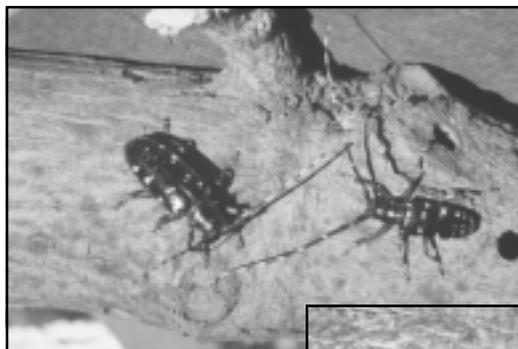


Chicago Joins New York in Battle with the Asian Longhorned Beetle

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The Asian longhorned beetle, *Anoplophora glabripennis* (Motschulsky), was positively identified on 13 July 1998 attacking trees in an area of northern Chicago known as Ravenswood. Previously, the only known North American occurrence of this Asian cerambycid beetle was in the Amityville area and the Brooklyn area of Long Island, New York, where it was discovered in August 1996 (Haack et al. 1996, Cavey et al. 1998). In New York, this woodborer has attacked species of maple (*Acer*), horsechestnut (*Aesculus hippocastanum*), birch (*Betula*), poplar (*Populus*), willow (*Salix*), and elm (*Ulmus*) (Haack et al. 1997). Because of the potential for longterm ecological and economic damage an aggressive eradication program that involves locating, removing, chipping and burning of all infested trees was implemented in New York in February 1997. To date, over 2000 infested trees have been cut and over \$ 4.2 million has been spent or obligated on tree removal and replanting programs (Haack 1998). Now Chicago has joined New York in the battle against the Asian longhorned beetle.

On 10 July 1998 a Chicago-area parks employee discovered a striking beetle emerging from some locally-cut firewood. He initiated an investigation into its identity and three days later the beetle was confirmed as the Asian longhorned beetle. Evidence suggests that, like in New York, the beetle arrived from China in wooden packing material such as pallets and crating and then became established in nearby host trees. The extent of attack and damage from the Asian longhorned beetle in the Ravenswood area of Chicago indicates that the beetle had been present prior to its detection for approximately 5 to 7 years. The city of Chicago reacted quickly to the discovery. City employees met with officials of the USDA Animal and Plant Health Inspection Service (APHIS), the Illinois Department of Agriculture and the USDA Forest Service on 15 July to devise an action plan. Chicago Mayor Daley announced the next day that Chicago



would follow New York's lead and that infested trees would be cut, chipped, burned and replaced by new trees at the city's expense.

The city of Chicago benefited greatly from New York's experience in implementing its eradication program. With an excellent leadership team and organization, the city of Chicago obtained public cooperation and support for the eradication program from the outset. The media provided excellent, factual and accurate information through extensive television, newspaper, and radio coverage. As a result of heightened public awareness about the Asian longhorned beetle, two additional infestations in the Chicago area were discovered and reported by private citizens by August 1998. One infestation was found in a non-incorporated area near Addison, approximately 5 miles southeast of O'Hare International Airport. The other infestation was found in the suburb of Summit, approximately 15 miles Southwest of downtown Chicago. Because the three areas are widely separated and warehouses importing products from China are located in each of the infested areas, the three infestations are thought to be independent of each other and not the result of spread from the initial infestation in Ravenswood.

Surveys were initiated as quickly as possible to determine the outer limits of the infested areas and to set boundaries for the quarantine zones. On 28 July, the Illinois Asian Longhorned Beetle Quarantine was implemented. Under the authority of the quarantine, the movement of all potential host material out of the quarantine areas was prohibited and all tree trimming businesses were trained and placed under Compliance Agreements by the State of Illinois. Currently, the quarantine covers 19 square miles in the Ravenswood area, as

well as 1 square mile each in Addison and in Summit. Extensive surveys were conducted out to 1 ¼ miles past the outer boundary of known infested trees at all three locations. Survey crews were composed of APHIS inspectors, federal, state and city employees as well as APHIS trained volunteers. Assistance in conducting the survey was requested at a National Plant Board Meeting and 25 states volunteered 75 people. In addition, volunteers participated from the Nature Conservancy Volunteer Stewardship Network (with over 5000 members in the city of Chicago), the Treekeepers, and the Illinois Arborists Association (composed of 700 organizations). Employees from the USDA Forest Service were also temporarily assigned to survey crews for 2 to 5 week periods. The training obtained by employees and volunteers from other states will be applied for detection and surveys in their home states.

