

NOTES ON FISHES OF DOON VALLEY,
UTTAR PRADESH 1. DISTRIBUTIONAL AND
MORPHOLOGICAL STUDIES ON SOME
GLYPTOTHORACOID FISHES (SISORIDAE)

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(With 2 text-figs.)

INTRODUCTION

Considerable amount of interest has been shown in the study of fishes of Doon Valley for the last three decades (Hora and Mukerji, 1936 ; Lal and Chatterji, 1962 ; Lal, 1963 ; and Singh, 1964) but a thorough collection from the whole of the Doon Valley was never made. Recently parties from Zoological Survey of India have extensively surveyed the known waters of whole of Doon Valley and made a representative collection of fishes, which has recently been studied. The collection contains a large number of species not so far reported from the Doon Valley ; a detailed account of this will be published separately. In this paper interesting observations on the morphology and distribution of some glyptothoracoid fishes have been recorded.

OBSERVATIONS

The glyptothoracoid fishes differ from the glyptosternoid group of fishes mainly in the presence of an adhesive thoracic apparatus on the chest. No representative of glyptosternoid fishes has been as yet reported from Doon Valley, although *Euchiloglanis hodgarti* (Hora) exists in an adjoining area, *i.e.*, Kali River, District Nainital, U.P. (Menon and Sen, 1966). Of the glyptothoracoid fishes, only *G. pectinopterus* (McClelland) has thus far been known from Doon Valley (Hora & Mukerji,

1936, and Singh, 1964). The present study of the rich collection from this Valley shows that, in addition to *G. pectinopterus* (McCl.), five more sisorids of glyptothoracoid group, viz., *Pseudecheneis sulcatus* (McClelland), *Glyptothorax brevipinnis* Hora, *Glyptothorax gracilis* (Günther), *Glyptothorax cavia* (Hamilton) and *Glyptothorax horai* Shaw & Shebbeare, exist in that area. The material of all these five species has been studied in detail and the interesting points in their morphology and distribution are noted below.

Family SISORIDAE

Genus *Pseudecheneis* Blyth

(1) *Pseudecheneis sulcatus* (McClelland)

1842. *Gluptosternon sulcatus* McClelland, *Calcutta J. Nat. Hist.*, 2: 587. (Type-locality: Khasi hills Assam.)

1923. *Pseudecheneis sulcatus*, Hora, *Rec. Indian Mus.*, 25: 43.

Material.—(i) 1 ex., Aglar River, near its union with Jamuna River (near Mussoorie), 1.v.1966; (ii) 1 ex., Tons River, Dehra Dun, 1.viii.1965; (iii) 1 ex., Ichhari nala, 5 Kms. north of Koti, Dehra Dun, 6.vi.1967

Size.—23-150 mm. total length.

Remarks.—The material resembles the description of this species by McClelland (1842) and Day (1877) but differs in the ratio of the least height of the caudal peduncle with its length, which is 5.6 times in the adult and 7 times in the young examples against about 3 times as mentioned by Day (1877).

Distribution.—*P. sulcatus* is recorded so far from Khasi hills; Kameng Division, N.E.F.A.; Sikkim; Putao plains (Burma) and Catchin Cauri near Bhamo. The present record of this species from Doon Valley is interesting and extends the range of its distribution westwards along Himalaya.

Genus *Glyptothorax* Blyth

(2) *Glyptothorax cavia* (Hamilton)

1822. *Pimelodus cavia* Hamilton, *Fish. Ganges*: 188, 378. (Type-locality: Ramgarh District, North Bengal.)

1954. *Glyptothorax cavia*, Menon, *Rec. Indian Mus.*, 52: 34.

Material.—(i) 1 ex., Tons River, Dehra Dun, 31.vii.1965, A. Hussain.

Size.—335 mm. total length.

Remarks.—The specimen agrees with the description of this species given by Hora and Menon (1948). So far the maximum size of this fish captured has been nearly 315 mm. The present specimen, measuring 335 mm. is the largest of this species so far captured. It could easily be enumerated as one among the food fishes of the area.

