

## A new glanapterygine catfish of the genus *Listrura* (Siluriformes: Trichomycteridae) from the southeastern Brazilian coastal plains

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### Abstract

*Listrura pinguabae*, new species, is described from small tributary streams of rio da Fazenda, an isolated coastal river in Pinguaba, São Paulo State, southeastern Brazil. It is distinguished from all other trichomycterids, except *L. nematopteryx*, in possessing a single long pectoral-fin ray. It differs from *L. nematopteryx* by a combination of features including relative position of anal and dorsal-fin origins, higher number of anal-fin rays and opercular and interopercular odontodes, and morphology of the urohyal.

**Key words:** *Listrura*, Glanapteryginae, Trichomycteridae, catfish, new species, taxonomy, southeastern Brazil

### Resumo

É descrita *Listrura pinguabae*, nova espécie, para pequenos córregos adjacentes ao rio da Fazenda, Pinguaba, Estado de São Paulo, sudeste do Brasil. A nova espécie distingue-se dos demais membros da família Trichomycteridae, exceto *L. nematopteryx*, por possuir um único longo raio na nadadeira peitoral. Difere de *L. nematopteryx* pela combinação dos seguintes caracteres: posições relativas das nadadeiras anal e dorsal; maior número de raios da nadadeira anal e de odontóides operculares e interoperculares; morfologia do uro-hial.

### Introduction

*Listrura* de Pinna is the only genus of the subfamily Glanapteryginae occurring in small coastal rivers basins of southern and southeastern Brazil (de Pinna, 1988; Nico & de Pinna, 1996; Landim & Costa, 2002; de Pinna & Wosiacki, 2002). All other

glanapterygines (*Glanapteryx* Myers, *Typhlobelus* Myers, and *Pygidianops* Myers) are endemic to the Amazon and Orinoco river basins, northern South America (Myers, 1944; de Pinna, 1998; Costa & Bockmann, 1994) and constitute a clade. *Listrura* species inhabit interstitial spaces in the substrate (*i. e.*, sand, litter) of shallow forest streams (Landim & Costa, 2002; de Pinna & Wosiacki, 2002). The genus includes four species: *L. camposi* (Miranda-Ribeiro), described from the rio Ribeira do Iguape basin, southern São Paulo State (Miranda-Ribeiro, 1957; de Pinna, 1988), and also found in ribeirão da Ilha, Florianópolis, Santa Catarina State (Nico & de Pinna, 1996); *L. nematopteryx* de Pinna, known from two localities in river basins (Iguaçu and Estrela) adjacent to baía de Guanabara, Rio de Janeiro State (Miranda-Ribeiro, 1962; de Pinna, 1988); *L. tetradactyla* Landim & Costa, from the lagoa de Araruama system, Rio de Janeiro State, and considered the most basal species of *Listrura* (Landim & Costa, 2002; de Pinna & Wosiacki, 2002); and, *L. boticario* de Pinna & Wosiacki, from Salto Morato, Paraná State (de Pinna & Wosiacki, 2002). In this paper we describe a new species from a coastal drainage in Picinguaba of northern São Paulo State, southeastern Brazil, previously misidentified as *L. nematopteryx* (de Pinna & Wosiacki, 2003)

### Material and methods

Measurements and counts follow Costa (1992), except caudal peduncle depth and width, which were taken following Landim and Costa (2002), and caudal peduncle length, taken between posteriormost point of anal-fin base and posterior margin of hypurals. Measurements are presented as percentages of standard length, except for subunits of head, which are presented as percentages of head length. Counts of vertebrae exclude the Weberian complex and consider the compound caudal centrum as one vertebra. Osteological observations and counts were made only on cleared and stained (c&s) specimens prepared according to Taylor and Van Dyke (1985). Abbreviations for institutions are: UFRJ, Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil; MCP, Museu de Ciências de Tecnologia da Pontifícia Universidade Católica do Rio Grande do Sul, Porto Alegre, Brazil.

### *Listrura picinguabae* new species

(Figs. 1–3)

*Listrura nematopteryx* de Pinna and Wosiacki (2003).

