

ON A SMALL COLLECTION OF FISH FROM MANIPUR, ASSAM.

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INTRODUCTION.

Our knowledge about the distribution of the fish fauna of Assam and its bearing on zoogeographical problems is to be drawn mainly from the papers of Hora¹ and Hora and Mukherji² who, supporting Annandale³, have corroborated the view that "the fauna of the extreme eastern part of the Himalayan foothills is not, . . . Himalayan in the sense in which the term has hitherto been understood, but allied rather to the fauna of Assam south of the Brahmaputra or even to that of Burma".

The collection under report was made by Major Dr. M. L. Roonwal, while serving as Mammalogist to the G.H.Q. (I), Indian Field Typhus Research Team, from central Manipur, about thirty-mile radius of Imphal, during a period of six months (July-December 1945). The following are the collecting localities from which collections were made :

1. Water-pools in field near Kanglatongbi Field Typhus Station (briefly called 'Kanglatongbi Camp'), off milestone 117 in the Dimapur Road about 16 miles north of Imphal : *ca.* 3,500 ft. altitude above sea-level.
2. Kanglatongbi bazar at milestone 121 on Dimapur-Imphal Road, about 12 miles north of Imphal.
3. Imphal market.
4. Water-pools and streams on Imphal-Palel Road south of Imphal at milestones 18-122 ; *ca.* 2,000 ft. altitude above sea-level.

The area in which the collection was made is washed by the stream of the southern watershed (Chindwin Drainage System) of Assam.

As listed below, altogether 19 species belonging to nine families are represented in the collection : those marked with an asterisk(*) are recorded for the first time from Manipur :

Family FLUTIDAE

1. *Fluta alba* (Zuiew)

Family BAGRIDAE

2. *Mystus bleekeri* (Day)

Family SILURIDAE

3. *Wallago attu* (Bl.)

Family CLARIIDAE

4. *Clarias batrachus* (L.)

Family CYPRIINIDAE

5. *Barilius dogarsinghi* Hora
6. *Barilius barila* (Ham.)
7. *Barilius guttatus* Day*
8. *Puntius ticto* (Ham.)
9. *Puntius satana* (Ham.)
10. *Crossochilus latius burmanicus* Hora
11. *Garra gotyla* (Ham.)

¹Hora, S. L., *Rec. Ind. Mus.* XXII, pp. 165-224 (1921) ; *Ibid.* XXXVIII, pp. 317-331 (1936) ; *Ibid.* XXXIX, pp. 331-338 (1937).

²Hora, S. L., & Mukerji, D. D., *Rec. Ind. Mus.* XXXVII, pp. 381-404 (1935).

³Annandale, N., *Rec. Ind. Mus.* VIII, p. 36 (1921).

Family COBITIDAE

12. *Nemachilus manipurensis* Chaudhuri
 13. *Lepidocephalichthys berdmorei* (Blyth)
 14. *Botia berdmorei* (Blyth)

Family PERCIDAE

15. *Ambassis ranga* (Ham.)

Family OPHICEPHALIDAE

16. *Channa gachua* (Ham.)
 17. *Channa striatus* (Bl.)*

Family ANABANTIDAE

18. *Anabas testudineus* (Bl.)*
 19. *Colisa fasciatus* (Bl.)*

Of these 19 species, twelve are of cosmopolitan distribution in India and Burma. *Nemachilus manipurensis* is restricted to the Brahmaputra and Chindwin drainage systems of Assam while *Barilius dogarsinghi* is found only in the Chindwin drainage. *Lepidocephalichthys berdmorei* is confined to the Chindwin drainage of Assam and Burma. Of *Barilius guttatus* and *Botia berdmorei*, which are endemic in Burma, the latter has been known from Manipur while the former is now recorded for the first time from the Manipur valley. *Garra gotyla*, one of the widely distributed species of the genus all along the base of the Himalayas and which has been recorded from the Upper Chindwin drainage in the Assam-Burma border, is now found to occur in the Manipur valley also. The distribution of *Fluta alba* is known to be limited to southern Asia east of Bay of Bengal.

