EFFECTS OF HOST SPECIES AND POPULATION DENSITY ON *ANOPLOPHORA GLABRIPENNIS* FLIGHT PROPENSITY

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ABSTRACT

Anoplophora glabripennis Motschulsky (Coleoptera: Cerambycidae), the Asian longhorned beetle (ALB) is a pest of hardwoods in its native range of China. While the host range of this pest has been studied extensively, its mechanisms for host selection are still unknown. Our goal was to study the factors influencing movement and orientation of adult ALB in order to determine if beetle behavior can be exploited to enhance survey and control efforts. Studies were performed near Qintongxia, Ningxia A.R., P.R. of China using potted trees. In 2002, Chinese (*Populus alba* and *P. nigra* var. *thevestina*) and American hosts (*Acer platanoides* and *A. saccharum*) were compared with an artificial tree. Marked beetles were observed hourly, and an exponential decay model ($y=e^{-\beta t}$; where represented the rate of departure from hosts) β was fit to the data. ALB remained on the North American maples to the Chinese poplars and the artificial tree. In 2004, a similar study was conducted with an Asian maple host, *A. mono*, *P. nigra*, *A. platanoides* and an artificial tree. Significantly more ALB remained on the maples than on the poplar or the artificial tree, but there was no significant difference in retention on the maples. In 2005, we wanted to determine if population density played a role in ALB flight propensity. We placed ALB adults in one of four groups on potted *P. nigra* var. *thevestina*: 2/tree, 4/tree, 8/tree and 16/tree. Again, marked beetles were observed hourly, and an exponential decay model ($y=e^{-\beta t}$; where β represented the rate of departure from hosts) was fit to the data. While there was no difference in the 4/tree, 8/tree and 16/tree groups, ALB in these three groups were more likely to fly than those in the 2/tree group.