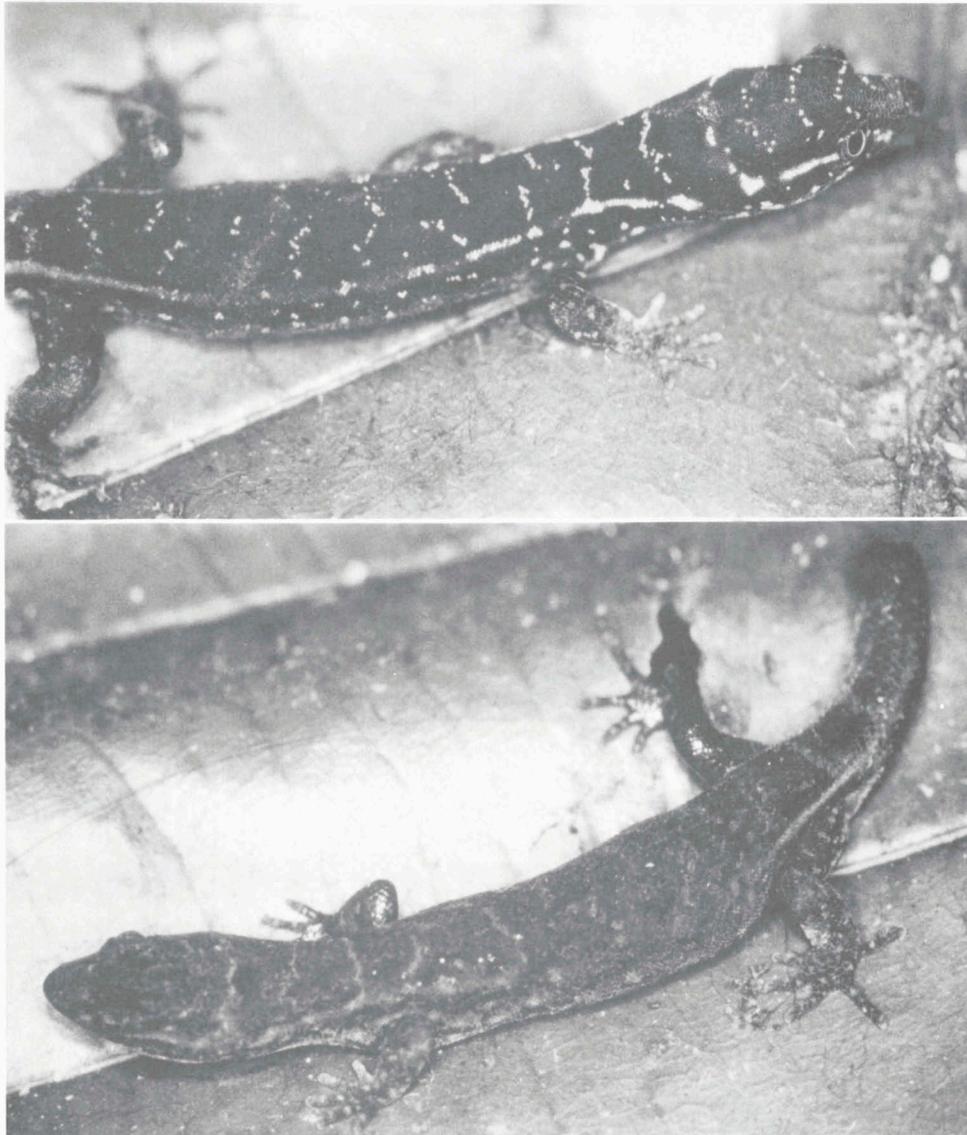


Fig. 8. *Lepidoblepharis heyerorum* Vanzolini (MSH5416), one of the small ground living geckos that was discovered recently in French Guiana; ♂ MSH5416 (above) and ♀ TCAP1414 (below), note the sexual dimorphism in pattern (TCAP).

River (Gasc, 1981, 1990: 29). Its discovery in Petit Saut extends its geographical range about a hundred kilometers to the northwest. The two specimens here reported were collected about 100 cm apart, under a large dead tree trunk lying on the ground in primary forest with large granite boulders, on a slope not far from a small creek and close to several granite boulders.

