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Pseudolaguvia ferula, a new species of sisoroid catfish (Teleostei: Erethistidae) from India

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Abstract

Pseudolaguvia ferula, a new species of erethistid catish, is described from the Brahmaputra River drainage in India. It can be distinguished from congeners in having a terete (vs. depressed) head and body, manifested in the narrower head width (17.1–19.1% SL vs. 19.4–23.4), a smaller anterior fontanel (about one third the length of the frontals vs. at least half the length), and very faint, poorly contrasting cream bands that are sometimes absent on some individuals (vs. sharply contrasting cream bands on a brown body). It can be further distinguished from congeners in having a unique combination of the following characters: dorsal-spine length 17.3–18.7% SL, pectoral-spine length 20.2–24.3% SL, pelvic-fin length 13.0–14.7% SL, length of adipose-fin base 11.5–13.0% SL, caudal peduncle depth 6.9–7.8% SL, body depth at anus 12.1–13.8% SL, eye diameter 8.6–11.7% HL, vertebrae 28–30, and thoracic adhesive apparatus reaching to midway between bases of last pectoral-fin ray and first pelvic-fin ray. with its unculiferous ridges joined at their posterior ends.

Key words: Siluriformes, Sisoroidea, Brahmaputra River, South Asia

Introduction

Members of the genus *Pseudolaguvia* are small erethistid catfishes inhabiting hill streams and large rivers in the area bordered by the Ganges River drainage (northern India) to the west and the Sittang River drainage (east-central Myanmar) to the east. The diversity of the group has been doubled in recent years, with eight species of *Pseudolaguvia* considered valid (Ng, 2005): *P. ribeiroi* (Hora, 1921), *P. shawi* (Hora, 1921), *P. tuberculata* (Prashad & Mukerji, 1929), *P. kapuri* (Tilak & Husain, 1975), *P. tenebricosa* Britz & Ferraris, 2003, *P. foveolata* Ng, 2005, *P. inornata* Ng, 2005 and *P. muricata* Ng, 2005.

A recent collection of fishes in tributaries of the Brahmaputra River drainage in West

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Bengal, India, included an undescribed *Pseudolaguvia* species with a terete body that is narrower than congeners. The description of this material as *Pseudolaguvia ferula* new species forms the basis of this study.

Methods

Measurements were made point to point (0.1 mm) with dial calipers. Counts and measurements were made on the left side of specimens whenever possible, following Ng & Kottelat (1998). Subunits of the head are presented as proportions of head length (HL). Head length and measurements of body parts are given as proportions of standard length (SL). Asterisks after meristic counts indicate values for the holotype. Institutional codes follow Eschmeyer (1998).

Pseudolaguvia ferula sp. nov.

(Fig. 1)

Type material

Holotype: UMMZ 245985, 25.4 mm SL; India: West Bengal, Tista River at Tista Barrage, 26°45'10''N 88°34'11''E; A. Rao, 2005.

Paratypes: UMMZ 245986 (12), 19.6–24.8 mm SL; ZRC 50398 (2), 21.8–23.0 mm SL; data as for holotype.

Diagnosis

Pseudolaguvia ferula differs from congeners in having a terete head and body (vs. slightly depressed body and strongly depressed head). This difference in body form is easily manifested in the head width (17.1–19.1% SL vs. 19.4–24.3). It can also be distinguished from congeners in having a smaller anterior fontanel (about one third the length of the frontals vs. at least half the length; Fig. 2), and very faint, poorly contrasting cream bands that are sometimes absent on some individuals (vs. sharply contrasting cream bands on a brown body). *Pseudolaguvia ferula* further differs from congeners except *P. ribeiroi* in having a shorter adipose-fin base (11.5–13.0% SL vs. 14.8–24.0), and, except from *P. foveolata*, in having the unculiferous ridges on the thoracic adhesive apparatus joined at their posterior ends (vs. separate; Fig. 3). It is further distinguished from *P. foveolata* in having fewer vertebrae (28–30 vs. 33) and a longer thoracic adhesive apparatus (reaching to midway between bases of last pectoral-fin ray and first pelvic-fin ray vs. to middle of pectoral-fin base), from *P. inornata* in having a slenderer body (12.1–13.8% SL vs. 13.9–16.1) and smaller eye (8.6–11.7% HL vs. 12.7–14.9), from *P. kapuri* in having a shorter pelvic fin (not reaching base of the first anal-fin ray vs. reaching; 13.0–14.7% SL vs. 15.3–17.9), and from *P. muricata* in having shorter dorsal

