

On the presence of *Scinax pedromedinae* (Henle, 1991)
(Amphibia: Anura: Hylidae) in Amazonian Brazil and northern Peru
Sobre a presença de *Scinax pedromedinae* (Henle, 1991)
(Amphibia: Anura: Hylidae) na Amazônia brasileira e norte do Peru

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Abstract: We report the presence of *Scinax pedromedinae* in northern Peru, near the point where the borders of Peru, Brazil, and Colombia meet (660 km northeast of Pucallpa and 900 km N of Puerto Maldonado), and in the Estação Ecológica Mamirauá in central Amazonas State, Brazil (1,200 km NE of Pucallpa, 1,100 km NNE of Puerto Maldonado, and 600 km E of the northern Peruvian locality reported here). These new records suggest a continuous distribution of this species in the western Amazon Basin, in eastern Peru, western Brazil, and northern Bolivia.

Keywords: *Scinax pedromedinae*. Brazil. Peru. Amazonia. Distribution extension.

Resumo: Registra-se a presença de *Scinax pedromedinae* no norte do Peru, próximo à tríplice fronteira entre Peru, Brasil e Colômbia (660 km a nordeste de Pucallpa e 900 km a norte de Puerto Maldonado), e na Estação Ecológica Mamirauá, na região central do estado do Amazonas, Brasil (1.200 km a nordeste de Pucallpa, 1.100 km a nor-nordeste de Puerto Maldonado e 600 km a leste da localidade do norte do Peru aqui mencionada). Esses novos registros sugerem a distribuição contínua dessa espécie na parte oeste da bacia amazônica, englobando o leste do Peru, oeste do Brasil e norte da Bolívia.

Palavras-chave: *Scinax pedromedinae*. Brasil. Peru. Amazônia. Extensão de distribuição.

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INTRODUCTION

Henle (1991) described *Ololygon pedromedinae* based on four specimens from Rio Tambopata (in the ZFMK collection) and 16 specimens from Cuzco Amazónico (in the collection of Kansas University), Department Madre de Dios, southern Peru. Duellman & Wiens (1992) changed the name of the genus *Ololygon* to *Scinax*, because of priority reasons. According to the original description, the species belonged to the *Ololygon* [= *Scinax*] *rostrata* group as defined by Duellman (1972) and Fouquette Jr. & Delahoussaye (1977) and which at that time contained eight species, of which *S. epacrorhina* (Duellman, 1972) was synonymized with *Scinax garbei* (Miranda-Ribeiro, 1926) by Duellman & Wiens (1993). Lescure & Marty (2000) described *Scinax jolyi* from French Guiana, thus bringing the total, including *S. pedromedinae*, to nine, a number mentioned by Faivovich *et al.* (2005) and to ten species according to Sturaro *et al.* (2010) (who added *Scinax constrictus* Lima, Bastos & Giaretta, 2004). Faivovich (2002) concluded that the *S. rostratus* group was monophyletic, based on nine anatomical characters and one behavioural character (head down calling position). Several external characters have been used to try to identify this group, but several turned out to be variable within and between species, although the habitus of members of this group is quite distinct. In our opinion, the best external characters to recognize members of this group are the dark triangular mark between the eyes (apex pointing posteriorly) and the acuminate tip of the snout that projects well in front of the mouth and may or may not have a triangular skin flap or tubercle on top of it.

Duellman & Wiens (1993) emended the specific name to *pedromedinai*, but both Henle (1997) and Dubois (2007) pointed out that this was unjustified and that the correct name should remain *S. pedromedinae*. Frost (2011) lists the species as *S. pedromedinae*.

Since its description, *S. pedromedinae* has been mentioned several times, mostly with localities in southern Peru and only recently from northern Bolivia.