Distribution.—Myitkyina District, Burma (Sankha River); Jamuna River, N. Bengal; Darjeeling; Kosi River, Nepal; Sarada River, Tanakpur, Nainital, U.P. Its presence in Doon Valley extends its range of distribution further westwards along Himalaya.

(3) *Glyptothorax gracilis* (Günther)

1864. *Glyptosternum gracile* Günther, *Cat. Fish. Brit. Mus.*, 5: 186. (Type-locality: Nepal).

1954. *Glyptothorax gracile*, Menon, *Rec. Indian Mus.*, 52: 48.

Material.—(i) 1 ex., Tons River, Haripur, Dehra Dun, 31.vii.1965.

Size.—151 mm. total length.

Remarks.—Hora (1923) resurrected *G. gracilis* (Günther) on the basis of one specimen (120 mm. in length), collected by Dr. B. L. Chaudhuri from Ranjeet River, Manjhitar, Sikkim. We have examined the specimen and compared with it the present specimen from Tons River. There are two more specimens of this species from Kameng Frontier Division, N.E.F.A. in the collections of Zoological Survey of India. According to Hora (1923) the pectoral fins almost reach the base of the ventral but we find that in the specimen he examined (from Sikkim), they do miss the base of the ventrals by a small distance and in the specimen from Tons River as well as in those from N.E.F.A., the pectorals miss the ventrals by comparatively greater distance. Apart from this, the present specimen agrees with the description of the species given by Günther (1864). The species is characterised by the following:

- (1) The skin is granulated.
- (2) The thoracic adhesive apparatus is much longer than broad.
- (3) The under surface of the paired fins is devoid of plaits.

- (4) The pectoral fin is slightly longer than the head.
- (5) The ventrals extend beyond the anal opening and reach the origin of the anal fin.
- (6) The eyes are placed in the posterior half of the head.
- (7) The maxillary barbels are longer than the head.
- (8) The lower lobe of the caudal fin is longer than the upper.

Distribution.—N.E.F.A. ; Sikkim ; Nepal ; Dehra Dun, U.P. The report on the presence of this species in Dehra Dun (U.P.) extends its range of distribution further westwards along Himalaya.

(4) *Glyptothorax brevipinnis brevipinnis* Hora

1923. *Glyptothorax brevipinnis* Hora, *Rec. Indian Mus.*, **25**: 16.
(Type-locality: Unknown.)

1954. *Glyptothorax brevipinnis*, Menon, *Rec. Indian Mus.*, **52**: 37.

Material.—(i) 2 exs., Reh River, Dehra Dun ; (ii) 3 exs., Jamuna River, Dehra Dun.

Size.—45-113 mm. total length.

