This text is an integral part of the *EPPO Study on bark and ambrosia beetles associated with imported non-coniferous wood* and should be read in conjunction with the study

Pest information sheet
Ambrosia beetle

XYLEBORINUS ARTESTRIATUS AND *X. OCTIESDENTATUS* (COLEOPTERA: SCOLYTINAE)

EPPO Lists: Not listed. The assessment of potential risks in this information sheet is not based on a full PRA for the EPPO region, but on an assessment of the limited information for that species used to prepare the information sheet. These two species are treated together due to similarities in their biology.

PEST OVERVIEW

Taxonomy
- *Xyleborinus artestriatus* (Eichhoff 1878). Synonyms: *Xyleborus artestriatus* Eichhoff 1878; *Xyleborus laticollis* Blandford 1896; *Xyleborus rugipennis* Schedl 1953; *Xyleborinus beaveri* Browne 1978;
- *Xyleborinus octiesdentatus* (Murayama 1931). Synonym *Xyleborus octiesdentatus* Murayama 1931.

Associated fungi
The symbiotic fungi are not documented to date.

Morphology and biology
X. artestriatus measures ca. 2.5 mm (females) (Kalshoven, 1959). Females of *X. octiesdentatus* measure 2.1-2.4 mm (Rabaglia *et al.*, 2010). No specific information on the biology was found in the literature. However, *Xyleborus* species are all inbreeding polygynous and the adult female alone constructs the gallery system (Kirkendall, 1983).

Details are lacking on plant parts attacked. However, Kalshoven (1959) recovered specimens of *X. artestriatus* from different plant species in Java on the following material: borer-infested branch, dead branch, fire-scorched trunk, prematurely dying trees, as well as a young transplanted specimen of *Canarium commune* (Burseraceae), i.e. presumably alive. Murayama *et al.* (1931) described *X. octiesdentatus* from *Eurya japonica* (Theaceae) in the Republic of Korea, including its galleries, and mentions that, as "the wood of *Eurya* attacked by this insect started to degrade, in the absence of other pests, it is naturally proved that this insect is very harmful to living trees".

Spread biology
No information found.

Nature of the damage
X. artestriatus and *X. octiesdentatus* tunnel into their hosts.

Detection and identification
- *Symptoms.* No information was found.
- *Trapping.* Specific attractants are apparently not known to date. US sources mention trapping specimens in different baited funnel traps: for *X. artestriatus*, with ethanol, alpha-pinene + ethanol, and Ipslure (Cognato *et al.*, 2013); for *X. octiesdentatus* ethanol, α-β-pinene + ethanol, phoebe oil, and in a trap on a girdled yaupon [*Ilex vomitoria*] (Rabaglia *et al.*, 2010).
- *Identification*. Characters for the identification of adults are provided for *X. artestriatus* in Cognato *et al.* (2013) and for *X. octiesdentatus* in Rabaglia *et al.* (2010). A key to the *Xyleborinus* species present in North America is given in Gomez *et al.* (2018).

Distribution

Xyleborinus artestriatus is native to Asia and the Pacific (Myanmar, India, Sri Lanka, Taiwan, Thailand, Australia [Queensland], Indonesia, Fiji, New Guinea; Cognato *et al.*, 2013, citing others; Beaver *et al.*, 2014; Zimmerman, 1992). It was first trapped in the USA in Georgia (2010) and Texas (2011) (Cognato *et al.*, 2013). In Georgia, it was initially discovered near a warehouse, and by 2012 was documented in four additional warehouses located within 2.5 miles from the initial catch area. In 2015 and 2016, *X. artestriatus* was recovered in multiple traps and is considered to be established in the Savannah area (Bates *et al.*, 2015, 2016). *X. artestriatus* is a quarantine pest for China (Fu *et al.*, 2016).

Xyleborinus octiesdentatus is also native to Asia (China [Sichuan – Beaver *et al.*, 2008 citing others], Japan, South Korea; Rabaglia *et al.*, 2010 citing Wood and Bright 1992). In Japan, it is recorded in Shikoku and Kyushu (Shiraki, 1952). It was first trapped in the USA in 2008 (Alabama, Louisiana) (Rabaglia *et al.*, 2010), and was later found in South Carolina (Chong *et al.*, 2012) and Mississipi in 2012 (Seltzer *et al.*, 2013).

