



## Notes on the herpetofauna of Bioceanica and Bolpebra (Provincia Nicolas Suárez, Departamento Pando, Bolivia)

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Received 20 May 2005

Accepted 30 May 2005

**Abstract.** The presented paper summarises faunistic and natural history data on 36 amphibian and 20 reptile species obtained in the vicinity of the settlements Bioceanica and Bolpebra (north-western limit of the Departamento Pando, northern Bolivia). Two species (*Hyla xapuriensis* and *Uracentron flaviceps*) are reported for the first time from Bolivia. The recorded species diversity is compared with the faunal data available from the central Pando and northern border of the Departamento Beni.

■ Amphibia, Reptilia, biogeography, Departamento Pando, Amazonian Bolivia

### INTRODUCTION

Results of the current herpetological investigations of the Bolivian Departamento Pando show that the lowland Bolivian Amazonia harbours unusually rich herpetofauna (e.g. Cadle & Reichle 2000, Cadle et al. 2003, Gonzales & Reichle 2004, Köhler & Lötters 1999, 2001, Moravec & Aparicio 2004a, b, Padial & De la Riva 2005, Padial et al. 2004). However, more systematic surveys, which would cover also the less accessible parts of Pando, are needed for better understanding of species distribution in northern Bolivia.

The presented paper has two aims: (1) To provide an annotated list of amphibians and reptiles recently recorded at the north-western limit of Bolivia. (2) To compare the results obtained with the species composition observed at the comparable latitude in central and eastern parts of the Bolivian Amazonia.

### MATERIAL AND METHODS

Two selected localities were surveyed by the first author in the so far uninvestigated north-western borderland of Bolivia (Provincia Nicolas Suárez, Departamento Pando): (1) settlement of Bioceanica; 11°08'S, 69°22'W; research performed on 13–28 January (15 person-days) and (2) settlement of Bolpebra; 10°57'S, 69°34'W (ca. 30 km W of Bioceanica); surveyed between 30 January and 3 February 2005 (4 person-days) (Fig. 1). The investigated territories (mostly up to 4 km straight around the settlements) included the following basic habitats: (i) a belt of secondary growths containing small temporal or permanent water bodies along the unpaved seasonal forest road Cobija–Bioceanica–Bolpebra; (ii) edges of scattered small fields and plantations; (iii) small artificial or

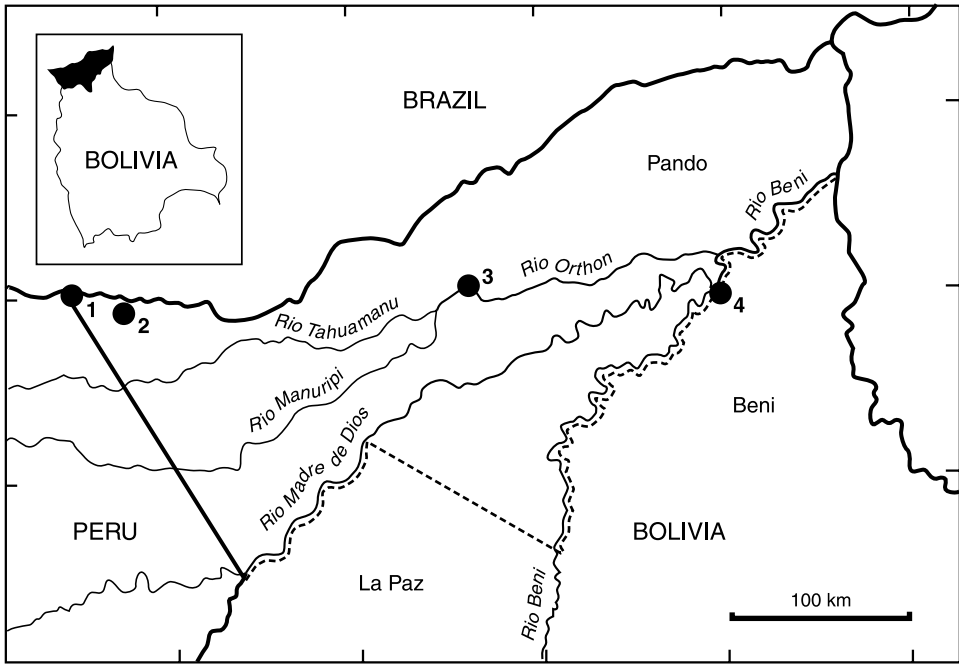


Fig. 1. Map of the northern Bolivia showing the Departamento Pando and position of the localities investigated: (1) Bolpebra, (2) Bioceanica, (3) Nacebe, (4) Riberalta.

natural clearings in the disturbed terra firme forest; (iv) more or less disturbed primary terra firme forest; (v) open marches and forest swamps along the right bank of the Rio Acre (at Bolpebra only). Both localities lie in undulating terrain, the elevation of which ranges from ca. 250 to 300 m a.s.l.

