Record of Giant African Snail, *Achatina fulica* Bowdich on coffee in Visakha Agency Areas, Andhra Pradesh

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The snails and slugs are found in great numbers distributed all over the world. The giant African land snail, *Achatina fulica* Bowdich has spread from its native Africa to many tropical and subtropical regions including islands in the Indian Ocean, West Indies and Pacific Ocean. It is highly adaptable to a wide range of conditions, range of foods and habitats. It can aestivate in extreme conditions to avoid de-hydration. This makes it an ideal invasive species, allowing to survive long ship journeys unscathed (Cowie, 2006).

This serious pest of many agricultural crops has spread to many countries in the world mostly facilitated by man. It was reportedly introduced to India by W.H.Benson during 1847 in gardens near Kolkata and later spread to many parts of the country. It was then introduced to Andamans during the 1940s and spread to a number of places in both Andaman and Nicobar Islands, attacking about 225 plants of agricultural and horticultural importance (Prasad et al. 2004). Various authors studied its occurrence, bio-ecology and management aspects in India and elsewhere. (Basavaraju et al. 2001; Long, 1996; Gowda, 2004; Karnatak et al., 1998; Le Pelley, 1968; Mead, 1961; Muniappan, 1987; Ohbayashi and Ono, 2004; Padmanaban et al., 2000; Prasad et al. 2004; Cowie, 2006; Hollingsworth et al. 2002; Sharma and Agarwal, 1989; Thakur and Rina Kumari 1998; Thakur, 1998.).

High incidence of Giant African snail, *Achatina fulica* Bowdich was reported from the coffee areas of Arakuvalley liaison zone in Visakha Agency areas of Andhra Pradesh during the rainy season of 2003. Hence, a survey was conducted to identify the areas affected by the giant snail and its damage to coffee and other subsidiary crops. The survey was conducted at random in some of the villages in Arakuvalley zone and the snails were seen in villages like Arakuvalley, Padmapuram gardens, Attaguda-AASAV, Malivalasa, Tudum and Chompi, Yendapallilvalasa, Malisingaram, Araku, Kothavalasa, Thuringuda, Karinguda, Chimalavalu, Doraivalasa, Gondivalasa, Godupoddur, Kothakiloguda, Bylvalasa. However, this was not noticed in some areas like Sunkurametta, Bescpuram and Ananthagiri. It is understood from the local coffee farmers that the snails were noticed in these areas since 1996. They are of the opinion that one of their fellow villagers, due to his fascination to giant snails has brought some from the neighbouring state, Orissa and in turn they spread to many areas of Arakuvalley. However, reasonably an authentic information on the introduction of giant snails to Arakuvalley was given by the Manager of an NGO, AASAV, who stated that the Giant Snails have been noticed in coffee plantations for the last 7-8 years and they might have come some ten years ago from the plain areas along with the banana suckers supplied by the Govt. Agencies to the tribal farmers of Arakuvalley.

Some observations were made on its activity during day and night hours, damage to coffee and other crops. During daytime, the snails were found crawling and clinging to the main stem and branches of coffee. The snails were mostly inactive or less mobile and the population was sparse. Some feeding of coffee leaves was observed, however the damage was very less. They make holes on the leaves, cut from one side of the leaf irregularly and some time they consume the whole leaf. The majority of the coffee plants have no snail population but in some cases 1 to 2 per plant were observed. The damage to coffee leaves is negligible even in heavy populated snail fields. No damage was observed to coffee fruits, stems or twigs. It indicates that the Giant snails are not preferring coffee as a major host. During night, the observation was made between 7.00 PM to 9.00 PM and no snail population was observed on coffee bushes. But population of about 2 to 4 nos. per
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square meter could be seen in the ground and surrounding paths and open places in coffee farms.

The snails were observed resting/ clinging on silver oak, ashoka, soap nut trees, sampangi, banana etc. They were seen causing severe damage to the field crops like banana, beans, cabbage, cucumber, cauliflower, tomato and chilies. The damage is more pronounced in young seedlings in the field and nursery of these crops in Arakuvalley zone.

The shell of the snail is brown with white stripes and generally, about 7-8 whors are observed in each shell. The white stripes are more pronounced on the upper whors. The snails were measuring about 10.30 cm in length and 4.98 cm in breadth on an average. The eggs were extracted from the snail infested coffee soils and found that they are oval in shape and lemon yellow in colour. The average length and breadth of egg was found to be 5.05 mm and 3.80 mm respectively.

Though the snails are not causing much damage to the coffee plants, it has become a menace in these areas causing appreciable damage to other crops like banana and vegetable crops. With regards to infestation of the giant snail of coffee, Le Pelley (1968) reported that it does not relish the coffee plant and eats the leaves of tea and coffee if there is nothing better to eat, on the basis of his observations in Indonesia and Pacific Islands. In India, another species of a small snail Ariophanta solata was recorded causing damage to coffee (Bhat and Kasiviswanathan 1972). In Ceylon, young pepper vines (Piper nigrum) suffered 100 per cent damage by the Giant snail. (Mead, 1961).

Regarding the control measures against the African giant snail, mainly mechanical and chemical measures are suggested in general. Mead (1962) reviewed the early literature in detail and listed the various methods of control measures of snails and slugs. Metaldehyde and calcium arsenate are the chemicals of choice in attempts to control A. fulica. A bait in the ratio 8:11:1 by weight of calcium arsenate, slaked lime and cement respectively and water to form a consistency of ordinary concrete mix has been effectively used in Hawaii as one of the chief means of combating A. fulica. The shallow ditches around gardens filled with wood ashes, coconut fiber dust, or sawdust treated with a 4-10 per cent solution of copper sulphate repel A. fulica. Application of copper sulphate seemed to be a popular recommendations made for the control of the giant African snail. Any device which would cause the snails to become stranded in the hot sun would be effective, as, for example, setting up temporary shelters in clearings and then removing them in mid morning.

Basavaraju, et al (2001) found that the application of metaldehyde all along the borders of newly established betel vine gardens was effective against A. fulica. Sarkar et al (1997) stated that baits prepared with organochlorine insecticides were less effective than those with organo phosphorus insecticides. Kakoty (1988) in a lab study found that copper sulphate caused 100% mortality after one week of treatment. Prasad et al (2004) studied the repellent effect of softwood cuttings of 7 plants and found that fencing the nursery of Tagetes erecta with soft wood cuttings of Anona glabra protected the nursery from Achatina fulica due to it’s repellent action. Shah (1992) recommends that snails be collected and destroyed during aestivation between January and April when they hide under hedges and debris. Possible hiding places such as bushes and debris should be removed from fields. The snails can be killed by sprinkling with common salt or leaving them exposed to the sun. Sharma and Agarwal (1989) suggested sanitation, physical control and the use of 5% metaldehyde pellets at 25 kg/ha as control measures.

As chemical measures are not practicable always for the management of this snail, all out efforts should be made for the adoption of mechanical measures in checking the build up of the population. Regular collection of snails when they are taking shelter under plants, debris etc. during day time and their destruction either by putting in salt solution or burning is an effective method in this regard. The other methods include clearing all the rubbish and weeds within and around the infested areas to reduce breeding places, prevention of movement of planting material and soil from infested areas to other places where the snails are not present.

Literature Cited


and control of *Ariophaata solata*. 


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