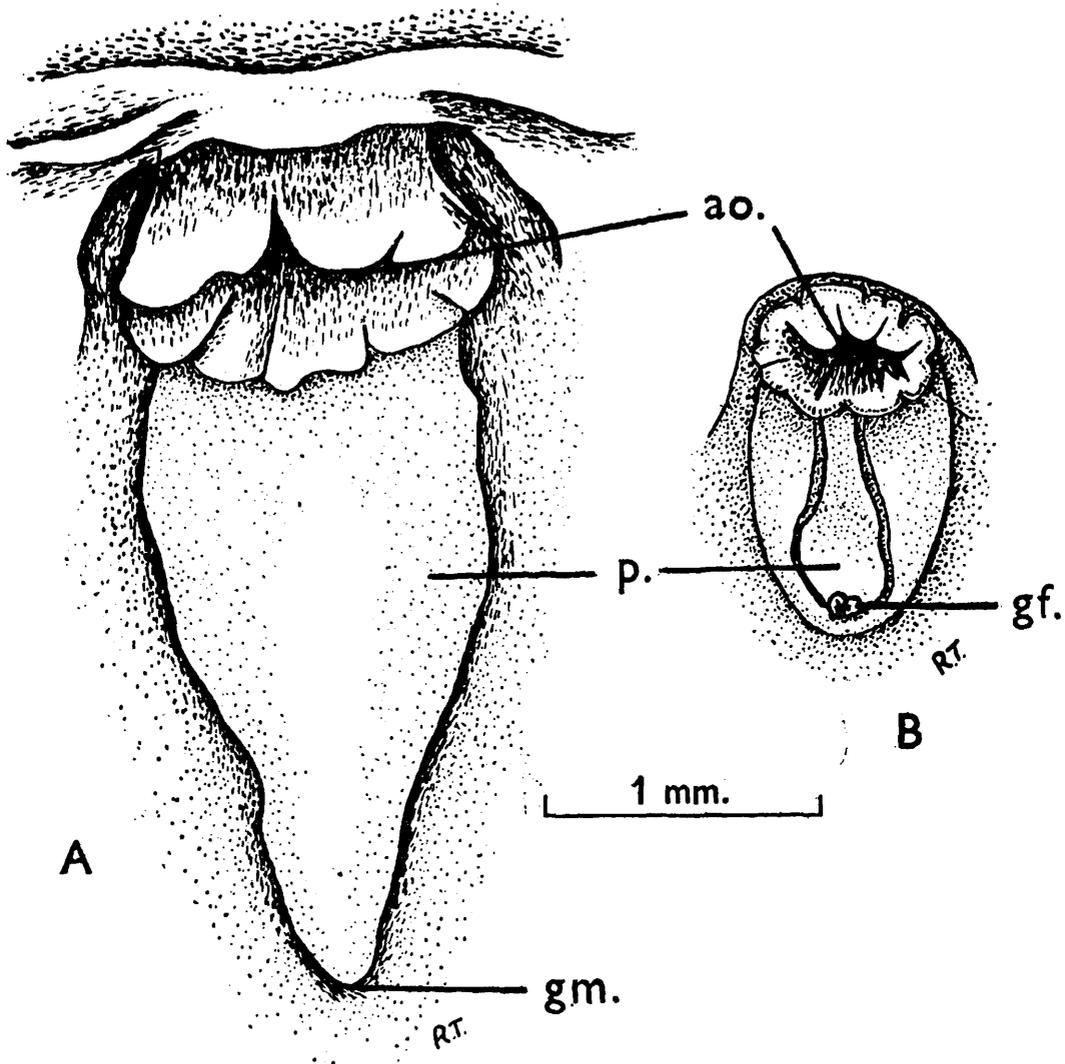
Remarks.—The material agrees with the description of this species by Hora (1923). Hora (1923) described this species on the basis of 4 examples, bearing no history. Due to long preservation, the colouration of the body of these specimens had faded away. Hora (1923) was, therefore, unable to describe the colouration of the species precisely. The present material is freshly preserved and hence it should be helpful to describe the colouration of this species.

Colouration.—The lateral and the dorsal sides of the body are dark chocolate brown. The under surface of the head and belly are light yellowish. There is a dark band at the base of the caudal. A light coloured streak runs between the bases of the rayed and the adipose dorsal fins and further between the latter and the upper lobe of the caudal fin. There is a light coloured transverse band at the base of the occipital process. The paired and the median fins, including the adipose fin, are dark coloured while their terminal portions are light coloured.

Sexual dimorphism.—Among Sisoridae, *Gagata sexualis* Tilak is the only species known to show a marked sexual dimorphism (Tilak, 1970) The present study shows that

Glyptothorax brevipinnis brevipinnis Hora also shows sexually dimorphic features which are described below :

(1) The least height of the caudal peduncle lies less than 2 times (1.68-1.87 times) in its length in the female examples and more than 2 times (2.06-2.5 times) in the male.

