

Asian Longhorn Beetle *Anoplophora glabripennis* (ALB) - Eradication Program in Braunau (Austria) in 2007

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Abstract

Infestation symptoms of the Asian Longhorn Beetle *Anoplophora glabripennis* were first detected in Braunau/Inn in November 2000 and officially confirmed after the first finding of an emerged beetle in July 2001. A report of the monitoring and eradication program 2000-2007 is given. As the amount of infested trees has not decreased within this period which means that the quarantine pest could not be eradicated, a more rigorous monitoring and control strategy is proposed.

Keywords: *Anoplophora glabripennis*, quarantine pest, monitoring, eradication, host trees

Kurzfassung

Asiatischer Laubholzbockkäfer (ALB) - Bekämpfungsmaßnahmen in Braunau (Österreich) 2007

Befallssymptome an lebenden Bäumen, die vom Asiatischen Laubholzbockkäfer *Anoplophora glabripennis* verursacht wurden, wurden das erste Mal im November 2000 entdeckt werden. Die offizielle Bestätigung erfolgte nach dem Fund eines ausgeschlüpften Käfers im Juli 2001. Der Bericht enthält die Ergebnisse des Monitorings und der Bekämpfungsmaßnahmen im Zeitraum 2000-2007. Da innerhalb dieser Periode die Anzahl der neu entdeckten Befallsbäume nicht abnahm, werden schärfere Überwachungs- und Bekämpfungsstrategien präsentiert.

Schlüsselworte: *Anoplophora glabripennis*, Quarantäneschädling, Überwachung, Bekämpfung, Wirtsbäume

The first symptoms of the Asian Longhorn Beetle (ALB) *Anoplophora glabripennis* (Motschulsky, 1853) were detected in November 2000. Bore holes, frass activity, wood shavings and cerambycid larvae were found on maples close to a home market centre. But the local arborists did not realize that this could be a quarantine organism. The presence of ALB was officially confirmed by the Austrian Plant Protection Organization after finding an adult beetle. Soon after this diagnosis the eradication program was started. All infested trees were cut; the complete organic material was chopped into small pieces and then burned. Also, a monitoring program of all potential host trees was initiated; first in the vicinity of infested trees and later on also in other parts of the town and in the surrounding

forest (Figure 1). During the monitoring activities, carried out so far twice a year by inspectors of the forest authorities and of the Municipal Administration for Gardening and Tree Health of Braunau and experts of the Federal Research and Training Centre for Forests, Natural Hazards and Landscape (German abbr.: BFW), several hot spots of infestation have been found (Figure 2).

A detailed assessment of the detection dates of ALB-symptoms on trees or beetles found including the GIS-coordinates of the attacked trees was necessary for the documentation of the spreading of the pest in Braunau. Maps based on aerial photographs of all sites were produced to help the inspectors with their monitoring work and to find correlations between detected exit holes on trees and new egg deposition scars (Figure 3).

Some important results of the monitoring program

- Trees with exit holes hidden in a yard of a small factory: It is very difficult to find symptoms (even exit holes) of the beetle during leaf coverage in the vegetation period and when young trees are hidden inside private territories.
- Multiple attacks of at least two generations on one tree are possible, if there is enough space for feeding of the larvae and if the tree survives the first generation's attack.
- The first finding of ALB on trees in a small forest (Figure 3; Lower right corner) suggests, that all trees of that 15 years old poplar and willow stand were cut, irrespective if symptoms were detected or not.
- The enormously long presence and activity of adult living beetles were proved by a finding in October.
- In 2007, the inspectors reported for the first time an attack of *A. glabripennis* on *Fraxinus* and *Alnus*.
- Initially, beetles are often detected by private persons. Therefore, it is very important to publish leaflets and articles in newspapers regularly or disseminate information about the pest in local news media.
- Detection of symptoms on young, dense growing trees (e.g. along roads) is nearly impossible. It is recommended to cut them all as a preventive measure.
- Splitting of monitoring areas into different inspection groups might lead to problems, because of missing coordination and information exchange.