Families, genera and species are listed in alphabetical order. Selected voucher specimens are deposited in the Colección Boliviana de Fauna – Museo Nacional de Historia Natural, La Paz (abbr. CBF) and in the Department of Zoology, National Museum (Nat. Hist.), Prague (abbr. NMP). Where necessary the sex determination was verified by dissection.

The data obtained were compared with the results of faunal surveys of the surroundings of the settlement of Nacebe ( $11^{\circ}00'S$ ,  $67^{\circ}25'W$ ; ca. 200 km E of Bioceanica; Departamento Pando; ca. 200 m a.s.l.) and the town of Riberalta ( $11^{\circ}00'S$ ,  $66^{\circ}05'W$ ; ca. 350 km E of Bioceanica, Departamento Beni; ca. 175 m a.s.l.). All the localities lie at the same latitude (Fig. 1) and their surveys were made using the same method (regular day and night field explorations of all available habitat types; Moravec & Aparicio 2000, 2004b). The coefficient of biogeographic resemblance (CBR) was calculated after Duellman et Mendelson (1995). The classification of Bolivian ecoregions was adopted from De la Riva et al. (2000).

## SPECIES ACCOUNT

Amphibia  
Bufonidae

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

**Material:** Bolpebra, CBF 5793, NMP P6V 72557/1–2.

Adult, subadult and fresh juveniles were commonly encountered in open or secondary habitats at both localities surveyed. The males called both from the banks and from the shallow water of different smaller ponds.

### ***Bufo poeppigii* Tschudi, 1845**

**Material:** Bioceanica, CBF 5794–5797, NMP P6V 72558/1–2.

This toad is reported to occur in Amazonian rainforest and Yungas-montane rainforest in the zone of humid montane forest and peri-Andean forest of the Departamentos Cochachamba, La Paz and Santa Cruz (De la Riva et al. 2000, De la Riva 2002). Our observations give evidence of its common presence also in the Amazonian lowland of Pando.

*B. poeppigii* was observed at both studied localities. It preferred fresh temporary muddy puddles in places completely free of any vegetation (e.g. wide muddy areas around a saw mill) but at some older water bodies at Bioceanica it also formed mixed choruses with *Bufo marinus*. Dark dorsal pattern of some individuals remarkably resembled the colouration of the latter species, however, both these toads differed in their mating calls and breeding strategy. While the calling activity of *B. marinus* was clearly synchronized with heavy rains (it lasted for two nights after the rain maximally) males of *B. poeppigii* displayed prolonged breeding activity and on optimal places called nearly every night.

### ***Bufo* sp. I (*margaritifer* complex)**

**Material:** Bioceanica, CBF 5798–5799, NMP P6V 72556.

After De la Riva et al. (2000), Köhler & Lötters (1999) and Lötters & Köhler (2000) at least four different species or forms of *Bufo margaritifer* complex can be distinguished in Bolivia. Two of them (*B. castaneoticus* Cadwell, 1991 and *B. cf. acutirostris* Spix, 1824) are known to occur in Pando.

Our three subadult specimens (Figs 2–3) can be described as follows (we use the standards of Duellman & Mendelson 1995 and Köhler & Lötters 1999): (1) SVL= 23.5–34.5 mm; (2) snout pointed in dorsal view, protruding beyond the margin of lip, pointed above, bearing rostral keel, and slightly curved posteroventrally in profile; (3) nostrils protuberant at point anterior to anterior margin of lower jaw; (4) canthal crest elevated and continuous with supraorbital and supratympanic ones; (5) tympanum oval vertically, indistinct, ca. 46–50 % diameter of eye; (6) bony protrusion at angle of jaw absent; (7) neural crest of vertebrae absent; (8) parotid glands triangular to elliptical, not protruding laterally, incorporated into lateral row of tubercles; (9) lateral row of conical tubercles present; (10) skin on dorsum spinous; (11) skin on dorsal surfaces of limbs spinous; (12) first and second finger equal in length; (13) palmar tubercle large, ovoid, three to four times size of rounded thenar tubercle; (14) inner metatarsal tubercle rounded, conical, three times size of outer rounded subconical metatarsal tubercle; (15) moderate webbing on foot: I 1–2 II 1–3 III 2–3 IV 3–3 V; (16) vocal slits not detected. They apparently correspond to *Bufo* sp. 1 sensu Lötters & Köhler (2000). This species has been reported from the Bolivian central lowland (Departamentos Beni, Cochachamba and Santa Cruz), thus our records extend its known range to the northern Pando.