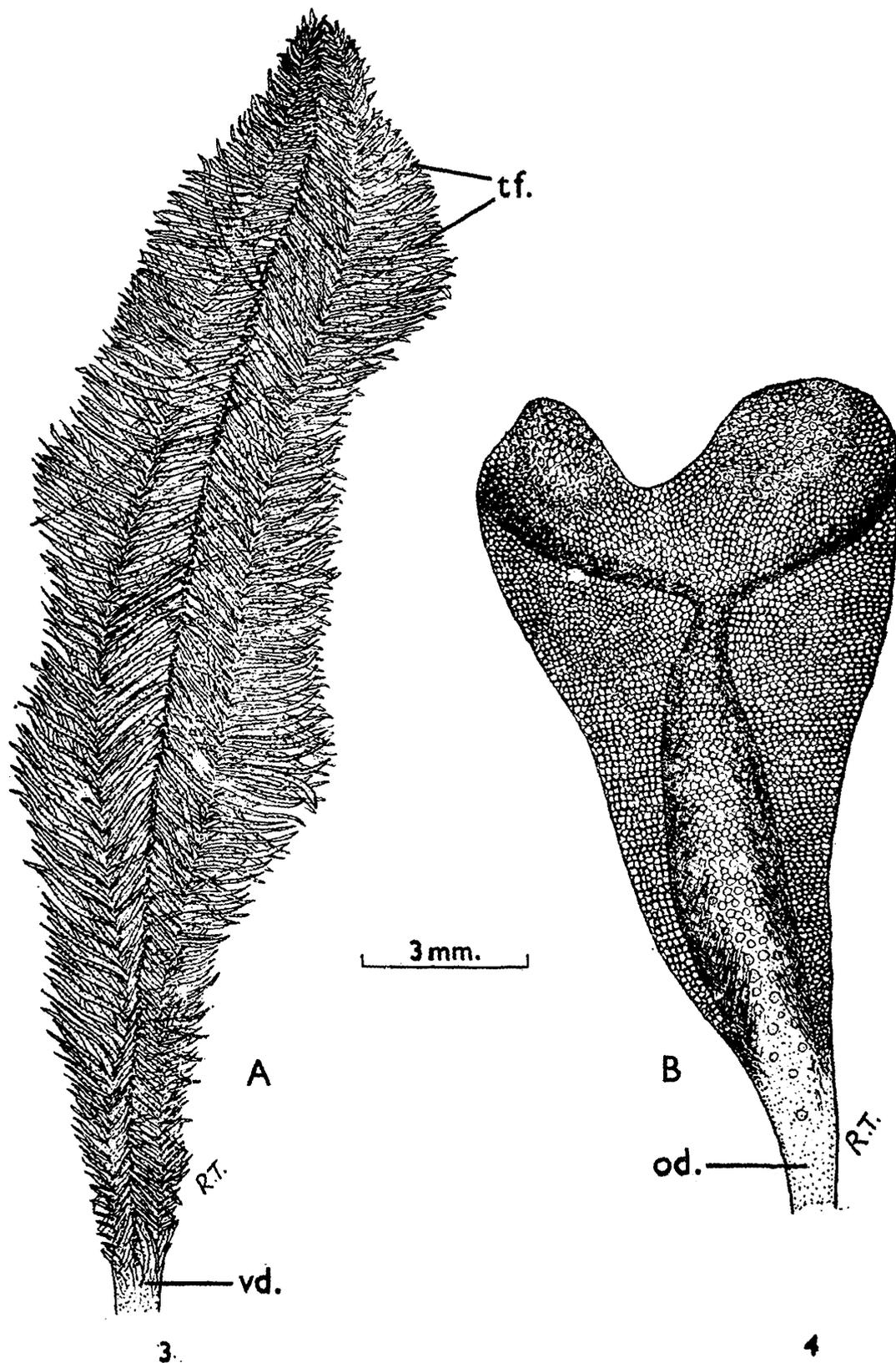


Text-fig. 1A. The external genital organs of male of *Glyptothorax brevipinnis brevipinnis* Hora.

