



## *Channa pomanensis*, a new species of snakehead (Teleostei: Channidae) from Arunachal Pradesh, northeastern India

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### General Note

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### ABSTRACT

This paper describes a new species of *Channa* from the Poma River (Brahmaputra River basin) in Papum Pare district of Arunachal Pradesh, northeastern India. The new species can be differentiated from its congeners occurring in Eastern Himalayan region in India and northern and southern Rakhine State, Myanmar in having the following combination of characters: 7 oblique bands on

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body, generally extending to lateral line; a thin preorbital streak; black to brown and broad to thin postorbital streak confluence with brown to dusky cross band running across the occipital region; light brown spots (somewhat elongate) scattered along the flank, mostly below lateral line (more distinct in live); presence of two cycloid scales on either underside of lower jaw; absence of numerous large black spots on postorbital region of head and opercle; transverse scale rows above lateral line  $4\frac{1}{2}$ – $5\frac{1}{2}$ ; transverse scale rows between lateral line and anal-fin origin  $7\frac{1}{2}$ – $8\frac{1}{2}$ ; pelvic fins present; lateral line scales 47–51; dorsal-fin rays 36–38; anal-fin rays 25–26; total vertebrae 42–45; and predorsal scales 7–8.

**Key words:** snakehead, new species, taxonomy, Poma River, Brahmaputra basin.

## 1. INTRODUCTION

Members of the family Channidae are medium to large sized air breathing freshwater perciform fish, distributed in tropical Africa, parts of the Middle East, and Asia (Berra, 2001) and inhabit deep clear lakes and rivers with rocky or sandy substrate, stagnant water in canals, and swamps with submerged aquatic vegetation (Talwar and Jhingran, 1991; Rainboth, 1996; Geetakumari & Vishwanath, 2011). They are commonly known as 'snakeheads' because of the possession of large scales on the head which are evocative to that of snakes, and chiefly characterized in having a single long dorsal and anal fins, presence of mostly cycloid scales on the head and ctenoid on the body, rounded caudal fin, and curve lateral line (Vishwanath & Geetakumari, 2009). They share with labyrinth fishes the presence of a suprabranchial organ that allows them to inhale surrounding oxygen (Ojha *et al.*, 1979; Britz, 1995, 2003).

The genus *Channa* Scopoli 1777 currently includes 35 described species. A phylogenetic study by Adamson *et al.* (2010) has revealed the probability of the existence of more undescribed channid species in South East Asia. Till date following 12 species of *Channa* are known to occur in northeast India in the Brahmaputra drainage system (Vishwanath & Geetakumari, 2009): *C. punctatus* (Bloch, 1793), *C. striata* (Bloch, 1793), *C. gachua* (Hamilton, 1822), *C. marulius* (Hamilton, 1822), *Channa barca* (Hamilton, 1822), *C. amphibeus* (McClelland, 1845), *C. stewartii* (Playfair, 1867), *C. bleheri* (Vierke, 1991); recently described species *C. aurantimaculata* Musikasinthorn, 2000, *C. melanostigma* Geetakumari & Vishwanath, 2011, *C. andrao* Britz, 2013, and *C. pardalis* Knight, 2016. The recent discovery of *Channa melanostigma* from the upper Brahmaputra River basin in Arunachal Pradesh, clearly indicate as poorly explored region. Vishwanath and Geetakumari (2009) have given a detail morphology and osteology of nine species of *Channa* from northeast India and divided them into *C. marulius* and *C. gachua* species groups.