The present collection, though a small one, is of considerable significance inasmuch as it is the second collection of its kind from Manipur since 1921 and contains five species which are recorded from that area for the first time.

It is a pleasure to thank Dr. K. S. Misra, Assistant Superintendent, Zoological Survey of India, for going through this paper and confirming my indentifications.

SYSTEMATIC ACCOUNT.

***Fluta alba* (Zuiew).**

1793. *Muraena alba*, Zuiew, *Nov. Act. Ac. Sc. Petropol.*, p. 299.
 1921. *Monopterus albus*, Hora, *Rec. Ind. Mus.* XXII, p. 177.
 1929. *Monopterus albus*, Prahad & Mukerji, *Rec. Ind. Mus.* XXXI, p. 171.
 1941. *Fluta alba*, Hora & Misra, *Journ. Bombay Nat. Hist. Soc.* XLII, p. 479.
 From fields near Kanglatongbi Camp. 24 Oct. 1945. Five young specimens.

Distribution.—Manipur valley, Burma and all over southern Asia east of Bay of Bengal.

***Mystus bleekeri* (Day).**

1853. *Bagrus keletius*, Bleeker, *Verh. Bat. Gen.* XXV, Nalez. Ichth. Faun. Beng. en Hind, p. 115 (nec. Cuv. Val.).
 1878. *Macrones bleekeri*, Day, *Fish. India*, p. 451, pl. ci, fig. 1.
 1921. *Macrones bleekeri*, Hora, *Rec. Ind. Mus.* XXII, p. 179.
 1935. *Mystus bleekeri*, Hora, & Mukerji, *Rec. Ind. Mus.* XXXVII, p. 385.
 1937. (1938). *Mystus bleekeri*, Shaw & Shebbeare, *Journ. Roy. As. Soc. Bengal, Sci.* III, pp. 7, 91.

From a small muddy stream by the roadside on Imphal-Palel Road at milestone 118. 14 Nov. 1945. Three specimens all measuring about 8.0 cms. in length.

Distribution.—Common in India and Burma.

Wallago attu¹ (Bl.).

1801. *Silurus attu*, Bloch & Schnieder, *Syst. Ichth.* p. 378, t. 75.

1921. *Wallago attu*, Hora, *Rec. Ind. Mus.* XXII, p. 178.

1941. *Wallagonia attu*, Sen, *Journ. Roy. As. Soc. Bengal, Sci.* VII, p. 9.

Purchased from Kanglatongbi bazar. Oct. 1945. One specimen 38.5 cms. long.

Distribution.—Common throughout India and Burma.

Clarias batrachus (L.).

1758. *Silurus batrachus*, Linne, *Syst. Naturae*, p. 305.

1921. *Clarias batrachus*, Hora, *Rec. Ind. Mus.* XXII, p. 178.

1939. *Clarias batrachus*, Das, *Rec. Ind. Mus.* XLI, p. 447.

Purchased from Kanglatongbi bazar. 8 Oct. 1945, four specimens; 13 Oct. 1945, five specimens.

The caudal fin bears a single, arched, faintly dark, vertical band while in the Burmese specimens Prashad and Mukerji² noted three such arched bands. The length of the largest specimen is 17 cms.

Distribution.—Common in India and Burma.

Barilius dogarsinghi Hora.

1921. *Barilius dogarsinghi*, Hora, *Rec. Ind. Mus.* XXII, p. 191, text-fig. 3.

1. Purchased from Kanglatongbi bazar. 19 Oct. 1945. Two specimens.

2. From muddy pools in fields near Kanglatongbi Camp. 28 Oct. 1945. Eight specimens.

These specimens agree with Hora's types and descriptions in every respect. The largest specimen is 8.4 cms. in length.

Distribution.—Only in the Chindwin drainage of Assam.

Barilius barila (Ham.).

1822. *Cyprinus barila*, Hamilton, *Fish. Ganges*, p. 267.