The voucher specimens were collected at the trails in secondary and disturbed primary forest and on a small artificial clearing in primary forest.

***Bufo* sp. II (*margaritifer* complex)**

Material: Bolpebra, CBF 5800

The collected adult male (Figs 4–5) can be defined as follows: (1) SVL= 60.0 mm; (2) snout pointed in dorsal view, protruding beyond the margin of lip, pointed above, bearing rostral keel, and inclined posteroventrally in profile; (3) nostrils protuberant at point anterior to anterior margin of lower jaw; (4) canthal crest not elevated, supraorbital and supratympanic crests continuous; (5) tympanum oval vertically, distinct, ca. 65 % diameter of eye; (6) bony protrusion at angle of jaw large; (7) neural crest of vertebrae barely protruding; (8) parotid glands triangular to elliptical, protruding laterally, incorporated into lateral row of tubercles; (9) lateral row of conical tubercles present; (10) skin on dorsum tubercular; (11) skin on dorsal surfaces of limbs spinous; (12) first and second finger equal in length; (13) palmar tubercle large, ovoid, four times size of subconical thenar tubercle; (14) inner metatarsal tubercle oval, conical, 2.5 times size of outer flat rounded metatarsal tubercle; (15) moderate webbing on foot: I 1–1 II 1–2 III 1–3<sup>3/4</sup> IV 3<sup>3/4</sup>–1 V; (16) vocal slits and nuptial excrescences present.

Generally, the collected specimen resembles *B. cf. acutirostris* Spix, 1824 known from Pando (see Köhler & Lötters 1999). Nevertheless, it differs from it in having well developed bony protrusion at angle of jaws and in markedly elevated dorsolaterally expanded supratympanic crest, which is larger than half the vertical tympanum diameter (smaller in *B. cf. acutirostris*; see Lötters & Köhler 2000). Therefore, this specimen may represent a fourth form of *Bufo margaritifer* complex in the Departamento Pando.

Moreover, comparison of the Bolpebra specimen with two individuals of *B. margaritifer* complex collected at the town of Riberalta in the Departamento Beni (NMP P6V 70687, 70688; Moravec & Aparicio 2000) shows that these toads are conspecific and suggests wide distribution of the given form in the Bolivian Amazonia.

The collected individual vocalised after dusk in a temporal puddle surrounded by secondary forest.

**Dendrobatidae**

***Allobates* cf. *femoralis* (Boulenger, 1884)**

Material: Bioceanica, CBF 5802

It seems that individuals from Bioceanica and Bolpebra belong to a morphotype, which is different from north-Peruvian populations (type locality of *A. femoralis* is Yurimaguas at Rio Huallaga, Departamento Loreto, northern Peru). In comparison with specimens from the vicinity of Iquitos (northern Peru, Departamento Loreto) they can be distinguished by smaller size, darker dorsum and very narrow or even interrupted dorsolateral stripes (see Figs 6–7).

This frog was frequently heard and encountered in humid parts of disturbed primary forest. Its tadpoles developed in smaller shallow puddles (up to 2 m long) on forest trails, around which also fresh metamorphosed individuals were often seen.

***Colostethus trilineatus* (Boulenger, 1884)**

Material: Bioceanica, CBF 5801

Calling males were observed in wet habitats around forest brooks or swamps in closed canopy forest at both localities.



***Epipedobates trivittatus* (Spix, 1824)**

Only three adult individuals were seen in the vicinity of small streams in more or less disturbed closed primary forest at Bioceanica.

Hylidae

***Hyla acreana* Bokermann, 1964**

Material: Bioceanica, CBF 5803–5804, NMP P6V 72559/1–2.

Common species of open secondary habitats around Bioceanica. After heavy rains it formed strong choruses mixed with *Scinax ruber* at different pools surrounded by bush and dense herbaceous vegetation. During the day, metamorphosed individuals were occasionally seen on exposed leaves up to 1.5 m above the ground.

***Hyla bifurca* Andersson, 1945**

Material: Bolpebra, NMP P6V 72560.

At Bolpebra, dense assemblage of calling males concentrated every night in difficult accessible marches near Rio Acre. The voucher specimen is a male caught on a tree ca. 3 m above the water level.

***Hyla fasciata* Günther, 1859**

Material: Bioceanica, NMP P6V 72564; Bolpebra CBF 5808–5809, NMP P6V 72565. Males called individually or in small choruses (up to 4–6 individuals) at the edges of temporal pools. Some of them were sitting on herbaceous vegetation 15–20 cm above the ground, while others were observed on low bushes and lianas up to 50 cm above the ground.