Henle (1992), in his overview of the amphibians of Peru, only mentioned the type material and did not add new localities. Duellman & Wiens (1993) gave its distribution as “confined to the upper Amazon Basin in extreme eastern Peru, where it occurs in the drainages of the Rio Purús and Rio Madre de Dios”. In the map of distribution they provided a locality in Department Ucayali that is, or is near to, Pucallpa, although they did not list material from that locality in the list of specimens examined. It remains uncertain on what they based their record from the Pucallpa area. Duellman & Wiens (1993) examined large series of several localities in the wider surroundings of Puerto Maldonado, most from Cuzco Amazonico. Duellman (1993) cited “Rio Madre de Dios drainage in southern Peru” as distribution. Duellman (1995, 2005) provided data on this species from Cuzco Amazonico, where it is very abundant in primary rainforest. Morales (1995), in his checklist of Peruvian amphibians, just mentioned the species but did not provide localities. Morales & McDiarmid (1996) reported the species from Pakitza, Manu National Park, Department Madre de Dios, and mentioned it to be diurnal and nocturnal, uncommon, arboreal, and inhabiting dissected alluvial terrace forest. Duellman (1999) considered *S. pedromedinae* an endemic of southwestern Amazonia. Lehr (2002) only noted that the species was endemic to Peru. Angulo *et al.* (2004) mentioned the same distribution as given by Duellman & Wiens (1993), adding that the species occurs at 200 m above sea level, and they provided a map that connects the four points given by Duellman & Wiens (1993). This map shows a rather artificial shape defined by Peru’s international borders with Brazil and Bolivia. Riva *et al.* (2000) and Köhler (2000) suggested that this species still might be found in Bolivia. Reichle (2007) did not mention the species for Bolivia, although it had already been reported from Nacene, Department Beni, northern Bolivia, by Moravec & Aparicio (2004). Moravec *et al.* (2009) reported another specimen of *S.*

pedromedinae from 5 km NE of Riberalta, Department Beni, Bolivia. Young (2007), dealing with endemic species of the eastern slopes of the Andes in Peru and Bolivia (and adjacent Amazonian lowlands), in his table mentioned *S. pedromedinae* from 12 localities but did not specify those localities. In a map based on just ten localities in the Department Madre de Dios, Peru (which can be accessed in Young (2007) by clicking on *Scinax pedromedinae* in the list of endemic species), an area of distribution of 44, 897 km² (within the Department of Madre de Dios) is predicted for *S. pedromedinae*. May *et al.* (2009) reported *S. pedromedinae* from all nine areas studied by them in western and southern Department Madre de Dios around Puerto Maldonado and Manu National Park. Aguilar *et al.* (2010) mentioned *S. pedromedinae* in their Table 1 and the only information they provided is that it occurs at an altitude of 200 m. May *et al.* (2010) published photos of *S. pedromedinae* from the Manu and Tambopata areas in Peru. Gagliardi-Urrutia (2010) provided a picture of *S. pedromedinae* from the Department Loreto, but without detailed locality. Frost (2011) gave as its distribution "Upper Amazon Basin in extreme eastern Peru, in the drainages of the Río Purus and Río Madre de Dios", apparently not considering Gagliardi-Urrutia's (2010) (unspecified) Loreto, Peru, record and specimens reported by Moravec & Aparicio (2004) and Moravec *et al.* (2009) from northern Bolivia.

RESULTS

During fieldwork in the border region between Brazil, Peru, and Colombia in 1989, and again during fieldwork in 1994 in the Estação Ecológica Mamirauá (now Reserva de Desenvolvimento Sustentável Mamirauá), Amazonas, Brazil, we collected a number of small hylids (see Appendix) that seemed to belong to the *Scinax rostratus* group, but at the time could not be identified (Figure 1). They were relatively small, flattened, had an acuminate snout, a tubercular dorsal skin, a row of tubercles on the forearm and on the lower

jaw, and in general resembled *Scinax nebulosus* (Spix, 1824), but differed from that species by having a uniformly coloured posterior aspect of the thighs (Figures 2 and 3). Both the Mamirauá and Porto Alegria specimens have numerous round white spots on the belly in preservative.