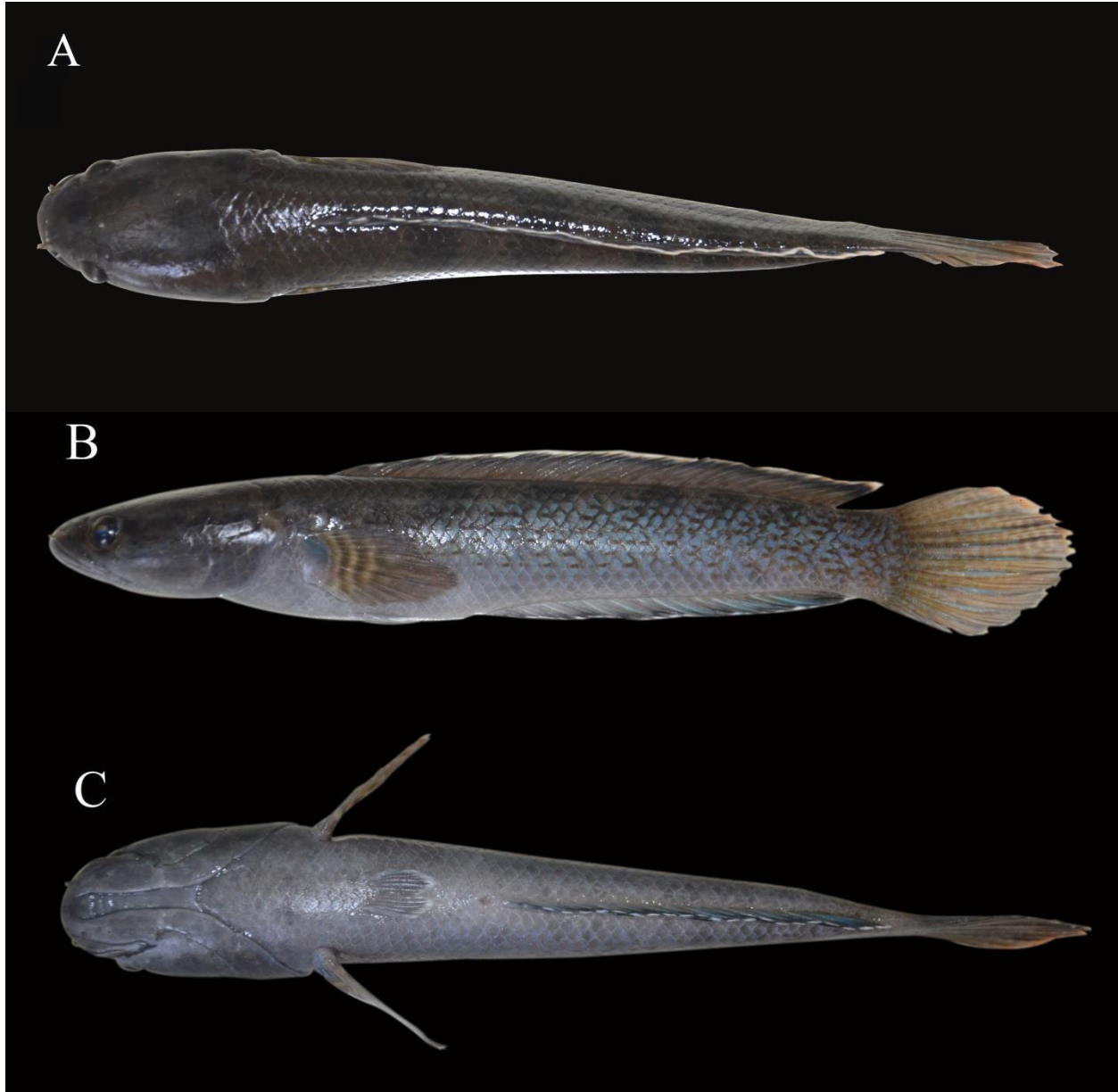
While conducting ichthyological surveys in the Poma River (Brahmaputra basin), in the Papum Pare district, Arunachal Pradesh, seven specimens of *Channa* were obtained somewhat similar to *C. melanostigma* and *C. stewartii*. The specimens, after detail comparisons revealed it to belong to an undescribed species and is therefore described as a new species.