1921. *Barilius barila*, Hora, *Rec. Ind. Mus.* XXII, p. 190.

1935. *Barilius barila*, Hora & Mukherji, *Rec. Ind. Mus.* XXXVII, p. 73.

1937. *Barilius barila*, Hora, *Rec. Ind. Mus.* XXXIX, p. 332.

1. From muddy pools in fields near Kanglatongbi Camp. 28 Oct. 1945. Seven specimens.

2. Purchased from Kanglatongbi bazar. 19 Oct. 1945. One specimen.

In two grown-up specimens the four outer branched rays of the pectorals dorsally bear thickened ridges which are strewn with a linear series of minute, smooth tubercles. Similar tuberculations on the pectoral rays are also noticeable in two grown-up examples collected from Karong, Naga Hills, Assam and registered under No. F 10020/1.

The largest specimen is 15.9 and the smallest 7.8 cms. in length.

Distribution.—Common throughout India and Burma.

¹Myers, G. S., *Proc. Calif. Zool. Club* I, pp. 19-20 (1948).

²Prashad, B. & Mukerji, D. D., *Rec. Ind. Mus.* XXXI, p. 171 (1929).

Barilius guttatus Day.

1869. *Opsarius guttatus*, Day, *Proc. Zool. Soc. London*, p. 620.
 1878. *Barilius guttatus*, Day, *Fish. India*, p. 593, cxlix, fig. 3.
 1889. *Barilius guttatus*, Day, *Faun. Brit. Ind.*, Fish. I, p. 351.
 1890. *Barilius guttatus*, Vinciguerra, *Ann. Mus. Stor. Nat. Genova*, (2) IX, p. 310.
 1929. *Barilius guttatus*, Prashad & Mukerji, *Rec. Ind. Mus.* XXXI, p. 205.

Purchased from Kanglatongbi bazar. 19 Oct. 1945. One specimen 16.0 cms. long.

There are 47 scales along the lateral line, $2\frac{1}{2}$ between it and the ventral and 23 before the base of the dorsal.

Distribution.—Day gives as 'Irrawaddi from Prome to Mandalay': now recorded from Manipur for the first time.

Puntius ticto (Ham.).

1822. *Cyprinus ticto*, Hamilton, *Fish. Ganges*, p. 314, pl. viii, fig. 87.
 1921. *Barbus ticto*, Hora, *Rec. Ind. Mus.* XXII, p. 187.
 1939. *Barbus (Puntius) ticto*, Hora, Misra & Malik, *Rec. Ind. Mus.* XLI, p. 263.

1. From fields near Kanglatongbi, on the banks of Imphal river. 20 Oct. 1945. Two young specimens.

2. Purchased from Imphal market. 7 Oct. 1945. Five specimens.

The specimens resemble the Indian form (Hora *et al*, *op. cit.*).

Distribution.—Throughout India and Burma.

Puntius sarana (Ham.).

1860. *Barbus caudimarginatus*, Blyth, *Journ. As. Soc. Bengal* XXIX, p. 157.
 1921. *Barbus sarana caudimarginatus*, Hora, *Rec. Ind. Mus.* XXII, 183.
 1934. *Barbus sarana caudimarginatus*, Mukerji, *Journ. Bombay Nat. Hist. Soc.* XXXVII, p. 68.
 1951. *Barbus sarana*, Pillai, *Proc. Nat. Inst. Sci. India* XVII, pp. 331-348.

From a small muddy stream by roadside on Imphal-Palel road at milestone 118. 14 Dec. 1945. Three specimens.

Distribution.—India and Burma.

Crossochilus latius burmanicus Hora.

1822. *Cyprinus latius*, Hamilton, *Fish. Ganges*, p. 345.
 1921. *Crossochilus latia*, Hora, *Rec. Ind. Mus.* XXII, p. 183.
 1935. *Crossochilus latius*, Hora & Mukerji, *Rec. Ind. Mus.* XXXVII, p. 389.
 1936. *Crossochilus latius burmanicus*, Hora, *Rec. Ind. Mus.* XXXVIII, p. 324.
 1938. *Crossochilus burmanicus*, Hora & Misra, *Journ. Bombay Nat. Hist. Soc.* XL, pl. ii, fig. 1.