B. The external genital organs of female of the same.

(2) Externally, the females are slightly heavier than the males and show a difference in their external genital organs. In the male, the genital papilla is elongated, wide and bulbous at the base and much narrow at the tip (Text-fig. 1A). In the female, the genital papilla is narrow at the proximal end and bulbous at the distal end (Text-fig. 1B) Moreover, it remains partly embedded in a fleshy envelope in the female and almost free in the male. The comparative length of the genital papilla is more in the male than in the female.

The shape and structure of the gonads differ greatly in the two sexes. In the male, the testes are paired and elongated. The two testes are fused together in the midline (Text-fig. 2A).



Text-fig. 2A. The male gonads of *G. brevipinnis brevipinnis* Hora.
B. The female gonads of the same.

Each testis consists of biserially arranged testicular follicles which profusely overlap with each other. Posteriorly, the testes form apparently a single vas deferens which is connected with the male genital papilla. In the female, the paired ovaries have fused completely to form a triangular ovarian sheet, the two outer edges of which are rolled downwards to envelope the alimentary canal. The anterior end of the ovary contains ova at different stages of maturity. Posteriorly, a single oviduct enters the female genital papilla (Text-fig. 2B).

Distribution.—Hora (1923) did not know the history of this species at the time of its description. Till recently, no material of this homeless species was collected. For the first time this species has been recorded here from the Doon Valley with a definite locality data.

(5) *Glyptothorax horai* Shaw and Shebbeare

1937. *Glyptothorax horai* Shaw and Shebbeare, *J. Bombay nat. Hist. Soc.*, **39**: 188. (Type-locality: Streams of Terai, North Bengal.)

1954. *Glyptothorax horai*, Menon, *Rec. Indian Mus.*, **52**: 37.

Material.—(i) 1 ex., Dehra Dun, 5.viii.1965, T. D. Soota.

Size.—122 mm. total length.

Remarks.—The thoracic adhesive apparatus of this fish is very characteristic; it extends from the ventral side of the lip to opposite the middle of the pectoral base in an acuminate arrow head shape. The shape and the structure of the adhesive thoracic apparatus of this species, based on the material from Patiala, has been described by Tilak and Tandon (1970) who studied the type as well as other material of this species in Zoological Survey of India and rectified some of the discrepancies in the description of this structure of the species by Shaw and Shebbeare (1937) and Menon (1954).

Distribution.—Terai, N. Bengal; Rihand River, near Dam, Mirzapur District, U.P.; Kosi River, Nepal; Patiala, East Panjab; Dehra Dun, U.P.

Tilak and Tandon (1970) while reporting on the presence of this species in Panjab, remarked that there is no record of the presence of this species in the intervening area between Kosi River and East Panjab and further opined that future surveys would find this species all along that area. The present report of this species from Doon Valley, the intervening

area between Kosi River (Nepal) and Patiala (E. Panjab), confirms the belief of Tilak and Tandon (1970).

SUMMARY

A study of glyptothoracoid fishes from Doon Valley shows that in addition to *Glyptothorax pectinopterus* (McClelland), five more species, viz., *Pseudecheneis sulcatus* (McClelland), *Glyptothorax cavia* (Ham.), *G. gracilis* (Günther), *G. brevipinnis brevipinnis* Hora and *G. horai* Shaw and Shebbeare occur in that area. Important points of their morphology have been recorded. All the five species have been recorded from the Valley for the first time and this extends their range of distribution further westwards along the Himalaya; it is important from zoogeographical point of view. *G. brevipinnis brevipinnis* Hora has been recorded for the first time with a definite locality from Dehra Dun. Sexually dimorphic characters of *G. brevipinnis brevipinnis* Hora have been figured and described.

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KEY TO ABBREVIATIONS

od, oviduct; tf, testicular follicles; vd, vas defrens.
ao, anal opening; p, genital papilla; gf, female genital opening;
gm, male genital opening.