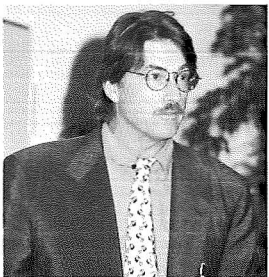


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Eradication and control strategies in the USA

Eradikation und Bekämpfungsstrategien in den USA

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A reproducing population of Asian longhorned beetles, *Anoplophora glabripennis*, was detected in the United States in 1996 in the New York City borough of Brooklyn. A second population was detected in the Ravenswood area of Chicago, IL, two years later. Both populations had apparently been introduced separately in wood packing materials from the orient a number of years – perhaps as much as a decade – before being detected. Based on tree damage in the U.S. and the insect's pest status in its native range, the insect was considered a serious threat to U.S. trees, and eradication efforts were initiated.

The overall program to eradicate U.S. populations of *A. glabripennis* consists of several components, including survey, control, regulatory efforts, public education, tree restoration, and research. The first three components are described below; the last three are beyond the scope of this paper.

Survey

Although other potential survey technologies are under development, visual examination of host trees for beetles and beetle damage is the only survey method now being used in the eradication effort. Four levels of survey intensity are carried out:

The Level 1 or "core area" survey covers areas within 800 m of all sites of trees that were known to be infested. Every tree of a known host species (including maples, elms, willows, horse chestnuts, poplars, and others) is examined annually using bucket trucks or tree climbers, which greatly enhances the efficiency of the survey in comparison to examining trees from the ground.

The Level 2 or "delimitation" survey extends from the edges of core areas to 2.4 km from sites of known infestations. Roughly half of all host trees are surveyed every year.

The Level 3 survey specifies that 50 to 100 host trees are surveyed around "high risk sites" (e.g., sites where tree trimmings, wood pallets, etc. are held) within the metropolitan area surrounding the infestation. A similar survey is also being conducted on a national level, focusing on sites where imported wood packing materials or bonsai trees are held.

The Level 4 survey extends from the edge of the delimitation survey to 40 km from infested areas. This is a lower in-

tensity survey designed to find any large infestations in the area.

Survey efforts are enhanced through the use of Geographic Information Systems and other databases to track beetle populations and survey efforts. Simulated beetle damage is used to monitor effectiveness of surveyors in Level 1 and 2 areas.

Control

The eradication effort is using two tactics to control *A. glabripennis*. First, any trees found to have beetle damage are cut down and chipped (the chips, in many cases, are also burned). To date, > 5500 trees in New York and > 1500 trees in Illinois have been removed. Second, systemic insecticides are being used to treat all uninfested host trees surrounding areas where infested trees have been found and removed. Imidicloprid is currently the insecticide of choice and is applied through trunk injection (Mauget system) or, in some cases, injection into the soil. In 2002, > 130 000 trees in New York and > 50 000 in Illinois were treated.

Regulatory

Areas around the known infestations have been quarantined in an effort to stop movement of *A. glabripennis* into uninfested areas. Compliance agreements have been developed with importers, landscapers, nurseries, firewood dealers and others that might move infested materials. Quarantined areas include 312 km² in New York and 80 km² in Illinois. In addition, regulations were enacted that require China to treat solid wood packing materials before exporting them to the United States. More comprehensive regulations on importation of wood packing materials are under consideration.

Progress

Numbers of infested trees found and removed have been declining in both New York and Illinois since 1999. This has happened despite a substantial increase in the intensity of the survey effort in both areas over the past two years, suggesting that *A. glabripennis* populations are declining and the program is making progress toward eradication.

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