

**Mini data sheet on *Neodiprion abietis***  
**(Hymenoptera: Diprionidae - balsam fir sawfly)**

**Added to the EPPO Alert List in 2017 - Deleted in 2021**

**Reasons for deletion:**

*Neodiprion abietis* has been included in EPPO Alert List for more than 3 years and during this period no particular international action was requested by the EPPO member countries. The pest has not been intercepted since 2016. In 2021-06, the Working Party on Phytosanitary Regulations agreed that it could be deleted, considering that sufficient alert has been given.

**Why:** In October 2016, the NPPO of the Netherlands intercepted *Neodiprion abietis* (Hymenoptera: Diprionidae - balsam fir sawfly) on cut branches of *Gaultheria* imported from the USA. As *N. abietis* does not occur in the EPPO region and is causing severe defoliation on conifers in parts of North America, the Dutch NPPO suggested that *N. abietis* should be added to the EPPO Alert List. This proposal was supported by the EPPO Panels on Phytosanitary Measures and on Quarantine Pests for Forestry.

**Where:** *N. abietis* is native to North America and occurs in Southern Canada and Northern United States.

**EPPO region:** Absent. A pupa of *N. abietis* was intercepted in 2016 by the Dutch NPPO on a consignment of cut branches of *Gaultheria* sp. (a non-host) imported from the USA.

**North America:** Canada (Alberta, British Columbia, Manitoba, New Brunswick, Newfoundland, Nova Scotia, Ontario, Québec, Saskatchewan), Saint-Pierre-et-Miquelon (FR), USA (California, Connecticut, Maine, Minnesota, Missouri, New Hampshire, Wisconsin).

**On which plants:** the main host is *Abies balsamea* (balsam fir) but other conifer species have been reported as host plants. In Canada, *N. abietis* mainly feeds on *A. balsamea* and occasionally on spruce (*Picea glauca* and *P. mariana*). In the literature, other conifer species are mentioned (e.g. *Abies amabilis*, *A. concolor*, *A. grandis*, *A. magnifica*, *A. lasiocarpa*, *Picea engelmannii*, *P. sitchensis* and *Pseudotsuga menziesii*) and it has been hypothesized that *N. abietis* is a species complex, as differences in life histories and host-plant selection for oviposition and feeding have been observed between different populations.

**Damage:** *N. abietis* is a tree defoliator whose larvae feed on 1 or 2-year old needles. It has been shown that *N. abietis* preference for, and performance on current-year foliage was very low, it peaked on 2 or 3-year-old foliage, and declined on older foliage. Larvae feed on the outside of the needles, leaving a central portion which then shrivels, turns yellow to brick red, and finally drops off. Feeding on needles of the previous years (and not on the new needles) causes a distinctive browning of the inner canopy. These feeding activities lead to sparse foliage and reduced tree vigour. Severe and repeated defoliation may lead to tree mortality (e.g. after 3 to 5 years of continuous defoliation).

*N. abietis* has one generation per year, and overwinters as the egg stage. Depending on climatic conditions, adults emerge from late July to early September, and resemble small wasps with four membranous wings. Females are brown (6-8 mm long), males are black (4-5 mm long). Females lay white, oval-shaped eggs in slits cut in the needles. Hatching takes place in May or June. Larvae are gregarious and have green bodies with dark stripes and black heads. Mature larvae (in July or August) are 20 mm long. After the last moult, larvae spin reddish-brown cocoons in the litter on the ground, and less frequently on the foliage.

Pictures can be viewed on the INTERNET

<https://tidcf.nrcan.gc.ca/en/insects/factsheet/6564>

<http://bugguide.net/node/view/914683>

[http://dkbdigitaldesigns.com/portfolio/pests/content/LO\\_digital\\_pest\\_key103\\_large.html](http://dkbdigitaldesigns.com/portfolio/pests/content/LO_digital_pest_key103_large.html)

**Dissemination:** Adult females of *N. abietis* can fly but no data is available on their flight capacity. Over long distances, trade of infested host plants can spread the pest. Interestingly, the plant on which *N. abietis* was intercepted, *Gaultheria* sp., has never been reported to be a host of *N. abietis* but can obviously transport it. The NPPO of the Netherlands noted that high numbers of cut branches of *Gaultheria* sp. are imported from the Northwestern part of North America to be used in flower bouquets. These cut branches are also commonly harvested from the forest understory in Canada.

**Pathway:** Plants for planting, cut branches of host plants or non-host plants (such as *Gaultheria*) transporting live stages (e.g. pupae) from countries where *N. abietis* occurs.

**Possible risks:** In parts of Canada and the USA, *N. abietis* is considered to be a serious forest pest causing reduction of tree vigour, yield losses in the production of wood, and in some cases tree mortality. *N. abietis* is also considered to be a pest of conifers grown for ornamental purposes or for the production of Christmas trees. During the last decades, the intensity and duration of *N. abietis* outbreaks has increased in some areas of North America. In the past, periodic outbreaks of *N. abietis* were localised and of short duration (typically occurring every 5 to 15 years and lasting 4 to 5 years), but outbreaks observed more recently in Western Newfoundland and Nova Scotia encompass extensive areas. For example, from 1991 to 2008, a total area of approximately 560 000 ha was moderately to severely defoliated in Western Newfoundland. Studies conducted in the 2000s have shown that defoliation was favoured by some forest practices, (e.g. pre-commercial thinning). In order to reduce effects of defoliation, biological control programmes with nucleopolyhedrovirus have been developed in Canada. In the EPPO region, *Abies* spp. are important forest trees but European *Abies* species differ from the North American ones, and their susceptibility to *N. abietis* is currently not known. However, some North American species (e.g. *A. grandis*) have been introduced for wood production in the EPPO region, as well as for ornamental purposes. It should also be noted that currently, EU member states prohibit the imports of live conifers (other than seeds) from North America, which closes the ‘plants for planting’ pathway. The fact that *N. abietis* can be transported on non-host plants adds to the risk of introducing this species into the EPPO region. The potential for establishment of *N. abietis* in the EPPO region remains to be further studied but seems likely, considering the similarities of *N. abietis* with the European pine sawfly, *N. sertifer*.

## Sources

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