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ANOPLOPHORA CHINENSIS (FORSTER, 1771) (COLEOPTERA: CERAMBYCIDAE) REPORTED AT NEW LOCATION IN TURKEY

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Abstract. Invasive alien insect species have fast growth and reproduction, high spreading ability, tolerance to very different environmental conditions and ability to feed with many plant species. The increase in importing of the plants in the recent years has been causing the presence of these species in Turkey. One of these species, *Anoplophora chinensis* (Forster, 1771) (Coleoptera: Cerambycidae) citrus longhorned beetle was recorded for the first time in Marmara region, Istanbul, Turkey by Hizal et al (2015). This study is a second report for the presence of related pest in Turkey. The new location (Bartın), in the western Black Sea region, shows that the insect is expanding its distribution area in Turkey.

Keywords: *Anoplophora chinensis*, citrus longhorned beetle, Cerambycidae, new location, Turkey

Introduction

The genus *Anoplophora* (Coleoptera: Cerambycidae) consists of 36 species of longhorned beetles indigenous to the temperate and tropical regions of Asia (Lingafelter and Hoebeke, 2002). Among these species, the citrus longhorned beetle, *Anoplophora chinensis* is a polyphagous woodboring beetle native to Eastern Asia with a host range quite wide causes damage on more than 100 species of trees and shrubs (Peverieri et al., 2012; EPPO, 2013a). The beetle gets its name from the damage caused to citrus groves in its native China. Unlike many cerambycids that primarily attack dead trees, this beetle attacks apparently healthy trees and sever tissues that carry nutrients, water, and subsequently kill the host tree (Chambers, 2002; Lance, 2002).

The citrus longhorned beetle has been introduced to Europe on several occasions. It was first discovered in Europe in 2000 at Parabiago, Italy and respectively it has been recorded in Netherlands and France (2003) and Switzerland (2006) according to FAO (2009). In Italy more than 18000 plants have been removed for the eradication program and the cost has amounted to about 12 million euros (Jucker and Lupi, 2011). Adults of *A. chinensis* were captured on 12 June 2014 in Sile region of Istanbul province and it was given as a new record to Turkish invasive alien insect species fauna by Hizal et al. (2015).

A. chinensis is a new threat on a wide range of broadleaved trees and shrubs in Turkey. Therefore its distribution areas and the behaviour of the pest in these areas should be investigated.

Materials and Methods

A total number of 28 adult samples were collected from a private nursery in Bartın region on ornamental plants consisting of *Acer palmatum purpurea*, *A. negundo flamingo* and *A. platanoides* by a Japanese umbrella. Specimens were photographed with Samsung Pro-815 digital camera and they were examined under the Olympus

SZX7 stereomicroscope. The identification process was carried out using specific literature (Lingafelter and Hoebeke, 2002; Gyeltshen and Hodges, 2005; EPPO, 2013a). The samples are stored in the collection of Bartın University, Faculty of Forestry, Department of Forest Entomology and Protection.

Results and Discussion

Experimental location: Turkey, Bartın, 41° 38' 17" N- 32° 19' 48" E, 13m, 15.VI. 2014 1♂, 17.VI. 2014, 5 ♂, 10 ♀, 19.VI. 2014, 3 ♂, 9♀

Morphology

The beetle is large, stout, and approximately 21 to 37 mm long with shiny black elytra marked with 10 to 20 white round spots (Lingafelter and Hoebeke, 2002). Generally males are smaller than females, and have their abdomen tip entirely covered by the elytra, in contrast to the partially exposed abdomen of females. Also, the male elytra are distally narrowed compared to the rounded female elytra. Another difference between males and females are antennal sizes. The male's antennae are approximately twice as long as its body compared to the female's antennae which are only slightly longer than the body. Each segment of the long, 11-segmented antennae is basally marked with white or light blue bands (Gyeltshen and Hodges, 2005). The anteriorly and posteriorly narrowed pronotum has a pair of stout spines extending from its sides and some with two blue and white tufts of hair on pronotum (EPPO, 2013a). The base of the elytra has numerous short tubercules/granulae, a morphological character that may help to differentiate *Anoplophora chinensis* from the, *A. glabripennis* (Gyeltshen and Hodges, 2005) (Figure 1 A-D).