Colour in life. Male: back dark-brown with buff-yellow stripes anteriorly, becoming paler posteriorly; brick-red dorsolateral stripes near the hindlimbs; head ventral-

ly orange-rufous, belly dark-brown, lighter on the escutcheon area; iris reddish brown with a gold rim around the pupil. Female: back dark-brown, with brick-red dorsolateral stripes on neck and near the hindlimbs; head ventro-laterally brown with whitish stripes, ventrally light grey; belly dark-brown; iris brown with a narrow gold rim around the pupil.

### *Thecadactylus rapicauda* Houttuyn, 1782

*Thecadactylus rapicauda*; Hoogmoed & Lescure, 1975: 145; Gasc, 1981: 274, 1990: 20, 26, 74.

Material.— MSH5310 (1 ex), TCAP1431 (1 ex).

This is a relatively large, nocturnal gecko. One specimen was found under the bark of a large tree, isolated in secondary growth mainly of *Cecropia*, while the other specimen was out in the open on the base of a tree with stilt roots, on an elevated ridge with an open type of forest, in both cases during daytime.

So far only reported from around Cayenne and from the extreme southeastern part of the country. The present material extends the known distribution to the northwest.

### Family Iguanidae Gray, 1827

#### *Anolis chrysolepis chrysolepis* Duméril & Bibron, 1837

*Anolis chrysolepis chrysolepis*; Hoogmoed & Lescure, 1975: 148; Gasc, 1976: 31, 1981: 291, 1990: 23, 43, 74.

Material.— MSH5288 (1 juv ♂), MSH5377 (1 ♀), MSH5397 (1 juv), MSH5426 (1 ♀), TCAP1344 (1 juv ♂), TCAP1397 (1 ♂), TCAP1432 (1 ♀).

All specimens were found in primary forest (some in disturbed primary forest), most during daytime, on the forest floor. MSH5377 was collected at night (between 21:40-00:40 h), sleeping on a leaf of a fern, at about 100 cm above the ground, on the bank of a creek valley.

It is interesting to note that MSH5377, though a female, presented a colour pattern closer to that mostly found in males. It had a wide plumbeous vertebral band, and a dewlap with yellow skin and orange scales near the body, but with a bluish area toward the rim. The other specimens collected in the area showed the expected pattern for this subspecies: males with a wide plumbeous vertebral band and dewlap completely cobalt-blue with light scales; females with a narrow plumbeous vertebral stripe (which may have some lateral expansions), which widens anteriorly toward the top of the head, and posteriorly into the sacral region, and a yellow dewlap with yellow and orange scales.

Gasc (1990: 23) states that females of this species are larger than males, but actually there hardly is any difference in snout-vent length between the sexes (Hoogmoed, 1973: 121 and recent studies on Brazilian specimens by Avila-Pires). The only thing that could be said in this aspect is that males tend to be more slender than females, a fact more or less indicated by the relatively higher weight of females,

though we have to keep in mind that the presence of eggs could influence these data.

This species was mentioned from localities around Cayenne, from the Sinnamary River and from the eastern part of the country by Hoogmoed & Lescure (1975). Gasc (1976) added localities in the southwestern (Mitaraca, Inini) and eastern (Oyapock/Yaroupi) part of the country. Thus, the species is widely distributed throughout French Guiana.

Strangely enough, this was the only iguanid found by us in Petit Saut, though several other species are expected to occur in the area.

### **Uracentron azureum (Linnaeus, 1758)**

*Uracentron azureum*; Hoogmoed & Lescure, 1975: 152; Gasc, 1976: 31, 1981: 293, 1990: 39, 74; Hoogmoed & Avila-Pires, 1990b: fig. ♀ pl. 204/205.

No material of this species was collected or observed by the authors during the recent trip, but again Mr Patrick Blanc provided us with a coloured picture of a specimen of this species that was sunning itself on the trunk of a fallen tree.

It should be remarked here that one of the pictures published by Gasc (1990: 41) and stated to represent this species actually represents *Anolis punctatus* Daudin.

Hoogmoed & Lescure (1975) repeated three localities mentioned by Etheridge (1968) in his revision of the genus and added two more based on material in the collection of SEPANGUY in Cayenne. Gasc (1976) added the locality "Maroni" and Gasc (1981) Trois Sauts (Haut-Oyapock). Thus, the species apparently occurs throughout the country, though it seems to be rare, probably due to its arboreal way of life.

