North East England

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Dendroctonus Micans

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Forestry Commission England

North East England

EWGS & Regional Update

Update No 18 (16 August 2010)

Following a recent discovery of *Dendroctonus micans*, the Great Spruce Bark Beetle, in private woodland at the western end of the Tyne Valley we thought it would be appropriate to dedicate an issue of our regional update to this forest pest which was first discovered in England in 1982. Many people will remember the control measures such as protected zones which were imposed at that time. These were abandoned in 2005 following consultation with the forestry industry and release of *Rhizophagus grandis* to control *D. micans*.

Successful control of this pest relies on identification of infected trees and the release of *R. grandis*. This update gives background on the beetle and its control taken from the Forestry Commission, Forest Research website where full details can be found to assist with identifying infected trees.

Following the discovery we are proposing to run 2 half day site based information talks. If you would be interested in attending please forward your details to Lucy Phillips email: lucy.phillips@forestry.gsi.gov.uk.

Background

In Western Britain, the spruce bark beetle, *D. micans*, is a well-established pest that was accidentally introduced from continental Europe. Spruce is our most important commercial tree species and managing this pest is a high priority. Our approach to management is:

To breed and release a host-specific predatory beetle, *R. grandis*, found within the pest's natural range, in a strategy known as 'classical' biological control. The biological programme has been highly successful because of the extraordinary ability of the predator to locate its prey even when there may be only a few infested trees in the forest.

R. grandis has an extremely well developed ability to find its prey and a rapid reproductive rate. In the light of this information gathered from research into the biology of the predator, the Forestry Commission have adopted inoculative release programme using only a low number of predators, typically around 100, per site. While they will never entirely eliminate the population of *D. micans*, they will reduce populations of their prey by

between 80% and 90% and death of trees is now less than 1%, and usually as low as 0.25%. Research into the populations of *D. micans* in the originally infested forests in Wales and the Marches, has provided clear evidence that *R. grandis* reduces populations of the pest to virtually undetectable levels within 5-7 years of release. Nevertheless, there are still small populations of the bark beetle present, which ensures the continuing survival of this remarkable predator.

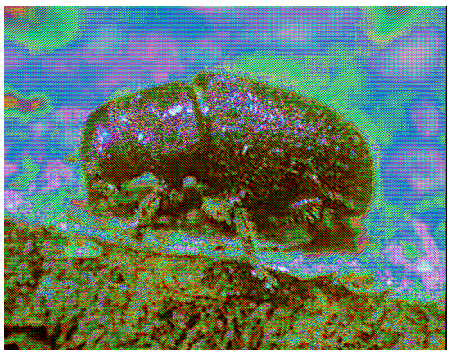
Tree Species Attacked

In Britain, *D. micans* attacks and breeds in all species of spruce. British foresters are concerned mainly with Sitka spruce (*Picea sitchensis*) and Norway spruce (*Picea abies*). The probability of successful attack and consequent mortality varies between the spruces.

Beetle Development

D. micans has a long cycle, ranging from 12 to 24 months under British conditions, which results in extensive overlap of generations so that it is possible to find any stage at any time.

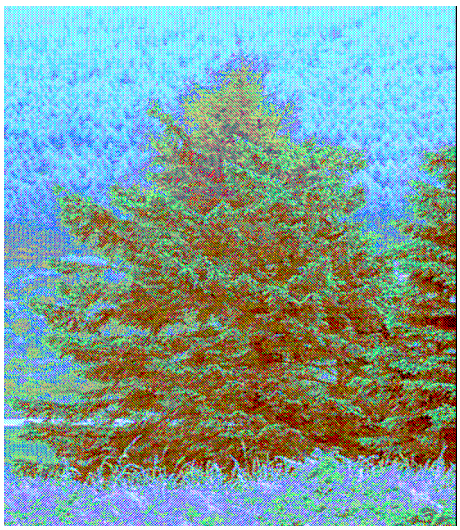
The progress of damage to individual trees and to the crop as a whole is extremely variable and it may take several years before a tree is completely girdled at one or more points along the stem and thus killed. Neither the beetle nor its larvae burrow into the wood itself.



Adult

Length 6-8 mm, width 2.5-3.0 mm. Light brown when immature, black when mature. Movement within and between trees is mainly by crawling, occasionally by flying.

What to look for



There are three main stages in assessing whether *D. micans* is present in a spruce stand.

Stage 1 - At a distance

Look for any indication that tree health is not normal. Check especially for isolated or small groups of dead or dying trees characterised by browning of foliage over some or all of the crown.

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Stage 2 - On the tree

Resin tubes on the trunk or granular resin at the base of the tree are reliable signs of stem or root attack. Resin tubes vary in colour from pure white, cream, through to shades of purple and brown. They may be accompanied by copious resin bleeding. Loose bark, with exposed beetle galleries, usually indicates older infestations attacked by woodpeckers.

Stage 3 - Under the bark

Inspect the bark around resin tubes, particularly those that are purple to brown. A hollow sound when the bark is tapped often indicates successful attack. Remove the bark carefully and inspect for signs of the beetle. The most characteristic indicator is the presence of a mixture of insect faeces (frass) and bark packed by the feeding larvae into a quilted or island appearance any stage from egg to adult may also be present.

What to do if you suspect Dedroctonus is present

If you suspect a tree is showing signs of a Dendroctonus attack, check the symptoms against the full detail as shown on the forest research website given above. Take photographs of the tree and any resin tubes or galleries seen. Send these along with a description of the crop, the location of the woodland, including a six figure grid reference and your contact details to:

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