Citrus Longhorn Beetle Situation in Croatia – Two Years after the First Discovery

Andrija Vukadin and Boris Hrašovec

Abstract

Twelve consecutive surveys of the quarantined nursery during 2008-2009 revealed 22 *Acer palmatum* plants and seven potted roses infested with citrus longhorn beetle (CLB) larvae in 2008, and another 38 infested maples in 2009. Not a single *Magnolia* plant from the same imported batch revealed any sign of CLB presence as of October 2009. A switch from maple to nearby roses was recorded. Artificial introduction of CLB larvae demonstrated that they can thrive in *Quercus, Robinia, Corylus, Malus* and fully develop in *Fagus sylvatica*. Not a single sign of CLB infestation has been recorded in the area surrounding the quarantined nursery.

Keywords | *Anoplophora chinensis*, Croatia, monitoring, hosts

Kurzfassung

Status des Citrusbockkäfers *Anoplophora chinensis* in Kroatien – zwei Jahre nach der ersten Endeckung

Im Zeitraum 2008-2009 wurden bei 12 aufeinander folgenden Surveys in der unter Quarantäne stehenden Baumschule in Kroatien, in der *Anoplophora chinensis* das erste Mal gefunden worden war, 22 Pflanzen von *Acer palmatum* und sieben Topfrosen mit *A. chinensis*-Larven im Jahr 2008 und weitere 38 befallene *Acer palmatum*-Pflanzen im Jahr 2009 entdeckt. Anzumerken ist, dass bis zum Oktober 2009 keine einzige Magnolie des selben Importes Befallsymptome zeigte. Ein Wechsel von Ahorn auf benachbarte Rosen wurde jedoch festgestellt. Die künstliche Einbringung von *A. chinensis*-Larven in verschiedene Hartholzarten zeigte, dass sie sich in *Quercus*, *Robinia*, *Corylus* und *Malus* entwickeln und in Buche die Entwicklung abschließen können. Kein einziges Symptom eines *A. chinensis*–Befalls wurde auf benachbarten Flächen zur Quarantäne-Baumschule entdeckt.

Schlüsselwörter | *Anoplophora chinensis*, Kroatien, Überwachung, Wirtpflanzen

First record of *Anoplophora chinensis* (Forster, 1771) alias citrus longhorn beetle (CLB) in Croatia dates to mid September 2007, when a large consignment from China revealed a presence of CLB larvae (Vukadin and Hrašovec 2008). As in many known cases before, Chinese export plant health certificate clearly stated that the plants were free of pests and diseases. Immediately, ban on plant relocation was issued, together with backtracking and isolation of small number (less than 50) of plants that were transferred to two nurseries inside Croatia (Zagreb and Split). No signs of CLB were ever recorded on these plants as of October 2009. All suspicious plants, clearly infested ones, and those with some signs of physiological problems were burnt on February 22nd 2008. Exactly 2692 *Acer palmatum* plants and all *Lagerstroemia* plants were destroyed. Interestingly, not a single magnolia plant, among 600 potted plants being the third plant species in the infested Chinese consignment, was found infested in a two-year year monitoring survey in spite of the fact of being shipped together with the highly infested batch.

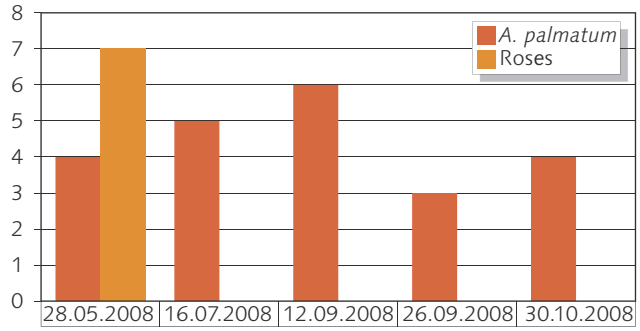

Figure 1: Number of nursery plants found infested with CLB larvae in 2008.

Abbildung 1: Anzahl von Baumschulpflanzen 2008, die von CLB-Larven befallen waren.

Aside from a ban on plant movement and selling of plants issued in September 2007 for the nursery of first record (Vukadin and Hrašovec 2008), starting with 2008, a phytosanitary survey has been initiated through six yearly *Anoplophora* targeted surveys conducted within the nursery of the first record and its respective surroundings. Apart from detecting 29 new CLB infested plants (Figure 1), a transfer to a new host was discovered. CLB larvae were discovered in seven rose plants (*Rosa* spp.) that were kept and grown as potted plants in the nursery prior to arrival of the Chinese consignment (Figure 2). These seven plants were dissected and larvae were excavated from the root collars. This important finding confirms a successful beetle transfer and life cycle completion on the Croatian territory, though reaching only the first newborn generation larvae. Infested plants were detected on May 28th