Holotype. UFRJ 6111, 48.6 mm SL; Brazil: Estado de São Paulo: Município de Ubatuba, serra do Mar, Picinguaba, small stream tributary to rio da Fazenda, on small road near Km 11 of the road BR-101, Parque Estadual da Serra do Mar, about 23°20'S 44°45'W; W. J. E . M. Costa, B. Costa & L. Villa-Verde, 19 September 2005.

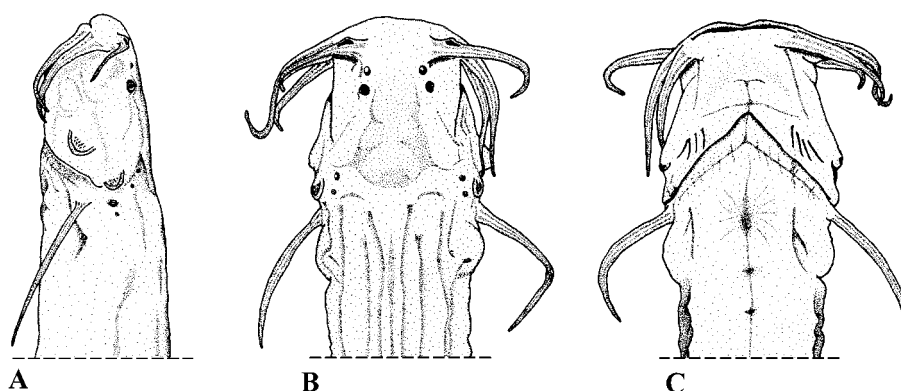
Paratypes. All from streams close to rio da Fazenda, Picinguaba, São Paulo, Brazil: MCP 38921, 2 ex., 42.5–31.8 mm SL; W. J. E. M. Costa & M. I. Landim, October, 1996. UFRJ 5948, 1 ex., 35.5 mm SL; R. Sachsse & S. Potsch, 23 August 1992. UFRJ 5949, 2 ex., 24.3–32.3 mm SL; L. N. Weber, August 1996. UFRJ 5950, 15 ex., 29.4–45.3 mm SL; W. J. E. M. Costa & M. I. Landim, October, 1996. UFRJ 5951, 4 ex., 31.3–35.5 mm SL (all c&s); no data on collectors and date. UFRJ 5991, 2 ex., 26.3–31.9 mm SL, L. N. Weber, 15 October 1994. UFRJ 6138, 5 ex., 36.0–50.2 mm SL (all c&s), no data on collectors and date.



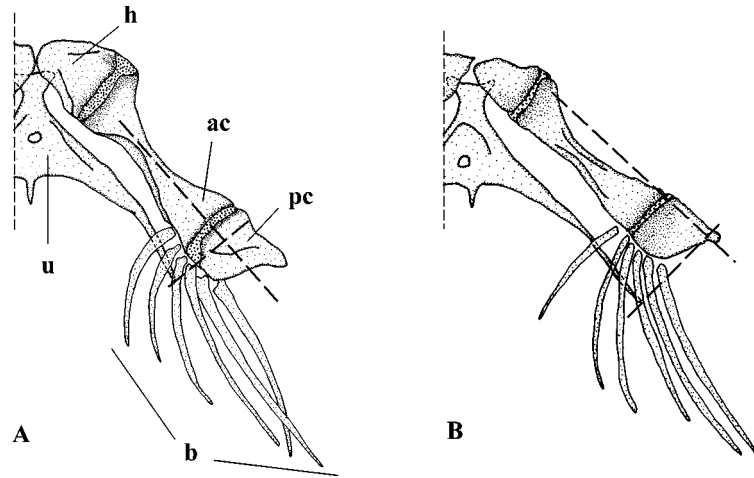
**FIGURE 1.** *Listrura picinguabae*, UFRJ 6111, holotype, 48.6 mm SL; Brazil: Estado de São Paulo: Picinguaba.