Hoogmoed & Avila-Pires (2001) reported the Mamirauá material as *Scinax* sp. Some of the specimens collected by us were directly compared with the holotype (ZFMK 39737) and the paratype ZFMK 36310 of *Oloolygon pedromedinae*, both adult females. Böhme (2010, p. 83), in his list of ZFMK types, mentioned the holotype of *Oloolygon pedromedinae* and categorically, but incorrectly, stated that there are "no paratypes". As Henle (1991) described the species on the basis of the holotype and 19 paratypes (three from ZFMK, 16 from Kansas University), and as the senior author examined the holotype and the paratype ZFMK 36310 in November 2009 in Leiden, Böhme (2010) clearly erred in stating that there are "no paratypes". Hopefully the ZFMK paratypes just were misplaced and are not really missing. Our material completely agreed with the type specimens examined and we now identify it as *Scinax pedromedinae*.

On December 5, 1989, between 10:30 a.m. and 14:30 p.m. we collected a total of ten specimens, adults (Figure 2) and juveniles, west of Porto Alegria, Rio Cayarú, Paraná Yahú, in Department Loreto, Peru, just across the border from Benjamin Constant, Brazil. This locality is 660 km northeast of Pucallpa and 900 km N of the wider Puerto Maldonado area, the two localities from where the species has been reported in Peru. It is 900 km NW of the Bolivian localities Nacebe and Riberalta. All specimens were collected in dry 'várzea' forest, on the forest floor between leaf litter, some on the bank of a creek.

We also collected *S. pedromedinae* in Mamirauá (Figure 3), in 1994 between July 26 and August 3 ('cheia' = period of flooding), and between December 9 and 18 ('seca' = period with falling water levels). This locality is 1,200 km NE of Pucallpa, 1,100 km NNE of Puerto Maldonado, 600 km E of Rio Cayaru, the northern Peruvian