## 2. MATERIALS AND METHODS

Measurements were taken point to point with digital calipers and data recorded to tenths of a millimetre. Counts and measurements were made on the left side of specimens under a stereo-zoom transmitted light microscope. Measurements follow those of Musikasinthorn (1998) and Britz (2008) or self explanatory. Two individuals (88.6–94.7mm SL) were dissected for vertebrae count by removing flesh with needle and scalpel. Values in brackets after a given count indicate the number of specimens with that count. Asterisks indicate the values of the holotype. The examined materials (type series) were deposited in the Museum of Zoological Survey of India (ZSI), Arunachal Pradesh Regional Centre (APRC), Itanagar. Comparative data for species were derived from the following literature sources: *C. punctatus*, *C. striata*, *C. marulius*, *Channa barca*, *C. amphibeus* from Vishwanath & Geetakumari, 2009; *C. stewartii* from Knight, 2013 and Geetakumari & Vishwanath, 2010; *C. bleheri*, *C. orientalis*, *C. asiatica*, *C. burmanica*, *C. hoaluensis*, *C. ninhbinhensis* and *C. andrao* from Britz, 2013; *C. aurantimaculata* from Musikasinthorn, 2000; *C. melanostigma* from Geetakumari & Vishwanath, 2010, *C. pardalis* from Knight, 2016, *C. aurantipectoralis* Lalhlimpua *et al.*, 2016, and *C. panaw* from Musikasinthorn (1998).

### 3. NEW SPECIES

#### 3.1. *Channa pomanensis* new species



**Figure 1** *Channa pomanensis*, ZSI/APRC P-1066, holotype, 111.6 mm SL; India, Arunachal Pradesh, showing: A. dorsal view; B. lateral view; C. ventral view

**Types–Holotype.** ZSI/APRC P-1066, 111.6 mm SL, India: Arunachal Pradesh: from Poma River at Poma (Brahmaputra basin) about 10 km west to capital town, Itanagar, Papum Pare district; coordinate: 27° 3'33.85"N and 93°30'32.00"E, altitude: 240m, S.D. Gurumayum & L. Tamang, 5<sup>th</sup> July 2015.

**Paratypes.** ZSI/APRC P-1308, 4 exs., 122.6–169.6 mm SL; ZSI/APRC P-1309 (2; skeleton), 88.6–94.7 mm SL; data as for holotype.

**Diagnosis–** A species of *Channa* distinguishable and diagnosed from all other channid species occurring within the Brahmaputra River basins in India and small hillstream in northern and southern Rakhine State, Myanmar by the following combination of characters: 7 oblique bands on body, extending to lateral line; a thin preorbital streak; black to brown and broad to thin postorbital

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streak that confluent with brown to dusky cross band across occipital region; light brown somewhat elongate spots on body mostly below lateral line (more distinct in live); two cycloid scales on either underside of lower jaw; lateral line scales 47–51; dorsal-fin rays 36–38; anal-fin rays 25–26; total vertebrae 42–45; predorsal scales 7–8; absence of numerous large black spots on postorbital region of head and opercle; transverse scale rows above lateral line  $4\frac{1}{2}$ – $5\frac{1}{2}$ ; transverse scale rows between lateral line and anal-fin origin  $7\frac{1}{2}$ – $8\frac{1}{2}$ ; and pelvic fins present.



**Figure 2** Dorsal view of middle of head of *Channa pomanensis*, ZSI/APRC P-1308, paratype, 169.6 mm SL; India, Arunachal Pradesh, showing arrangement of larger scales in a flower-shaped pattern, succeeding by two other large scales and preceding by one scale medially.

**Description**— General body shape as in Figure 1. Morphometric and meristic data are presented in Table 1 and 2 respectively. Body elongate, cylindrical anteriorly, deepest at dorsal-fin origin, slightly deeper than wide, flank gradually becoming compressed towards caudal peduncle, 7 unequal transverse bands on flank (anterior most band indistinct in holotype), size enlarging anteriorly with interspaces. Head dorso-ventrally depressed, longer than broad and broader than body. Dorsum of head with flower-shaped pattern of scales in the middle, formed by 7 large scales (6 scales surrounding 1 scale in middle), 2 other large scales succeeding and 1 scale preceding to it medially (Fig. 2). Snout broadly rounded in adult, moderate in young individuals. Eye moderate, situated laterally, more close to snout tip than extremity of opercle, separated by a broad interorbital space, partially visible in ventral view. Mouth large, oblique, lips thick, mouth gap extending to middle of eye and maxilla to posterior margin of eye in young, slightly beyond in adult (152.5–169.6 mm SL). Lower jaw slightly protruding upper jaw with two large cycloid scales on either underside of it. Gill opening wide, origin antero-dorsally to pectoral fin origin, separated by 4 scales, almost straight to mid orbit, extending obliquely below to isthmus, not united, narrowly separated. Opercle long, extending from pectoral-fin origin to antero-lateral margin of gular plate and deeply furrowed. Gular plate elongate, anterior margin smoothly rounded, without patch of scales. Lips moderately thick and furrowed, upper lip more deeply furrowed than lower, lower lip laterally furrowed, antero-medially plain. Nostril small, very closer to anterodorsal margin of eye than to tip of snout.