### Family Scincidae Gray, 1825

#### **Mabuya bistriata (Spix, 1825)**

*Mabuya mabouya mabouya*; Hoogmoed & Lescure, 1975: 153; Gasc, 1976: 33, 1981: 294.

*Mabuya mabouya*; Gasc, 1990: 24, 63, 75.

*Mabuya bistriata*; Hoogmoed & Avila-Pires, 1990b: 224, fig. p. 229.

Although no specimen was collected, three were seen on November 15, 1989, on fallen tree trunks and branches, along some short roads cutting into the forest, where also *Kentropyx calcarata* and *Ameiva ameiva* occurred.

Two specimens were observed on November 10, 1989 in the canopy (see above Introduction, and Hoogmoed & Avila-Pires, 1990b: 224).

Hoogmoed & Lescure (1975) mentioned two localities in the northeastern part of French Guiana. Gasc (1976) added another locality in the southwest and one from an island near Cayenne.

### Family Teiidae Gray, 1827

#### **Alopoglossus angulatus (Linnaeus, 1758)**

*Alopoglossus angulatus*; Hoogmoed & Lescure, 1975: 153; Gasc, 1990: 75.

*Alopoglossus annulatus* (sic!); Gasc, 1990: 50.

Material.— MSH5247 (1 juv).

A juvenile specimen was collected on a small island in the Sinnamary River, on the forest floor among leaf litter, near an open area.

Gasc (1990:50) repeats the general believe that this species probably is not abundant. However, Hoogmoed & Avila-Pires (1990a) reported collecting several specimens in a relatively small area under special circumstances.

This species was only mentioned from one locality in the southeastern part of the country by Hoogmoed (1973). The present locality extends the known distribution far to the northwest.

#### ***Ameiva ameiva* (Linnaeus, 1758)**

*Ameiva ameiva ameiva*; Hoogmoed & Lescure, 1975: 154; Gasc, 1981: 295, 1976: 25.

*Ameiva ameiva*; Gasc, 1990: 20, 24, 58, 75.

Material.— MSH5470 (1 juv).

One specimen collected at the edge of an open area in primary forest. This species was rather abundant in open perianthropic areas, but no special efforts were made to collect it.

Reported from several places in the coastal area and from one point in the deep southeast by Hoogmoed & Lescure (1975) and from additional localities in the southwest and east by Gasc. The present locality nicely fills the gap between some of the other localities, but this was only to be expected.

#### ***Arthrosaura kockii* (Van Lidth de Jeude, 1904)**

*Arthrosaura kockii*; Hoogmoed & Lescure, 1975: 154; Gasc, 1976: 27, 1981: 307, 1990: 21, 48, 49, 75.

Material.— MSH5390 (2 ex), TCAP1406 (1 hgr).

The specimens were found in primary forest, on the forest floor among leaf litter, two of them near the bank of the Sinnamari river, the other on a sunny spot in a trail. All three specimens were collected the same day (November 12, 1989), when two more specimens were seen, but not collected. On other days the species was not seen.

The back is dark greyish-brown with a wide creamish vertebral band changing to brownish orange posteriorly, which continues along the tail; belly white; tail ventrally orange.

Hoogmoed & Lescure (1975) reported this species from several localities in the eastern, central and midwestern part of the country. Gasc (1976) reported it from the southwestern part (Mitaraca). Gasc (1981) adds three localities from the north (Piste de St-Elie) and the centre (Saut Maïs, Saut Pararé). The species apparently occurs throughout the country.

***Iphisa elegans* Gray, 1851**

*Iphisa elegans*; Hoogmoed & Lescure, 1975: 158; Gasc, 1976: 28, 1981: 313, 1990: 23, 51, 75.

Material.—MSH5372 (1 juv), MSH5418 (1 juv), TCAP1381 (1 juv), TCAP1430 (1 ex).