and pectoral spines (17.3–18.7% SL vs. 21.2–26.7 and 20.2–24.3% SL vs. 26.8–35.7 respectively) and a smaller eye (8.6–11.7% HL vs. 11.4–15.1). *Pseudolaguvia ferula* is further distinguished from *P. ribeiroi* in having less distinct mesethmoid cornua (Fig. 2), from *P. shawi* in having a longer dorsal spine (17.3–18.7% SL vs. 13.4–16.7), and from *P. tenebricosa* and *P. tuberculata* in having a slenderer caudal peduncle (6.9–7.8% SL vs. 7.6–9.0).

Description

Biometric data as in Table 1. Head slightly depressed and terete, body terete. Dorsal profile rising evenly from tip of snout to origin of dorsal fin, then sloping gently ventrally from there to end of caudal peduncle. Ventral profile flat to anal-fin base, then sloping gently dorsally from there to end of caudal peduncle. Anterior fontanel small, approximately one third length of forntals. Supraoccipital spine reaching nuchal shield. Weberian lamina well developed, approximately same length as supraoccipital spine and extending parallel to either side of spine. Eye ovoid, horizontal axis longest; located entirely in dorsal half of head. Orbit with free margin. Gill openings narrow, extending from posttemporal to isthmus. Branchiostegal membranes united at isthmus. Caudal peduncle of moderate length and depth. Anus and urogenital openings located at vertical through middle of adpressed pelvic fin. Skin tuberculate. Lateral line complete and midlateral. Vertebrae 10+18=28 (1). 10+19=29 (4), 11+18=29 (5), 11+19=30* (4) or 10+20=30 (1). Abdomen with thoracic adhesive apparatus consisting of longitudinal, unculiferous ridges arranged in elliptical field and with prominent central median depression. Adhesive apparatus extending to midway between base of last pectoral-fin ray and pelvic-fin origin.

Mouth small, inferior and with papillate lips; upper jaw projecting beyond lower jaw. Oral teeth small and in irregular rows on all tooth-bearing surfaces. Premaxillary tooth band consisting of single broad lunate patch across midline; with conical teeth very slightly exposed when mouth is closed. Dentary tooth band narrow, with conical teeth.

Barbels in four pairs. Nasal barbel very short and broad, extending to one third distance between its base and anterior orbital margin. Maxillary barbel slender, with broad skin flap at base and extending to base of pectoral-fin spine. Outer mandibular barbel with broad skin flap on dorsal margin and extending to base of pectoral-fin spine; inner mandibular barbel broad and shorter, reaching to vertical through posterior orbital margin.

Dorsal fin located about two-fifths along body; with 4,i (15) rays and straight margin. Dorsal-fin spine flattened, straight and robust; spine extending to line through base of pelvic fin. Anterior margin of spine smooth, posterior margin with 4–5 small serrations.

Pectoral fin with stout, blade-like spine, sharply pointed at tip, and with 7 (15) rays. Anterior spine margin with 11–15 small serrations. Posterior spine margin with 5–7 large serrations. Pectoral-fin margin straight anteriorly and posteriorly. Coracoid with short posterior processes, extending just beyond base of posteriormost pectoral-fin ray.

TABLE 1. Biometric data for *Pseudolaguvia ferula* (n=15).