**Table 1** Biometric data of *Channa pomanensis* (n=7)

	Holotype ZSI/APRC 1066	Range (including holotype)	Mean±SD
Standard length(mm)	111.6	88.6-169.6	111.4±29.3
<b>In percent of standard length</b>			
Head length	29.9	28.6-32.0	26.2±1.1
Head depth	15.9	11.7-15.9	11.8±1.5
Head width	19.3	18.1-20.1	16.7±0.8
Body depth	16.1	14.2-16.4	13.5±1.0
Body width	13.3	11.6-118.5	29.9±39.7
Preorbital head depth	8.8	7.4-9.6	7.6±0.8
Postorbital head depth	10.7	10.3-11.2	9.4±0.3
Postorbital head length	19.9	18.7-21.3	17.3±0.9
Snout length	7.3	5.8-7.8	6.2±0.6
Eye diameter	4.3	3.8-5.0	3.9±0.5
Interorbital space	9.7	8.5-10.4	8.4±0.8
Upper jaw length	12.1	10.7-12.8	10.5±0.7
Lower jaw length	12.4	10.3-13.2	10.7±1.0
Dorsal fin base length	61.1	58.8-62.9	53.6±1.5
Pectoral fin length	19.3	17.5-20.5	16.9±1.0
Pelvic fin length	8.8	7.8-9.0	7.5±0.4
Anal fin base length	39.3	38.3-41.3	34.8±0.9
Pelvic to anal distance	15.7	15.7-18.5	15.0±0.9
Distance between lower pectoral-fin base to pelvic-fin origin	7.6	4.8-7.9	6.0±1.1
Predorsal length	33.7	32.1-34.2	29.0±0.7
Prepectoral length	30.8	29.7-31.8	27.0±0.8
Prepelvic length	36.3	35.3-36.7	31.7±0.5
Preanal length	50.8	50.2-53.7	45.5±1.1
Caudal fin length	23.0	21.0-24.9	20.1±1.3
Caudal peduncle length	10.6	8.9-10.6	8.8±0.6
Caudal peduncle depth	10.4	9.8-11.1	9.1±0.5
<b>In percentage of head length</b>			
Head depth	53.2	39.7-53.2	39.6±4.5
Snout length	24.3	19.8-24.8	20.9±1.7
Eye diameter	14.4	11.9-17.3	13.3±1.9
Interorbital space	32.7	28.6-35.1	28.1±2.0
Head width (max)	64.7	62.0-67.4	57.0±1.7
Preorbital head depth	29.4	25.1-32.4	25.4±2.6
Postorbital head depth	35.7	32.6-47.3	33.7±4.6
Postorbital head length	66.7	63.2-67.1	57.9±1.4
Upper jaw length	40.5	39.3-36.1	39.3±10.6

**Table 2** Meristic data of *Channa pomanensis* (n=7)

	Holotype			Paratypes			
Predorsal scales	7	7	8	7	7	8	7
Dorsal fin rays	37	38	38	38	38	38	36
Pectoral fin rays	i14	i13	i14	i14	i14	i15	i15
Caudal fin rays	iii11ii	ii13ii	ii13iii	iii14iii	iii13iii	ii13ii	ii14ii
Lateral line scales	50	51	50	50	51	49	47
Pelvic fin rays	5	5	5	5	5	5	5
Anal fin rays	26	26	26	25	25	26	25
Bands on body	7	7	7	7	7	7	7
Transverse scale rows above lateral line	5½	5½	5½	4½	4½	5½	5½
Transverse scale rows between lateral line and anal-fin origin	8½	8½	7½	7½	8½	7½	7½



**Figure 3** A, *Channa pomanensis*, ZSI/APRC P-1066, holotype, 111.6 mm SL; India, Arunachal Pradesh, showing live coloration. B, *Channa gachua*, ZSI/APRC P-1437, 95.6 mm SL; India: Assam: Sonitpur district: Boroï River at Boroighat (Brahmaputra basin)

Dorsal fin long, origin about one-third of standard length, with 36(1); 37\* (1); and 38 (5) rays, extending slightly to first caudal procurrent ray.