The species until recently was known only from French Guiana on the basis of two specimens, one from between Sophie and La Grève (Hoogmoed, 1973: 280; Hoogmoed & Lescure, 1975: 158) and one from Mitaraca (Gasc, 1976: 28). Gasc (1981: 313) reported its presence from three more localities (Haut-Oyapock, Saut Pararé, Cayenne). The present locality extends the known distribution further to the west, but this could be expected considering the fact that the species occurs in rainforest. With Gasc (1981) we assume the species occurs throughout the country.

MSH5418 and TCAP1430 were found in the same area as *Coleodactylus amazonicus*, on an elevated ridge with an open type of forest, among the leaf litter. MSH5372 and TCAP1381 were collected together, as eggs, in a rotten piece of wood lying on the forest floor. The eggs were in a rather superficial position, though not exposed. When found, the eggs were still intact, but in the hand hatched very suddenly, through a single slit, one soon after the other.

Gasc (1990: 51) states that this species has very large, smooth scales that would be arranged in six rows on the back and six rows on the belly. This is a rather misleading statement. Gasc (1990: 23), however, mentions that this species has the dorsal scales arranged "en deux rangées seulement", which is correct. There are only two rows of enlarged scales on the back and two rows on the belly. The flanks each have 4 rows of distinctly smaller (though still rather large) scales, thus making a total of 12 scales around midbody, but arranged very differently from what Gasc (1990: 51) suggests.

***Kentropyx calcarata* Spix, 1825**

*Kentropyx calcaratus*; Hoogmoed & Lescure, 1975: 159; Gasc, 1976: 24, 1981: 300, 1990: 24, 57, 75.

Material.—MSH5335 (1 juv), 5373 (4 juv); TCAP1382 (4 juv), 1399 (1 ♂).

All specimens were collected in primary forest, MSH5335 on the forest floor, on slopes near a creek, TCAP1399 on rotten branches of a fallen tree, near the ground. MSH5373 and TCAP1382 were collected on November 10, 1989, each as one clutch of four eggs glued together, with some earth in between. The two clutches were close together, in a rotten log which was in an open, sunny spot. One of the eggs in clutch MSH5373 hatched about half an hour after collecting, the second and third eggs hatched on November 15, 1989, and the fourth egg on November 17, 1989. Of the eggs of clutch TCAP1382 two hatched on November 23, 1989, two on November 24, 1989. Specimens were also seen on fallen tree trunks and branches along the border of some short roads cutting into the forest.

Reported from the coastal area and from the eastern part of the country by Hoogmoed & Lescure (1975). Gasc (1976) added some more localities in the southwest (Ouarémapan, Koulimapopane, Antecuma pata), the east (Camopi) and around Ca-

enne (Cacao). MSH1763 (= RMNH 22448) in the collection of the RMNH is from Dégrad Saramacca, south of Kourou. All these data confirm earlier opinions that the species would be distributed throughout the country. Actually Gasc (1990) considers it the most common lizard in the forest, and we concur with this view.

### *Leposoma guianense* Ruibal, 1952

*Leposoma guianense*; Hoogmoed & Lescure, 1975: 159; Gasc, 1976: 26, 1981: 303, 1986: 103-105, 1990: 47, 75; Castanet & Gasc, 1986; Gasc, Betsch & Massoud, 1983.

*Leposoma guyanensis* (sic!); Gasc, 1990: 21.

*Leposoma guyanese* (sic!); Gasc, 1990: 46.

Material.—MSH5276 (1 ♂), 5352 (1 ♂), 5465 (1 ♂); TCAP1343 (1 ♀), 1423 (1 ♀), 1426 (1 ♀).

Most specimens collected on the forest floor, among the leaf litter, inside primary forest, near or far from creeks. One specimen found among some leaf litter accumulated at the border of the forest.

The species was only known from a few localities in French Guiana, but Hoogmoed & Lescure (1975) already supposed it would occur throughout the forested part of the country. Gasc (1976) added localities from the southwest and from the Sinnamary River. Gasc (1981: 306) stated that the species was present in all localities indicated in the map (Gasc, 1981: 274). Thus, the species is present throughout the forested parts of the country.