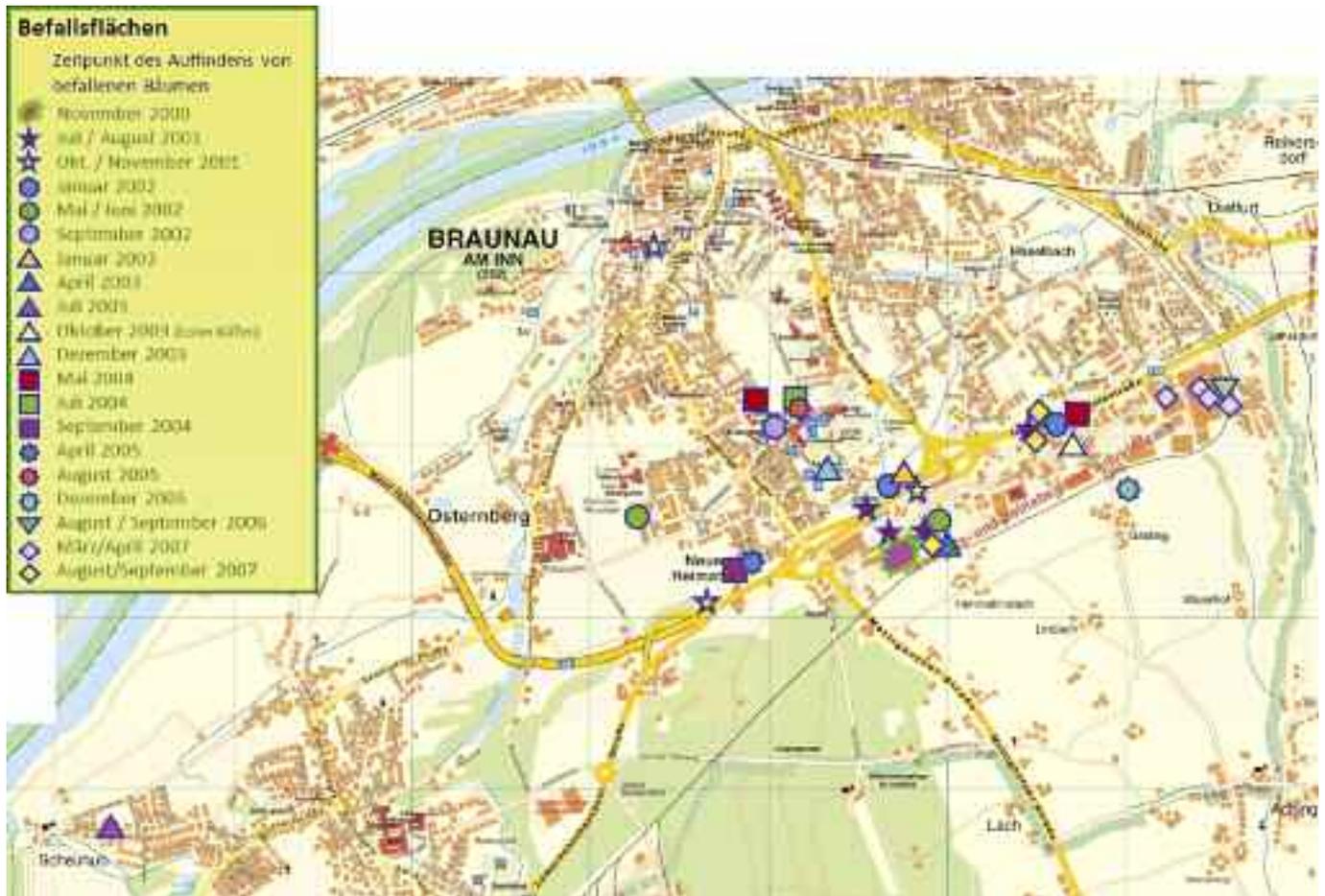


Figure 1: Trees with symptoms of ALB infestation and date of detection
Abbildung 1: Bäume mit ALB-Befallssymptomen und Zeitpunkt der Entdeckung

- Within a hot spot area the monitoring has to be repeated at least twice a year and throughout several years.

Intensive monitoring program – a new strategy

As shown in Table 1, the ALB eradication program in Braunau did not succeed as expected. The numbers of yearly new detected trees with ALB infestation could not be reduced. As a result of more intensive monitoring activities in 2007, more new ALB attacked trees than ever before were found (Hoyer-Tomiczek 2007).

Therefore, a new, more intensive and expensive monitoring and eradication program for the following years is discussed:

- Within a circle of 100 m radius from a tree with exit holes: every potential host tree has to be cut (or used as an intensively surveyed trap tree).
- Within a circle of 300 m every potential host tree has



Figure 2: Hot spots: areas where infested trees were found very often in the monitoring period
Abbildung 2: Hot spots: Flächen mit erhöhter Häufigkeit befallener Bäume innerhalb der Monitoringperiode

- to be investigated twice a year with tree climbers. All trees should be marked with a metal plate for easy identification.
- Financial assistance from governmental sources or from EU (solitary fond) will be requested.



In most cases, successful eradication of an introduced quarantine pest within a few years is very difficult to manage. The ALB, having a wide range of host trees and adapting very well to the ecological and climatological conditions of Central Europe, is one of the most problematical organism. Thus, the only way of preventing such introductions from foreign countries and continents is to regulate the potential sources of transmission: wood packaging material and plants for planting (Krehan 2007).

Figure 3: Detail documentation of detected trees with ALB infestation during the monitoring period 09/2006-04/2007
 Abbildung 3: Detaildokumentation entdeckter ALB-Bäume in der Monitoringperiode 09/2006-04/2007



Figure 4: Heavily damaged Maple
 Abbildung 4: Schwer geschädigter Ahorn

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Table 1: Results of the ALB Monitoring in Braunau
 Tabelle 1: Ergebnisse des ALB-Monitorings in Braunau

Year	2001	2002	2003	2004	2005	2006	2007	Total
Infested trees with living stages of larvae or eggs (cut, chopped and burnt)	38	22	8	27	4	7	75	181
Infested trees with exit holes	?	0	3	4	0	4	3 ¹⁾ + 5 ²⁾	19+ ?
Adult beetles emerged outdoor in Braunau (number of detected exit holes)*	?	?	42	19	30	29	50	170 + ?
Number of escaped beetles in Braunau	?	?	17	15	30	28	40	130 + ?
Adult beetles collected in Braunau	89	0	25	4	0	1	10	129
Adult beetles emerged from infested logs from Braunau or out of artificial diet in quarantine lab	-	5	14	10	4	2	50	85

* year of detection of exit holes must not be identical with the year of beetle emergence
 1) 1 Maple with 36 exit holes of the years 2005 + 2006
 2) 1 Willow with 51 exit holes of the years 2007 (39) + 2006 + 2005