A NOTE ON THE SYSTEMATICS AND BIONOMICS OF CHANDA SPP. (CENTROPOMIDAE)

S. K. GUPTA
Department of Zoology, Pt. J. N. College, Banda (U. P.).

ABSTRACT

Enlargement in the ranges of variations in morphometric features of *Chanda noma* (Ham.) and *Chanda ranga* (Ham.) from Banda (U.P.) is recorded and compared with the earlier descriptions. In the present study 'noma' is retained under genus *Chanda* instead of *Hamiltonia*, as proposed by Brunner (1954), on the basis of differences noticed in the key characters. Bionomical notes on the two species are also added.

*Chanda* spp. are common constituents in the trash fishes caught from the streams (Ken, Baghain and Paisuni of the Yamuna system) and from ponds and reservoirs of Banda district (Srivastava et al 1970 and Grover and Gupta 1977). They can be collected in large numbers from the weedy niches with the help of indigenous dragnets through most part of year. During monsoon (July-Sept.), when all the rivers are usually in spate, they assemble in the inundated low-lying areas and also found trapped in fry-collection nets, installed by U.P. Deptt. of Fisheries, Banda, along the banks of the river Yamuna at Chilla. *Chanda noma* and *Chanda ranga* have been studied taxonomically (Gupta 1981) and their features compared with those given by Day (1878), and more particularly with the synoptic account of Centropomid fishes given by Brunner (1954). In the present communication the taxonomic features of interest thus observed are discussed in the light of earlier descriptions.

Family Centropomidae (Order: Perciformes; Sub order: Periodei and Superfamily: Percoidae. *vide*. Nelson (1976), is mainly characterized by the spinous|serrated|smooth nature of opercular (pre-, sub- and interoperculars)

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and circumorbital bones (pre-, sub- and supraorbitals); the presence of a procumbent spine before spinous dorsal (with 7 spines); 3 spines in the anal fin and furcate caudal fin.

**Key to species:**

1. Preorbital bone strongly dentate on the ridge and edge. Double horizontal margin of the preoperculum strongly serrated while the vertical hinder margin finely serrated or rather coarse. Mouth narrow and without massive teeth on the mandibular symphysis.

   ....... *Chanda ranga* (Ham.)

2. Preorbital bone entire on the edge but with few well marked indentations on the ridge. Double horizontal margin of the preoperculum entire except for a few spines at the angle, the vertical hinder margin being completely entire. Mouth large with very projecting lower jaw bearing a group of massive teeth (crooked and caniniform) at the mandibular symphysis.

   ....... *Chanda nama* (Ham.)

**Descriptions**

*Chanda nama* (Hamilton)

Local name: Chanda

*Chanda nama, phula* and *bogoda* Hamilton 1822: 209, 111, 371; Pl. 39, fig. 37.

*Ambassis nama* Day, 1878: 50, pi. 14, fig. 5.

**Material:** 15 ex., 37-77 mm, Ken at Banda, Yamuna at Chilla and Rajapur, Baghain at Naraini, Paisumi at Chitrakoot Dham, Barwa reservoir (1976-77).

Bvi. DI + VI|14-16 P13(I|12) V6(I|5) AIII|15-16 C17-18. Body ovate. Height 3.3-3.6 in total length (TL) and 2.6-2.8 in standard length (SL). Head 4.1-4.5 in TL and 3.3-3.5 in SL. Supraorbital bridge feebly dentate. Snout 3.0-3.5 in head (HL). Eye diameter 2.7-3.5 in HL, 0.8-1.1 in snout and 0.75-1.1 in the interorbital width. II dorsal spine 1.5 in HL. Predorsal length 2.4-2.6 in SL. Pectorals 1.5-1.7 in HL. Ventral 1.7-2.0 in HL and 1.1-1.2 in the pectorals; with one spine which is shorter than the branched rays. III anal spine the longest and nearly equals II dorsal spine. Base of anal 2.8-3.0 in SL. Caudal fin 4.5-4.8 in TL and 3.5-3.8 in SL. Length of caudal peduncle 8.7-10.0 in SL and height 3.1-3.5 in the height of body and 1.0-1.1 in its length. Scales minute and deciduous. Lateral line arches upwardly in the anterior half. *Colour:* Transparent body gleams golden or greenish-yellow when reflecting light. Oblong vertical dark patch on the shoulder. Upper half of spinous dorsal edged black.

*Bionomics:* Commonly found in flowing as well as standing water bodies with some plants. On the slightest provocation try to hide near the bottom or among the leaves and fronds of submerged aquatic vegetation. The gut content analyses showed the presence of insect parts, fish scales and pieces of higher aquatic
plants. They appear to be predominantly carnivorous, feeding in surface or column waters. It is in conformity with the findings of Das and Moitra (1955, 1956) and Moitra (1956), but the former regarded it mainly a surface-feeder. Job (1941) and Hora and Mukerji (1953) have called it larvicidal. Observations of Natarajan et al (1975) indicated that the fish was essentially a zooplankton feeder, sometimes showing preference to insect rather than plankton. The specimens observed during July-August were both in spent and spawning conditions (VI|VII stage). The occurrence of spent individuals in the month of July indicated that their breeding might have commenced somewhere in June. During breeding season they accumulate along shallower margins of the river or in the inundated nullahs from where they are caught in large numbers in post-monsoon months. Khan (vide. Jones 1946) found them breeding from April to May.

Remarks: As evident from the description the range of variations is enlarged, in regard to the height of body and length of caudal fin in TL and diameter of eye in HL, as compared to Day (1878).