Gasc (1986) mentioned this lizard as the third most abundant in the heaps of leaves at the base of *Astrocaryum paramaca*, and came to the conclusion that together with the other two most abundant lizards in the niche, there would occur 60 leaf-litter inhabiting lizards per hectare. In our experiences densities of *L. guianense* in some favourable places seem to reach this number by themselves (cf. Hoogmoed & Avila Pires, 1990a). In contrast to Gasc (1986), Castanet & Gasc (1986) stated that this species had very low population densities, and reported on 32 specimens collected during four trips in five years time. For additional remarks about abundance of leaf-litter inhabiting lizards, see the general introduction to "Lacertilia" and under *C. amazonicus*.

### *Neusticurus bicarinatus* (Linnaeus, 1758)

*Neusticurus bicarinatus*; Hoogmoed & Lescure, 1975: 160; Gasc, 1976: 6, 1990: 54.

*Neusticurus* (sic!) *bicarinatus*; Gasc, 1990: 55.

*Neusticurus bicarenatus* (sic!); Gasc, 1990: 75.

Material.—MSH5375 (1 ♂); TCAP1385 (1 juv).

The two specimens were collected the same night, between 21:40-00:40 h, MSH5375 sleeping on a leaf of *Thurnia sphaerocephala*, about 10 cm above the surface of the creek in which the plant was growing. TCAP1385 was sleeping on the leaf of a fern, in the creek, about 50 cm above the surface of the water.

Hoogmoed & Lescure (1975) reported this species from several localities in north-

ern and eastern French Guiana, among others from the lower Sinnamary River. Gasc (1976) added a locality on the middle Oyapoc River.

#### ***Neusticurus rudis* Boulenger, 1900**

*Neusticurus rudis*; Hoogmoed & Lescure, 1975: 160; Gasc, 1976: 26, 1990: 54, 75.  
*Neusticurus* (sic!) *rudis*; Gasc, 1990: 55.

Material.—MSH5376 (1 ex); TCAP1407 (1 juv).

MSH5376 was collected at night, among dense, low vegetation, in a higher, not inundated spot of a creek valley; probably disturbed while sleeping. TCAP1407 was found in daytime under a piece of wood in a creek valley, close to the edge of the water. This species was only known from the area around Cayenne, from the centre of the country and from the southeast (Hoogmoed & Lescure, 1975; Gasc, 1976). The present locality extends the range to the northwest.

#### ***Tretioscincus agilis* (Ruthven, 1916)**

*Tretioscincus agilis*; Hoogmoed & Lescure, 1975: 161; Gasc, 1976: 28, 1981: 311, 1990: 24, 50, 75.

One specimen was seen, but not collected, on November 5, 1989, between buttresses of a tree, about 300 cm above the ground, in sun light.

The species was only known from few localities: Saut Tortue (Hoogmoed & Lescure, 1975), Oyapok/Yaroupi, Saül (Gasc, 1976), Mitaraca, Mont Saint-Marcel, Trois Sauts, Saut Pararé, Piste de Saint-Elie (Gasc, 1981). These data and the present observation confirm the opinion of Hoogmoed & Lescure (1975) that the species would be present throughout the forested part of the country.

#### **Suborder Ophidia Family Boidae Gray, 1825**

#### ***Boa constrictor* Linnaeus, 1758**

*Boa constrictor*; Chippaux, 1986: 30.

One juvenile specimen was collected in Petit Saut by a member of the balloon-crew and was not incorporated in the collection. The species is known throughout French Guiana and the present locality, though new, completely falls within the known distribution.

#### ***Epicrates cenchria* (Linnaeus, 1758)**

*Epicrates cenchria*; Chippaux, 1986: 36.

One adult specimen was collected at night, on the road north of Petit Saut, by an employee of the firm building a dam in the Sinnamary River, and this specimen also was not incorporated in the collection. The species is known only from five localities in the country and the present locality nicely falls in the gap between the westernmost locality, the localities around Cayenne, and Saül.

Family Colubridae Gray, 1825

***Atractus badius*** (F. Boie, 1827)

*Atractus badius*; Hoogmoed, 1980: 5; Chippaux, 1986: 88.

Material.— MSH5396 (1 juv).

The single specimen was found in daytime in primary forest with large granite boulders, on the slope of a creek valley. It was hiding under a large fallen leaf on the ground and after capture regurgitated a rainworm. The back has red bands separated by triads of black-white-black. Head black with a white collar. Belly white, bands of the back not continued across the belly, underside of tail dark grey.