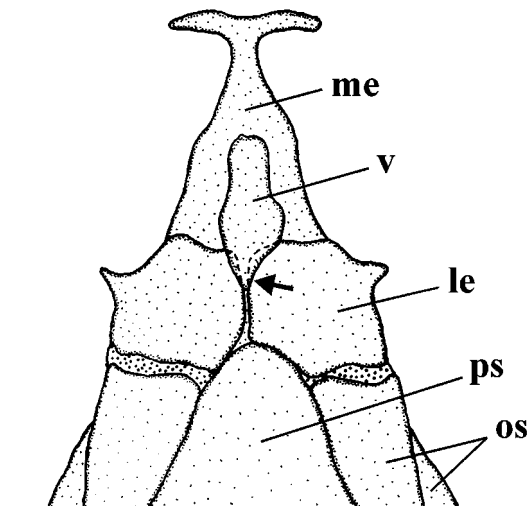
**Figure 2.** *Listrura picinguabae*, UFRJ 5950, paratype, 42.6 mm SL; Brazil: Estado de São Paulo: Picinguaba.



**FIGURE 3.** Head and anterior portion of body of *Listrura picinguabae*, paratype, UFRJ 5950, 42.6 mm SL. (A) lateral view; (B) dorsal view; (C) ventral view.



**FIGURE 4.** Left and median part of hyoid arches, ventral view, of (A) *Listrura pinguabae* and (B) *L. nematopteryx*. **ac**, anterior ceratohyal; **b**, branchiostegal rays; **h**, hypohyal; **pc**, posterior ceratohyal; **u**, urohyal. Scale bar: 1 mm.



**FIGURE 5.** Anterior portion of the neurocranium of *Listrura pinguabae*, ventral view. **me**, mesethmoid; **le**, lateral ethmoid; **os**, orbitosphenoid; **ps**, parasphenoid; **v**, vomer. Scale bar: 1 mm. Arrow indicates the posterior processes of vomer.

#### Diagnosis

*Listrura pinguabae* is similar to *L. nematopteryx*, and distinguished from all other trichomycterids in possessing a single long pectoral-fin ray. It differs from *L. nematopteryx* in having the anal-fin origin anterior to dorsal-fin origin (dorsal-fin origin on vertical between base of 3rd and 4th anal-fin rays) to anal-fin origin slightly posterior to dorsal-fin origin, anal-fin origin on vertical through base of 2nd dorsal-fin ray (vs. anal-fin

origin always posterior to dorsal-fin origin, on vertical between 3rd and 5th dorsal-fin rays), dorsal-fin origin at vertical between centra of 34th and 37th vertebrae (*vs.* between 31st and 34th), 8–10 anal-fin rays (*vs.* 7–8), 6–8 opercular odontodes (*vs.* 4–6), 7–10 interopercular odontodes (*vs.* 5–7), and lateral process of urohyal reaching posterior region of anterior ceratohyal (*vs.* reaching posterior region of posterior ceratohyal) (Fig. 4).

### *Description*

Morphometric data given in Table 1. Body elongate, subcylindrical on anterior portion of trunk, to strongly compressed on caudal peduncle. Dorsal and ventral profiles straight or slightly curved on anterior portion of body. Skin papillae minute.

Head depressed, trapezoidal with square anterior portion in dorsal view (Fig. 3B). Snout blunt. Mouth subterminal and narrow. Teeth conical, tips pointed and curved. Jaw teeth distributed in two rows. Premaxillary teeth 17–26; dentary teeth 13–15. Eyes anteriorly located on head, nearer snout tip than opercular patch of odontodes. Tip of nasal barbel reaching between posterior margin of interopercular patch of odontodes and posterior margin of opercular patch of odontodes. Tip of maxillary barbel reaching beyond posterior margin of interopercular patch of odontodes. Tip of rictal barbel reaching between middle of interopercular patch of odontodes and posterior margin of opercular patch of odontodes. Branchiostegal rays 6. Interopercular odontodes 7–10, opercular odontodes 6–8; odontodes conical, tips pointed and slightly curved.

Dorsal and anal fins triangular. Dorsal-fin origin at vertical between centra of 34th and 37th vertebrae. Anal-fin origin anterior to dorsal-fin origin (dorsal-fin origin on vertical between base of 3rd and 4th anal-fin rays) to anal-fin origin slightly posterior to dorsal-fin origin (anal-fin origin on vertical between base of 3rd and 4th dorsal-fin rays); dorsal-fin origin between centra of 34th and 36th vertebrae. Caudal-fin rounded. Pectoral-fin with single long ray. Pelvic fin and pelvic girdle absent. Dorsal-fin rays 7, all unbranched; anal-fin rays 8–10, all unbranched; principal caudal-fin rays 11–13, dorsal procurrent rays 26–35, ventral procurrent rays 25–30. Pleural ribs 2–3. Total vertebrae 51–55. Caudal skeleton compact, parahypural fused to hypurals 1–2; hypurals 1–2 almost completely fused to hypurals 3–5. Uroneural and haemal spine sometimes fused to caudal complex. Branchial membranes attached only at anteriormost point of isthmus. Anterior nostril just anterior to nasal barbel. Posterior nostril located on anterior half of distance between anterior nostril and eye.

