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STUDIES ON THE LAND SNAIL, *GLESSULA GEMMA* (REEVE) [MOLLUSCA : GASTROPODA] II. POPULATIONS

In connection with studies on the bioecology of the land snail *Glessula gemma*, Subba Rao *et al* (1985) reported the growth rates under laboratory conditios. The present communication describes the population density of the same species observed in an agri-horticultural garden at Baranagar, North Calcutta, over a period of two years, 1980 and 1981.

To study the population density, the garden was divided into five pockets irrespective of snail population. From each pocket snails occuring in a square metre area was counted on the 15th of each month and an average of five readings was considered to be the actual snail population of the garden. Attention was given to estimate the reproductive and prereproductive population separately during each sampling. Snail measuring upto 5 mm. (shell length) were considered as prereproductive and above that as reproductive (Subba Rao *et al*, 1985).

G. gemma were found active during monsoon or in summer following repeated premonsoon showers. In 1980, monsoon kissed the study area on 18th June and the snails became active within few hours following rain. The snails thrived well upto October. By the first week of November they entered into their aestivating homes and became active by April next year following heavy showers in the gangetic West Bengal, They were active upto September. The population data is limited to those of active period. The populationdensity with number of reproductive and prereproductive individuals for both the years have been shown in Table I.

Table I shows that the population density was lowest, 9.5 per m^2 and 17 per m^2 in the

TABLE I. Data on population of *G. gemma* from April-October during 1980 and 1981 per square metre area at Baranagar, North Calcutta.

Months	No. of Prereproductive individuals		No of Reproductive individuals		Total	
	1980	1981	1980	1981	1980	1981
April	—	5	—	29	—	34
May	—	30	—	24.5	—	54.5
June	4	48	11	11	15	59
July	23	39	32	33.5	55	72.5
August	33.5	20	38.5	48.5	72	68.5
September	6.5	—	33	27.5	39.5	27.5
October	—	—	32	—	32	—

months of June and April in 1980 and 1981 respectively. This was followed by a gradual increase and the peak was reached by August (35.75 per m^2) and June (34.25 per m^2) in 1980 and 1981 respectively. Of those, in 1980, 47.14% were prereproductive and 52.86% were reproductive populations. The percentages for the same were 29.41 and 69.59 respectively in 1980 and 1981. On the whole, the percentages of prereproductive and reproductive populations were 31.45 and 68.55, and 44.93 and 55.07 respectively during 1980 and 1981. Considering the total snail populations in both the years, it appears that in *G. gemma* the ratio between prereproductive and reproductive population is 2 : 3.

Information on the population of land snails is limited to *Achatina fulica* and *Macrochlamys indica* (Raut, 1979). Subba Rao *et al* (1980) reported the fecundity of *Opeas gracile* under laboratory conditions. Since *G. gemma* is ovoviviparous its recruitment rate would be less than those of oviparous snails. The ratio between prereproductive and reproductive population in this species resembles the diminishing population model of Bodenheimer (Kormondy, 1971), This indicates that the birth-rate in *G. gemma* is drastically reduced, the reproductive groups increasing unexpectedly and showing a population structure that is dying off. If no adequate measure is taken immediately, within a few years, *G. gemma* may have to be declared extinct.

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SHORT COMMUNICATION

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AN INSTANCE OF ABNORMAL FINS IN A SPECIMEN OF NOEMACHEILINE LOACHES (COBITIDAE : CYPRINIFORMES)

While studying the morphological characters of Noemacheiline loaches of Meghalaya, the author has come across a very interesting specimen of *Physoschistura elongata* Sen and Nalbant (Singh *et al.* 1981 ; Plate I A) having extra anal fin and caudal fin rays.

Morphological abnormality in fishes has been reported on various characters (Sarkar and Kaushik, 1960 ; Tandon, 1965 ; Gopalan, 1971 and Sen, 1978), but the occurence of such an abnormality is being recorded for the first time. Gopalan (op. cit.) has recorded in the double-headed shark (*Carcharias walbeehmi* (Bleeker) from Gujarat, an additional pair of dorsal fin as an abnormality.

The abnormal anal fin encountered here differ significantly from the normal one in respect of its disposition, fin ray counts and also being divided into three distinct finlets. It comprises of 22 total finrays *vs* 7 in normal anal fin. The anterior most finlet containing 5 rays is located 1 mm ahead of the two posterior finlets (Plate II C ; Fig. 1, ad.). The posterior finlets are displaced laterally at their proximal ends and converge posteriorly to join each other distally. As a result a prominent cavity is formed at the base (Plate I B, Fig. 1. cn.). The right side posterior finlet consists of 10 fin rays (Fig. 1. ex.) *vs* 7 in the left side (Fig. 1, n.).

Likewise, the caudal fin is also bifurcated in two lateral finlets at its lower hypural end. However, dorsally and posteriorly the two finlets are jointed consequential of which a distinct cavity is formed at the ventral side of caudal fin (plate II D, Fig. 1, cv.).

The causes of deformities in fishes are numerous and no single factor is sufficient to explain it (Gemmil, '52.)

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