Chippaux (1986) reports the species from the coastal area between Cayenne and Kourou and from the far southeast. The present locality extends the known range slightly.

***Atractus schach*** (F. Boie, 1827)

*Atractus schach*; Hoogmoed, 1980: 31; Chippaux, 1986: 91.

Material.— MSH5255 (1 ex).

The specimen was collected before our arrival in the basecamp by one of the members of the expedition. No ecological data are available.

Chippaux (1986) only reports this species from one locality (Mana) in the extreme northwest of the country. The present locality extends the known range, but does not come as a surprise, as the species is known to occur in the entire Guianan region.

***Atractus torquatus*** (Duméril, Bibron & Duméril, 1854)

*Atractus torquatus*; Hoogmoed, 1980: 35.

Material.— MSH5446 (1 ex).

The specimen was found dead (very recent) on the ground in primary forest. It was completely undamaged, no obvious reason for its death being visible. The back was reddish brown with transverse black spots. Belly pale orange.

Gasc & Rodrigues (1980) do not list this species for French Guiana. Chippaux (1986:88) only lists it in his key to the genus, in a lettertype indicating the species was

not (yet) known from the country but could be expected there because of its general distribution. Hoogmoed (1980: 38), basing himself on the literature, reported the species from French Guiana but did not provide any detailed locality. The present locality is the first exact one known for this species in French Guiana.

### **Chironius multiventris** Schmidt & Walker, 1943

*Chironius multiventris cochranæ*; Wiest, 1978: 211.

*Chironius multiventris*; Cunha & Nascimento, 1982: 164; Chippaux, 1986: 46.

Material.— MSH5337 (1 ex).

The only specimen was found dead on the road to Kourou, close to Petit Saut. Close to the road there was secondary vegetation, primary forest was further away.

Chippaux (1986) lists this species from the area around Cayenne, from Saül and from the lower Sinnamary River. The present locality falls well within this area.

### **Chironius scurrulus** Wagler, 1824

*Chironius scurrulus*; Wiest, 1978: 249; Chippaux, 1986: 45.

Material.— MSH5305(1 juv)(20 km NE).

The specimen was collected sleeping on a branch 200 cm above the ground, in the forest edge along a shallow roadside pool with a grassy margin (see *Ololygon* cf. *x-signata*). Another specimen, captured by a member of the balloon-crew, was in a small pool in secondary vegetation near houses in Petit Saut itself.

MSH5305 was grass-green with a grey iris. The base of the tongue was black, the tips and part of the adjacent area were cobalt-blue.

Chippaux (1986) reports this species from a wide area around Cayenne, near Mana and from extreme southeastern French Guiana. The present locality nicely falls within the gap in the coastal area.

### **Imantodes cenchoa** (Linnaeus, 1758)

*Imantodes cenchoa*; Chippaux, 1986: 64.

Material.— MSH5296 (1 ♂).

The specimen was collected at night in primary forest in the branches of a small bush, 50 cm above the ground in a creek valley.

The present locality extends the known range in French Guiana further west, but considering the fact that the species is known throughout Suriname, this does not come as a surprise.

**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.

### Acknowledgements

We want to take this opportunity to thank Francis Hallé (Montpellier) to invite us to participate in the Expédition Radeau des Cimes to French Guiana. Patric Blanc (Paris) was helpful in obtaining specimens, in providing us with additional information and with photographs. The senior author wants to thank the Van Tienhoven Foundation (Amsterdam) for a grant to cover part of the travel costs that were incurred in July 1989 when an unsuccessful attempt was made to use the canopy raft in Amazonian Brazil.

