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On the Larval Food of Saproxylic Beetle *Glycyphana horsfieldi* Hope (Coleoptera: Scarabaeidae: Cetoniinae)

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ABSTRACT: The species of *Glycyphana* Burmiester (Coleoptera: Scarabaeidae: Cetoniinae) visits the flowers of many garden plants. This communication records the incidence of the grubs of *Glycyphana* horsfieldi Hope in dead branches of *Albizia lebbeck* and *Samanea saman.* In all 8 larvae and 4 pupal cells were obtained from the dead wood of *Albizia lebbeck* and *Samanea saman.*

Key words: Grubs, Cetoniinae, Kolhapur, Oriental region, Shivaji University, Kolhapur.

INTRODUCTION

The scarab genus *Glycyphana* (Scarabaeidae: Cetoniinae) includes 11 species from Indian Subcontinent but the species are well distributed in the oriental region. Mature reproductive forms range in size from 8.5 to 17 mm. and they are usually velvety black, deep red, olive green (Arrow, 1910).

No information is available on the ecological requirements of the species except that adults are frequenting the flowers of various plants. *Glycyphana horsfieldi* Hope seems to occur in greater part of India with particularly variable forms. The form found in Himalayan region is small and narrow with small golden triangular elytral patches. The form from Sri Lanka is usually larger and broader with the large golden patches. The adults of *Glycyphana horsfieldi* Hope were known to visit the flowers of *Hibiscus* (Arrow, 1910). Beeson (1941) reported that the grubs of *G. horsfieldi* feed on rotten wood of *Bombax insigne* and *Chloroxylon swietenia*. Tiwari *et al*., (1991) reported *Glycyphana horsfieldi* from the State of Himachal Pradesh, India.

Most of the species from the subfamily cetoniinae (Scarabaeidae: Coleoptera) feed on the dead organic matter and plays a significant role in the recycling of organic matter and enrichment of soil. Keeping this view in kind the present observation was carried to find out larval food preferences of *Glycyphana horsfieldi* Hope from the Shivaji University Campus, Kolhapur (MS) India.

MATERIALS AND METHODS

The observations on the occurrence of Cetoniid larvae in the dead wood material was carried out in Shivaji University, Kolhapur (MS) India in the year 2011. The Shivaji University Campus is spread over 853 acres and located at 16° 40´ 39.98´´ N and 74° 15´ 06.77´´ E, having floral diversity including herbs, shrubs, plants of social forestry importance, timber plants, medicinally important plants and forest trees. The soil is red brown and the area receives annual rainfall about 1900 mm.

The dead wood material was examined in the monsoon and post monsoon season. The developmental stages of cetoniids were hand sorted from the infested branches of *A. lebbeck* and *Samanea saman* and collected in small plastic jars containing decaying wood mixed partly wet soil. These developing stages were brought to the laboratory and kept for rearing under laboratory. This collection was carried during August 2011 and we obtained 8 larvae (third instars) and 4 pupal cells.

After an interval of a month, the adults were obtained from the pupal cases. In the laboratory the adults were quantified and their morphological peculiarities were observed under stereomicroscope. Adults were sexed based on structural characters of the leg. The front tibiae are narrower in front with teeth rather farther apart, and the hind tarsi are a little longer than those of the female. The identification of the species was made with the help of available literature (Arrow, 1910). Grubs feed on dead wood of *A. lebbeck* and *S. saman*.

RESULT AND DISCUSSION

The present study reports the first record of the grubs of *Glycyphana horsfieldi* Hope occurring in the dead branches of *Albizia lebbeck* and *Samanea saman*.

A. Third Instar Morphology of Gylcyphana horsfieldi Hope

Body of the larva cylindrical, dull white in colour, typically scarabaeform, move on the back like other immature forms of cetoniinae, length 13 mm, head capsule width 3 mm. Plate I figure 1 shows the third instar grub of *G. horsfieldi* in the wood of *A. lebbeck*. Spiracles distinct, 'C' Shaped cranium yellowish brown, oceli absent.

Epicranium and frons with pores. Posterior part of the clypeus sclerotized, anterior clypeal setae long paramedical and close to the proximal end of clypeus. Clypeus with pores. Labrum rounded at margins. Setae and pores present. Antenna with four antennomeres. Antennomeres devoid of setae, the last antennomere bears 3 dorsal and one lateral sensory spots. Mandibles prominent with cutting edges Stridulatory area visible on ventral side. Molar parts of the mandibles with distinct lobes. Cardo with setae, maxillary palp segmented, ventral side of the stipes with few long setae. Dorsolateral edge with 3 teeth. Stipes with long setae on lateral edges. Labium with pair setae, prementum with a small number of long setae, glossa roofed with short and long setae. Epipharynx with rounded lateral margins. Spiracle prothoracic, legs light in colour, weak. Legs covered with short and long setae, claw small nearly blunt. Spiracles on abdominal segment 1 to 8, covered with rows of long and short setae on dorsal and ventral surface. Septula present extending from lower anal lip to venter of 10th abdominal segment. Tigilla covered with short sharp setae. Barbulae with long setae, anal opening transverse and straight surrounded by rows of long and short setae. The adult of the *G. horsfieldi* was described by Arrow (1910) (Plate I, Fig. 2.).

Plate I

Fig. 1.

Fig. 2.

It is evident from the present observation that *G. horsfieldi* Hope breeds in the dead wood of *A. lebbeck* and *S. saman*. The larvae of this beetle use dead wood of *A. lebbeck* and *S. saman* as food and shelter.

This work expands the knowledge of beetle fauna inhabiting dead wood. Prior to this study, only pestiferous stem borers of *A. lebbeck* were reported from India (Beeson, 1941).

Coleopterans form the highest proportion of forest diversity among saproxylic organisms. With this, majority of the beetles species act as a keystone in forest dynamics. The earlier studies reports that saproxylic coleopterans are actively engaged in degradation of woody material, soil fertility and the recycle the rich nutrients into the ecosystems (Buse *et al.*, 2009; Micó *et al.*, 2011).

The overall structure of forest, composition of plant species, actual dead wood quantity and microhabitats like tree hollow are key factors which have an effect on forest biodiversity (Hunter, 1999; Lindhe and Lindelöw, 2004; Paillet *et al.*, 2010. Several species of saproxylic invertebrates use tree microhabitats as food, shelter and also as breeding habitat (Winter and Möller, 2008; Michel and Winte, 2009; Vuidot *et al.*, 2011).

The present communication throws a light on the larval food spectrum of *Glycyphana horsfieldi* Hope. But future investigations are necessary in order to better understand the biology of this oriental cetoniid on dead wood of these two different plant species and others.

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