Anal-fin long, but shorter than dorsal fin, origin at vertical through 11–12<sup>th</sup> dorsal-fin ray base, extending nearer to hypural margin, leaving 1–2 scales behind, with 25(3)–26\*(4) rays.



**Figure 4** Pectoral fin of *Channa pomanensis*, ZSI/APRC P-1066, holotype, 111.6 mm SL; India, Arunachal Pradesh, showing dark brown blotch at base and brown semicircular cross bands on fin.



**Figure 5** *Channa pomanensis*, ZSI/APRC P-1066, holotype, 111.6 mm SL; India, Arunachal Pradesh, showing 14–15 light brown cross bars and series of elongate scales on the radials of caudal fin, almost extending proximal half of the radials.

Pectoral fin broadly rounded in adult individual ((152.5–169.6 mm SL; Fig. 4) when expanded and lanceolate in young individuals (88.6–111.6 mm SL), origin in advance of dorsal-fin origin, with 1 unbranched, 13(1), 14\*(4), 15(2) branched rays.

Pelvic-fin small, moderately elongate, with 5 rays, posterior margin obtusely rounded, fin situated 5–6 scales postero-ventrad to pectoral-fin lower base. Caudal fin fan-shaped, moderately elongate, with 2–3 unbranched, 11\*(1), 13(4), and 14(2) branched rays

and last 2–3 unbranched rays. Radials of caudal fin consisting consecutive arrangement of elongate scales, extending almost proximal half (Fig. 5).

Lateral line scale complete, with 47(1), 49(1), 50\*(3), 51(2) pored scales, extending straight from shoulder girdle almost in a straight line, dropping down one scale row at scale 14\*–15, then continuing medially to caudal-fin base.

Transverse scale rows above lateral line 5½\* (5), 4½ (2). Transverse scale rows between lateral line and anal-fin origin 8½\* (3), 7½ (4). Predorsal scales 7\*(5)–8(2). Vent very close to anal-fin origin. Vertebrae of two individuals (88.6–94.7 mm SL) 42–45.

**Colour**– In formalin, dorsum of head and body grayish brown to light bluish gray. Body dorsally darker than flank. Ventral surface bluish gray to light brown. Dorsal and anal fins dark brown with cream outer margin and faint brown streak medially. Caudal fin brown with light orange outer margin and 14–15 light brown narrow cross bands. Pelvic fin dusky with creamy outer margin. Pectoral fin light grayish brown with one dark grey blotch at base and five alternating creamish white and dusky to brownish semi-circular narrow bands, distal two bands broad and dusky. Body with 7 oblique dark brown bands, anterior first band terminating before dorsal-fin origin and sometime indistinct. Eye pupil gray white.

**In live**– Dorsum of head and body tan colored with 7 oblique dark brown bands along flank and one dark brown to dusky cross band at occipital region (sometime indistinct; Fig. 3). Preorbital and postorbital streak light to dark brown, postorbital streak sometime broad and irregular. Lower jaw with white patches on either underside in adult specimens. Flank below lateral line light pinkish brown, scattered with somewhat elongate light brown spots. Ventral surface grayish cream. Dorsal and anal fins with three layers: first, outer margin with a thin white streak, second, a somewhat broad submarginal dark blue streak, and third with sky blue interradial membranes and light brown to grayish brown radials. Pelvic fin light to dark brown with white distal margin. Pectoral fin light brown without distal margin. Caudal fin with light orange distal margin, light to dark brown radials and sky blue to hyaline interradial membrane, consisting about 12–14 narrow brown cross bands (Fig. 5). Eye pupil black with orange ring. A dark brown to dusky band on occipital region.