1. Purchased from Kanglatongbi bazar. 19 Oct. 1945. Two specimens.

2. Near Palel. 13 Nov. 1945. Nine juveniles.

3. Purchased from Imphal market. 7 Nov. 1945. Nine juveniles.

The specimens range from 5.0 to 10.5 cms. in length. The steel gray line extending from the eye to the base of the caudal just above the lateral line is more prominent in the juveniles.

Distribution.—India and Burma.

Garra gotyla (Gray).

1832. *Cyprinus gotyla*, Gray, *Ill. Ind. Zool.*, pl. lxxxviii, figs. 3, 3a.
 1921. *Garra gotyla*, Hora, *Rec. Ind. Mus.* XXII, p. 653.
 1937. *Garra gotyla*, Hora, *Rec. Ind. Mus.* XXXIX, p. 333.

Purchased from Kanglatongbi bazar. 19 Oct. 1945. Four specimens.

The specimens range from 7.7 to 8.5 cms. in length. The proboscis and the tuberculations on the snout are not so prominent in the smallest as in the three larger examples.

Distribution.—All along the base of the Himalayas; it has also been recorded by Hora¹ from the Upper Chindwin drainage in the Assam-Burma border.

***Nemachilus manipurensis* Chaudhuri.**

1912. *Nemachilus manipurensis*, Hora, *Rec. Ind. Mus.* VIII, p. 443, pl. xl, figs. 4, 4a, 4b; pl. xli, figs. 1, 1a, 1d.

1921. *Nemachilus manipurensis*, Hora, *Rec. Ind. Mus.* XXII, p. 199.

1935. *Nemachilus manipurensis*, Hora & Mukerji, *Rec. Ind. Mus.* XXXVII, p. 398, text-fig. 3.

From fields on the banks of Imphal river, Kanglatongbi Camp. 27 Oct. 1945. Four specimens.

The colour is pale gray, becoming dull white below. The caudal and dorsal are barred with gray. There are about 16–20 faintly marked, bluish gray, transverse stripes on the body, the last one at the base of the caudal being in the form of a bar. Hora and Mukerji² have divided this species into two groups banded and mottled or plain, according to colouration and certain other morphological differences. They seem to be correct in their observations. The largest specimen is 5 cms. in length.

Distribution.—Common in the Chindwin and Brahmaputra drainage systems of Assam.

***Lepidocephalichthys berdmorei* (Blyth).**

1860. *Acanthopsis berdmorei*, Blyth, *Proc. As. Soc. Bengal* XXIX, p. 168.

1921. *Lepidocephalichthys berdmorei*, Hora, *Rec. Ind. Mus.* XXII, p. 196.

1937. *Lepidocephalichthys berdmorei*, Hora, *Rec. Ind. Mus.* XXXIX, p. 337.

1941. *Lepidocephalus berdmorei*, Hora & Misra, *Journ. Bombay Nat. Hist. Soc.* XLII, p. 479.

1. From fields near Kanglatongbi Camp. 24 Oct. 1945. Several specimens.

2. From fields on the banks of Imphal river, Kanglatongbi Camp. 27 Oct. 1945. Five specimens.

3. From small muddy stream by roadside on Imphal-Palel road at milestone 118. Five specimens.

Distribution.—The Chindwin drainage in Assam and Burma.

***Botia berdmorei* (Blyth).**

1860. *Syncrossus berdmorei*, Blyth, *Journ. As. Soc. Bengal*, p. 166.

1876. *Botia berdmorei*, Day, *Fish. India*, p. 607, pl. cliv, fig. 3.

1889. *Botia berdmorei*, Day, *Faun. Brit. Ind.*, Fish. I, p. 217.

1890. *Botia berdmorei*, Vinciguerra, *Ann. Mus. Stor. Nat. Geneva*, (2) IX, p. 345.

