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ON NEW RECORD OF DISTRIBUTION AND ASSOCIATION OF A NORTH INDIAN ROOFED TURTLE, *KACHUGA TECTA* (GRAY) (REPTILIA : TESTUDINES : EMYDIDAE) AND FRESHWATER LEECH, *OZOBRANCHUS SHIPLEYI* HARDING (HIRUDINEA : ICHTHYOBDELLIDAE) IN UTTAR PRADESH TERAI.

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INTRODUCTION

During a survey and study programme of Uttar Pradesh Terai, the authors came across a specimen of a freshwater turtle, *Kachuga tecta* (Gray) which was heavily parasitised by a freshwater leech, *Ozobranchus shipleyi* Harding at river Rapti, Bandhghat in district Gorakhpur. The individuals of the leech in question adhere strongly on the soft parts of the plastorn of the tortoise. The attachment of the leech appears quite strong because the turtle was brought alive to Dehra Dun and kept for observation for months and the leeches still remain in position on the body of the tortoise. The leeches even laid fresh batches of eggs on the plastron of the turtle. The fertilised ova of the leech were firmly cemented to the skin of the tortoise. The record of the turtle *Kachuga tecta* (Gray), the leech *Ozobranchus shipleyi* Harding and their association with each other is made for the first time here.

Kachuga tecta (Gray)

Smith (1931) has mentioned the distribution range of this species as Northern India, covering the Ganga the Brahmaputra and the Sind river system. The exact limit of its range was not clearly defined. It is also recorded in fossil forms in the Pleistocene deposits of the Shiwalik Hills. Tilak and Sinha (1984) have also dealt with the occurrence of the species in U.P. Terai in general. But the present record of this species has a definite locality data. Recently Hall (1980) has recorded the species from Nepal-Bihar border and extended its range to Nepal. It appears that this species occurs all along the low hills in the Himalayan and the adjoining plains from Brahmaputra upto Pakistan.

Kachuga tecta (Gray) is a herbivore living in freshwater and quite active in its movements. The flesh of this species is liked by some communities settled in U.P. Terai who capture this animal in large number. Such a mass killing of turtles in U.P. Terai, threatening the existence of the creature, has recently been reported by Tilak and Sinha (1984).

The turtle has more or less flattend limbs with webbed digits. The top of the head is

covered withe smooth skin. The hexagonal neural plates are short-sided in front. The plastron is united with carapace by sutures. The axillary and inguinal buttresses are extensively developed, extending nearly to the neural plates, the former connected with the first rib. The fourth vertebral shield is elongated, much longer than broad and much longer than the third one. The fore-limbs bear five claws. The second vertebral shield is usually longer than third. The dorsal side of the head is black. The temporal region is yellow to orange in colour. The neck is black with fine yellow longitudinal lines. The carapace is elongated and bears a elongated vertebral keel which is produced into a strong spinous process at the posterior margin of the third shield.

Ozobranchus shipleyi Harding

Ozobranchus shipleyi Harding is one of the aquatic leeches in India and belongs to the family Ichthyobdellidae. This genus is monotypic. It possesses eleven pairs of lateral branchiae for respiration. According to Harding and Moore (1927), *Ozobranchus shipleyi* is recorded from Orissa, river Ganga, Pakistan and Ceylon. This has been associated with *Nicoria trijuga* Schweigg in Ceylon, with *Kachuga intermedia* Blanford in river Mahanadi (Sambalpur, Orissa), with *Kachuga smithi* (Gray) in river Ravi (Lahore, Pakistan) and *Kachuga dhongoka* (Gray) from river Ganga. The present record of the species extends the range of its distribution to U.P. Terai.

ASSOCIATION OF THE LEECH WITH THE TURTLE

The association for the freshwater leech with freshwater turtles is well known (Harding and Moore 1927). *Ozobranchus shipleyi* has been found parasitically associated with tortoises of the genus *Melanochelys* in Ceylon and different species of *Kachuga* in India and Pakistan as mentioned above but its association with *Kachuga tecta* (Gray) is reported here for the first time.

The freshwater bodies, ponds, lakes and streams form an ideal ecological habitat for the aquatic leeches. They play a significant role in the aquatic ecosystem because they parasitise some of the economically and ecologically important animals and form an item of food for them. The present turtle and the leech were collected from the side pool near river Rapti where the flow of water was extremely slow and the area was infested with aquatic weeds.

It appears that this species of leech does not have a fixed host but takes advantage of coincidence and chance in selecting its host to suitably discharge its life function such as feeding, respiration, reproduction, care and maintenance of its young ones. Since the leech is aquatic and respires by branchiae it can not parasitise a host which is likely to remain out of water for a long period, endangering the existence of the leech and dessicating the fertilised ova and young ones. The association of *Ozobranchus shipleyi* with *Kachuga tecta* appears to be quite harmonious and is related suitably with the life-

style of the aquatic turtle. During the period when the turtle comes out of water for laying its eggs in the sandy bed along the river, the leeches depend largely on the algal encrustations growing on the body of the turtle for moisture to avoid dessication and to certain extent for exchange of gasses through the branchiae.

The leech is hermaphrodite and lays fertilised ova. Hermaphroditism is a perfect adaptation to the way of life of the leech which is more often attached even singly to its hosts and has a rare chance to meet another of its kind for fertilisation of the ova. The ova are arranged in rows adjacent to each other. The young leeches emerge from the eggs and immediately attach themselves on the soft exposed parts of the skin of the host. In an aquarium where the turtles with the leeches were kept for observation, the fish species of the genera *Puntius*, *Rasbora*, *Esomus* etc., fed on young leeches by plucking them from the body of the turtles one by one. The leech, therefore, appears to be linked with the food chain of other vertebrates like fishes in the surrounding body of water.

SUMMARY

The association of *Ozobranchus shipleyi* Harding, a freshwater leech of the family Ichthyobdellidae with the freshwater turtle, *Kachuga tecta* (Gray) is reported for the first time. The range of distribution of this leech and the turtle is extended to U.P. Terai for the first time. The manner of parasitic association of the leech with the turtle and the style of living of these animals have been briefly explained.

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