The diagnostic features of the present material are also in agreement with Brunner (1954), who, while revising Centropomid genera, put 'nama' under a separate genus Hamiltonia Swainson 1939. In the synoptic key he separated Chanda from Hamiltonia at generic level on the basis of armature of the preorbital bone, which, according to him, is 'dentate', at least on edge in Chanda while 'entire', both on ridge and edge in Hamiltonia. In the present material, the preorbital is entire on the edge but bears well marked indentations on the ridge and is not strictly coherent with the key character laid down by Brunner (1954). In this context the material agrees well with Day (1878). Thus in the present study 'nama' is retained under Genus Chanda, instead of putting it under Hamiltonia as proposed by Brunner (1954), until the characters of Sainson's Hamiltonia are examined in detail.

*Chanda ranga* (Hamilton)

Local name: Chanda

*Chanda ranga* and *lala* Hamilton, 1822: 113-114, 371, pl. 16, fig. 38. pl. 29, fig. 39.

*Ambassis ranga*, Day, 1878: 51, pl. 14, fig. 6.

**Material:** 30 ex., 40-53 mm (older ones) and 25-38 mm (youngs). Ken at Goribaba village, Bandi; Yamuna at Chilla; Baghain at Naraini and Badafs: Paisuni at Chitakoot Dham (1976-77). Bvi. D I + VII I|12-14 P11-12 (I|10-11) V6 (I|5) A III|14-15 C17. Youths deeper bodied than adults. Height 2.6-2.8 (2.6-3.0)* in TL and 2.0-2.2 (2.0-2.3) in SL. Head 3.9-4.0 (3.7-4.0)

* The ratios in the paranthesis relate to young specimens.
NOTES

in TL and 3.0 (2.8-3.0) in SL. Supraorbital ridge strongly dentate. Snout 3.3-3.7 (3.6-4.3) in HL. Eye diameter 2.4-2.7 (3.0-3.3) in HL, 0.7-0.75 (0.75-0.8) in snout and 0.75-0.8 (0.75-1.0) in the interorbital width. II dorsal spine quite variable according to the age of fish. In adults it is shorter than head or 1.3-1.4 in it and 3.7-4.4 in SL (in youngs, nearly as long as head of 1.0-1.1 in it and 3.0-3.1 in SL). VII spine longer than the VI in youngs. Predorsal length 2.1-2.2 (2.0-2.5) in SL. Pectorals 1.2-1.5 (1.3-1.4) in HL and reaching beyond anal fin base in adults while up to its middle in youngs. Ventrais 1.6-2.2 (1.5-1.6) in HL, 1.3-1.4 (1.08-1.2) in the pectorals and commencing below base of pectorals, usually reaching anal fin base in adults (up to III anal spine in youngs). Anal base 2.6-3.0 (2.5-2.8) in SL, the III spine being the longest in adults while shorter than or sometimes equal to the II in youngs. Caudal deeply forked, 4.0-4.3 (3.8-4.3) in TL and 3.0-3.3 (2.8-3.3) in SL. Length of caudal peduncle 6.6-8.0 (8.0-11.5) in SL and height 3.5-4.0 (4.0-4.6) in the height of body and 1.0-1.1 (0.8-1.1) in its length. Scales deciduous. Lateral line arched. Colour: Olive-green on the sides when light is reflected. Finely dotted along dorso-lateral sides. An elongated dark mark, composed of closely set fine dots, present on the shoulder. Vertical fins tinged orange. Tip of the I dorsal edged black.

Bionomics: Found in large numbers along shallow margins where there is thick growth of submerged and marginal emergent weeds. Few insect parts were recovered from their guts indicating feeding habits similar to 'nama'. According to Natarajan et al (1975) its food is chiefly constituted by copepods followed by prawns and insects. Its larvicidal activity is well known (Job 1941).

Its breeding could not be correctly ascertained but the presence of a large number of young ones in the monsoon and post-monsoon months indicated their breeding in the preceding months.

Remarks: The ranges of variations in the number of branched rays in the dorsal and pectoral fins, height of body in TL and diameter of eye in HL, snout and interorbital width are enlarged compared to the ranges given by Day (1878).

Considerable variations have been noticed in the height of the II dorsal spine, length of anal spine and also in depth of body. In youngs the II dorsal spine is very long and is as long as head (1.0-1.1 in HL and 3.0-3.1 in SL) whereas in the adults it is considerably smaller than the head (1.3-1.4 in HL and 3.7-4.4 in SL). This range of variations (in SL) more or less compares well with Day (1978) who observed that height of II spine varies between 3.3 and 5.0 in SL (length of fish without caudal) in 8 different sized specimens (25-59 mm in SL). That the spinous dorsal fin tends to be higher in youngs has also been observed by Brunner (1954). Besides, as noted by Day (1878), it is remarkable that in youngs (below 40 mm) the II anal spine is the longest and as the size increases the II and III become almost of equal length,
but in all adults the III is invariably the longest. The depth of body also tend to vary, the youngs being deeper bodied than the adults (Brunner 1954).

Though Brunner (1954) has given a detailed synoptic and revisionary key of *Chanda* species, it has not been followed here owing to the fact that the key laid down by him (based on the armature of opercular and orbital bones) is not strictly coherent with the present material. The main difference lies in the key character used by him—under hind margin of the preoperculum entire he placed 'ranga'. In the present material the hind margin of preopercule was found to be finely serrated or coarse but it was never entire as also recorded by Day (1878). Brunner also held that 'maxilla reaches nearly to below middle of eye 'Vs.' to below anterior margin of orbit' in the present specimens.

Conclusively it may be stated that Brunner's 'nama' and 'ranga' differ with the present as well as with that of Day mainly on the basis of the armature of orbital and opercular bones. Brunner has not given body ratios for ready comparison.

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**References**