Lateral-sensory system extremely reduced. Supraorbital and infraorbital canals absent. Preopercular canal with one pore, at vertical through anterior margin of opercular patch of odontodes. Pterotic branch of post-otic canal, with one pore at vertical just posterior to opercular patch of odontodes. Lateral line of body short, with two pores; first pore largest, at vertical just posterior to pectoral-fin base, second pore just posterior to second pore (see Fig. 3).

Coloration in alcohol: Side of body light brown, with horizontal midlateral brown line.

Lateral surface of caudal peduncle with two oblique brown lines posteriorly turned, above and below lateral line, and small brown spots on posterior portion of caudal peduncle extending over base of dorsal procurrent caudal-fin rays. Dorsal surface of trunk with two brown lines, and three brown longitudinal lines on center of dorsum, posteriorly converging to form single stripe along dorsal midline. Ventral surface almost white. Dorsal portion of head with large, trapezoidal brown blotch narrower anteriorly, between nape and vertical through eyes. Barbels and fins nearly white.

**TABLE 1.** Morphometric data of holotype and 13 paratypes of *Listrura picinguabae*.

	Holotype	Minimum	Maximum	Mean
Standard length (mm)	48.6	29.4	48.6	38.4
<b>Percentage of standard length</b>				
Body depth	7.6	6.6	8.3	7.4
Caudal peduncle depth	5.5	4.7	6.2	5.6
Body width	3.9	3.6	4.6	4.1
Caudal peduncle width	2.0	1.5	2.3	2.0
Caudal peduncle length	24.1	19.5	24.1	21.4
Dorsal-fin base length	3.9	3.7	5.1	4.1
Anal-fin base length	5.2	4.6	5.9	5.2
Pectoral-fin length	8.3	8.3	11.4	10.4
Predorsal length	69.8	69.0	75.9	72.8
Head length	10.6	10.6	11.7	11.1
<b>Percentage of head length</b>				
Head depth	51.7	49.4	59.1	53.9
Head width	81.5	78.3	89.2	83.0
Interorbital width	25.5	24.3	29.5	26.1
Preorbital length	41.5	35.8	43.1	40.1
Eye diameter	9.2	7.0	9.8	8.3
Mouth width	52.6	46.7	61.9	56.5
Internarial width	20.5	18.3	22.4	20.2

#### *Distribution*

Known only from the type locality region, in small tributaries to rio da Fazenda, São Paulo State, southeastern Brazil.

#### *Habitat notes*

The new species was collected in narrow (about 50 cm wide) and shallow (about 20

cm deep) streams in a dense tropical forest (Mata Atlântica). Individuals were found buried in the litter bottom. No other fishes were observed, but tadpoles (unidentified) were present.

#### *Etymology*

The name *picinguabae* is in allusion to the name of type locality of the new species, Picinguaba, southeastern Brazil.

#### **Discussion**

Two species of *Listrura*, *L. camposi* and *L. boticario*, are known only from their holotypes. The lack of osteological information for these species impedes a complete analysis of phylogenetic relationships within the genus. However, it is possible that *Listrura nematopteryx* and *L. picinguabae* comprise a monophyletic assemblage, given the fact that the pectoral fin of these species consists of a single ray and the ray is in the form of a long filament. This condition is not present in any other trichomycterids thus far described.

The lateral process of the urohyal is longer in *L. nematopteryx* than in *L. picinguabae* (Fig. 3). The apomorphic vomer bottle-shaped identified by de Pinna (1988) as a possible synapomorphy for *Listrura* and corroborated by Landim and Costa (2002), also occurs in *L. picinguabae* (Fig. 5). However, the vomer of *L. picinguabae* bears a short pointed posterior process, which is forked in some specimens.

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