Host plants

- *X. artestriatus* has been recorded in its native range on the following hosts: *Eugenia jambolana* (Myrtaceae), *Ficus religiosa* (Moraceae), *Heritiera fomes* (Malvaceae), *Juglans regia* (Juglandaceae), *Lannea grandis* (Anacardiaceae), *Mallotus philippinensis* (Euphorbiaceae), *Mangifera indica* (Anacardiaceae), *Phyllanthus emblica* (Phyllanthaceae), *Semecarpus anacardium* (Anacardiaceae) and *Shorea robusta* (Dipterocarpaceae) (Cognato *et al.*, 2013, citing others). This list might not cover the whole host range e.g. Kalshoven (1959) mentions *Pithecellobium lobatum* (Mimosaceae), *Canarium commune* (Burseraceae), Butea *frondosa* (Fabaceae), *Bauhinia malabarica* (Caesalpiniaceae).
- *X. octiesdentatus* has been recorded in its native range on*: Carpinus laxiflora* (Corylaceae), *Cleyera* sp., *Eurya japonica* (Theaceae)*, Illicium religiosum* (Illiaceae) and *Ilex rotunda* (Aquifoliaceae) (Rabaglia *et al.*, 2010, citing others).
  In the USA, both species have only been trapped, and their hosts have not been determined (Rabaglia *et al.*, 2010; Seltzer *et al.*, 2013; Bates *et al.*, 2015, 2016).

Known impacts and control in current distribution

- *X. artestriatus.* Cognato *et al.* (2013) state: «There are no reports indicating that this species or its symbiotic fungal associates are aggressive or attack healthy trees either in the US or in its native range».
- *X. octiesdentatus*. No information was found on damage in its native distribution. *X. octiesdentatus* was one of the species trapped in nurseries of ornamental trees in Mississippi (2013-2014) (Werle, 2016).

POTENTIAL RISKS FOR THE EPPO REGION

Pathways

Entry

X. artestriatus and *X. octiesdentatus* have been intercepted on wood packaging material in the EU (for *X. artestriatus* EPPO, 2016, 2017; for *X. octiesdentatus*, one interception, initially reported as *Xyleborinus* sp. and later identified to species; H. Krehan, pers. comm., 2018-09). There is not enough data to analyse pathways, but other wood commodities and possibly plants for planting of hosts may be pathways. Finally, inbreeding is favourable to entry and establishment.

Spread (following introduction, i.e. within EPPO region)

There is insufficient information to analyse the possible spread in the EPPO region, but it will be a combination of natural spread and spread via human-assisted pathways. Some natural spread of *X. artestriatus* has been observed in Georgia (USA) (Cognato *et al.*, 2013). It is not known if records of *X. octiesdentatus* in several States are due to natural spread or human-assisted pathways.

Establishment

Xyleborinus artestriatus is native to tropical regions, but has established in the USA in Georgia and Texas. The native range of *X. octiesdentatus* encompasses countries with different climate types, but it has also established in Southern USA. Based on the climate classification of Köppen-Geiger (see Annex 6 of the study), both species have established in areas of the climate type Csa[1], which in the EPPO region occur in Northern Italy, part of the Balkan and Black Sea area. It is not known if they may establish in drier or more temperate areas.

Considering hosts, *Juglans regia* is a host of *X. artestriatus* and is widespread in the PRA area. Other hosts of both species are mostly tropical plants and presumably present mostly as ornamentals. It is not known if other hosts would be attacked in new areas, but this is likely as both species would only need to find a suitable substrate to raise their ambrosia fungi.

Potential impact (including consideration of host plants)

No impact has been reported to date. As invasive polyphagous ambrosia beetles, they may have a potential for vectoring pathogenic fungi, although there is no evidence of this to date for *X. artestriatus* and *X. octiesdentatus*.

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[1] **Csa**: warm temperate climate, dry and hot summer.

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