	Holotype	Range	Mean±SD
%SL			
Predorsal length	38.2	36.3–40.4	38.0±1.59
Preanal length	70.1	64.9–70.1	68.4±2.10
Prepelvic length	50.0	49.2–53.6	50.6±1.75
Prepectoral length	21.7	21.4–25.2	22.8±1.51
Length of dorsal-fin base	7.9	7.9–11.9	10.5±1.59
Dorsal-spine length	17.7	17.3–18.7	18.1±0.48
Length of anal-fin base	13.4	13.2–14.9	13.8±0.66
Pelvic-fin length	13.0	13.0–14.7	13.9±0.62
Pectoral-fin length	25.2	24.1–27.5	25.4±1.35
Pectoral-spine length	21.7	20.2–24.3	21.8±1.51
Caudal-fin length	21.7	21.7–26.6	24.5±1.77
Length of adipose-fin base	11.8	11.5–13.0	12.3±0.40
Caudal peduncle length	19.3	18.2–19.4	19.1±0.49
Caudal peduncle depth	7.1	6.9–7.8	7.3±0.35
Body depth at anus	13.8	12.1–13.8	13.1±0.79
Head length	26.4	26.4–28.5	27.8±1.02
Head width	17.7	17.1–19.1	18.1±0.70
Head depth	15.7	13.7–16.5	15.1±1.08
%HL			
Snout length	50.7	44.3–50.7	48.0±3.11
Interorbital distance	25.4	25.4–31.7	28.5±2.39
Eye diameter	10.4	8.6–11.7	10.2±1.10
Nasal barbel length	7.5	7.2–11.7	8.8±2.00
Maxillary barbel length	74.6	68.6–76.7	72.6±3.19
Inner mandibular barbel length	29.9	21.4–29.9	26.6±3.46
Outer mandibular barbel length	47.8	35.7–49.3	44.7±5.31

Pelvic-fin origin at vertical through middle of dorsal-fin base. Pelvic fin with i,5 (15) rays and straight margin; tip of adpressed fin not reaching anal-fin origin.

Adipose fin short, posterior end deeply incised. Fin located above anal-fin base. Anal fin with iii,6,i (15) rays, and straight anterior and posterior margins.

Caudal peduncle moderately deep. Caudal fin deeply forked, with i,7,7,i (15) principal rays; upper and lower lobes pointed, with lobes of equal length but lower lobe slightly broader than upper. Procurrent rays symmetrical, extending only slightly anterior to fin base.

FIGURE 1. *Pseudolaguvia ferula*, UMMZ 245985, holotype, 25.8 mm SL; dorsal, lateral and ventral views.

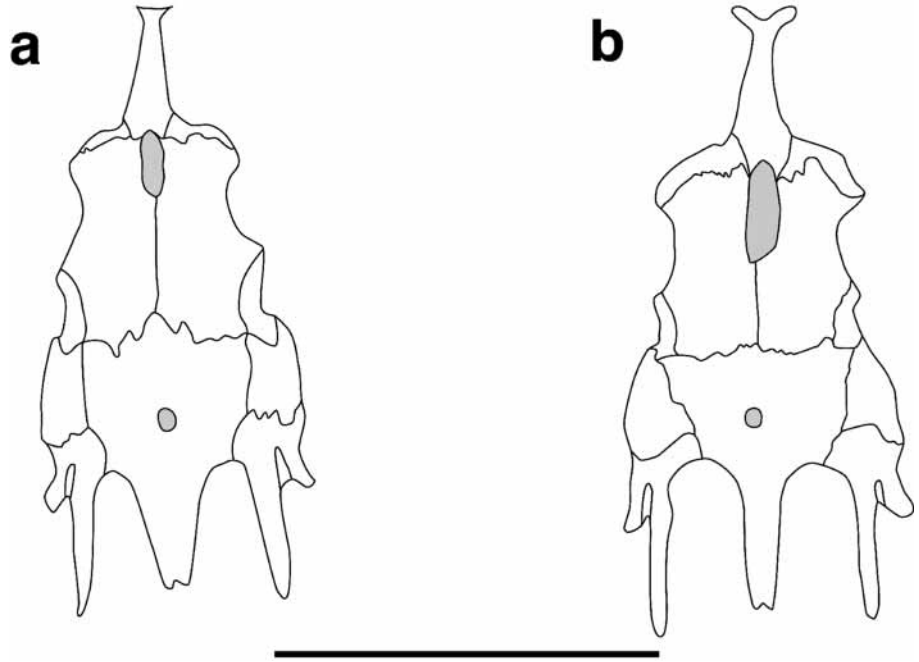

FIGURE 2. Dorsal view of neurocrania of: a. *Pseudolaguvia ferula*, UMMZ 245986, paratype, 22.0 mm SL; and b. other congeners (*P. ribeiroi*, UMMZ 208955, 27.0 mm SL illustrated). Note differences in shape of the mesethmoid cornua between *P. ferula* and *P. ribeiroi*. Scale bar: 5 mm.