***Hyla lanciformis* (Cope, 1870)**

Material: Bolpebra, CBF 5805, NMP P6V 72561.

Abundant in all types of open habitats and observed also along the forest road Bolpebra–Bioceanica. Males occupied their calling sites both on the ground and on the vegetation up to ca. 1.5 m above the ground.

***Hyla leali* Bokermann, 1964**

Material: Bolpebra, CBF 5806, NMP P6V 72562.

During rainy nights a very abundant population was observed directly in the settlement of Bolpebra. This find provides the first faunal record of *H. leali* from Pando.

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

Material: Bolpebra, CBF 5807, NMP P6V 72563.

Observed at Bolpebra only. Calling males were heard together with *H. bifurca* from permanent marches at the bank of Rio Acre. A smaller chorus was found also in the swampy area along the forest road ca. 2 km E of Bolpebra. One observed specimen had reticulated “*favosa*” pattern.

***Hyla marmorata* (Laurenti, 1768)**

Tadpoles in different stages of development and nearly completely metamorphosed individuals were found in smaller temporal puddles (maximal depth after rain 20 cm) on the fresh trail in disturbed primary forest at Bioceanica. One metamorphosed specimen was observed also at the forest road 4 km E of Bolpebra.

***Hyla minuta* Peters, 1872**

Material: Bolpebra, NMP P6V 72566.

One adult female was collected in secondary growths ca. 3 m above the ground.

***Hyla parviceps* Boulenger, 1882**

Material: Bioceanica, CBF 5810; Bolpebra CBF 5811, NMP P6V 72567.

Observed on secondary vegetation (up to 1 m above the ground) along the forest road and in a swampy place in disturbed primary forest.

***Hyla punctata* (Schneider, 1799)**

Material: Bolpebra, CBF 5812

Common in marches and secondary habitats around Bolpebra.

***Hyla rhodopepla* Günther, 1859**

Material: Bioceanica, CBF 5813–5814, NMP6V 72568; Bolpebra, NMP P6V 72569.

The males vocalised from lower shore herbaceous vegetation (5–90 cm above the ground or water) at small temporary pools in more or less open areas covered by secondary growths. Metamorphosed individuals leaving water were observed at Bioceanica. This finding adds *H. rhodopepla* to the faunal list of Pando.

***Hyla riveroi* Cochran & Goin, 1970**

Material: Bolpebra, CBF 5815; NMP P6V 72570.

Small assemblage of calling males congregated on flooded herbs and bushes at the open edge of permanent forest swamps at Bolpebra. Two voucher specimens do not possess the light spot below the eye.

***Hyla xapuriensis* Martins & Cardoso, 1987**

Material: Bioceanica, CBF 5684–5689, NMP P6V 72571/1–6.

Our find represents the first record of *H. xapuriensis* from Bolivia. Presence of this species within the Bolivian borders has been expected (De la Riva et al. 2000, Köhler 2000) but until now it has been reported from its type locality only (“proveniente do caminho para a Vila Boa Vista, Município de Xapuri”, Acre, Brazil; ca. 90 km NE of Bioceanica). The specimens collected (Figs 8–9) correspond fairly well with the original description of the species (Martins & Cardoso 1987). The following small differences found in our series possibly fall in to the variation of the species or represent characteristics overlooked by the authors of the description: (1) slightly larger male size (SVL = 18.8–20.2 mm, n = 12 versus 15.7–18.4 mm, n = 7), (2) bifid distal subarticular tubercle under fourth finger (round on Fig. 10 in Martins & Cardoso 1987), (3) small second subarticular tubercle under the first finger, (4) minute white spots on dorsum are very infrequent and do not form an irregular white punctuation.

At Bioceanica, *H. xapuriensis* was observed in the belt of secondary growths along the forest road Cobija–Bolpebra. The frogs congregated at smaller more or less temporal water bodies situated in depressions at the edge of the road. They apparently preferred ponds with freshly deforested open shores to those surrounded by dense vegetation. Their breeding activity was strictly correlated with rain. Within the period of 15 nights spent at locality calling males appeared four times (always just after or during a heavy rain) and their calling activity always lasted for one night only. In cloudy rainy evenings the vocalization started ca. one hour before dusk. Males formed very dense assemblages (up to ca. 100 individuals). They occupied mostly the lower herbaceous vegetation growing both on the shore and in the shallow water. The chorus of *H. xapuriensis* was very strong

and drowned the vocalization of other frogs aggregated at the given pond (*Bufo marinus*, *B. poeppigii*, *Hyla acreana*, *H. rhodopepla*, *Phyllomedusa bicolor*, *P. camba*, *Scinax ruber*).