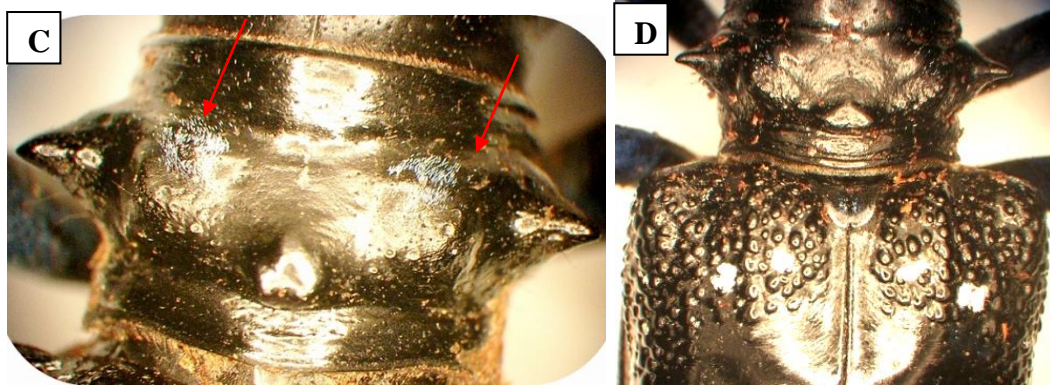


Figure 1. A. Adult of *Anoplophora chinensis* B. Antenna with blue-white bands C. Pair of stout spines and two blue-white tufts of hair on pronotum D. Tubercles/granulae on the base of the elytra

Distribution: The species has been reported China, Croatia, Germany, Guernsey, Hong Kong, Indonesia, Italy, Japan, Korea, Lithuania, Malaysia, Myanmar, Philippines, Switzerland, Taiwan and Vietnam (EPPO, 2014).

Host plants: *Acer* spp., *Aesculus hippocastanum*, *Alnus* spp., *Betula* spp., *Carpinus* spp., *Citrus* spp., *Cornus* spp., *Corylus* spp., *Cotoneaster* spp., *Crataegus* spp., *Fagus* spp., *Lagerstroemia* spp., *Malus* spp., *Platanus* spp., *Populus* spp., *Prunus laurocerasus*, *Pyrus* spp., *Rosa* spp., *Salix* spp., *Ulmus* spp., *Casuarina* spp., *Cryptomeria* spp., *Ficus* spp., *Hibiscus* spp., *Litchi* spp., *Mallotus* spp., *Melia* spp., *Morus* spp. and other woody plants (EPPO, 2013b).

In the study, adults of *A.chinensis* were detected in private nursery on maple trees (*Acer palmatum purpurea*, *A. negundo flamingo* and *A. platanoides*) that imported from China. These beetles were recorded in the same time as it was recorded first time in Istanbul by Hizal et al. (2015). Due to its polyphagous character, host plant is considered under high risk of attack, especially *Acer* species. The pest is a serious problem for the nursery industry, in the production of ornamental trees; it is also a potentially pest of citrus orchards and of many other deciduous trees. Adults feed on the fresh bark of small twigs and branches, and sometimes on leaf petioles. The females also chew from the bark of the host tree to the cambial layer, forming ‘egg scars’; then inserts her ovipositor and lays a single egg (Lingafelter and Hoebeke, 2002). Larvae feed and develop in the wood of the main roots and trunks, where they create tunnels. Exit holes have been found only at the base of trees (Figure 2 A-D). Heavy infestations can kill the host trees (Maspero et al., 2005).

This species, is placed at the list of ‘Unknown presence and harmful organism for importing’ as a part of Agricultural Quarantine Regulations Bylaw -1 An Obstacle Harmful Organism for Importing which is prepared in terms of the law no. 5996 Veterinary Services, Plant Health, Food and Feed promulgated on 13 June 2010 on Official Gazette. In addition, as regard to European Union *Anoplophora chinensis* commission decision of 1 March 2012 and law no. 2012/138/EC, specifically, by law is prepared and on 17 June 2014 law no. 29033 promulgated on Official Gazette and entered in force (Anonymous, 2014).