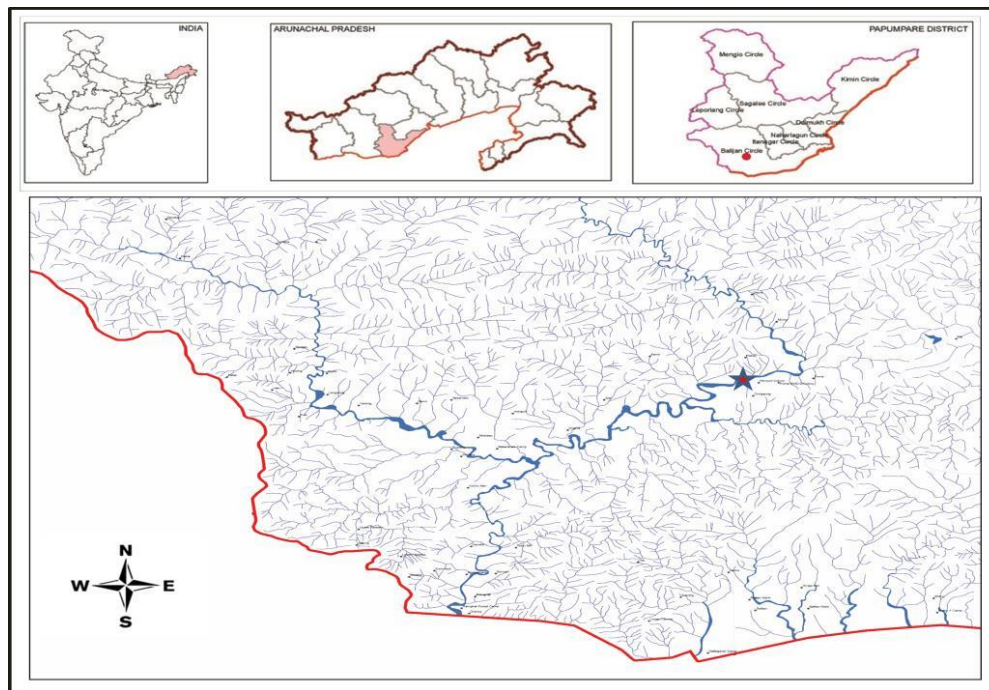
**Figure 6** The Poma River, India; Arunachal Pradesh, type locality of *Channa pomanensis* with authors

**Habitat**– Consisting of various substrata such as gravel, pebbles, cobbles and medium to large boulders, in low to moderately deep (30–80 cm) running water (Fig. 6). Running water was moderate to swift, transparent to turbid and cool. River banks with mixture of sand, soil, and stones that lead to frequent soil erosion. Also consist of herbs, shrubs, climbers, and somewhere small to larger trees,



more towards uphill. Other associated fishes encountered were: Cyprinidae: *Garra birostris*, *Garra annandalei*, *Crossocheilus latius*, *Chagunius chagunio*, *Neolissochilus hexagonolepis*, *Tor putitora*, *Bangana dero*, *Labeo pangusia*, *Puntius ticto*, *Barilius bendelisis*, *Barilius barna*, *Devario aequipinnatus*, *Danio dangila*, *Danio rerio*, *Chagunius chagunio*; Badidae: *Badis* sp.; Psilorhynchidae: *Psilorhynchus balitora*; Cobitidae: *Botia rostrata*.

**Distribution**– At present only known from the Poma River (Fig. 7; Brahmaputra basin) about 12 km towards west to Itanagar, Papum Pare district, Arunachal Pradesh.



**Figure 7** Map of India with State Arunachal Pradesh showing the type locality of *Channa pomanensis* indicated by star symbol

**Etymology**– The new species is named after the Poma River from where the species was collected, Papum Pare district, Arunachal Pradesh.

#### 4. DISCUSSION

The new species *Channa pomanensis* is undoubtedly assigned to *C. gachua* species group by the presence of pectoral fins with a varying number of dark and light semicircular bands proposed by Britz (2008), U-shaped isthmus, single arrangement of cephalic sensory pores situated along the ventral side of the head, presence of two large cycloid scales on each side of the under surface of lower jaw proposed by Vishwanath & Geetakumari (2009). Of the total 35 recognized species, following 12 species are known to occur in north east India in the Brahmaputra basins: *C. punctatus*, *C. striata*, *C. gachua*, *C. marulius*, *Channa barca*, *C. amphibeus*, *C. stewartii*, *C. bleheri*; recently described species *C. aurantimaculata*, *C. melanostigma*, *C. andrao*, and *C. pardalis*. On account of the endemism of 10 snakeheads occurring eastern Himalayan region (Britz, 2013), *Channa pomanensis* is compared to its congeners occurring in Brahmaputra River basins and three species from northern and southern Rakhine State, Myanmar.