***Phyllomedusa bicolor* (Boddaert, 1772)**

Calling males were heard every night in secondary habitats at both studied localities. They were sitting on horizontal branches ca. 2.5–3.5 m above the ground in the close vicinity of more or less permanent water bodies or larger marches and did show high degree of site fidelity to selected calling places. The most abundant assemblage of vocalising males consisted of six individuals.

***Phyllomedusa camba* De la Riva, 2000**

Material: Bioceanica, CBF 5816, NMP P6V 72572.

Relatively common in secondary growths around various marches and water bodies. In rainy nights, the males called also from wider surroundings of the breeding places. The rain apparently also stimulated metamorphosing individuals to leave the water. Juveniles with tail remnants longer than their body climbed on the emergent and shore vegetation up to 1 m high above the water level.

***Phyllomedusa vaillanti* Boulenger, 1882**

Material: Bioceanica, NMP P6V 72573.

The only specimen was found on the ground at the shore of a permanent pond at the edge of disturbed primary forest. Our observation gives the second evidence of the occurrence of *P. vaillanti* in Pando (see Cadle et al. 2003).

***Scinax garbei* (Miranda-Ribeiro, 1926)**

Material: Bolpebra, CBF 5817–5818, NMP P6V 72574.

Observed males of *S. garbei* vocalised from the low herbaceous vegetation and rarely also from the ground on the flooded shore of an open forest swamp.

***Scinax ruber* (Laurenti, 1768)**

Material: Bioceanica, CBF 5819, NMP P6V 72575.

Common species in open secondary habitats. Often formed dense choruses mixed with *H. acreana* at Bioceanica.

***Sphenorhynchus lacteus* (Daudin, 1802)**

Material: Bolpebra, CBF 5820.

Calling assemblage was found at an open forest swamp.

Leptodactylidae

***Adenomera hylaedactyla* (Cope, 1868)**

Material: Bioceanica, CBF 5821, NMP P6V 72576.

One adult (Fig. 10) and one juvenile (SVL = 10.3 mm) specimen possess morphological features (striped colour pattern, dark supratympanic marking extending to the insertion of the arms, longer snout and very slightly expanded toe tips), which discriminate *A. hylaedactyla* from other forms of *Adenomera* in the Tambopata National Reserve in south-eastern Peru at the north-western border of Bolivia (see Angulo et al. 2003).

Both individuals were collected at the edges of trails in disturbed primary forest. The same species is common in the town of Cobija and its surroundings.





Figs 2-3. *Bufo* sp. I (*margaritifer* complex), Bioceanica.





Figs 4-5. *Bufo* sp. II (*margaritifer* complex), Bolpebra.

***Adenomera* sp.**

**Material:** Bioceánica, CBF 5822–5823, NMP P6V 72577/1–2.

Following the data and terminology given by Angulo et al. (2003) this form (Fig. 11) corresponds in most features to the “Forest Call III” type. Adult frogs are rather dark. The discontinuous mid-dorsal stripe is present but it is interrupted in several spots and – at least in the posterior half of body – divided by light vertebral line. In addition, there is an indication of a light spot in the scapular region. The rows of dark spots form more or less continuous dorsolateral stripes. The dark supratympanic marking extends to the insertion of the arms. The snout is relatively short and toe tips are symmetrically expanded.

This taxon occurred syntopically with *A. hylaedactyla* at Bioceánica.

***Edalorhina perezii* Jiménez de la Espada, 1871**

**Material:** Bioceánica, CBF 5682–5683; NMP P6V 72480/1–2.

Our find represents the second record of *E. perezii* for Bolivia. The fact that the first Bolivian records lie at the southern border of the western territory of the Departamento Pando (see Gonzales et Reichle 2004) indicates a wider distribution of the species in the western part of the Bolivian Amazonia.

At Bioceánica *E. perezii* was encountered in more or less disturbed primary forest. During the day, calling males and just metamorphosed juveniles were observed along a fresh forest trail containing numerous temporary puddles. After rain, adult individuals were active also at night.

***Eleutherodactylus* cf. *danae* Duellman, 1978**

**Material:** Bioceánica, CBF 5824–5826, NMP P6V 72578/1–2.

Till now, neither *E. danae* nor another closely related species have been reported from Pando (see Padial et al. 2004). Our specimens (Figs 12–13) are very similar in external appearance to the CBF material of *Eleutherodactylus danae* originating from higher elevations of the Departamentos La Paz and Cochachamba. However, they differ in their considerably smaller size (SVL = 18.0–21.5 mm). Therefore, taxonomic status of this form needs to be studied.

