

Fletcher scale

Parthenolecanium fletcheri



Figure 1. Colony of adult female Fletcher scales on *Thuja*

Background

In June 2011 a mature Western red cedar *Thuja plicata* growing in a private garden in central London, was found to be infested with Fletcher scale *Parthenolecanium fletcheri* (Cockerell) (Hemiptera: Coccidae), a North American scale insect that feeds on Cypress conifers. This is the first time that Fletcher scale has been found breeding in Britain. The infested tree was approximately 20-25 years old, and planted as a mature specimen imported from Italy in 2004. Fletcher scale is therefore likely to have been breeding outdoors in London for seven years.

Geographical Distribution

Fletcher scale is native to North America and occurs throughout most of the temperate areas of the USA and parts of Canada. It was accidentally introduced to Europe, being first recorded in Poland in the 1930s. It occurs widely in Europe and Central Asia, from Bulgaria, and Serbia and Montenegro in the south; to Latvia, North West Russia and Sweden, in the north; France in the west and Uzbekistan in the East.



Figure 2. Fletcher scale adult females on *Thuja*. They feed on both upper and lower surfaces



Figure 3. Fletcher scale, close up of adult female. The eggs are protected beneath her hardened body



Figure 4. Fletcher scale adult female with 14 parasitic wasp emergence holes



Figure 5. Fletcher scale young adult females showing the characteristic dorsal longitudinal pale stripe
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Figure 6. Fletcher scale first instars or 'crawlers' massing in the hollowed out ventral surface of an adult female



Figure 7. Fletcher scale first instars

Host Plants

Fletcher scale feeds and develops on Cupressaceae, including species in the genera *Cupressus*, *Juniperus*, *Platycladus*, *Thuja* and *Tsuga*. In North America it is also recorded feeding on species of *Taxus* in the family Taxaceae.

Description

Mature adult females (Figs 1-3) are oval, somewhat extended at both extremities, strongly convex, almost hemispherical, yellowish-brown to dark reddish brown; up to 3.5 mm long and 3.0 mm wide. Mature adult females are frequently found with parasitic-wasp emergence holes (Fig. 4). Young adult females (Figure 5) are reddish purple-brown with a distinct cream or yellow mid-dorsal longitudinal stripe and occasionally a marginal yellow band (this dorsal stripe is not observed in any of the other *Parthenolecanium* species present in the UK). The dorsal stripe fades with maturity and is not present in mature adults (Figs 1-4). The first instars are a pinkish-orange colour (Figs 6-7), and are very small being about 0.4 mm long.

Fletcher scale is similar in appearance to yew soft scale *Parthenolecanium pomeranicum* (Kawecki), a species that is locally common on English yew *Taxus baccata* throughout England and Wales.

Pest Biology, Dispersal and Detection

Nymphs and adult Fletcher scales feed on shoots, bark, and the upper and lower surfaces of the foliage. There is usually one generation a year; although a partial second generation may occur if climatic conditions are favourable. They reproduce parthenogenetically (there are no males) and each female lays up to 1,300 eggs during May. The eggs are protected beneath the heavily sclerotised (hardened) body of the adult female, and hatch from the end of June until mid-July (in central Europe). The eggs may hatch over several days but the first instars initially rest beneath the body of the adult female (Figure 6) and emerge en masse. They moult during August and September and over winter as second instars.

The first instars or crawlers have a low natural dispersal potential and often settle to feed within a short distance of their parent. Some of the crawlers may be dispersed over longer distances by air currents or be transported by other animals. Dispersal is likely to occur more rapidly and over longer distances with the movement of infested plants in trade.

Infestations of Fletcher scale may be detected by the presence of ants, and less frequently wasps and flies, which feed on the honeydew excreted by the scales. The honeydew also serves as a medium for the growth of black sooty moulds, which can disfigure the plant.

Economic Importance and Damage

Parthenolecanium fletcheri is reported to occasionally damage ornamental *Thuja* and *Taxus* in North America. It does not appear, however, to be a pest (at least of any significance) in Europe, and is rarely recorded.

In the UK large populations of Fletcher scale may occasionally develop on individual ornamental plants in urban environments and cause minor damage, but it is highly unlikely to have any significant detrimental impact on biodiversity, ecosystems, crops or forestry.

Advisory Information

Fletcher scale has the potential to naturalise widely in Britain, wherever its host plants occur, as it has already been breeding outdoors in London for seven years, and occurs as far north as Canada and Scandinavia. The free movement of its host plants within the European Union provides a pathway for the continual introduction of Fletcher scale into Britain. However, even if it became widely naturalised it is highly unlikely to have any significant detrimental impact. There is no requirement to report findings to Fera.

Fletcher scale is likely to be brought under control by a complex of naturally-occurring parasitic wasps, insect predators and entomopathogenic fungi already present in the UK, so control measures are unlikely to be necessary unless severe infestations occur on individual plants. If the pest does become damaging, gardeners could use contact insecticides, such as those containing deltamethrin or lambda-cyhalothrin. Alternatively, products containing fatty acids could be applied; these are less likely to have an impact on beneficial arthropods. All treatments are most likely to be effective if applied when the so-called 'crawler' stage (Figs 6 & 7) of the scale is present. Pesticide product labels should be read carefully and the instructions followed; their approval status should also be checked before application. It is advisable to treat limited areas initially to check pesticides are safe for the plants that being treated.

Authors

C. Malumphy, D. Eyre and R. Cannon

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