## References

- Castanet, J. & J.-P. Gasc, 1986. Age individuel, longévité et cycle d'activité chez *Leposoma guianense*, microtéliid de litière de l'écosystème forestier Guyanais.— Mem. Mus. natn. Hist. nat. Paris, N.S. A Zool. 132: 281-288.
- Chippaux, J.-P., 1986. Les Serpents de la Guyane française.— Faune Tropicale, 27: 1-165.
- Cleyet-Marrel, D., 1990. Operation "Radeau des Cimes" Mission 1989— Guyane. Bilan technique-Partie dirigeable. In: F. Hallé & P. Blanc, Biologie d'une canopée de forêt équatoriale. Rapport de Mission Radeau des Cimes Octobre-Novembre 1989 Guyane Française: 11-14.
- Cunha, O.R. & F.P. Nascimento, 1982. Ofídios da Amazônia. XV— As espécies de *Chironius* da Amazônia Oriental (Pará, Amapá e Maranhão). (Ophidia: Colubridae).— Mem. Inst. Butantan, 46: 139-172.
- Ebersolt, G., 1990. Operation Radeau des Cimes Mission 1989— Guyane. Bilan technique partie Radeau. In: F. Hallé & P. Blanc, Biologie d'une canopée de forêt équatoriale. Rapport de Mission Radeau des Cimes Octobre-Novembre 1989 Guyane Française: 15-25.
- Ernst, C., 1983. Geographic variation in the neotropical turtle, *Platemys platycephala*.— J. Herp. 17(4): 345-355.
- Etheridge, R., 1968. A review of the iguanid lizard genera *Uracentron* and *Strobilurus*.— Bull. Br. Mus. nat. Hist. (Zool.) 17(2): 47-64.
- Fretey, J., 1975. Les Chéloniens de Guyane française.— Bull. Soc. Zool. France 100(4): 674-675.
- Frost, D., 1985. Amphibian species of the world. A taxonomic and geographical reference: i-vi, 1-732.— Lawrence.
- Gasc, J.-P., 1976. Contribution à la connaissance des Squamates (Reptilia) de la Guyane française, nouvelles localités pour les sauriens.— C. R. Soc. Biogéogr. 454: 17-36.
- Gasc, J.-P., 1981. Quelques nouvelles données sur la repartition et l'écologie des sauriens en Guyane française.— Rev. Ecol. (Terre et Vie) 35: 273-325.
- Gasc, J.-P., 1986. Le peuplement herpétologique d'*Astrocaryum paramaca* (Arecacées), un palmier important dans la structure de la forêt en Guyane française.— Mem. Mus. natn. Hist. nat. Paris, N.S. A Zool. 132: 97-107
- Gasc, J.-P., 1990. Les lézards de Guyane: 1-76.— Paris.
- Gasc, J.-P., J.M. Betsch & Z. Massoud, 1983. Prédation sélective des collembolés par les sauriens dans la litière de la forêt dense humide Guyanaise.— Bull. Soc. Zool. France 108(3): 467-476.
- Gasc, J.-P. & M.T. Rodrigues, 1980. Liste préliminaire des Serpents de la Guyane française.— Bull. Mus. natn. Hist. nat. Paris, (4) 2A (2): 559-598.
- Heyer, W.R., 1973. Systematics of the *marmoratus* group of the frog genus *Leptodactylus* (Amphibia, Leptodactylidae).— Contr. Sc. L. A. County Mus. 251: 1-50.
- Heyer, W.R., 1979. Systematics of the *pentadactylus* species group of the frog genus *Leptodactylus* (Amphibia: Leptodactylidae).— Smiths. Contr. Zool. 301: 1-43.
- Hoogmoed, M.S., 1973. Notes on the herpetofauna of Surinam. IV. The lizards and amphisbaenians of Surinam: i-ix, 1-419.— The Hague.
- Hoogmoed, M.S., 1980. Revision of the genus *Atractus* in Surinam, with the resurrection of two species (Colubridae, Reptilia). Notes on the Herpetofauna of Surinam, VII.— Zool. Verh. Leiden, 175: 1-47, pls 1-6.
- Hoogmoed, M.S., 1986. Biosystematic studies of the *Bufo "typhonius"* group. A preliminary progress report. In: Rocek Z.(ed), Studies in Herpetology: 147-150.— Prague.
- Hoogmoed, M.S., 1989. South American Bufonids (Amphibia: Anura: Bufonidae), an enigma for taxonomists. In: X. Fontanet & N. Horta (ed.): Treballs d'Ictiologia i Herpetologia.— Treb. Soc. Cat. Ictio. Herp. 2: 167-180.
- Hoogmoed, M.S., 1990a. Resurrection of *Hyla wawrini* Parker (Amphibia: Anura: Hylidae), a gladiator frog from northern South America.— Zool. Med. Leiden 64 (6): 71-93.
- Hoogmoed, M.S., 1990b. Biosystematics of South American Bufonidae, with special reference to the *Bufo "typhonius"* group.— Int. Symp. Vert. Biogeo. Syst. Tropics 1989: 113-123.
- Hoogmoed, M.S. & T.C.S. Avila-Pires, 1990a. Observations on the nocturnal activity of lizards in a marshy area in Serra do Navio, Brazil.— Tropical Zoology 2: 165-173.
- Hoogmoed, M.S. & T.C.S. Avila-Pires, 1990b. Observations on the herpetofauna of Petit Saut, Sinnamary River, French Guiana. In: F. Hallé & P. Blanc, Biologie d'une canopée de forêt équatoriale.