Individual frogs were usually sitting on low saplings in closed disturbed or relatively undisturbed primary forest at night. One specimen was also collected in leaf litter during the day.

***Ischnocnema quinxensis* Jiménez de la Espada, 1872**

**Material:** Bioceánica, CBF 5827.

One subadult specimen was found at the edge of the trail in disturbed primary forest. This is the second record of *I. quinxensis* from Bolivia (see Cadle & Reichle 2000).

***Leptodactylus* cf. *didymus* Heyer, García-López et Cardoso, 1996**

**Material:** Bioceánica, CBF 5828, NMP P6V 72579/1–2.

At night adult specimens were encountered at small temporal puddles on the trails both in secondary and in disturbed primary forest. During the day this species was rarely found also under logs in an artificial clearing. We refer here these specimens to *L.* cf. *didymus*, because the specific identification lacks verification by advertisement call analysis (see Heyer et al. 1996).

***Leptodactylus petersii* (Steindachner, 1864)**

**Material:** Bioceánica, NMP P6V 70580.

The only subadult specimen was collected on the trail in disturbed primary forest.

***Physalaemus petersi* Jiménez de la Espada, 1872**

Material: Bioceanica, CBF 5829; Bolpebra NMP P6V 72606/1–2.

Males vocalised individually or in small groups (up to 6 individuals) at small flooded microdepressions or temporarily running water at the edges of forest roads.

Microhylidae

***Chiasmocleis ventrimaculata* (Andersson, 1945)**

Material: Bioceanica, NMP P6V 72607.

The voucher specimen was collected at a small shallow pool in the closed relatively undisturbed primary forest. This find is the second record of *C. ventrimaculata* from Pando (see Cadle et al. 2003).

***Hamptophryne boliviana* (Parker, 1927)**

A numerous aggregation of calling males was observed around shallow temporal water in a swampy area covered by very dense secondary forest ca. 4 km E of Bolpebra. Males called also during midday hours before a strong storm.

Reptilia

Alligatoriidae

***Paleosuchus* sp.**

An individual of unknown species occupied a permanent pool on a small stream at the edge of primary forest at Bioceanica.

Chelidae

***Platemys platycephala* (Schneider, 1792)**

In all, four adult individuals were observed around Bioceanica. The turtles inhabited temporal ponds in secondary bush and forest along the forest road. One individual was also caught in a small shallow puddle on the trail in disturbed primary forest, which contained dense population of *Hyla marmorata* tadpoles.

Testudinidae

***Geochelone denticulata* (Linnaeus, 1766)**

Four adult males recently collected by local hunters were kept in Bioceanica (straight carapace length of the largest individual = 495 mm). All these individuals originated from the area of dense humid canopy primary forest growing along a small forest brook ca. 4.5 km SW of the settlement.

Gekkonidae

***Gonatodes hasemani* Griffin, 1917**

Material: Bioceanica, NMP P6V 72608.

A subadult specimen was caught under a fallen tree trunk on a small artificial clearing.

***Gonatodes humeralis* (Guichenot, 1855)**

Connected with secondary and disturbed habitats. Observed also on wooden floors and walls in abandoned houses in Bioceanica.

***Thecadactylus rapicauda* (Houttuyn, 1782)**

An adult male sitting motionless on the top of a low sapling (ca. 50 cm above the ground) was seen in disturbed primary forest at Bioceanica at night.





Figs 6–7. *Allobates* cf. *femorialis*, Biocanica (above Fig. 6); *A. femoralis*, Puerto Almendras, 17 km SW Iquitos, Peru (below Fig. 7).





Figs 8–9. *Hyla xapuriensis*, males, Biocanica.

Gymnophthalmidae

***Prionodactylus eigenmanni* Griffin, 1917**

Material: Bioceanica, CBF 2583, NMP P6V 72609.

All five individuals were observed at sunny spots both on trails and inside the forest.

Hoplocercidae

***Enyalioides palpebralis* (Boulenger, 1883)**

Material: Bioceanica, CBF 2584.

Recently, Reichle et al. (2004) provided the exact data on the occurrence of *E. palpebralis* in Bolivia. All known records were from the Departamento La Paz. Therefore, our find meets the expectation of the authors and confirms the occurrence of *E. palpebralis* in Pando.

The voucher specimen is an adult male (SVL = 95 mm, TL = 97 mm). It was caught in a dense humid canopy primary forest ca. 5 km SW of Bioceanica on the trunk of a low young tree (ca. 70 cm above the ground) at 10:20 h. The stomach of the specimen contained small pieces of shed exuviae.

