霧社血斑天牛生物學研究(二)

Biology of the Wushe blood-spotted longhorned beetle

(*Aeolesthes oenochrous* Fairmaire, 1889) (II)

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摘 要

霧社血斑天牛為保育類昆蟲，在台灣之族群分布，多集中在人為栽植大面積山櫻花地區，相對的，原始林內零星分布之山櫻花，血斑天牛較少發現，顯示與植栽的分布有相當大的關係。今年春季成蟲發生期間於八仙山國家森林遊樂區內櫻花林進行成蟲族群調查，共記錄到 24 隻個體，相較於 2006 至 2008 年的監測資料來看，仍有個體數量持續減少及發生高峰期不明顯之趨勢，且發生期較前三年減短。本年度成蟲出現期間在 3 月下旬到 4 月中旬，發生期較 2008 年提前，與 2006 及 2007 年較為接近，發生高峰期比往年均提早發生。就連續 4 年的調查結果，每年雌蟲數量皆多於雄蟲，除第一年以外，各年與整體之雌雄蟲數量均有顯著差異(t-test, $p<0.05$)，而雌雄蟲在體型上並無明顯差異($p>0.05$)。成蟲白天活動時間確認集中於 10：00 至 15：00 之間。成蟲日間多於高度 4 公尺以下植株主幹位置活動。研究樣區之成蟲對胸高直徑在 10 至 25 公分的山櫻花植株有較高的偏好。本研究並建立成蟲之生殖行為，包括雌雄交尾、雌蟲產卵與雄蟲競爭之流程圖。雌蟲在未曾交尾的情況下即會產卵，單次交尾雌蟲產卵量平均為 188.2 顆(n=6)。在幼蟲人工飼育方面，兩隻自 2007 年長期成功飼育之個體，其一羽化個體顯示幼期長度為 1 年 6 個月，另一幼期發育時間則超過 2 年，顯示此一物種之生活史長短變異相當大。本報告整合過去四年所獲得之結果，並對於櫻花林與天牛保育之經營管理提出建議。

關鍵詞：山櫻花、霧社血斑天牛、族群監測、保育生物學、生殖行為、生活史、森林經營管理

Abstract

The Wushe blood-spotted longhorned beetle (*Aeolesthes oenochrous* Fairmaire, 1889) is listed as a protected insect under the Wildlife Conservation Law in Taiwan. We found its population is relatively higher in the area near plantation cherry trees (*Prunus campanulata* Maxim) while there are less occurrence in the primeval forest. It suggests that the distribution of this beetle is associated. Our survey recorded 24 adults at the Cherry Wood in Basianshan National Forest Recreation Area in the spring of this year which reveals a trend of decline in population size and a little earlier but inconspicuous peak of occurrence when compared with the data from 2006 to 2008. The period of occurrence is also shorter than the previous three years. Adult appeared during the late-March and mid-April this year, which is earlier than in 2008 and similar to the occurrence of 2006 and 2007. In the contiguous four year survey, there are more females than males in the population and significant results were obtained using *t*-test ($p < 0.05$) in each year and as a whole except the first year. It is confirmed that the peak of adult activity lies between 10:00 to 15:00. The height of activity on the tree for adults is mainly on the tree trunk bellow 4 m. Adults tend to prefer trees with DBH at 10 to 25 cm in the study area. We also established the ethograms of mating behavior, female egg-laying, and male-male competition. Female can lay eggs without mating and a female lays 188.2 eggs (n=6) in average. The rearing experiments using artificial diet successfully rear two individuals since 2007. One of them emerged into adult with larval stage for 1 year and 6 months while the other has larval development lasting for more than 2 years. It suggests a high variation of the life cycle. This report synthesizes the research results of the past four years and provides suggestions in the management of the cherry wood and the long-horned beetle conservation.

Key words: *Prunus campanulata*, *Aeolesthes oenochrous*, population monitoring, conservation biology, reproductive behavior, life history, forest management