Forest Threats

Mediterranean Pine Beetle / Orthotomicus erosus

Tree Protection Co-operative Programme

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Insect pests

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Orthotomicus erosus (Wollaston, 1857)

SYMPTOMS

Orthotomicus erosus is a secondary pest of coniferous species and generally infests stressed and recently felled trees, as well as broken branches (Tribe 1992, Haack 2004). Under rare instances beetles can be found infesting healthy trees. High levels of infestation can cause dieback and tree death, especially in stressed trees.

During initial boring of the beetles, frass can be present, and this can later resemble a reddish-brown dust covering on the bark of trees and logs as boring activities continue. Pitch tubes, gum and resin might also be present in bark crevasses at beetle entrance holes. When the bark is stripped back from an infested tree, engravings from the beetle boring can be seen left in the cambial region. The gallery pattern typically consists of a nuptial chamber with one to five longitudinal tunnels concluding in egg galleries.

Like many other bark beetles, *O. erosus* associates with blue-stain fungi. Cross sections of logs and freshly cut lumber may present with discoloured bark typical of sapstain induced fungi. Additionally, the fungi and damage caused by the boring activities of the beetles can compromise water transport by the tree resulting in wilting and discolouration of the pine needles.

BIOLOGY

Orthotomicus erosus is a polygamous species able of completing two to seven generations per year. South African temperatures typically allow for the completion of four generations per year. Males bore into the bark of trunks and branches more than 5cm in diameter and construct a nuptial chamber before being joined by a female. After mating, the female constructs an egg gallery that lies parallel to the grain of the wood where she will then oviposit her eggs. The larvae will tunnel and feed within these galleries until pupation after which adults will emerge from the bark for dispersal flight. Developmental time of a brood ranges between 25 and 76 days depending on temperature and nutrient quality of the wood. During the colder months, adult beetles will aggregate beneath the bark, and several hundreds of individuals can be found together. Optimum temperatures for dispersal range between 14°C to 38°C.

MANAGEMENT

Cultural control: There are several good silvicultural practices that can be followed to help control *O. erosus* including planting of pine in suitable areas, periodic thinning and the removal of fallen trees and broken tops which can serve as breeding sites.

Biological control: There are several known natural enemies of *O. erosus,* primarily from the families Braconidae, Eurytomidae and Pteromalidae. One larval parasitoid, *Dendrosoter caenopachoides,* has been released and become established in South Africa (Tribe and Kfir 2001).

Chemical control: Trials in Israel conducted using pine trap logs showed that carbaryl, chloropyrifos or cypermethrin spraying at concentrations of 1.25% could significantly reduce beetle emergence. However, due to their cryptic lifestyle beneath the bark of trees, bark beetles are notably difficult to control. Chemical and continuous re-application is often required which can be costly.

Field monitoring: Monitoring of pine stands can be done to determine overall health of the trees and identify potential *O. erosus* infestations. This can be done in conjunction with setting out funnel traps baited with Pheroprax, an aggregation pheromone of *Ips* species, to monitor population sized of *O. erosus* in an area.