The *Channa pomanensis* is distinguished from *C. punctatus* in having less (vs. more) triangular shaped head in lateral view (see image 8, Vishwanath & Geetakumari, 2009), more lateral line scales (47–51 vs. 35–40), dorsal-fin rays (36–38 vs. 28–32), anal-fin rays (25–26 vs. 19–21), and total vertebrae (42–45 vs. 35); from *C. striata* in having fewer dorsal-fin rays (36–38 vs. 42–45), lateral line

scales (47–51 vs. 55–65), and total vertebrae (42–45 vs. 54), further can be differentiated from *C. striata* by the absence (vs. presence) of white transverse to vertical bands along flank below lateral line (see image 10, Vishwanath & Geetakumari, 2009). *Channa pomanensis* is distinguished from *C. gachua* in having higher number of scales above lateral line ( $4\frac{1}{2}$ – $5\frac{1}{2}$  vs.  $3\frac{1}{2}$ ); fewer transverse bands on body (7 vs. 14); interspaces of bands irregular (vs. almost regular); posterior margin of bands slightly convex (vs. straight); snout somewhat pointed (vs. blunt) and caudal fin somewhat lanceolate (vs. rounded; compare Fig. 3 A & B); and more anal-fin rays (47–51 vs. 44). Higher number of bands on flank, rounded caudal fin and blunt snout can be further confirmed from the original illustration, plate 21, lateral view; Hamilton, 1822). However, Hamilton, 1822 had not mentioned number of bands, but his description in page 68 stating “several dark belts run across the back to the lateral lines descending obliquely forward” suggest presence of more than 7 bands. *Channa pomanensis* differs from *C. aurantipectoralis* in lacking (vs. having) a dark V-shaped blotch on dorsal surface of head in life, and in having fewer lateral line scales (47–51 vs. 51–64). *Channa pomanensis* differs from *C. marulius* in lacking (vs. having) of a large black ocellus on upper caudal-fin base, in having (vs. lacking) of two large cycloid scales on either underside of lower jaw; in addition to *C. barca* fewer vertebrae (42–45 vs. 62 in *C. marulius*, 56 in *C. barca*); further in addition to *C. barca* and *C. amphibeus* in having fewer lateral line scales (47–51 vs. 60–70 in *C. marulius*, 62–63 in *C. barca*; 81 in *C. amphibeus*), fewer dorsal-fin- (36–38 vs. 50–55 in *C. marulius*, 50–51 in *C. barca*; 50 in *C. amphibeus*) and anal-fin rays (25–26 vs. 31–35 in *C. marulius*, 33–34 in *C. barca*; 35 in *C. amphibeus*); further from *C. barca* and *C. amphibeus* in having fewer predorsal scales (7–8 vs. 15–16 in *C. barca*; 17 in *C. amphibeus*). *Channa pomanensis* is distinguished from *C. stewartii* in having fewer dorsal-fin rays (36–38 vs. 39–40), more transverse scale rows above lateral line ( $4\frac{1}{2}$ – $5\frac{1}{2}$  vs.  $3\frac{1}{2}$ ), and fewer predorsal scales (7–8 vs. 13). *Channa pomanensis* can be easily differentiated from *C. bleheri* and *C. andrao* in presence (vs. absence) of pelvic fins; from *C. aurantimaculata* in having fewer dorsal-fin- (36–38 vs. 45–47), anal-fin- (25–26 vs. 28–30), pelvic-fins rays (5 vs. 6), lateral line scales (47–51 vs. 51–54), total vertebrae (42–45 vs. 50–52), predorsal scales (7–8 vs. 13–14). *Channa pomanensis* shares some of the characters with its sympatric species *C. melanostigma* reported from Lohit River in the upper Brahmaputra River basin in Arunachal Pradesh on the following: overall general appearance, banding pattern of pectoral fin, presence of two large cycloid scales on either underside of the lower jaw, 14–15 cross bars on caudal fin,  $7\frac{1}{2}$ – $8\frac{1}{2}$  transverse scale rows between lateral line and anal-fin origin, almost equal number of dorsal-fin rays (36–38 in *C. pomanensis* and 36–37 in *C. melanostigma*), anal-fin rays (25–26 in *C. pomanensis* and 24–25 in *C. melanostigma*), and pelvic fin with 5 rays. However, *Channa pomanensis* can be differentiated from *C. melanostigma* in having (7 vs. 12–14) transverse bands on body, fewer predorsal scales (7–8 vs. 13–14), more transverse scale rows above lateral line ( $4\frac{1}{2}$ – $5\frac{1}{2}$  vs.  $3\frac{1}{2}$ – $4\frac{1}{2}$ ), fewer vertebrae (42–45 vs. 50–51), posterior tip of dorsal fin exceeding (vs. not exceeding) base of first procurrent caudal-fin ray (compare Fig. 1 here and fig. 1 in Geetakumar & Vishwanath, 2010).