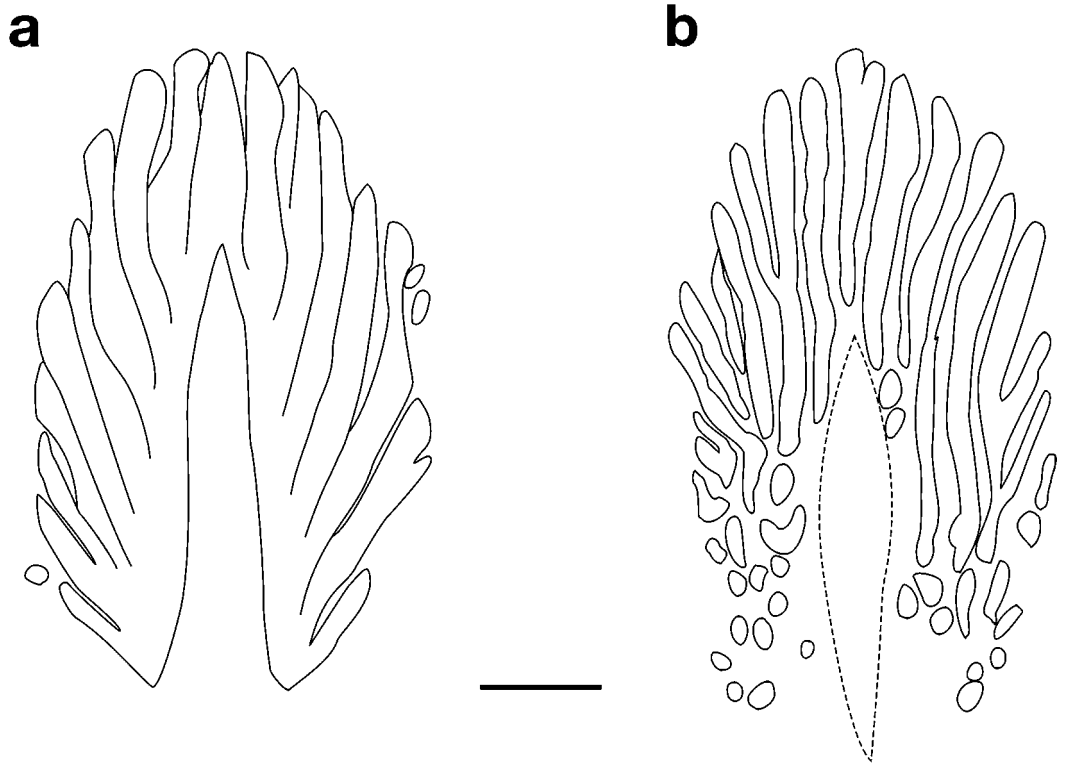

FIGURE 3. Thoracic adhesive apparatus of: a. *Pseudolaguvia ferula*, UMMZ 245986, paratype, 30.0 mm SL; and b. other congeners except *P. foveolata* (*P. shawi*, UMMZ 243652, 27.0 mm SL illustrated). Scale bar: 1 mm.

