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## ***Potamotrygon limai*, sp. nov., a new species of freshwater stingray from the upper Madeira River system, Amazon basin (Chondrichthyes: Potamotrygonidae)**

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### **Abstract**

*Potamotrygon limai*, sp. nov., is described from the Jamari River, upper Madeira River system (Amazon basin), state of Rondônia, Brazil. This new species differs from congeners by presenting unique polygonal or concentric patterns formed by small whitish spots better defined over the posterior disc and tail-base regions. *Potamotrygon limai*, sp. nov., can be further distinguished from congeners in the same basin by other characters in combination, such as two to three rows of midtail spines converging to a single irregular row at level of caudal sting origin, proportions of head, tail and disc, patterns of dermal denticles on rostral, cranial and tail regions, among other features discussed herein. *Potamotrygon limai*, sp. nov., is most similar to, and occurs sympatrically with, *P. scobina*, and is distinguished from it by lacking ocellated spots on disc, by its characteristic polygonal pattern on posterior disc, a comparatively much shorter and broader tail, greater intensity of denticles on disc, more midtail spine rows at tail-base, and other features including size at maturity and meristic characters. *Potamotrygon limai*, sp. nov., is also distinguished from other species of *Potamotrygon* occurring in the Amazon region, except *P. scobina*, by presenting three angular cartilages (vs. two or one). This new species was discovered during a detailed taxonomic and morphological revision of the closely related species *P. scobina*, and highlights the necessity for thorough and all-embracing taxonomic studies, particularly in groups with pronounced endemism and morphological variability.

**Key words:** Taxonomy, Morphology, Jamari River, South America, Myliobatiformes

### **Introduction**

The family Potamotrygonidae Garman, 1913 is a very intriguing component of the Neotropical fish fauna, mainly because it represents the only supraspecific group of living elasmobranchs that evolved in a freshwater environment (Thorson *et al.*, 1983; Lovejoy, 1996; Carvalho *et al.* 2003, 2004). Currently comprising four genera (Carvalho & Lovejoy, 2011), the systematics of the group is still poorly known, especially regarding the distribution, evolutionary history and biogeography of its included species (Carvalho & Lovejoy, 2011; Silva & Carvalho, 2011). Of the four recognized potamotrygonid genera (*Paratrygon* Duméril, 1865, *Potamotrygon* Garman, 1877, *Plesiotrygon* Rosa, Castello & Thorson, 1987, and *Heliotrygon* Carvalho & Lovejoy, 2011), the genus *Potamotrygon* is the most diverse, with approximately 25 valid species (Carvalho *et al.*, 2003; Rosa *et al.*, 2008; Carvalho & Lovejoy, 2011; Carvalho *et al.*, 2011; Silva & Carvalho, 2011).

The present paper describes a new species of potamotrygonid from the upper Madeira River basin, Brazil, and compares it with congeners, especially those occurring in the greater Amazon basin. This new species was initially discovered during a systematic revision of *Potamotrygon scobina* Garman, 1913 and allied forms (Fontenelle, 2013), based primarily on the extensive potamotrygonid material deposited in the Museu de Zoologia da Universidade de São Paulo (São Paulo). The new species, described here as *Potamotrygon limai*, sp. nov., is distinguished by its dorsal (especially lumbar) and tail-base color pattern, as well as dermal denticle morphology, number and arrangement of caudal spines, number of teeth, and caudal proportions, among other features. This new species further demonstrates the great variation in coloration present in the family, a fact that reinforces the need for comprehensive revisions as a sound base for describing new potamotrygonid species.

## Comparative material examined

(See also material listed in Silva, 2010; Silva & Carvalho, 2011; Fontenelle, 2013).

*Potamotrygon scobina*: (holotype) MCZ 602-S (juvenile male, 238 mm DW), Tocantins River, Cametá, state of Pará, Brazil; MZUSP 104247 (adult male, 503 mm DW), Tocantins River, Colares, Baía de Marajó, state of Pará, Brazil, 0°55'34.68"S, 48°17'25.44"W; MZUSP 104245 (adult male, 543 mm DW), same data as MZUSP 104247; MZUSP 104244 (adult male, 378 mm DW), same data as MZUSP 104247; MZUSP 104243 (adult female, 459 mm DW), same data as MZUSP 104247; MZUSP 104258 (adult female, 405 mm DW), same data as MZUSP 104247; 104259 (?female, 298 mm DW), same data as MZUSP 104247; 104266 (adult male, 392 mm DW), same data as MZUSP 104247; 104268 (adult female, 396 mm DW), same data as MZUSP 104247; INPA 1774 (adult male, 330 mm DW), Uatumã River (Balbina reservoir), Presidente Figueiredo, state of Amazonas, Brazil; INPA 9096 (juvenile male, 298 mm DW), Solimões River, Janauacá, state of Amazonas, Brazil, 3°17'41.57"S, 60°20'31.34"W; INPA 9104 (adult male, 547 mm DW), same data as INPA 9096; INPA 15113 (juvenile male, 183 mm DW), Solimões River, state of Amazonas, Brazil.

*Potamotrygon motoro*: MZUSP (uncat.) PU04 (adult male, 310 mm DW), Madre de Dóios River, municipal district of Boca Manu, state of Madre de Dios, Peru, 12°36'38"S, 71°13'58"W; MZUSP 14771 (juvenile male, 107 mm DW), Ucayali River, municipal district of Coronel Portilio, near Ucayali, Peru.

*Potamotrygon tatanai*: MZUSP 107673 (adult male, 348 mm DW), Madre de Dóios River, municipal district of Boca Manu, upper Amazon basin, state of Madre de Dios, Peru, 12°40'S, 71°04'06"W; MZUSP 107667 (adult male, 362 mm DW), same data as MZUSP 107673; MZUSP 107668 (?preadult female, 265 mm DW), same data as MZUSP 107673; MZUSP 107669 (adult male, 293 mm DW), same data as MZUSP 107673; MZUSP 107670 (adult male, 300 mm DW), same data as MZUSP 107673; 107671 (adult male, 351 mm DW), same data as MZUSP 107673; MZUSP 107672 (?preadult male, 291 mm DW), same data as MZUSP 107673.

*Potamotrygon orbignyi*: MZUSP 104438 (juvenile male, 171 mm DW), Xingu River, municipal district of São Félix do Xingú, state of Pará, Brazil (06°39'36"S, 52°00'W); MZUSP 103897 (adult male, 335 mm DW), Tapajós River, municipal district of Santarém, state of Pará, Brazil (02°16'48" S, 55°00' W); MZUSP 104972 (juvenile female, 165 mm DW), Negro River, municipal district of Barcelos, state of Amazonas, Brazil (00°58'48" S, 62°55'12" W).

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