New country records of *Hyalinobatrachium iaspidiense* (Amphibia, Anura, Centrolenidae) from the Amazonian lowlands of Ecuador and Peru

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**Abstract.** We report the first records of *Hyalinobatrachium iaspidiense* (Ayarzagüena, 1992) from Ecuador and Peru based on voucher specimens collected in lowland Amazon rainforests. These are the westernmost records of this species and suggest a continuous distribution across the entire Amazon basin.

Glassfrogs, anurans of the family Centrolenidae, have received considerable attention during the last decade (for a bibliographic review see Cisneros-Heredia and McDiarmid, 2007). In particular, studies on the Glassfrogs from the eastern slopes of the Andes and from the Amazonian lowlands have revealed our lack of understanding of its diversity and distribution patterns (Cisneros-Heredia and McDiarmid, 2006a, 2006b, 2007; Guayasamin et al., 2006; Cisneros-Heredia and Meza-Ramos, 2007; Cisneros-Heredia et al., 2008). Herein we present the first country records of *Hyalinobatrachium iaspidiense* from Ecuador and Peru that suggest a continuous distribution of this species across the Amazonian basin.

*Hyalinobatrachium iaspidiense* is among the most distinctive species of centrolenids by having a particular dorsal pattern only shared with *Hyalinobatrachium mesai* (Cisneros-Heredia and McDiarmid, 2007; Barrio-Amoros and Brewer-Carias, 2008). Both species show large lime-green dorsal blotches that turn white when individuals are preserved (Ayarzagüena, 1992; Lescure and Marty, 2000; Señaris and Ayarzagüena, 2005; D.F. Cisneros-Heredia, R.W. McDiarmid, J.P. Caldwell and G. Rivas, pers. obs.). These marks are a unique colour arrangement of the dorsal parietal peritoneum of centrolenids (Cisneros-Heredia and McDiarmid, 2007). The most conspicuous difference between *Hyalinobatrachium iaspidiense* and *H. mesai* are the green bones of the latter vs. white bones in the former.

*Hyalinobatrachium iaspidiense* was described based on specimens collected at Quebrada Jaspe, state of Bolivar, Guayana region of Venezuela (Ayarzagüena, 1992). Señaris and Ayarzagüena (2005) reported it from Caño Colima on the slopes of Serranía de Imataca, state of Bolivar, Venezuela. It has been reported as *H. nouraguense* (a synonym, see below for details) in: four localities in French Guiana (Lescure and Marty, 2000); one in Guyana (Ernst, Rödel and Arjoon, 2005); four in Suriname (Kok and Castroviejo-Fisher, 2008); and two in Brazil (Cordeiro-Duarte et al., 2002; Caldwell and Shepard, 2005). Thus, it has been reported so far only from north-eastern areas of Amazonia.

Between 20th of May and 1st of June 2007 a male of *Hyalinobatrachium iaspidiense* (DHMECN 04033, Museo Ecuatoriano de Ciencias Naturales, Quito, Ecuador; Fig. 1) was collected from the locality of Totoa Nai’qui, Cofán-Dureno territory, province of Sucumbíos, Republic of Ecuador (0.03442° S, 76.75278° W, ca. 280 m above sea level) by Mario Yáñez-Muñoz and Angel Chimbo. It was found on the leaf of a bush directly over the water surface in a flooded forest. This record represents the first country record of this species from Ecuador. Yáñez-Muñoz and Chimbo (2007) reported this specimen as “*Hyalinobatrachium sp. A*” and Yáñez-Muñoz and Cisneros-Heredia (2008) as “*Hyalinobatrachium sp. N12*”, commenting that it was “apparently related or conspecific with *Hyalinobatrachium iaspidiense*”.

In November 2003 a female of *Hyalinobatrachium iaspidiense* (MZUNAP 0517, Museo de Zoologia,
Facultad de Ciencias Biológicas, Universidad Nacional de la Amazonía Peruana, Iquitos, Peru; Fig. 2) was collected at the Lago Preto-Paredón on the frontier between Peru and Brazil in the province of Ramón Castilla, department of Loreto, Republic of Peru (4.46157° S, 71.75133° W, ca. 95 m above sea level) by Pedro Pérez-Peña. The individual was found on the leave of a shrub ca. 1.2 m above the ground and about 50 m away from a small lagoon in terra firme forest dominated by Lepidocaryum tenue and represents the first record of this species from Peru. Pérez et al. (2006) and Pérez (2007) regarded this specimen as “Hyalinobatrachium sp”.

Specimens DHMECN 04033 and MZUNAP 0517 show all diagnostic characteristics of Hyalinobatrachium iaspidiense, including the dorsal coloration pattern, white bones, transparent ventral parietal peritoneum and most visceral peritonea covered by iridophores except for the pericardium that is transparent; supporting their specific identification.

These new records extend the known range of Hyalinobatrachium iaspidiense nearly 1900 km from the nearest known locality, the municipality of President Figueiredo (state of Amazonas, Brazil) and represent the westernmost record of this species suggesting that H. iaspidiense is widely distributed across the entire Amazonian lowlands (Fig. 3).

Ernst et al. (2005) as well as Cisneros-Heredia and McDiarmid (2007) suggested synonymy of Hyalinobatrachium iaspidiense and H. nouraguense based on morphological characters. This hypothesis was later supported by molecular data (Guayasamin et al. 2007: Fig. 5 and 6) showing that almost no differentiation between populations collected from or near the respective type localities was evident. By analysing the information presented by Ernst et al. (2005), Cisneros-Heredia and McDiarmid (2007) and Guayasamin et al. (2007) we treat both species as conspecifics of H. iaspidiense Ayarzagüena, 1992. Cisneros-Heredia and McDiarmid (2007) reported
that *H. nouraguensis* and *H. iaspidiense* differed in the condition of iridophores over the pericardium, but a closer inspection showed that these differences are preservation artefacts rather than valid intraspecific differences (Lescure and Marty, 2000; Señarís and Ayarzagüena, 2005; G. Rivas pers. comm.; S. Castroviejo-Fisher pers. comm.). Cisneros-Heredia and McDiarmid (2007) hypothesized that species with large dorsal blotches of iridophores form a monophyletic group but were uncertain about the relationships of this group regarding other *Hyalinobatrachium*. We agree with this hypothesis and consider that *H. iaspidiense* and *H. mesai* form a monophyletic group supported by the synapomorphy of blotches of iridophores on the dorsal parietal peritoneum.

**Figure 2.** *Hyalinobatrachium iaspidiense* (MZUNAP 0517) from Lago Preto-Paredón, department of Loreto, Republic of Peru.

**Figure 3.** Map of northern South America showing the known localities of *Hyalinobatrachium iaspidiense* based on the new localities reported herein (closed symbols) and literature records (open symbols): (1) Quebrada Jaspe, (2) Caño Colima, (3) mountain areas of Kaw, Monts Trinité, Courcibo, and Saut Arataye/Nouragues Reserve, (4) President Figueiredo, (5) lower River Cristalino region, (6) Mabura Hill Forest Reserve, (7) Sipaliwini district, (8) Cofán-Dureno territory, (9) Lago Preto-Paredón. Country codes: Venezuela = Ve; Colombia = Co; Ecuador = Ec; Peru = Pe; Guyana = Gu; Suriname = Su; French Guiana = FG; Brazil = Br; Bolivia = Bo.
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References