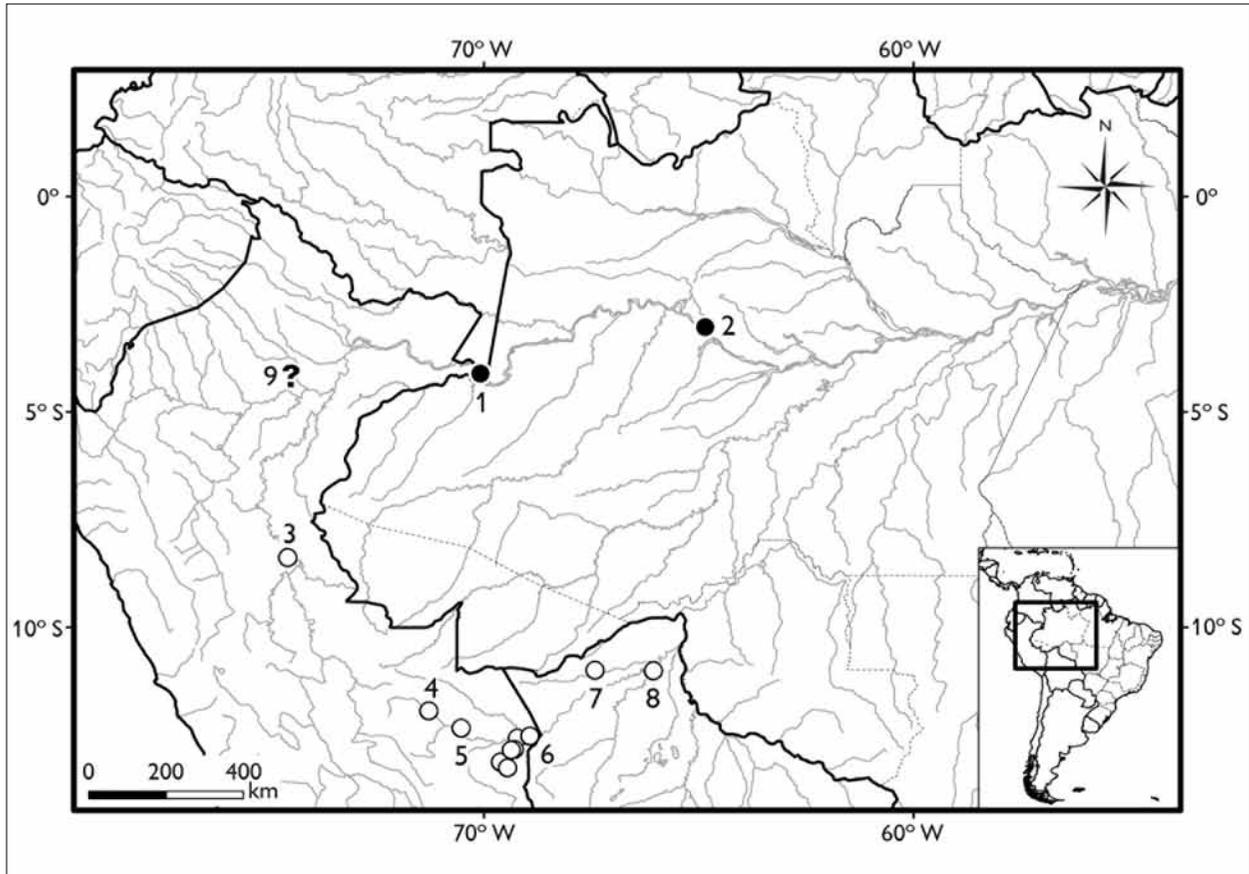


Figure 1. Map showing the known distribution of *Scinax pedromedinae* in Peru, Bolivia, and Brazil. New localities (dots): 1. Porto Alegria, Rio Cayaru, Loreto, Peru, 2. Estação Ecológica Mamirauá, Amazonas, Brazil. Known localities (open circles) in Peru (3-6, 9), and Bolivia (7, 8) based on literature: **Peru**: 3. Pucallpa area (Duellman & Wiens, 1993); 4. Pikitza, Madre de Dios (Morales & McDiarmid, 1996); 5. Los Amigos, Manu and Tambopata (May *et al.*, 2009, 2010); 6. An agglomerate of localities: Tres Chimbadas, Rio Tambopata (Henle, 1991; Duellman & Wiens, 1993); Tambopata-Candamo Reserved Zone (Rodríguez & Emmons, 1994); Pampas del Heath region, Tambopata (Icochea-Monteza, 1994); reserva Cuzco Amazónico (Henle, 1991, Duellman & Wiens, 1993); Eco Amazonía, Explorer's Inn, Sachavacayoc Center (Doan & Arriaga, 2002). **Bolivia**, Departamento Beni: 7. Nacebe (Moravec & Aparicio, 2004); 8. 5 km NE Riberalta (Moravec *et al.*, 2009); **Peru**, Loreto: 9. (Gagliardi-Urrutia, 2010) has been indicated by a question mark, which should not be interpreted as a real locality, as this publication did not give an exact locality, but just mentioned the department.

locality reported here, and 900 km N of the Bolivian localities Nacebe and Riberalta. Most specimens were found in dry "restinga baixa" (Bannerman, 2001) on the forest floor among leaf litter. Only MPEG 7279 was found in flooded "restinga baixa" sitting on a dead twig 10 cm above the water. During the 'cheia', only half grown specimens were found, during the 'seca' only adults were found. All specimens were collected during daytime between 13:00 and 18:00 p.m.

DISCUSSION

The habitat of the Rio Cayaru and Mamirauá material (forest along waterways) agrees with that described for the type material (Henle, 1991) and other material from Peru (Duellman & Wiens, 1993; Duellman, 1995, 2005) and Bolivia (Moravec & Aparicio, 2004). The habitat known for this species is completely different from that of the similar *S. nebulosus* (Spix, 1824) (a closely related species [Faivovich, 2002]) which occurs in open situations (Hoogmoed, 1993),



Figure 2. *Scinax pedromedinae* from W of Porto Alegria, Rio Cayaru, Loreto, Peru, MPEG 5343 (SVL 23.5 mm).

like savannas, floating meadows, and disturbed areas with secondary vegetation, but never in forest.

In addition to a remark made by Duellman & Wiens (1992, p. 16) about the calling behaviour of males of the *S. rostratus* group, we can add that males of *S. nebulosus* in Suriname, French Guiana, and Brazil generally (but not always) also call sitting in a more or less vertical position with the head pointing down.

Another species of the *S. rostratus* group of Duellman (1972) and Duellman & Wiens (1992) that occurs in the area between Mamirauá and Benjamin Constant is *S. garbei* (Miranda-Ribeiro, 1926), but this is a much larger species that has brightly (yellow or orange) patterned anterior and posterior surfaces of the thighs and can not be confused with *S. pedromedinae*.