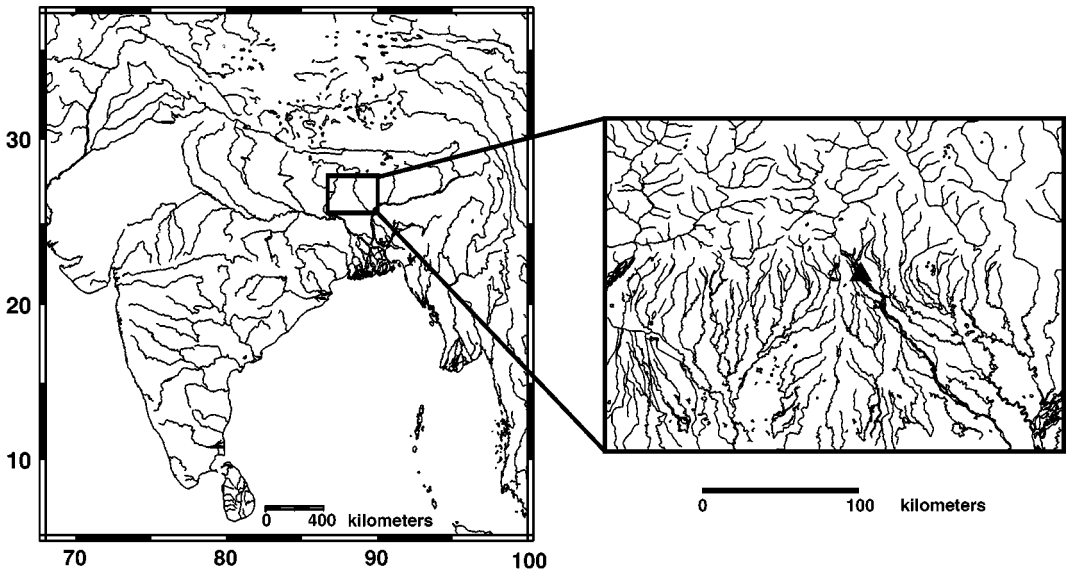

FIGURE 4. Type locality of *Pseudolaguvia ferula*.

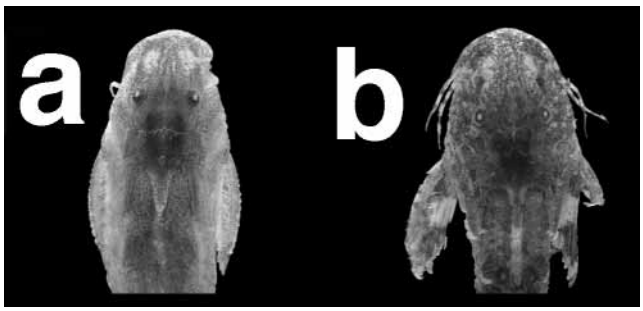

FIGURE 5. Dorsal view showing head shape in: a. *Pseudolaguvia ferula*, UMMZ 245985, holotype, 25.8 mm SL; b. other congeners (*P. ribeiroi*, UMMZ 246103, 24.5 mm SL illustrated).

Coloration

In 70% alcohol: dorsal and lateral surfaces of head and body grayish brown, fading to lighter grayish brown on lateral surfaces of head and dorsal and lateral surfaces of head and body, fading further to cream on ventral surfaces of head and body. Two series of faint, poorly contrasting cream bands on body: first between dorsal and adipose fins, and second on anterior half of caudal peduncle. Bands absent in some individuals, imparting uniform appearance to coloration. Dorsal fin, with brown base and stripe extending along entire length of dorsal spine, first soft ray and interradial membrane between. Pectoral and pelvic hyaline, with scattered melanophores forming faint transverse bands on middle third of fin. Anal fin hyaline, with brown along base and irregular brown stripe running along length of first and second branched anal-fin rays. Caudal fin hyaline, with brown base and subdistal brown stripe running along length of each lobe; brown band connected to brown color at base via brown median caudal rays in some individuals. Nasal and maxillary barbels brown dorsally, cream ventrally; all mandibular barbels cream.

Etymology

From the Latin *ferula*, meaning rod, in reference to the terete head and body in this species, which makes it considerably narrower than congeners. Used as a noun in the nominative singular.

Distribution and habitat

Known from the type locality in the Tista River in West Bengal, India (Fig. 4). The Tista River where *P. ferula* was collected is wide (ca. 1 km), swift flowing, and with a mixed rocky/sandy bottom. Other fish species caught in the immediate vicinity are: *Aspidoparia morar*, *Barilius bendelisis*, *B. shacra*, *B. vagra*, *Crossocheilus latius*, *Garra lissorhynchus* (Cyprinidae), *Psilorhynchus balitora*, *P. sucatio* (Psilorhynchidae), *Canthophrys gongota*, *Lepidocephalichthys guntea* (Cobitidae), *Acanthocobitis botia*, *Schistura savona* (Balitoridae), *Amblyceps mangois* (Amblycipitidae), *Batasio tengana* (Bagridae), *Erethistoides sicula* (Erethistidae), *Pseudolaguvia foveolata*, *P. ribeiroi*, *P.*

shawi (Erethistidae) and *Parambassis ranga* (Ambassidae).