Polychrotidae

***Anolis fuscoauratus* Duméril & Bibron, 1837**

Surprisingly only one individual was observed in disturbed primary forest at Bolpebra.

***Anolis punctatus* Daudin, 1802**

Material: Bioceanica, CBF 2585.

A sleeping individual was found on a broad leaf ca. 150 cm above the ground on the bank of a small stream in the open secondary forest at night.

Scincidae

***Mabuya nigropunctata* (Spix, 1825)**

Only one individual of this usually common species was recorded (at Bolpebra) during the whole study period.

Tropiduridae

***Uracentron flaviceps* (Guichenot, 1855)**

The known range of *U. flaviceps* covers the western Amazonia in Brazil, Colombia, Ecuador and Peru (Avila-Pires 1995). The southernmost records of *U. flaviceps* (Peruvian Cuzco Amazonico and Brazilian state of Rhondonia; Avila-Pires 1995, Duellman & Salas 1991) lie both at western and at eastern limits of the Bolivian Amazonia. However, this species has not been reported from the Bolivian territory until now (for the most comprehensive published checklist of lizards and amphisbaenians of Bolivia see Dirksen & De la Riva 1999). This find represents the first country record of *U. flaviceps* and – considering the geographic position of the above-mentioned southernmost Peruvian and Brazilian records – it indicates a more extensive distribution of the species in northern Bolivia.

Our record is based on the observation of two adult individuals, which inhabited a large tree at the edge of a small natural clearing inside the closed terra firme primary forest at Bioceanica. These individuals were repeatedly watched active in sunny mornings between 09:00–11:00 h. They were running on the trunk and large branches or basked on sunny spots at a height of ca. 20–25 m above the ground. The dorsal coloration of both specimens (observed by binocular) was dark brown without a conspicuous light collar or light spots.

Teiidae

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

Common in open secondary habitats.

Boidae

***Corallus hortulanus* (Linnaeus, 1758)**

An adult male hanging ca. 40 cm above the ground was found at night in a secondary bush growth at the edge of the forest road ca. 2 km E of Bolpebra.

Colubridae

***Clelia clelia* (Daudin, 1803)**

Material: CBF 2586.

A subadult individual swimming across a smallish temporal pond surrounded by secondary growth was caught at Bioceanica after dusk.

***Chironius scurrulus* (Wagler, 1824)**

Material: Bioceanica, NMP P6V 72610.

A dark green juvenile individual was found at night climbing on emergent plants ca. 15 cm above the water level at the shore of a smallish temporary pond at Bioceanica.

***Leptodeira annulata* (Linnaeus, 1758)**

Material: Bioceanica, CBF 2587–2588, NMP P6V 72611.

This snake seems to be relatively common around Bioceanica. Four adult specimens were observed in dense bush growths (up to 2 m above the ground) around a smallish temporal pond at the forest road. All the individuals apparently searched for frogs concentrated in shore vegetation. Another individual found dead on the forest road contained remains of *Scinax ruber* in its stomach.

***Xenoxylis argenteus* (Daudin, 1803)**

Material: Bioceanica, NMP P6V 72612.

A juvenile individual coiled on a large leaf 30 cm above the ground was found at night at the edge of disturbed primary forest.

Elapidae

***Micrurus surinamensis* (Cuvier, 1817)**

During a rainy afternoon (at ca. 16:00 h) a large adult individual crossed a road ca. 20 km E of Bioceanica. The road was edged by pastures and led to a nearby stream.

**Typhlopidae**

***Typhlops reticulatus* (Linnaeus, 1766)**

Material: Bioceanica, CBF 2589.

A roadkilled juvenile specimen was found on the forest road ca. 2 km E of Bioceanica. This record represents the first exact locality of *T. reticulatus* in Pando.

FAUNISTIC AND ZOOGEOGRAPHICAL NOTES

In all, 56 species of amphibians (36) and reptiles (20) were recorded in the vicinity of Bioceanica and Bolpebra. Two of them (*Hyla xapuriensis* and *Uracentron flaviceps*) represent the first records for Bolivia. Other eight species (*Bufo poeppigii*, *Bufo* sp. I., *Bufo*





Figs 10–11. *Adenomera hylaedactyla*, Bioceanica (above Fig. 10); *Adenomera* sp., Bioceanica (below Fig. 11).





Figs 12–13. *Eleutherodactylus*  
*cf. danae*, male, Bioceanica.

