Xylosandrus compactus 正體中文

System: Terrestrial

Kingdom	Phylum	Class	Order	Family
Animalia	Arthropoda	Insecta	Coleoptera	Scolytidae

Common name ambrosia beetle (English), Dunkler-Holzbohrer (German), black twig borer (English)

Synonym

Similar species

Summary Originally from Asia, Xylosandrus compactus has spread to many coffee growing areas throughout the world where it causes damage not only to agricultural crops, but also to native forest trees. Beetles (Coleoptera) in the family Scolytidae, to which Xylosandrus compactus belongs, are among the most damaging insects worldwide. Because most scolytids breed under bark or inside wood, it has long been recognised that scolytids can easily be moved through international trade.

view this species on IUCN Red List

Species Description
\"The black twig borer is a very small (1/16 inch), shiny, black, cylindrical beetle. Twig entrance holes are about 1/32 inch in diameter and usually found on the lower surface of the twig. Eggs are extremely small, oval, white and translucent. Black twig borer grubs are white and legless. The body of young grubs is pointed at the rear. Older grubs have a brownish heads and round tails. The pupa is about the size of the adult and clearly shows the legs,wings and head.\" (Baker, 1994). *Xylosandrus compactus* belongs to the Xyleborini tribe, all of which feed on ambrosia fungus and are called ambrosia beetles.

Lifecycle Stages
The black twig borer, *Xylosandrus compactus*, is one of the few ambrosia beetles that attacks healthy plants! This beetle is very small, dark and more or less oval in top view. The largest specimens are just over one-sixteenth inches long.
The life cycle of the black twig borer is completed in about a month. Female beetles attack twigs or branches and bore in to the pith (or if the twig is large, they bore into the wood about half to one and one half inches). Black twig borers are capable of laying eggs without mating (parthenogenesis). After the females bore into a twig, they form a small chamber in which the mostly female eggs are laid. The tiny eggs (less than 1mm long) are smooth, white ovals laid over a period of several weeks. They hatch three to five days after being laid. Larvae are grubs, white and legless. The tiny grubs feed on the fungi that grow on the walls of the brood chamber.The grubs pupate and then (if males happen to have developed) the new beetles mate before leaving the twig to infest new twigs. The pupae are initially white, changing to light brown with black wings (female) near maturity. This process takes at least 6 days. Female adults, initially light brown, turn shiny black in 3 to 4 days; females are 1.6-1.8mm long (about 1/16 in). Males are about half as long and incapable of flight. After emerging from the pupal stage they turn from light brown to reddish brown in 3 to 4 days.If the twig is small, only one female will attack it. If the twig is more robust, up to 20 females will attack it. In the summer it takes about a month from egg to adult beetles. In the winter, development is much slower. The adults overwinter inside the damaged twigs.
Over 224 plant species in 62 families are susceptible to the black twig borer.

Habitat Description
There are more than 200 recorded hosts of the black twig borer, some of them are the orchids Cattleya, Dendrobium, Epidendrum, Vanda; other hosts include anthurium, avocado, citrus, coffee, cacao, brushbox (*Tristania conferta*), turpentine tree (*Syncarpia glomulifers*), paper-bark (*Melaleuca leucadendron*), red-ironbark eucalyptus (*Eucalyptus sideroxylon*), blackbutt eucalyptus (*E. pilularis*), robust eucalyptus (*E. robusta*), Koa haole (*Leucaena glauca*), guava, vervain (*Stachytarpheta jamaicensis*), Christmasberry (*Schinus terebinthifolius*) floral red ginger, litchi, macadamia, mango, mahogany, hibiscus, kukui, star jasmine, pikake, periwinkle, Surinam cherry (Hara & Tenbrink, 1994) etc.

Reproduction
Black twig borers spend the majority of their lives inside the host plant. The exception is the adult female, which leaves the gallery by way of the parent's entrance hole and establishes a new gallery elsewhere. Each year sees several generations.

Nutrition
Adult beetles bore into trees to lay eggs and introduce a mutualistic fungus “ambrosia” that serves as food for adult and larval beetles.

General Impacts
At least one of the fungi in the ambrosia is *Fusarium solani*. Infested twigs usually dieback to a point below the brood chamber. Although the ambrosia usually does not kill the whole plant, the dieback of twigs can have considerable impact on the appearance of infested trees and shrubs.
Female black twig borers tunnel into woody twigs, leaving pin-sized entry holes. Once inside they excavate galleries and lay eggs. This excavation, along with the introduction of pathogens, is the cause of damage to the host. Ambrosia beetles are serious pests of forest trees and, to a lesser extent, shade and fruit trees. Most ambrosia beetles attack primarily weak or unhealthy plants; however, the black twig borer is known to attack healthy plants as well, which makes it a potentially very serious pest to native forest trees as well as other plants. Damage is not caused by feeding, since the beetle larvae feed on ambrosia introduced by the female. Infestation by one to three females is sufficient to kill the twig or branch. Infestation becomes apparent when die-back of twigs and branches occurs. A severe infestation can kill host plants, including large trees (Hara & Tenbrink, 1994).
Ambrosia beetles can be important pests of nursery production. Beetles sometimes introduce pathogenic fungi or bacteria. Fungi growing in trees can block water and sugar conducting tissues, producing tree wilting, dieback,or death.

Management Info
Preventative measures: In 2002, United Nation FAO's (Food and Agriculture Organization) Interim Commission on Phytosanitary Measures imposed a global standard for treating wood packaging International Standard for Phytosanitary Measures No. 15 to stop the spread of invasives.
Maintaining healthy trees and shrubs is the first line of defence against the ambrosia beetles attacking weak hosts. This includes proper fertility, maintaining proper soil pH, and adequate soil moisture. Pruning and destruction of beetle-infested plant material is essential. Good tree care to promote tree vigor and health will help in resisting infestation or recovering from infestation.
\r\nChemical: Chemical control is not the best option for these beetles since the host is already very weak or dying.However studies show that Chlorpyrifos provided 83% mortality of all stages of the black twig borer infesting flowering dogwood in Florida (Mangold *et al*., 1977). Hata & Hara (1989) reported 100% mortality of adult females with chlorpyrifos. Marsden in 1972 recommended malathion (not to be applied to blooming orchids).
\r\nBiological: \"Literature on natural enemies indicates that the black twig borer is parasitized by at least one species of eulophid wasps of the genus Tetrastichus. Nine species of this genus, all accidentally or purposely introduced, are in Hawai‘i; whether any are parasitizing black twig borer is not recorded\" (Nishida, 1992).

Pathway
Scolytids, such as the black twig borer, are commonly intercepted in food products such as seeds and nuts.Scolytids, such as the black twig borer, are among the most commonly intercepted families of insects on solid wood packing materials at U.S. ports of entry, representing 9394% of all reported insects. Similarly, scolytids were the most commonly intercept

Principal source:

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ALIEN RANGE

[1] AFRICA
[1] BRAZIL
[1] FIJI
[1] INDIA
[1] JAPAN
[1] MALAYSIA
[1] PAPUA NEW GUINEA
[1] SOLOMON ISLANDS
[1] TROPICAL AFRICA
[1] VIET NAM
[1] AMERICAN SAMOA
[1] CUBA
[1] GUINEA
[3] INDONESIA
[1] MADAGASCAR
[1] MAURITIUS
[1] SEYCHELLES
[1] SRI LANKA
[6] UNITED STATES

Red List assessed species 3: CR = 3;

Alectryon macrococcus **CR**
Colubrina oppositifolia **CR**
Flueggea neowawraea **CR**

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