

THE PLANARIA, *BIPALIUM INDICA* AN EFFECTIVE PREDATOR OF  
*ACHATINA FULICA*

All attempts to control the notorious agri-horticultural pest, the giant African land snail, *Achatina fulica* with chemicals (Mead, 1961 ; Mandal and Ghose, 1970 and Manna and Ghose, 1972) have failed. The protective shell, capacity of secreting profuse thick mucus, and nocturnal habit are almost insurmountable barriers in controlling this pest, and greater attention is now being paid to the biological control.

A number of predators of *A. fulica* have been reported from Indo-Pacific Islands (Mead, 1961 ; Mead, 1963 ; Srivastava and Srivastava, 1967 and Srivastava, 1968). Recently, the authors (Raut and Ghose) have also recorded two birds—*Dendrocitta vagabunda* and *Centropus sinensis* and one bandicoot rat, *Bandicota indica*, as predators of this snail. However, the possibility of employing them as a biological means of control, is yet to be evaluated. In the present communication a terrestrial planaria *Bipalium indica* is reported for the first time as an effective predator of *A. fulica*. *B. indica* is rather common in and around the gardens in lower West Bengal where *A. fulica*, are found in abundance. They, like *A. fulica*, are also nocturnal and most active only in monsoon.

During behavioural studies on *A. fulica* in the morning of August, 1976, in the gardens of Calcutta University campus, Ballygunge, Calcutta, a number of dead juvenile snails still with fresh flesh indicating that

they met with unnatural death in the previous night were recorded. No visible sign of damage could be detected either on the shell or on the body. A careful watch in the next night revealed that the snails were being attacked by the planaria, *B. indica*. The predation was, however, restricted only to the juvenile snails with 15-25 mm shell size.

The worm crawls on a moving snail and supporting either the anterior or the posterior end of its body on the soil, turns the snail upside down. Immediately the worm moves to reach the exposed flesh in the upwardly directed shell aperture and secretes a toxic fluid to paralyse the victim. The snail reacts violently by spontaneous secretion of a considerable amount of mucus and quick withdrawal of the body inside the shell. This is followed by an inactive stage, and the worm moving inside the shell, pushes the pharynx in the flesh of the snail, and sucks the fluid for about 20 to 30 minutes. The snail does not regain activity and dies afterwards.

The planaria (*B. indica*) is an effective predator of *A. fulica* but its role in the control of the giant snail is not significant in this area due to imbalanced predator-prey population, the predator (planaria) being much less in number. The possibility of utilising *B. indica* in the control of the giant land snail appears to be encouraging if the population density of the former can be raised to a certain level.

## REFERENCES

- MANDAL, T. K. AND GHOSE, K. C. 1970. Applications of Calcium Arsenate : Histopathological changes and Glycogen Mobilization in *Achatina fulica* Bowdich. *J. exp. Biol.*, 8(4) : 332-333.
- MANNA, B. AND GHOSE, K. C. 1972. Histopathological changes in the gut, of *Achatina fulica* Bowdich caused by Endrin - A Molluscicide. *J. exp. Biol.*, 10(6) : 461-463.
- MEAD, A. R. 1961. *The giant African snail : A problem in economic malacology*, The University of Chicago Press, 257 pp.
- MEAD, A. R. 1963. A flatworm predator of the giant African snail *Achatina fulica* in Hawaii. *Malacologia*, 1 : 305-311.
- SRIVASTAVA, P. D. 1968. Role of Hermit crabs in the Biological control of *Achatina fulica* Bowdich on the Andamans. *Indian J. Ent.*, 38(3) ; 217-219.
- SRIVASTAVA, P. D. AND SRIVASTAVA, Y. N. 1967. *Orthomorpha* sp. new predatory millipede on *Achatina fulica* in Andamans. *Experientia*, Basel Switzerland, 23 : 776-777.

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