The distinct light inguinal spot as reported by Henle (1991) is evident in most of our specimens either as an inguinal or as a flank spot, in some specimens (MPEG 7443

and 7469, RMNH 42009) it is indistinct. The northern Peruvian specimens in life had a large light to reddish brown area on the back, with dark green to black marks, the flanks were green. The back of the thighs was dark blue-green without black pattern. The ventral parts of limbs were bluish green. Belly and throat white. Bones green. The upper part of the iris was brown, the lower part silvery.

The recognition of *S. pedromedinae*, and its discovery in Mamirauá, might give rise to speculations that *Hyla nebulosa* Spix, 1824, described from the Rio Tefé on the southern bank of the Rio Solimões, not far from Mamirauá, actually could be the same species as the one reported here. Hoogmoed & Gruber (1983) synonymised *Hyla egléri* Lutz, 1968 with *H. nebulosa* and designated the holotype of the first name as the neotype for *Hyla nebulosa* (currently *Scinax nebulosus*) to Belém, State of Pará, Brazil. Considering the fact that Spix (1824) in his description specifically mentioned the black bars on the anterior aspect of the thighs and the blue spots on the posterior aspect, lead us to believe that Hoogmoed & Gruber (1983) were right in synonymising *H. nebulosa* and *H. egléri*. This leads to the conclusion that either *S. nebulosus* still might be found in Tefé or surroundings (in open situations), or that the type locality mentioned by Spix (1824) was wrong (most likely in our opinion). There is a good possibility that many or all specimens referred to *S. nebulosus* from central and western Brazil and Bolivia in fact are *S. pedromedinae* (Hoogmoed, 1993; Riva *et al.*, 2000, but see Moravec *et al.*, 2009, who reported among their comparative material *S. nebulosus* from a locality only 3 km distant from the locality from where they report *S. pedromedinae*).

CONCLUSIONS

The present findings show that *S. pedromedinae* is not a species endemic to Peru, and do extend the range of the species considerably to the north and northeast of the Peruvian localities reported by Duellman & Wiens (1993)



Figure 3. Specimens of *Scinax pedromedinae* from Mamirauá, Amazonas, Brazil: left MPEG 7443 (SVL 25.8 mm), right MPEG 7469 (SVL 23.3 mm).

and other authors. These new records and the material recently reported from northern Bolivia (Moravec & Aparicio, 2004; Moravec *et al.*, 2009) suggest a continuous distribution of this species in the western Amazon Basin in eastern Peru, western Brazil (and most likely also in adjacent Colombia), and northern Bolivia. This is the first time this species is reported from Brazil and northern Peru.

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author to examine type material under his care. Marcelo J. Sturaro (MPEG) made the distribution map and provided some pertinent recent references. Fieldwork in 1989 was financed by the Nationaal Natuurhistorisch Museum, Leiden, the Netherlands (RMNH), the Stichting Wetenschappelijk Onderzoek in de Tropen [Netherlands Foundation for Tropical Research (WOTRO, grant WR 87-218.89)], and the Van Tienhoven Stichting (= Foundation), the Netherlands, and that in 1994 also by the Sociedade Civil Mamirauá. Material was collected in Brazil under IBAMA licenses 065/89-DEVIS and 036/94-DIFAS and expedition permit EX-21/89 and Portaria MCT 178 (July 13, 1993) for fieldwork of the senior author. Material was deposited in the collections of the Museu Paraense Emílio Goeldi, Belém, Pará, Brazil (MPEG) and in the RMNH.