1921. *Botia berdmorei*, Hora, *Rec. Ind. Mus.* XXII, p. 195.

Purchased from Imphal market. 7 Nov. 1945. Sixteen specimens.

The colour is seen to vary in the preserved specimens. Most of them have gone dull creamy white at the sides, with about 4-6 rows of buff spots, well marked in some on both the sides and rather faint

¹Hora, S. L., *Rec. Ind. Mus.* XXXIX, p. 33 (1937).

²Hora, S. L., & Mukerji, D. D., *Rec. Ind. Mus.* XXXVII, p. 398 (1935).

in others. Some have, however, retained their original colour pattern with about 10-15 bluish gray, transverse stripes which become lighter towards the abdomen. The caudal and the dorsal are also striped. The largest specimen measures 8.6 cms. in length.

Distribution.—Manipur valley, Assam and Burma.

Ambassis ranga (Ham.).

1822. *Chanda ranga*, Hamilton, *Fish. Ganges*, p. 113, pl. xvi, fig. 38.

1921. *Ambassis ranga*, Hora, *Rec. Ind. Mus.* XXII, p. 204.

1947. *Ambassis ranga*, Chauhan, *Rec. Ind. Mus.* XLV, pp. 270, 271, 275-277.

Purchased from Imphal market. 7 Nov. 1945. Twelve specimens.

According to Dr. Roonwal's field notes, the fish is 'almost transparent with silvery gill-cover, silvery eye-ring and black iris'. The preserved specimens have, however, changed to pale, orange yellow in colour with very minute dark spots scattered on the dorsal and upper sides of the body.

Distribution.—Throughout India and Burma.

Channa gachua (Ham.).

1822. *Ophiocephalus gachua*, Hamilton, *Fish. Ganges*, p. 68, pl. xxi, fig. 21.

1937. *Ophicephalus gachua*, Hora, *Rec. Ind. Mus.* XXXIX, p. 338.

1941. *Ophicephalus gachua*, Hora & Misra, *Journ. Bombay Nat. Hist. Soc.* XLII, p. 480.

1949. *Ophicephalus gachua*, Hora, *Journ. Zool. Soc. India* I, p. 2.

1. From fields near Kanglatongbi Camp. 24 Oct. 1945. Seven specimens.
2. Hill streams near Kanglatongbi Camp. 20 Oct. 1945. Several young specimens.
3. From fields on the banks of river Imphal near Kanglatongbi Camp. 27 Oct. 1945. Two young specimens.

Distribution.—Throughout the Oriental region.

Channa striatus (Bl.).

1793. *Ophicephalus striatus*, Bloch, *Nat. Ausl. Fisch.* VII, p. 141, pl. cclix.

1929. *Ophicephalus striatus*, Prashad & Mukerji, *Rec. Ind. Mus.* XXXI, p. 125.

Purchased from Kanglatongbi bazar. 19 Oct. 1945. Two specimens.

The larger one is 42.6 and the smaller one 30.4 cms. long.

Distribution.—Throughout the Oriental region.

Anabas testudineus (Bl.).

1793. *Anthias testudineus*, Bloch, *Nat. Ausl. Fisch.* VII, p. 143, pl. cccxxii.

1929. *Anabas testudineus*, Prashad & Mukerji, *Rec. Ind. Mus.* XXXI, p. 216.

1. Purchased from Kanglatongbi bazar. 1 Dec. 1945. Three specimens.
2. From muddy pools by roadside milestone 122, on Imphal-Palel road. 1 Nov. 1945. Eight young specimens.

Distribution.—Throughout the Oriental region.

Colisa fasciatus (Bl.).

1801. *Trichogaster fasciatus*, Bloch, *Syst. Ichth.*, p. 164. p. xxxvi.

1929. *Trichogaster fasciatus*, Prashad & Mukerji, *Rec. Ind. Mus.* XXXI, p. 216.

Purchased from Kanglatongbi bazar. 19 Dec. 1945. Six specimens.

Distribution.—Throughout the Oriental region.