As a result of the surveys, 465 infested trees have so far been located and marked for removal in Chicago. Of these, 425 trees (275 city trees between the road and sidewalk and 150 private trees) are in the Ravenswood area, 35 in Addison, and 5 in Summit. As in New York, mostly maples were found to be infested in Chicago; however, in Chicago many elms were also attacked. In addition, three new hosts were recorded for the first time in the US including apple (*Malus*), white ash (*Fraxinus americana*) and green ash (*Fraxinus pennsylvanica*). With the inclusion of green ash as a suitable host, the percent of Chicago's public

Table 1. Growth of US imports and insect interceptions on wood from China. Source: Haack et al. (1997).

Year	Percent of total US imports that came from China	Percent of total insect interceptions on solid wood packing materials that came from China
1985	1.1 %	1.2%
1986	1.3	1.2
1987	1.6	0.7
1988	1.9	1.5
1989	2.5	0.6
1990	3.1	1.2
1991	3.9	0.6
1992	4.8	4.4
1993	5.4	7.3
1994	5.8	8.3
1995	6.1	11.2
1996	6.4	21.2

trees that could potentially be affected by Asian longhorned beetle increased from 25% to 75%. All infested trees are scheduled to be cut, chipped and burned this winter while the beetle is overwintering. In addition, where space allows, all roots will be removed to a depth of 12 inches within a 3 foot radius of each infested tree. This is being done because larvae can occur from the upper branches down to the base of the trunk and along exposed roots (Haack et al. 1997). The tree removal program is currently scheduled to begin in late January and it is expected to take 1-2 weeks. However, tree removal may be postponed if heavy snowfall occurs. City trees will be removed by the City of Chicago Bureau of Forestry. Removal of private trees will begin later and will be completed by City-approved private contractors. Homeowners will **not** be billed for removal of their trees.

Plans are underway for a replanting and beautification project in Chicago. The US Forest Service has donated \$480,000 towards replanting in Chicago and fund-raising has been initiated to supplement and match this contribution. Commonwealth Edison, the power company servicing northern Illinois has donated \$100,000, WXRT expects to donate \$100,000 from the sale of one of their CDs, and the Counsel General of The Netherlands donated 10,000 tulip bulbs which were planted in the fall of 1998 to aid in the beautification program. Homeowners in the infested areas have been very supportive of the eradication and replanting program. Many participated in public meetings to learn more about tree

species and planting stock selection for replanting, choosing quality nurseries, and building temporary homes for displaced birds and squirrels.

New infestations by the Asian longhorned beetle and other exotic insects are likely to be detected in the future given the large quantity of imports that arrive in solid wood packing material from China (Haack et al. 1997, Cavey 1998, Tables 1-3). It is likely that several other ALB infestations already exist in the US, but so far have not been detected. Many insect pests are associated with unprocessed wood packing materials (Haack and Cavey 1997). As a result of this latest Asian longhorned beetle infestation in Chicago, a new interim rule for shipments from China was implemented on 17 December 1998 by USDA APHIS (1998). The new rule requires that all imports from China with solid wood packing materials must be certified that the wood has been heat treated, fumigated or treated with preservatives prior to export. Compliance with the new rule should dramatically reduce the risk of new infestations by exotic wood-boring insects from China. Plans are for NAPPO (North American Plant Protection Organization) to expand this ruling to imports from the entire world within the next few years.

Although some research has been done on the Asian longhorned beetle, primarily in China, there are many data gaps that must be filled in order for an effective management program to be implemented in North America. A greater understanding of the beetle's biology in North America is required. It is also critical to develop improved means for detecting the beetle's presence, controlling it, and preventing it from becoming established. A few federal and university entomologists are already conducting research on the Asian longhorned beetle while many others are planning research projects in 1999. These studies run the gamut from pheromones and systemic insecticides to biocontrol agents and flight capacity to genetics and cold-hardiness.

Data are also being gathered throughout the eradication program in Chicago. A study is being conducted to evaluate the effectiveness of the ground survey technique within sample plots in the Ravenswood infested area. Within each plot, all city trees have been re-surveyed using bucket trucks to compare the results of close-up inspections to the visual survey from the ground. In addition, within each sample plot several trees with no evidence of attack from the ground or bucket-truck surveys will

be cut during the tree removal program and examined in detail for attack. The dynamics of the infestation are being studied by mapping all city and yard trees within each plot using GPS technology. The position of all infested and uninfested hardwood trees was recorded along with the species, diameter, and condition. The database will be updated annually and used to follow the infestation as new trees are detected. During the tree removal process, a percentage will be split and inspected to determine the location of all stages of Asian longhorned beetle within different species of host trees. This information will be used to determine within-tree distribution, host preferences, and beetle development within different host trees. In addition, some infested material from Chicago will be taken to secure quarantine facilities so that beetles can be reared and studied. Still other studies are occurring now in China, where there are abundant numbers of infested poplars, willows, and elms. Various systemic insecticides are now being tested. These insecticides are aimed at killing larvae while they feed in the outer sapwood as well as the adults while they conduct maturation feeding on twigs and foliage upon emergence.