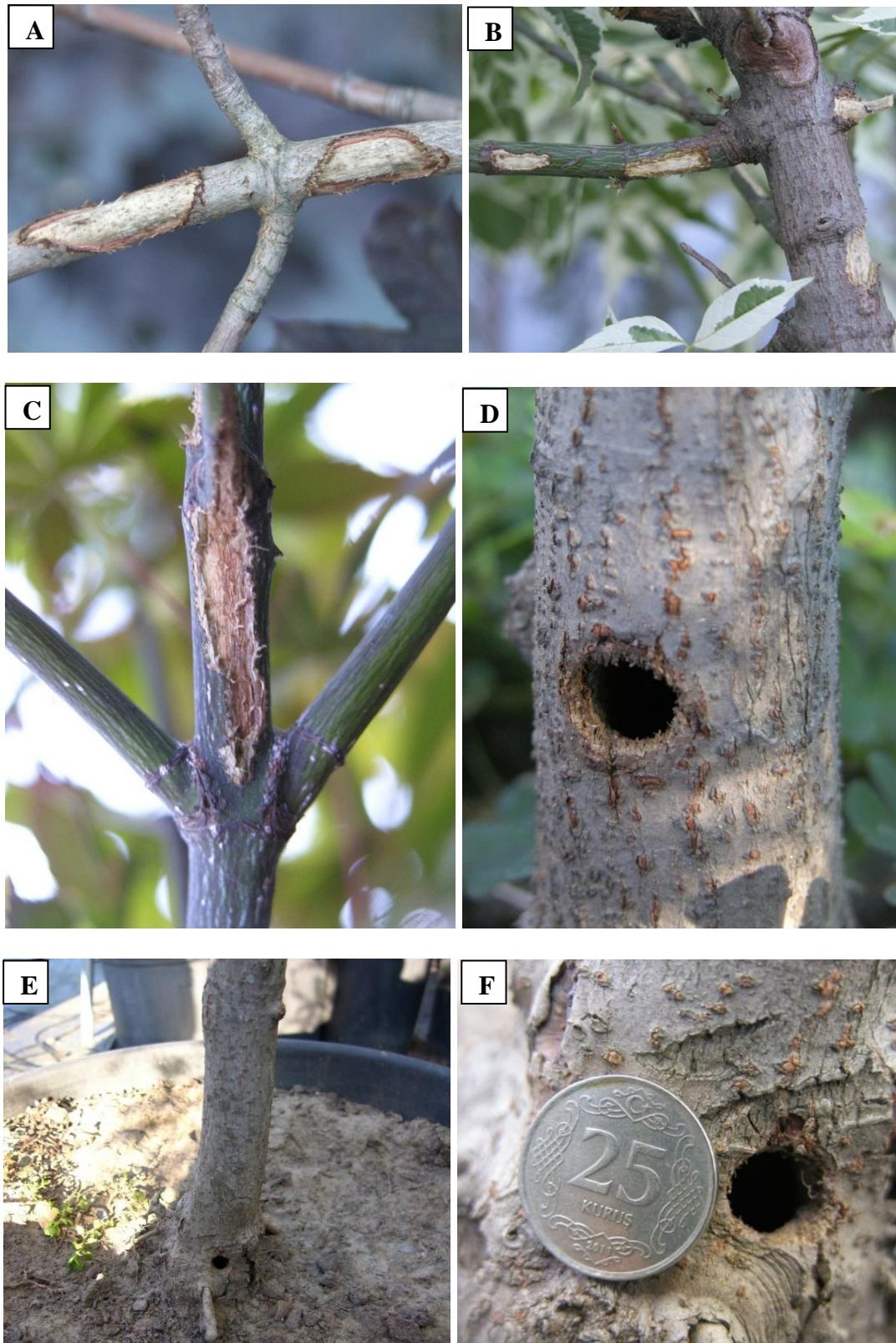


Figure. 2 A-C. Feeding damage of adults D-F. Exit holes

Most of the known host plants of the citrus longhorned beetle exist also in Turkey. With respect to this, discovering of the related invasive pest and exploring its new distribution areas in Turkey has a very important value for management of Turkish forests. Ayberk et al. (2014) has reported another invasive longhorned beetle, the Asian longhorned beetle, for the first time in Turkey. The authors has reported the adults of *Anoplophora glabripennis* were collected from Istanbul province (Zeytinburnu) damaging on *Acer negundo* trees in July, 2014. For this purpose, as the first step should be to determine real status of invasive *Anoplophora* species in Turkey. And then to eliminate these extremely dangerous quarantine pests is to remove infested trees and destroy them by chipping or burning immediately. To stop the spread of the citrus and Asian longhorned beetles, it should be to follow the quarantine procedures strictly in infested areas.

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