REFERENCES

- AGUILAR, C., C. RAMIREZ, D. RIVERA, K. SIU-TING, J. SUAREZ & C. TORRES, 2010. Anfibios andinos del Peru fuera de Áreas Naturales Protegidas: amenazas y estado de conservación. **Revista Peruana de Biología** 17(1): 5-28.
- ANGULO, A., J. ICOCHEA & R. REYNOLDS, 2004. *Scinax pedromedinae*. In: INTERNATIONAL UNION FOR CONSERVATION OF NATURE AND NATURAL RESOURCES - IUCN, 2010. **IUCN Red List of Threatened Species**. Version 2010.4. Available at: <www.iucnredlist.org>. Accessed on: 18 February 2011.
- BANNERMAN, M., 2001. **Mamirauá**. A guide to the natural history of the Amazon flooded forest: 1-175. Instituto de Desenvolvimento Sustentável Mamirauá, Tefé.
- BÖHME, W., 2010. A list of the herpetological type specimens in the Zoologisches Forschungsmuseum Alexander Koenig, Bonn. **Bonn Zoological Bulletin** 59: 79-108.
- DOAN, T. M. & W. A. ARRIAGA, 2002. Microgeographic variation in species composition of the herpetofaunal communities of Tambopata region, Peru. **Biotropica** 34(1): 101-117.
- DUBOIS, A., 2007. Genitives of species and subspecies nomina derived from personal names should not be emended. **Zootaxa** 1550: 49-68.
- DUELLMAN, W. E., 1972. South American frogs of the *Hyla rostrata* group (Amphibia, Anura, Hylidae). **Zoologische Mededelingen Leiden** 47: 177-192.
- DUELLMAN, W. E., 1993. Amphibian species of the world: Additions and corrections. **Museum of Natural History of the University of Kansas Special Publication** 21: iii + 372.
- DUELLMAN, W. E., 1995. Temporal fluctuations in abundances of anuran amphibians in a seasonal Amazonian rainforest. **Journal of Herpetology** 29(1): 13-21.
- DUELLMAN, W. E., 1999. Distribution patterns of amphibians in South America. In: W. E. DUELLMAN (Ed.): **Patterns of distribution of amphibians. A global perspective**: 255-328. Johns Hopkins University Press, Baltimore.
- DUELLMAN, W. E., 2005. **Cusco Amazónico**. The lives of amphibians and reptiles in an Amazonian rainforest: i-xv, 1-433. Comstock Publishing Associates, Ithaca and London.
- DUELLMAN, W. E. & J. J. WIENS, 1992. The status of the hylid frog genus *Olygodon* and the recognition of *Scinax* Wagler, 1830. **Occasional Papers of the Museum of Natural History, University of Kansas** 151: 1-23.
- DUELLMAN, W. E. & J. J. WIENS, 1993. Hylid frogs of the genus *Scinax* Wagler, 1830, in Amazonian Ecuador and Peru. **Occasional Papers of the Museum of Natural History, University of Kansas** 153: 1-57.
- FAIVOVICH, J., 2002. A cladistic analysis of *Scinax* (Anura: Hylidae). **Cladistics** 18(4): 367-393.
- FAIVOVICH, J., C. F. B. HADDAD, P. C. A. GARCIA, D. R. FROST, J. A. CAMPBELL & W. C. WHEELER, 2005. Systematic review of the frog family Hylidae, with special reference to Hylinae: a phylogenetic analysis and taxonomic revision. **Bulletin of the American Museum of Natural History** 294: 1-240.
- FOUQUETTE, M. J., JR. & A. J. DELAHOUSAYE, 1977. Sperm morphology in the *Hyla rubra* group (Amphibia, Anura, Hylidae), and its bearing on generic status. **Journal of Herpetology** 11(4): 387-396.
- FROST, D. R., 2011. **Amphibian Species of the World**: an Online Reference. Version 5.5 (31 January 2011). American Museum of Natural History, New York. Available at: <http://research.amnh.org/vz/herpetology/amphibia/>. Accessed on: 21 September 2011.
- GAGLIARDI-URRUTIA, G., 2010. Anfibios y reptiles de Loreto, Peru. **Rapid Color Guide** 262 versión 1: pls. 1-14. Available at: <http://www.pingleton.com/field/Post/2010-photoguide_Herps_Loreto_02.pdf> Accessed on: 13 October 2011.
- HENLE, K., 1991. *Olygodon pedromedinae* sp. nov., ein neuer Knickzehenlaubfrosch (Hylidae) aus Peru. **Salamandra** 27(1): 76-82.
- HENLE, K., 1992. Zur Amphibienfauna Perus nebst Beschreibung eines neuen *Eleutherodactylus* (Leptodactylidae). **Bonner zoologische Beiträge** 43(1): 79-129.
- HENLE, K., 1997. *Scinax pedromedinae*: an unjustified emendation of *Olygodon pedromedinae* Henle, 1991. **Herpetological Review** 28(2): 67.
- HOOGMOED, M. S., 1993. The herpetofauna of floating meadows. In: P. E. OUBOTER (Ed.): **Freshwater ecosystems of Suriname**: 199-213. Kluwer Academic Publishers, Dordrecht.
- HOOGMOED, M. S. & U. GRUBER, 1983. Spix and Wagler type specimens of reptiles and amphibians in the Natural History Museum in Munich (Germany) and Leiden (The Netherlands). **Spixiana Supplement** 9: 319-415.
- HOOGMOED, M. S. & T. C. S. AVILA-PIRES, 2001. Amphibia. In: M. BANNERMAN: **Mamirauá**. A guide to the natural history of the Amazon flooded forest: 164. Instituto de Desenvolvimento Sustentável Mamirauá, Tefé.
- ICOCHEA-MONTEZA, J., 1994. Amphibians and reptiles of the Pampas del Heath Region. In: R. B. FOSTER, J. L. CARR & A. B. FORSYTH (Eds.): The Tambopata-Candamo Reserved Zone of Southeastern Perú: a biological assessment. **RAP Working Papers, Conservation International** 6: 71-72, 154-155.
- KÖHLER, J., 2000. Amphibian diversity in Bolivia: a study with special reference to montane forest regions. **Bonner zoologische Monographien** 48: 1-243.