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Table 2. Number of interceptions of Cerambycidae (longhorned beetles) found with wood packing material in imports from China during the period 1985–August 1998. Data presented at the genus level. Source (Cavey 1998).

Genus	No.	Genus	No.
<i>Anoplophora</i>	23	<i>Monochamus</i>	153
<i>Apriona</i>	1	<i>Phymatodes</i>	1
<i>Aseum</i>	2	<i>Plagionotus</i>	1
<i>Batocera</i>	2	<i>Pterolophia</i>	1
<i>Callidiellum</i>	1	<i>Purpuricenus</i>	1
<i>Callidium</i>	1	<i>Stromatium</i>	2
<i>Ceresium</i>	94	<i>Trichoferus</i>	1
<i>Chlorophorus</i>	1	<i>Xylotrechus</i>	18
<i>Dere</i>	1	Cerambycinae, sp. of	17
<i>Elaphidion</i>	1	Lamiinae, sp. of	9
<i>Glenea</i>	1	Cerambycidae, sp. of	16
<i>Hesperophanes</i>	6	Sum	354

Table 3. Number of interceptions of insects other than Cerambycidae found with wood packing material in imports from China during the period 1985 – August 1998. Source (Cavey 1998).

Pest	No.	Pest	No.	Pest	No.
COLEOPTERA, sp. of	2	Scolytidae , sp. of	55	<i>Pityogenes chalcographus</i> L.	1
Buprestidae , sp. of	2	<i>Cryphalus</i> sp.	40	<i>Scolytus</i> sp.	12
<i>Buprestis</i> sp.	1	<i>Cyrtogenius</i> sp.	2	<i>Xyleborinus</i> sp.	1
<i>Chalcophora</i> sp.	1	<i>Dryocoetes</i> sp.	40	<i>Xyleborus</i> sp.	7
<i>Chrysobothris</i> sp.	2	<i>Euwallacea validus</i>	1	<i>Xyleborus validus</i> Eichhoff	2
Curculionidae , sp. of	7	<i>Hypocryphalus</i> sp.	3	Platypodidae , sp. of	1
Curculionoidea, sp. of	3	<i>Hypothenemus</i> sp.	5	Platypus sp. Platypodidae	1
Cryptorhynchinae, sp.	2	<i>Ips</i> sp.	3	HYMENOPTERA	
Cryptorhynchus sp.	2	<i>Ips acuminatus</i> Gyllenhal	1	Siricidae , sp. of	3
<i>Hylobius</i> sp.	1	<i>Ips cembrae</i> Heer	2	ISOPTERA	
<i>Niphades</i> sp.	4	<i>Ips erosus</i> Wollaston	25	<i>Coptotermes</i> sp.	1
<i>Pissodes</i> sp.	3	<i>Ips typographus</i> L.	2	<i>Cryptotermes</i> sp.	1
<i>Shirahoshizo</i> sp.	14	<i>Orthotomicus</i> sp.	13	<i>Reticulitermes</i> sp.	1
<i>Sipalinus</i> sp.	2	<i>Phloeosinus</i> sp.	2	Sum	245
		<i>Polygraphus</i> sp.	3		
		<i>Polygraphus poligraphus</i> L.	1		

Asian Longhorned Beetle on the Web

There are several excellent internet sites with information on the Asian longhorned beetle. The webpages contain downloadable photographs of all life stages of the insect and its damage, information on the infestations in New York and Chicago and eradication programs, news releases and newspaper articles, information on the beetle's biology and damage, maps of the infested areas, quarantine regulations, pest risk assessments and import regulations, links to other websites and information on who to contact with questions or concerns.

<http://willow.ncfes.umn.edu/asianbeetle/beetle.htm>

<http://www.aphis.usda.gov/oa/alb/alb.html>

<http://www.aphis.usda.gov/ppq/longhorn.html>

<http://www.agr.state.il.us/asianbeetleinfo.html>

<http://ceris.purdue.edu/napis/pests/alb/>

http://www.aces.uiuc.edu/longhorned_beetle/