*Channa pomanensis* can be easily differentiated from *C. pardalis* in lacking (vs. having) numerous large black spots on postorbital region of head and opercle, higher number of lateral line scales (47–51 vs. 44–45), fewer predorsal scales (7–8 vs. 14–15), more transverse scale rows between lateral line and anal-fin origin ( $7\frac{1}{2}$ – $8\frac{1}{2}$  vs.  $6\frac{1}{2}$ ).

Three species of *Channa* viz. *C. ornatipinnis* and *C. pulchra* Britz, 2007 (in the same paper), and *C. panaw* Musikasinthorn, 1998 from the neighbouring country Myanmar. *Channa pomanensis* can be differentiated from *C. ornatipinnis* in lacking (vs. having) 10–20 large black spots on cheek and absence (vs. presence) of three blotches on anterior portion of dorsal fin; from *C. pulchra* in having lower number of predorsal scales (7–8 vs. 14–15), in having higher number of lateral line scales (47–51 vs. 43–46), absence (vs. presence) of numerous black spots on cheek, golden-orange lips and red opercular rim. *Channa pomanensis* can be readily distinguished from *C. panaw* in having more dorsal-fin- (36–38 vs. 32–35), anal-fin rays (25–26 vs. 23–24), lower number of pectoral-fin- (13–15 vs. 17–20), pelvic-fin rays (5 vs. 6), more vertebrae (42–45 vs. 39–41), fewer predorsal scales (7–8 vs. 14–17), two (vs. one) large scale(s) on either underside of lower jaw, and head moderately depressed and flat (vs. more depressed and concave).

The reports of *Channa orientalis* Schneider, 1801 from the Brahmaputra River system in Arunachal Pradesh and elsewhere in India by several authors is erroneous as *C. orientalis* is endemic to southwestern Sri Lanka (Pethiyagoda, 1991) that specifically lack pelvic fins. Further the outcome of detail examinations carried out by Mishra *et al.* (2013) on a number of specimens collected from different parts of India available in National Zoological Collection, Kolkata which were identified and labeled as *Channa orientalis* were found to be misidentified as those specimens possessed pelvic fins. However, this does not mean that all *Channa* species found in India are restricted to have pelvic fins, as *C. andrao* from West Bengal and *C. bleheri* from Assam also lack pelvic fins.

Apart from the lack of pelvic fins in *C. orientalis*, Deraniyagala (1929) previously considered *Ophiocephalus gachua* and *C. orientalis* as identical in head scale and other characters that reflects no significant differences. In support of this, *Channa andrao* a recently described species from West Bengal in one hand, and the present new species *Channa pomanensis* on the other hand lacks and have pelvic fins respectively, but they shares the flower-shaped pattern of scales on dorsum of head succeeded by two other

scales and preceded by one scale, and white patches on either underside of head (see fig. 1 in Britz, 2013 and fig. 3 for *C. bleheri* which also lack pelvic fins), orange colored outer margin on caudal fin and bluish dorsal, anal and caudal fins in live, and extension of maxilla (see fig. 2 in Britz, 2013). These overlapping characters suggest that presence or absence of pelvic fins is not a generic but species level difference.

## COMPARATIVE MATERIAL

*Channa gachua*: ZSI/APRC/V/P-1437, 95.6 mm SL; India: Assam: Sonitpur district: Boro River at Boroighat (Brahmaputra basin). Additional data from Hamilton, 1822.

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