- LEHR, E., 2002. **Amphibien und Reptilien in Peru. Die Herpetofauna entlang des 10. Breitengrades von Peru: Arterfassung, Taxonomie, ökologische Bemerkungen und biogeographische Beziehungen:** 1-208. Natur und Tier-Verlag GmbH, Münster.
- LESCURE, J. & C. MARTY, 2000. Atlas des amphibiens de Guyane. **Patrimoines Naturels** 45: 1-388
- MAY, R. VON, K. SIU-TING, J. M. JACOBS, M. MEDINA-MÜLLER, G. GAGLIARDI, L. O. RODRÍGUEZ & M. A. DONNELLY, 2009. Species diversity and conservation status of amphibians in Madre de Dios, southern Peru. **Herpetological Conservation and Biology** 4(1): 14-29.
- MAY, R. VON, J. M. JACOBS, R. D. JENNINGS, A. CATENAZZI & L. O. RODRIGUEZ, 2010. Anfibios de Los Amigos, Manu y Tambopata, Perú. **Rapid Color Guide** 236 version 2: pls. 1-12. Available at: <<http://fm2.fieldmuseum.org/plantguides/guideimages.asp?ID=350>>. Accessed on: 13 October 2011.
- MORALES, V. R., 1995. Checklist and taxonomic bibliography of the amphibians from Peru. **Smithsonian Herpetological Information Service** 107: 1-20.
- MORALES, V. R. & R. W. MCDIARMID, 1996. Annotated checklist of the amphibians and reptiles of Pakitza, Manu National Park Reserve Zone, with comments on the herpetofauna of Madre de Dios, Peru. In: D. E. WILSON & A. SANDOVAL (Eds.): **Manu: The biodiversity of southeastern Peru**: 503-522. Smithsonian Institution, Washington.
- MORAVEC, J. & J. APARICIO, 2004. Notes on the herpetofauna of Nacebe (Provincia Abuna, Departamento Pando, Bolivia). **Časopis Národního muzea, Řada přírodovědná (Journal National Museum, Natural History Series)** 173 (1-4): 13-28.
- MORAVEC, J., I. A. TUANAMA, P. E. PÉREZ & E. LEHR, 2009. A new species of *Scinax* (Anura: Hylidae) from the area of Iquitos, Amazonian Peru. **South American Journal of Herpetology** 4(1): 9-16.
- REICHLE, S., 2007. **Distribution, diversity and conservation status of Bolivian amphibians:** 1-183 + 103 p. unnumbered. Available in: <<http://hss.ulb.uni-bonn.de/2007/1171/1171.pdf>>. Accessed on: 21 September 2011.
- RIVA, I. DE LA, J. KÖHLER, S. LÖTTERS & S. REICHLE, 2000. Ten years of research on Bolivian amphibians: updated checklist, distribution, taxonomic problems, literature and iconography. **Revista Española de Herpetología** 14: 19-164.
- RODRIGUEZ, L. & L. H. EMMONS, 1994. Amphibians and reptiles in the Tambopata-Candamo Reserved Zone. In: R. B. FOSTER, J. L. CARR & A. B. FORSYTH (Eds.): **The Tambopata-Candamo Reserved Zone of Southeastern Perú: A biological assessment. RAP Working Papers, Conservation International** 6: 150-153, 184.
- SPIX, J. B. VON, 1824. **Animalia nova sive species novae Testudinarum et Ranarum, quas in itinere per Brasiliam annis MDCCCXVII-MDCCCXX jussu et auspicio Maximiliani Josephi I Bavariae Regis.** **Amphibia:** 25-53, pls. I-XXII. F. S. Hübschman, Munich, Germany.
- STURARO, M. J., J. F. MELO SARMENTO, A. A. LIMA, H. M. CHALKIDIKIS & R. A. T. ROCHA, 2010. New records and distribution of the treefrog *Scinax rostratus* (Peters, 1863) (Amphibia: Anura: Hylidae). **Herpetology Notes** 3: 161-166.
- YOUNG, B. E. (Ed.), 2007. **Endemic species distributions on the east slopes of the Andes in Peru and Bolivia:** 1-89. NatureServe, Arlington, Virginia. Available at: <http://www.natureserve.org/aboutUs/latinamerica/maps_amphibians.jsp> and <http://www.natureserve.org/aboutUs/latinamerica/maps_dist_amphibians/Scinax_pedromedinae.jsp>. Accessed on: 21 September 2011.

