

ADULT POPULATION OF *APRIONA GERMARI* HOPE (COLEOPTERA: CERAMBYCIDAE) IN MULBERRY FARMS OF JAMMU AND KASHMIR STATE (INDIA)

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ABSTRACT

Adult population study of mulberry longicorn beetle is of great interest, because it is a polyphagous pest causing unrepairable damage to host trees. Mark recapture method was used to determine population. Results revealed that the beetles emerged from June to September with a peak emergence in mid July in subtropical region while in temperate region adult population peaked in 2nd fortnight of August. Sex ratio fluctuated around 1:1.

Key words: adult population, *Apriona germari*, mulberry farms

INTRODUCTION

Mulberry longicorn beetle, *Apriona germari* Hope (Coleoptera: Cerambycidae) commonly found in China, Japan, Korea, Vietnam, Burma and India, is a polyphagous pest infesting healthy hosts including *Morus* spp., *Salix* spp. and *Populus* spp. (Beeson, 1941 and Duffy, 1968 and Anonymous, 2003). Khan, *et al.* (2004) reported *A. germari* a major pest of mulberry plants in North India.

Though preliminary investigations on *A. germari* give an idea about the distribution and host complex of the pest, but its economic importance necessitates further studies which may lead to work out the efficient management strategies for the stem borer under question. With this motive, adult population dynamics of *A. germari* was evaluated in mulberry farms of Jammu and Kashmir state as an initiative towards the management of the pest.

MATERIALS AND METHODS

Present study was carried out in 2005 at Regional Sericulture Research Station Miransahib (Jammu province) and Bimyar Uri (Kashmir province).

Mark-recapture method was adopted for studying the population of *A. germari* in mulberry farms. Adults were sampled, sexed, marked with nail polish and released to mix with rest of the population. After specific time intervals, population was sampled again and total population was estimated by:

$$N = n M/m$$

Where N = Total population.

M = Total number of individuals captured in first sampling, marked and released.

n = Total number of individuals captured in 2nd sampling.

m = Number of marked individuals captured in 2nd sampling.

Capture- recapture procedure was repeated after every fortnight for estimating the population of mulberry longicorn beetle till no adult was found in the field.

RESULTS AND DISCUSSION

In the study area, adults of *A. germari* emerged over a period of four months. In subtropical region (Jammu province), mass emergence of beetles took place in mid July while in temperate region (Kashmir province), peak emergence occurred in mid August (Tables 1a and 1b). The difference in peak emergence of mulberry longicorn beetle in two regions seems to be due to the climatic factors viz., temperature, relative humidity and rain fall. The sex ratio fluctuated around 1:1 through out the study period.

Generally speaking, the development of insects in any life stage can be sub-divided into starting period, peak period and ending period when 16, 50 and 84% of the population reaches this stage, respectively (Xiao, 1992).

Table 1(a). Adult population of mulberry longicorn beetle in Jammu province.

<u>Date of observation</u>	<u>Population (%)</u>
22 May	0
7 June	0
22 June	7.293
7 July	12.155
22 July	33.963
7 August	23.176
22 August	12.479
7 September	8.427
22 September	3.403
7 October	0

Table 1(b). Adult population of mulberry longicorn beetle in Kashmir province

<u>Date of observation</u>	<u>Population (%)</u>
13 July	0
27 July	0
13 August	8.284
27 August	15.976
13 September	35.502
27 September	20.512
13 October	13.806
27 October	5.917
13 November	0

Accordingly the starting period of adult mulberry longicorn beetle fell in between July 1 and 5 and August 3 and 5 when 13- 17% and 14- 16% individuals became adults in Jammu and Kashmir provinces, respectively. The peak and ending period in Jammu province were observed in between 21-24 July (50-56% adults emerged) and on 16 September (84% adults emerged), respectively. In Kashmir province peak and ending periods fell on 23-25 August (49-54% adults emerged) and 17-18 September (84% adults emerged), respectively (fig. 2a and 2b).

The population of immature stages of *A. germari* (infact all stem borers) is difficult to determine as they reside inside the trees. However, present study provided a clear picture of adult population of *A. germari* in different climates of Jammu and Kashmir state.

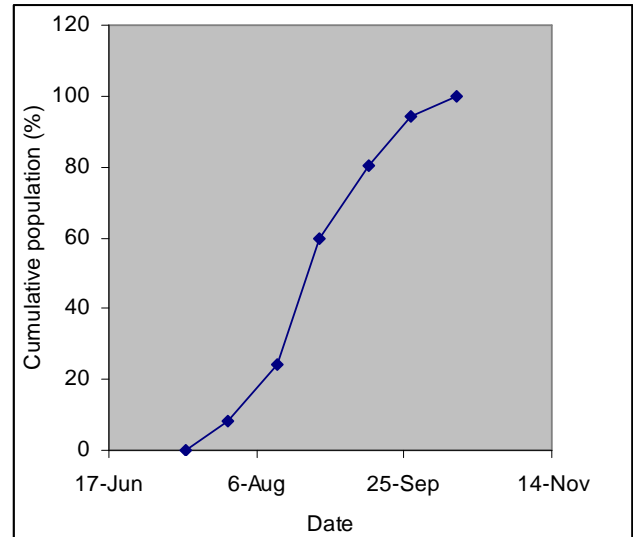


Fig. 2(a) Cumulative adult population of mulberry longicorn beetles in Kashmir province.

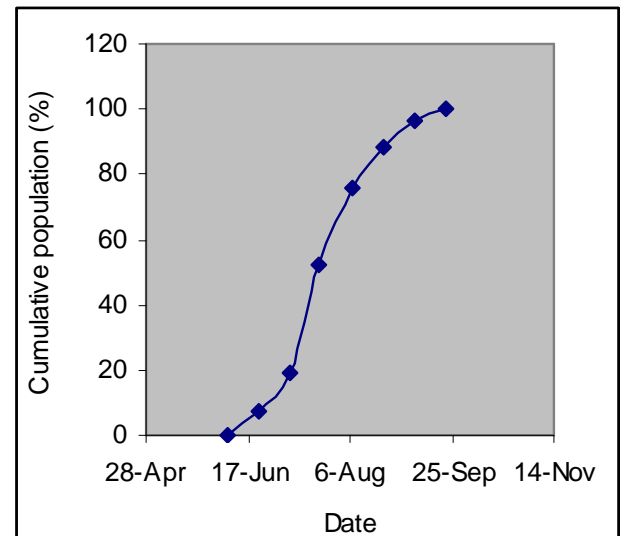


Fig.2(b). Cumulative adult population of mulberry longicorn beetles in Jammu province.

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