Discussion

Three other species of *Pseudolaguvia* have been collected syntopically in the Brahmaputra River drainage with *P. ferula*: *P. foveolata, P. ribeiroi* and *P. shawi*. *Pseudolaguvia ferula* is clearly distinguished from these three species in having a narrower head as described in the diagnosis (Fig. 5). *Pseudolaguvia ferula* is additionally diagnosed from syntopic congeners in the size of the anterior fontanel, and the morphologies of the mesethmoid cornua and the thoracic adhesive apparatus as outlined in the diagnosis. Furthermore, the color pattern of *P. ferula* is different from the other three species: the color pattern of *P. foveolata, P. ribeiroi* and *P. shawi* consists of sharply contrasting cream bands on a brown body (although the bands are usually thinner in *P. ribeiroi*), while *P. ferula* has very faint, poorly contrasting cream bands that are sometimes absent on some individuals.

Five of the nine species of *Pseudolaguvia* occur in the Brahmaputra River drainage (*P. ferula, P. foveolata, P. muricata, P. ribeiroi,* and *P. shawi*), of which *P. ferula* and *P. foveolata* are known from only a single locality. Collections in this area are poorly represented in museums and it was not possible to examine any more material to more accurately determine the geographical distribution of these species. Examination of the two species for which collections over the widest area exist (*P. ribeiroi* and *P. shawi*) indicate that no significant geographic variation exists for either morphometry or other morphological characters used in the diagnosis of *P. ferula* (making it unlikely that *P. ferula* is a geographical variant of another species). It has been shown that positive correlation exists between body size and geographic distribution once effects of latitude, longitude and phylogeny have been statistically accounted for (Taylor & Gotelli, 1994), and this may presumably be true for small, benthic catfishes like *Pseudolaguvia*, which presumably are less labile (and thus less able to disperse). The presumed reduced lability of *Pseudolaguvia* may account for the fact that *Pseudolaguvia* species are frequently syntopic within the Brahmaputra River drainage (*P. ribeiroi* and *P. shawi* are often collected in the same habitat). Although this may also be true in other areas within the distribution of the genus, the fishes of these regions are too poorly sampled to verify this hypothesis.

Comparative material

Pseudolaguvia foveolata: UMMZ 244867, holotype, 30.0 mm SL; India: West Bengal, Tista River at Tista barrage, 26°45’10’’N 88°34’11’’E.

P. inornata: UMMZ 245580 (holotype), 25.8 mm SL; Bangladesh: Chittagong District, Koilla Khal (creek), 10 km E of Feni-Chittagong highway on road to Ramgarh,

22°55’N 91°36’’E.

P. kapuri: KU 28644 (1), 21.4 mm SL; Nepal: Dang, Rajpur, Rapti River at Rajpur, 27°50’35.9’’N 82°33’47.9’’E. KU 29169 (3), 14.1–25.2 mm SL; Nepal: Jhanka, Kankai River at Raj–Marg highway. OSUS 15816 (1), 27.1 mm SL; Nepal: Nawalparasi, Narayani River to 2 km below Tribeni Barrage. OSUS 15845 (1), 24.3 mm SL; Nepal: Nawalparasi, Narayani River at Tribeni Ghat. OSUS 17425 (1), 25.2 mm SL; Nepal: Nawalparasi, Narayani River below Rapti River confluence. USNM 165090 (1), 28.1 mm SL; India: Uttar Pradesh, Katarnian Ghat, Garuwa River, 28°20’N 81°9’E.

P. muricata: UMMZ 245581 (holotype), 22.6 mm SL; NRM 52292 (2 paratypes), 20.9–21.5 mm SL; UMMZ 208655 (6 paratypes), 20.5–23.2 mm SL; Bangladesh: Sylhet District, Rangapani Khal (creek), 6 km NNW of Jaintapur on Sylhet-Shillong highway, 25°10’N 92°6’E. CAS 222658 (2 paratypes), 20.2–21.0 mm SL; UMMZ 208993 (5 paratypes), 19.9–23.3 mm SL; Bangladesh: Dinajpur District, Tangam River at Thakurgaon, 200 m upstream from bridge on road to sugar refinery, 26°2’N 88°26’E. UMMZ 208909 (1 paratype), 20.0 mm SL; Bangladesh: Rangpur District, Jabuneswari River just downstream from Badarganj ghat, 25°42’N 89°5’E. UMMZ 208933 (8 paratypes), 18.8–25.7 mm SL; ZRC 50382 (3 paratypes), 21.2–22.6 mm SL; Bangladesh: Rangpur District, Ghaghat (Jagat) River, 7 km E of Rangpur on Badarganj road, 25°45’N 89°7’E.

