

HOST RANGE OF *ANOPIOPHORA GLABRIPENNIS*: WHAT WE'VE LEARNED FROM COMMON-GARDEN EXPERIMENT DATA

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A “common garden” experiment was conducted at two sites in China to test preference of the Asian longhorned beetle (ALB), *Anoplophora glabripennis* to important tree species, especially trees from different families whose status as a host was not clear. Parameters relevant to preference of host: feeding, oviposition, and suitability for development were evaluated.

The selection of tree species was primarily based on the distributional and economic importance of tree species in the U.S. and in China. The results of earlier tests conducted in the Otis laboratory in 1997-1998 were also taken into the consideration. Other factors such as information contained in literature and the survey results from the New York and Chicago infestations, also contributed to the selection of test species. Trees (40-60 from each of the 25 selected species) primarily from China were planted in one site in northwestern China, while trees from the U. S. (40 from each of the 20 selected species) were planted in Beijing.

Choice and non-choice tests were conducted. Trees were planted using a randomized block design. In the choice test, marked adult beetles were released at nine points diagonally distributed in the field. Trees were checked for presence of released beetles, adult feeding, egg sites and exit holes. In the no-choice test, a pair of adults (one male and one female) were caged with individual trees, which also were checked for adult feeding, oviposition

sites and exit holes. Adult longevity was also recorded for all caged beetles.

As we expected, exit holes of adult beetles were found on *Acer mono*, *Acer platanoides*, *Acer saccharum*, and *Betula papyrifera*, *Salix matsudana*, *Ulmus pumila*, and several species of poplar (*Populus spp.*). However, unexpectedly, we also found exit holes on *Alnus incana*. Exit holes were also found on *Elaeagnus angustifolia*. No exit holes were found on some poplar species and hybrids such as *Populus deltoids*, *Populus alba* × *Populus glandulosa* and *Populus alba* × *Populus alba* var. *pyramidalis*. Although feeding and oviposition sites have been found on trees such as *Armeniaca sp.*, *Fraxinus chinensis*, *Fraxinus pennsylvanica*, *Malus pumila*, *Platanus occidentalis*, *Pyrus sp.*, *Quercus alba*, *Robinia pseudoacacia*, and *Sophora japonica*, no exit holes have been found on these trees. We observed that the number of egg pits made does not always agree with number of active egg sites and number of exit holes in both choice and non-choice test.

Two primary problems for this experiment were the different sizes of trees and presence of woodpeckers in the choice test plot. We did not know how tree size influenced oviposition and feeding. However, we know that the species planted were of different sizes (diameter and crown) because of different growth ratios and the different sizes initially planted.