Summertime and the living is easy!

Unfortunately also for our forest pests

The Green Spruce Aphid

This summer many timber growers may be concerned about browning and loss of needles in their Sitka and Norway spruce crops (see photograph 1 below). The cause is very likely to be the green spruce aphid. The green spruce aphid is a widespread pest of spruce in Ireland where it can overwinter and during mild winters it will continue to feed and reproduce. Aphid outbreaks often occur on a 3-6 year cycle and the predisposing factor is the lack of sub-zero temperatures (below –7°C). Therefore, the greatest damage to spruce occurs after a mild winter when the green spruce aphid can kill off the needles by sucking the trees sap.

Trees are not killed but there can be a loss in annual volume increment of over 7%. Except in the case of Christmas trees direct control measures are not economic. The severity and duration of attack are often curtailed and reduced by natural predators such as ladybird larvae and lacewings.

The green spruce aphid (Elatobium abietinum) has been recorded on spruce in Ireland since 1914.

Aphids feed on the sap of older needles which develop a mottled discolouration during the winter and then in summer the older needles brown and fall. New growth is not affected by the aphids as seen in the photo above and this is how one can often diagnose aphid damage.

COFORD has good information on the green spruce aphid, see;

www.coford.ie/media/coford/content/publications/projectreports/cofordconnects/Aphid.pdf

Large Pine Weevil

The large pine weevil is the most serious pest of conifer reforestation in Ireland. The adult weevil causes damage by feeding on the bark of young transplants. In mature forests, adult weevils feed in the canopy without causing any significant damage.

It is when a site is replanted that this pest becomes evident. Adult weevils emerging from the stumps, feed on the bark of young transplants from the root collar up (see photo 3). These adult weevils feed on a wide variety of conifer and broadleaved trees. Young transplants can withstand a small amount of feeding, but extensive feeding causes needle loss, reduces plant growth, and can lead to death when plants are completely ring-barked. In the absence of control measures, up to 100% of transplants can be killed.

Adult weevils are brown, with yellow/light patches on their body, and are approximately 1.5 cm in length.

Weevil and damage caused by their feeding.

Adult weevils are attracted onto a site by the smell of freshly cut timber. The female lays her eggs in stumps of recently cut conifers, where immature weevils develop under the bark. Stumps of most conifer species support weevil development, but the numbers developing in and emerging from pine are higher than from spruce. It is estimated that over 100,000 adult weevils per hectare can emerge in a single year on a pine site in Ireland. The size of the weevil population developing in a standing forest is limited by the availability of recently dead wood in which to breed, but clearfelling gives weevils abundant breeding sites. Weevils develop from egg to adult in 12-36 months and the number of adult weevils emerging from stumps peaks in September. Emerging adults can either remain on the site, or move to nearby sites that have been recently felled. Adult weevils are normally active between March and October. They can live for up to four years, hibernating in the leaf litter during the winter.

The principal method of preventing pine weevil damage is to spray or dip young transplants in insecticides (currently cypermethrin) prior to planting. An additional top-up spray is often required when there is a weevil outbreak following planting. The practicalities of using parasites and predators of weevils such as insect killing nematodes (microscopic worms) as a form of biological control are being researched.

Much of the above information is taken from the COFORD publication on the large pine weevil, *'Controlling the large pine weevil, Hylobius abietis, using natural enemies'* see;

www.coford.ie/media/coford/content/publications/projectreports/cofordconnects/ccnsm15.pdf

Late Spring frosts

Late Spring frosts can cause severe damage to young plantations. In Spring newly flushed shoots are vulnerable to frost and can be killed by freezing temperatures as shown in photo. This can then result in the tree losing a year's growth and where there is repeated frost damage young transplants can be killed or effected trees can be stunted for many years. Generally the trees eventually grow to a height above the frost line and subsequently grow without further damage. By this time, however, trees can be forked or have poorer stem form.

Frost damage pictured during a recent visit to a young woodland in Co. Wicklow

(Photos D. Whelan)

Sometimes frost damage looks random throughout the forest as the young trees flush at slightly different times and therefore their susceptibility to frost damage varies slightly.

There was evidence of a surprising degree of frost damage during a recent visit to a young woodland site in Co. Wicklow. Research of temperature statistics for June 2015 showed that record low air and grass temperatures were recorded for this period. (see outline below)

This helps explain why members with young forests may have experienced similar damage around the country:

Lowest air temperature: 0.7°C at Dublin Airport on 9th June ***(its lowest June air minimum since station opened in 1942)***

Lowest grass minimum temperature: -3.4°C at Casement Aerodrome, Co Dublin on 9th June ***(its lowest June grass minimum since 1965)***

- Issued by the Climatology and Observations Division of Met Éireann on 2nd July, 2015. (For more information see http://www.met.ie/climate/MonthlyWeather/sum1.pdf)

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