P. ribeiroi: UMMZ 208653 (2), 24.5–25.7 mm SL; Bangladesh: Sylhet District, Rangapani Khal (creek), 6 km NNW of Jaintapur on Sylhet-Shillong highway, 25°10’N 92°6’E. UMMZ 208908 (14), 19.8–24.5 mm SL; Bangladesh: Rangpur District, Jabuneswari River just downstream from Badarganj ghat, 25°42’N 89°5’E. UMMZ 208955 (37), 14.7–25.7 mm SL; Bangladesh: Mahananda River at Tetulia, near location of Dak Bungalow. UMMZ 208966 (3), 21.6–24.3 mm SL; Bangladesh: Dinajpur District, Keratoya River at Bhajanpur, just downstream from India border, 26°28’N 88°29’E. UMMZ 243649 (8), 16.4–23.2 mm SL; India: West Bengal, Schutunga River (tributary of the Mansai River) at Ansole, 26°22’24’’N 89°11’17’’E. UMMZ 246103 (12), 21.3–24.5 mm SL; India: West Bengal, Tista River at Tista barrage, 26°45’10’’N 88°34’11’’E.

P. shawi: UMMZ 208654 (1), 23.4 mm SL; Bangladesh: Sylhet District, Rangapani Khal (creek), 6 km NNW of Jaintapur on Sylhet-Shillong highway, 25°10’N 92°6’E. UMMZ 208788 (1), 26.5 mm SL; Bangladesh: Sylhet District, Piyain Gang River at Songram Punji, 2.4 km downstream from India border, 25°11’N 89°59’E. UMMZ 208809 (2), 25.8–27.3 mm SL; Bangladesh: Sylhet District, Piyain Gang River at Songram Punji, 400 m downstream from India border, 25°11’N 92°1’E. UMMZ 208967 (18), 12.0–21.3 mm SL; Bangladesh: Dinajpur District, Keratoya River at Bhajanpur, just downstream from India border, 26°28’N 88°29’E. UMMZ 243648 (43), 17.2–22.8 mm SL; India: West Bengal, Schutunga River (tributary of the Mansai River) at Ansole, 26°22’24’’N 89°11’17’’E. UMMZ 243652 (8), 17.2–28.3 mm SL; West Bengal, Raidak I River at Shipra, just outside Buxa Tiger Reserve, Sankosh River drainage, 26°31’12’’N

89°43’25’’E. UMMZ 243654 (6), 19.2–24.6 mm SL; India: West Bengal, Korola River in the vicinity of Jalpaiguri, 26°32’42’’N 88°42’32’’E.

P. tenebricosa: USNM 374987 (4 paratypes) 26.0-28.5 mm SL; Myanmar: Kayin, Pathe Chaung, hill stream, 21 km east of Toungoo, 19°01’11’’N 96°35’33’’E.

P. tuberculata: ZSI F10876/1, holotype, 29.6 mm SL; Myanmar: Myitkyina, Sankha, a large hill-stream, midway between Kamaing and Mogaung. CAS 98614 (2), 28.3–30.1 mm SL; Myanmar: Kachin, Nan Kwe Chaung, west of Myitkyina, on both sides of highway bridge, 25°19’56’’N 97°16’48’’E. UMMZ 245493 (15), 22.7–33.0 mm SL; Myanmar: Kachin, Myitkyina district, hillstreams at Tonpan village on road from Myitkyina to Tanai.

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Literature cited

Eschmeyer, W.N. (1998) *Catalog of fishes*. California Academy of Sciences, San Francisco, 2905 pp.

Ng, H.H. (2005) Two new species of *Pseudolaguvia* (Teleostei: Erethistidae) from Bangladesh. *Zootaxa*, 1044, 35–47.

Ng, H.H. & Kottelat, M. (1998) *Hyalobagrus*, a new genus of miniature bagrid catfish from South-east Asia (Teleostei: Siluriformes). *Ichthyological Exploration of Freshwaters*, 9, 335–346.

Taylor, C.M. & Gotelli, M.J. (1994) The macroecology of *Cyprinella*: correlates of phylogeny, body size and geographical range. *The American Naturalist*, 144, 549–569.