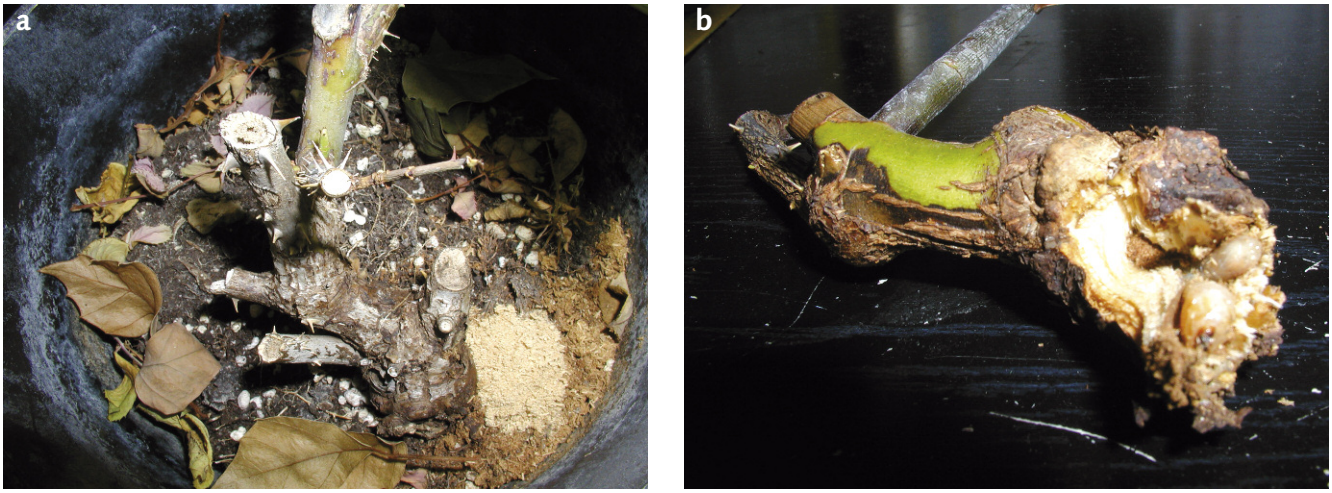

Figure 2: Nursery rose plants with clear signs of CLB larval presence (a) and fully grown larva in root collar (b).

Abbildung 2: Rose aus dem Pflanzgarten mit deutlichen Zeichen eines CLB-Larvenbefalls (a) und einer voll ausgewachsenen Larve im Wurzelhals (b).

2008 and the whole batch of roses (1430 potted plants) was burnt on June 2nd 2008. During the six surveys in 2008 inspection of the area surrounding the nursery resulted in no positive CLB signs of presence (larval frass, adults, exit holes or any other suspicious symptom). Surveys were conducted in a form of detailed visual control of all the woody plants in nearby private gardens and municipality greenery. The survey was continued in 2009 and resulted in 38 new *A. palmatum* plants found infested with CLB larvae (Figure 3). Again, six successive yearly surveys did not reveal any sign of CLB spread around the initial glasshouse holding the quarantined consignment. All positive findings were based on larval activity (woody frass at root collar) and all were destroyed upon detection.

Under the quarantine conditions, a set of experiments with larvae isolated from the infested maples in 2008 was set up. At that time the knowledge of possible hosts in European landscape was restricted, compared to most recent works (Haack et al. 2010). Less than a dozen larvae were artificially introduced in *Quercus robur, Robinia pseudoacacia, Corylus avellana, Malus domestica* and *Fagus sylvatica* branches or small potted plants. They all were successfully developing but only one larva reached adult stage in *Fagus sylvatica* branch. Other larvae did not reach pupation and this is attributed to a small number of trials and unsuitable condition of the material they were introduced into. Clearly, it seems that CLB is pronounced polyphagous but prefers living or moribund trees, not ones already dead and dried out.

The intensive survey is scheduled to continue in 2010 and decision will be made when to destroy the whole batch of infested maples from China. The most prudent way to handle this introduction under the given circumstance is probably to use the attractive power of *A. palmatum* plants for beetles, never detected but possibly present. It looks at this point that so far this was among the main reasons why CLB adults seemingly did not spread further away from their first Croatian eclosion microsite (quarantined nursery).

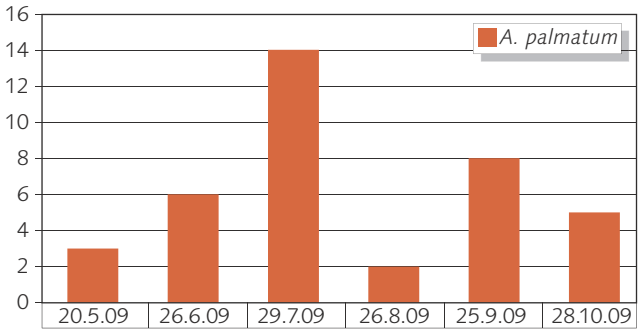

Figure 3: Number of nursery plants found infested with CLB larvae in 2009.

Abbildung 3: Anzahl von Baumschulpflanzen 2009, die von CLB-Larven befallen waren.

References/Literatur

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