

Data Sheets on Quarantine Pests

Cephalcia lariciphila

IDENTITY

Name: *Cephalcia lariciphila* Wachtl

Synonyms: *Cephalcia alpina* Klug
Cephalcia annulata Hartig
Lyda alpina Klug

Taxonomic position: Insecta: Hymenoptera: Pamphiliidae

Common names: European web-spinning larch sawfly (English)
Lärchen-Gespinstblattwespe (German)

Bayer computer code: CEPCAL

EU Annex designation: II/B

HOSTS

This insect attacks *Larix* spp., e.g. *L. decidua* and *L. leptolepis*. Interspecific hybrids are also attacked.

GEOGRAPHICAL DISTRIBUTION

EPPO region: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Italy, Netherlands, Russia (European, Siberia), Slovakia, Sweden, Switzerland, UK.

EU: Present.

BIOLOGY

Adults fly in May-June, males often being more common. Eggs are deposited singly on short-shoot needles. Larvae spin a web-tube at the bases of the short shoots and remain in the web while consuming the needles. Most feeding takes place in July. The old larvae drop to the ground where they remain free as eonymphs without a cocoon 5-20 cm below the surface. In September they develop into pronymphs which overwinter. Pupation occurs in spring. Larvae may however remain in the soil as eonymphs for as many as four winters before they pupate (Röhrig, 1953; Pschorn-Walcher, 1982).

A development cycle of 1-2 years is normal but, in some places, e.g. the Netherlands, up to 44% of the population was reported to have at least a 3-year generation cycle (Luitjes & Minderman, 1959). During outbreaks, population densities of 57-372 nymphs/m² of soil were found.

DETECTION AND IDENTIFICATION

Symptoms

C. lariciphila cuts the needle at the bases and pulls it into the web where it is eaten. This is in contrast to all other sawfly larvae feeding on *Larix*, which leave part of the needle uneaten. *C. lariciphila* feeds only on short-shoot needles when they are available,

otherwise long-shoot needles are eaten. Trees at the edge of the stands seem less attacked than those in the middle of the stands.

Morphology

Eggs

Elliptical, green, 1.1-2.0 mm.

Larva

The larva is 7-15 mm long. No abdominal legs. Antennae with eight segments. Coloration of body changes through the instars. 1st instar red-yellow, 2nd grey-green with purple longitudinal stripes, 3rd instar grey-green with dark-brown stripes surrounded by yellow-green spots, 4th instar yellow-orange. Head dark-brown to black-brown (Pschorn-Walcher & Zinnert, 1971).

Pupa

Yellow with black eyes.

Adult

Length 8.6-10.2 mm (male) and 16.5-21.5 mm (female). Head black with light-yellow spots, strongly contracted behind the eyes, mouthparts dark-brown. Abdomen with only narrow lateral margins of tergites and posterior margins of sternites whitish.

Detection and inspection methods

The presence of feeding larvae can be detected on the shoots by the appearance of tube-shaped webs.

MEANS OF MOVEMENT AND DISPERSAL

Trapping experiments using virgin females and dichloromethane extracts of crushed virgin females have shown that males dispersed out of *Larix* into adjacent *Picea* forests up to 135 m distant from infested *Larix*. The preferred flight level of males was very near the ground. Peak activity of flight was from 11.00 to 14.00 h (Borden *et al.*, 1978). In the UK, females but not males have been trapped at mountain summits, indicating active long-distance dispersal (Liston, 1989).

Eggs and larvae could be transported on plants of *Larix* for propagation, and nymphs and pupae could be transported in soil.

PEST SIGNIFICANCE

Economic impact

C. lariciphila is only a pest in the part of Europe where *Larix* is planted outside its natural distribution area. Feeding by the larch sawfly mainly damages needles on the short shoots, thus leaving the needles of the long shoots intact. A loss of needles leads to a reduction in annual volume increments, for example a 20% needle loss reduces the normal yearly increment by 50% (Luitjes, 1958). Trees are only killed by repeated defoliation (Billany & Brown, 1980).

Control

Cephalcia species are attacked by a large number of biological control agents. Rates of parasitization of up to 30% have been recorded for *C. lariciphila* (Luitjes & Minderman, 1959). Recently, control attempts have been focused on parasitic nematodes, *Steinernema* spp. attacking *Cephalcia* nymphs in the soil. Field trials on *C. lariciphila* showed that an application of 200 *S. feltiae* per cm² resulted in 61% infection of sawfly eonymphs and 17.3% infection of pupae (Georgis & Hague, 1988).

Phytosanitary risk

C. lariciphila is not considered a quarantine pest by any regional plant protection organization. It is already widely distributed throughout the EPPO region where *Larix* is grown and only occasionally does it cause economic damage. It would probably not be justified to take phytosanitary measures against this pest when adult sawflies are known to be capable of long-distance independent flight.

PHYTOSANITARY MEASURES

The phytosanitary certificate would be sufficient.

BIBLIOGRAPHY

- Billany, D.J.; Brown, R.M. (1980) The web spinning larch sawfly *Cephalcia lariciphila* - a new pest of *Larix* in England and Wales, UK. *Forestry (Oxford)* **53**, 71-80.
- Borden, J.H.; Billany, D.J.; Bradshaw, J.W.S.; Edwards, M.; Baker, R.; Evans, D.A. (1978) Pheromone response and sexual behaviour of *Cephalcia lariciphila* Wachtl (Hymenoptera: Pamphiliidae). *Ecological Entomology* **3**, 13-24.
- Georgis, R.; Hague, N.G.M. (1988) Field evaluation of *Steinernema feltiae* against the web-spinning larch sawfly *Cephalcia lariciphila*. *Journal of Nematology* **20**, 317-320.
- Liston, A.D. (1989) *Cephalcia lariciphila* in Inverness-shire, and the significance of conifer sawflies on mountain summits. *Entomologist's Monthly Magazine* **125**, 62.
- Luitjes, J. (1958) [On the economic significance of insect pests in forests (*Cephalcia alpina* Klug and *Diprion pini* L.)]. *Verlagen van Landbouwkundige Onderzoekingen* No. 64.8, 56 pp.
- Luitjes, J.; Minderman, G. (1959) [The web-spinning larch sawfly]. *Nederlandsche Boshouw Tijdschrift* **31**, 245-253.
- Pschorn-Walcher, H. (1982) [Suborder Symphyta, sawflies]. In: *Die Forstsch., dlinge Europas. 4. Hautflügler und Zweiflügler* (Ed. by Schwenke, W.). Paul Parey, Hamburg, Germany.
- Pschorn-Walcher, H.; Zinnert, K.D. (1971) [Larval systematics, distribution and ecology of the European larch sawfly]. *Zeitschrift für Angewandte Entomologie* **68**, 345-366.
- Röhrig, E. (1953) [The web-spinning larch sawfly *Cephalcia alpina* Klug]. *Zeitschrift für Angewandte Entomologie* **35**, 207-245.