

Mini data sheet on *Xylosandrus compactus*

Added to the EPPO Alert List in 2017 - Deleted in 2020

Reasons for deletion:

Xylosandrus compactus and its associated fungi have been included in EPPO Alert List for more than 3 years and during this period no particular international action was requested by the EPPO member countries. In 2020, the Working Party on Phytosanitary Regulations agreed that it could be deleted, considering that sufficient alert has been given.

Why: *Xylosandrus compactus* (Coleoptera: Scolytidae - black twig borer) is a highly polyphagous pest of woody plants which has recently been reported from Italy and France. It probably originates from Asia and has been introduced to other parts of the world, most probably with trade of plants and wood. In parts of Italy (Lazio), serious damage has recently been observed on Mediterranean maquis plants in a natural environment. As this pest might also present a risk to many woody plants in nurseries, plantations, orchards, parks and gardens, scientists who had observed this outbreak in Lazio recommended that *X. compactus* should be added to the EPPO Alert List.

Where: *X. compactus* is widely distributed in Africa, Asia and South America. It has been introduced in the Pacific Islands, New Zealand, Southeastern USA, and more recently in Europe in Italy and Southern France. *X. compactus* is thought to originate from East Asia.

EPPO region: Italy (first found in 2011 - Campania, Lazio, Liguria, Sicilia and Toscana), France (first found in 2016 - Provence-Alpes-Côte-d'Azur region), Greece (first found in 2019), Spain (Balears only).

Africa: Benin, Cameroon, Central African Republic, Comoros, Congo, Congo (Democratic Republic of), Cote d'Ivoire, Equatorial Guinea, Gabon, Ghana, Guinea, Guinea-Bissau, Kenya, Liberia, Madagascar, Mauritania, Mauritius, Nigeria, Reunion, Senegal, Seychelles, Sierra Leone, South Africa, Tanzania, Togo, Uganda, Zimbabwe.

North America: USA (Alabama, Florida, Georgia, Hawaii, Louisiana, Mississippi, South Carolina, Texas).

Central America and the Caribbean: Cuba, Netherlands Antilles, Puerto Rico, Virgin Islands (British), Virgin Islands (US).

South America: Brazil (Amazonas, Bahia, Espirito Santo, Goias, Rondônia, Tocantins), Ecuador, Peru.

Asia: Cambodia, China (Guangdong, Guizhou, Hainan, Hunan), East Timor, India (Gujarat, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Tamil Nadu), Indonesia (Irian Jaya, Java, Kalimantan, Sulawesi, Sumatra), Japan (Hokkaido, Honshu, Kyushu, Ryukyu Archipelago, Shikoku), Laos, Malaysia (Sabah, West), Myanmar, Philippines, Singapore, Sri Lanka, Taiwan, Thailand, Vietnam.

Oceania: American Samoa, Fiji, Papua New Guinea, Samoa, Solomon Islands.

On which plants: *X. compactus* is highly polyphagous, more than 200 species belonging to approximately 60 families have been reported to host it. In addition to a broad range of dicotyledonous trees and shrubs, *X. compactus* has been found attacking monocotyledonous plants such as orchids, ginger (*Zingiber*) and conifers (*Pinus* spp.). According to the literature, the main economic host is coffee (more particularly *Coffea canephora*). *X. compactus* is also recorded as a pest of tea (*Camelia sinensis*), cacao (*Theobroma cacao*), fruit trees (e.g. *Annona*, *Ficus carica*, *Macadamia ternifolia*, litchi (*Litchi chinensis*), avocado (*Persea americana*)) and forest trees in young plantations (e.g. *Aucoumea* sp., *Eucalyptus*, *Entandrophragma*, *Khaya*, *Erythrina*, *Melia azedarach*, *Swietenia*). In Italy, *X. compactus* has been reported causing damage in Mediterranean maquis plants such as: *Ceratonia siliqua*, *Laurus nobilis*, *Pistacia lentiscus*, *Quercus ilex*, *Ruscus aculeatus*, and

Viburnum tinus. In France, it has been recorded on the following ornamental trees and shrubs but without causing major damage: *Arbutus unedo*, *Laurus nobilis*, *Phillyrea* sp., and *Quercus ilex*.

Damage: *X. compactus* is mainly a borer of seedlings, shoots and small twigs, but it can also breed in cut branches up to a diameter of about 6 cm (rarely in larger material). Infested plants display leaf and stem necrosis extending from the entrance hole. Flagging of branches occurs about 5-7 days after initial tunnelling and gallery formation. Wilting of twigs and branches usually becomes evident within weeks of infestation. The entrance holes bored by females are small (0.8 mm diameter) and are located on the underside of branches. Cankers are commonly seen around the attacked areas of larger twigs and branches. Damage is caused by the wood boring activity of the insect and the introduction of ambrosia fungi which are necessary for larval development. *X. compactus* is associated with several fungal species (18 fungal species have been recorded so far) which are found in the female mycangium or inside insect galleries. Some of these fungi are known to be saprophytes (e.g. *Ambrosiella xylebori*, *A. macrospora*) but others are plant pathogenic (e.g. *Epicoccum nigrum*, *Fusarium solani*, *Geosmithia pallida*) and might play a role in the symptomatology observed on infested plants.

Adult females are shiny black, 1.6.-1.8 mm long. Males, which are incapable of flying, are reddish black and smaller than females (0.9-1.3 mm long). *X. compactus* is an arrhenotokous species (males derive from unfertilized eggs - females from fertilized ones). After mating, which primarily occurs between siblings just after adult emergence, the male remains in the gallery while the female leaves the tunnel through the entry hole and colonizes branches of new hosts, boring an entry hole and a subsequent brood gallery. The number of larval stages appear to vary between locations (2 to 3 larval stages have been observed). There are several overlapping generations per year.

Dissemination: Flight of adult females is the main means of movement and dispersal to new plants and new areas over short distances. In the literature, it is noted that adult females can disperse over at least 200 m, and that dispersal over several kilometres is probably possible, especially if wind-aided. Over long distances, trade of infested plants, cut branches, wood, and packing wood material can transport *X. compactus*.

Pathway: Plants for planting, cut branches, wood, packing wood material from countries where *X. compactus* occurs.

Possible risks: Many woody plants attacked by *X. compactus* are important fruit crops, forest trees or woody ornamentals in the EPPO region. Pest control and detection are most likely to be difficult due to its concealed mode of life. According to the literature, few natural enemies have been observed. Pruning and destruction of infested twigs, branches and seedlings is usually recommended to minimize the pest damage. In the tropics, *X. compactus* is considered to be a primary pest of coffee, as well as a pest of economically important forest trees species in young plantations (e.g. *Aucoumea*, *Entandrophragma*, *Khaya*, *Swietenia*). Although data is generally lacking on the biology of *X. compactus* and on the role of its associated fungi, it seems that this association has the potential to damage young plants in nurseries, orchards and plantations under temperate climates. The fact that serious damage has been reported in Lazio region (Italy) on several Mediterranean species, clearly demonstrates that *X. compactus* has the potential to become a pest in natural environments. Finally, the possible spread of *X. compactus* and its associated fungi to woody plants cultivated for fruit production, ornamental and forestry purposes also represents a risk for the EPPO region.

Sources

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