- Rapport de Mission Radeau des Cimes Octobre-Novembre 1989 Guyane Française: 222-229.
- Hoogmoed, M.S. & J.Lescure, 1975. An annotated checklist of the lizards of French Guiana, mainly based on two recent collections.— Zool. Med. Leiden, 49(13): 141-171, pl. I.
- King, F.W. & R.L. Burke, 1989. Crocodylian, tuatara, and turtle species of the world. A taxonomic and geographic reference: i-xxii, 1-216.— Washington.
- Lescure, J., 1973. Contribution à l'étude des Amphibiens de Guyane française. I. Notes sur *Atelopus flavescens* Duméril et Bibron et description d'une nouvelle espèce.— Vie et Milieu, 23(1)C: 125-141.
- Lescure, J., 1975a. Contribution à l'étude des Amphibiens de Guyane française. III. Une nouvelle espèce de *Colosthetus* (Dendrobatidae): *Colosthetus degranvillei* nov. sp.— Bull. Mus. natn. Hist. nat. Paris, 3(293), Zool. 203: 413-420.
- Lescure, J., 1975b. Contribution à l'étude des Amphibiens de Guyane française. IV. Reproduction de *Phyllomedusa tomopterna* (Cope) (Hylidae).— Bull. Soc. Zool. France, 100(1): 117-125.
- Lescure, J., 1975c. Contribution à l'étude des Amphibiens de Guyane Française. V. Les Centroleniidae.— Bull. Soc. Zool. France, 100 (3): 385-394.
- Lescure, J., 1976a. Contribution à l'étude des Amphibiens de Guyane française. VI. Liste préliminaire des Anoures.— Bull. Mus. natn. Hist. nat. Paris, 3(377), Zool. 265: 475-525.
- Lescure, J., 1976b. Étude de deux têtards de *Phyllobates* (Dendrobatidae): *P. femoralis* (Boulenger) et *P. pictus* (Bibron).— Bull. Soc. Zool. France, 101(2): 299-306.
- Lescure, J., 1981. Contribution à l'étude des Amphibiens de Guyane française. VII. Les *Eleutherodactylus* (Anura, Leptodactylidae).— Rev. fr. Aquariol., 8: 25-32.
- Lieberman, S.S., 1986. Ecology of the leaf litter herpetofauna of a Neotropical rain forest: La Selva, Costa Rica.— Acta Zool. Mex. (n.s.) 15: 1-72.
- Lynch, J.D. & M.S.Hoogmoed, 1977. Two new species of *Eleutherodactylus* (Amphibia: Leptodactylidae) from northeastern South America.— Proc. Biol. Soc. Wash., 90(2): 424-439.
- Medem, F., 1983. Los crocodylia de Sur America 2: 1-270.— Bogota.
- Noble, G.K., 1923. New batrachians from the tropical research station British Guiana.— Zoologica N.Y. 3(14): 289-299.
- Scott, N.J., 1976. The abundance and diversity of the herpetofaunas of tropical forest litter.— Biotropica 8(1): 41-58.
- Vanzolini, P.E., 1978. *Lepidoblepharis* in Amazonia (Sauria, Gekkonidae).— Pap. Av. Zool. S. Paulo, 31(13): 203-211.
- Wiest, J.A., 1978. Revision of the neotropical snake genus *Chironius* Fitzinger (Serpentes, Colubridae). Unpublished thesis Texas A & M University.

Received: 14.viii.1990

Accepted: 16.v.1991

Edited: M.R.R.B. Best