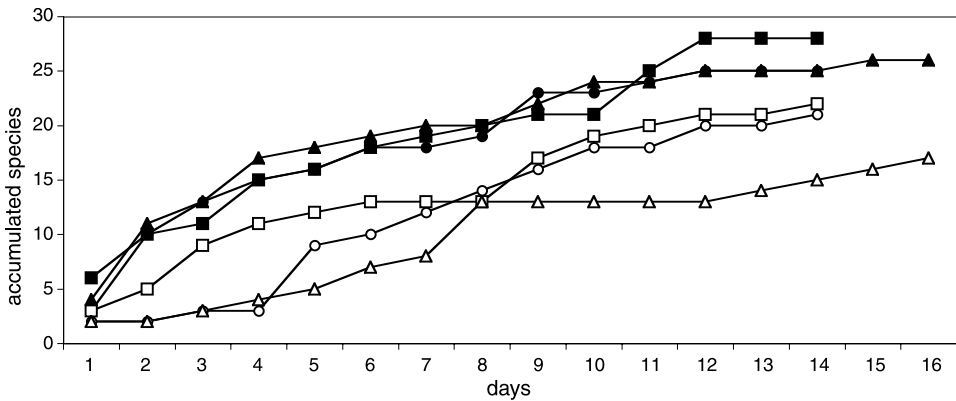


Fig. 14. Species accumulation curves (closed triangles = amphibians Bioceanica, open triangles = reptiles Bioceanica, closed squares = amphibians Nacebe, open squares = reptiles Nacebe, closed circles = amphibians Riberalta, open circles = reptiles Riberalta).

sp. II, *Eleutherodactylus cf. danae*, *Hyla leali*, *Hyla rhodopepla*, *Enylioides palpebralis*, *Typhlops reticulatus*) are reported for the first time from the Departamento Pando.

Comparison of the faunistic data obtained at Bioceanica with those available from Nacebe and Riberalta reveals the following trends: (1) Curves of species–discovery rates indicate that amphibian faunas were surveyed more or less evenly, while the discovery rates of reptile faunas were less balanced (Fig. 14). This fact reflects the less complete sampling success in reptiles. Therefore, only amphibian samples were used for other biogeographic evaluations. (2) The number of anuran species unique for the individual locality decreases considerably towards the east (Bioceanica: 65.4%; Nacebe: 42.9%; Riberalta: 28.0%). (3) No non-Amazonian species (Chaco or Cerrado elements) were involved in the Bioceanica sample (they represent 3.6% and 28.0% in Nacebe and Riberalta samples, respectively). (4) The coefficients of biogeographic resemblance (CBR) are very low and tend to decrease towards the east (CBR Bioceanica/Nacebe = 0.30, CBR Bioceanica/Riberalta = 0.24). They are lower both than CBR Nacebe/Riberalta (0.49) and than CBR values known for different localities in Ecuadorian, Peruvian and Brazilian Amazonia (range: 0.34–0.71; see Duellman & Mendelson 1995).

The above findings show that the species composition of the amphibian sample obtained at Bioceanica differs markedly from the anuran diversity observed at Nacebe and Riberalta. This finding can be explained to some degree by the logically higher proportion of the faunal elements of Southwestern Amazonia and Upper Amazon Basin in the herpetofauna of north-western Bolivia. However, certain differences in spectrum of main habitats at Bioceanica and at the remaining two localities may also play an important role. Bioceanica is surrounded by the relatively continuous terra firme rainforest and lacks the habitats, which accompany large rivers (e.g. open river banks, large open marches, flooded forest, forest lakes). The absence of at least some of the usually common and easily detectable species (e.g. *Hyla bifurca*, *H. boans*, *H. granosa*, *H. leucophyllata*, *H. punctata*, *Leptodactylus bolivianus*, *L. leptodactyloides*, *Phrynohyas venulosa*) can be a consequence of this fact. For instance, three of these species (*Hyla bifurca*, *H. leucophyllata*, *H. punctata*) were found at Bolpebra lying on the bank of Rio Acre ca. 30 km west of Bioceanica.



## ACKNOWLEDGEMENTS

We would like to thank Jörn Köhler (Hessisches Landesmuseum Darmstadt) for his valuable comments on the manuscript and collected material. We are grateful to José M. Padiál (Museo Nacional de Ciencias Naturales, Madrid) for his comments on the material of *Eleutherodactylus cf. danae*. The first author is much obliged to Francisco Bautista Villa (La Paz), Miriam and Kjetil Halvorsens (La Paz), and Gabriel Silva (Cobija) for their kind help and hospitality. The research was supported by the Czech Ministry of Culture – projects No. MK0CEZ99F0201 and MK00002327201. Collecting permit in Bolivia was issued by Museo Nacional de Historia Natural, La Paz (Lic. Marianela Subieta Frias).

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