APPENDIX

Material examined

Brazil, Amazonas, Estação Ecológica Mamirauá, Cano do Teiú, S 2° 58' 10.3" W 64° 54' 34.8": 1 hgr., MPEG 7279 (TCAP 2361), 30.vii.1994, leg. M. S. Hoogmoed & T. C. S. Avila Pires.

Brazil, Amazonas, Estação Ecológica Mamirauá, Lago Araçazinho, on left bank of Paraná Apara, S 2° 59' 01.1" W 64° 51' 02.9": 1 ex., RMNH 45827 (MSH 6842), 3.viii.1994; 2 hgr., RMNH 42006-7 (MSH 6862), 2 hgr. MPEG 7321-22 (TCAP 2405); 1 male, RMNH 42008 (MSH 6892), 1 ex. MPEG 7443 (TCAP 2430), 9.xii.1994; all leg. M. S. Hoogmoed & T. C. S. Avila-Pires.

Brazil, Amazonas, Estação Ecológica Mamirauá, near Lago Arati, Lago de comercialização do Barroso: 1 hgr., MPEG 7331, 26.vii.1994, leg. H. Queiroz & M. Marmombel.

Brazil, Amazonas, Estação Ecológica Mamirauá, Boca do Mamirauá, S 3° 07' 08.0" W 64° 47' 32.3": 1 ex., MPEG 7469 (TCAP 2456), 13.xii.1994, leg. M. S. Hoogmoed & T. C. S. Avila-Pires.

Brazil, Amazonas, Estação Ecológica Mamirauá, Lago Juruá Grande, S 3° 01' 39.1" W 64° 51' 03.7": 1 male, RMNH 42009 (MSH 6939), 18.xii.1994, leg. M. S. Hoogmoed & T. C. S. Avila-Pires.

Peru, Departamento Loreto, W of Porto Alegria, Rio Cayaru, Paraná Yahú, S 4° 06' 25" W 70° 04' 53": 5 ex. MPEG 5334, 5341-44, 2 ex. RMNH 45914-15 (MSH 5620), 3 ex. RMNH 45910-12 (MSH 5626), 5.xii.1989, leg. M. S. Hoogmoed & T. C. S. Avila-Pires.



