

Mini data sheet on *Contarinia pseudotsugae*

Added to the EPPO Alert List in 2016 - Deleted in 2019

Reasons for deletion:

Contarinia pseudotsugae 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. In 2019, the Working Party on Phytosanitary Regulations agreed that it could be deleted, considering that sufficient alert has been given.

Contarinia pseudotsugae (Diptera: Cecidomyiidae - needle midge)

Why: *Contarinia pseudotsugae* (Diptera: Cecidomyiidae) is one of three North American species of needle midge (*C. pseudotsugae*, *C. constricta*, *C. cuniculator*) which can attack *Pseudotsuga menziesii* (Douglas fir) trees and cause some damage. Its presence in several European countries (species identity remains to be confirmed) is suspected. In addition to *C. pseudotsugae*, the presence of *C. cuniculator* has very recently been suspected in the Netherlands. In these EPPO member countries, as larvae only could be recovered from *P. menziesii*, a more definitive identification is awaiting the collection or rearing of adult flies. Nevertheless, the EPPO Secretariat considered that the possible presence of new forest pests in the EPPO region should be brought to the attention of the NPPOs. For the moment, only *C. pseudotsugae* is included on the EPPO Alert List but other Douglas fir needle midges might be added later depending on the results of species identification.

Where: until the reports about its possible presence in Belgium, the Netherlands, Germany and France which were made in 2015/2016, *C. pseudotsugae* (as well as its related species, *C. constricta* and *C. cuniculator*) was only known to occur in North America.

EPPO region: Belgium, France, Germany, Netherlands. All records are awaiting a final confirmation of the pest identity.

North America: Canada (British Columbia), Mexico, USA (California, Idaho, Michigan, Montana, Oregon, Pennsylvania, Washington). In the USA, it seems that the occurrence of *C. pseudotsugae* has remained limited for a long time in the Pacific Northwestern part. In the Northeastern part of the USA, it was observed in Michigan for the first time in 2003 and it is considered there as a 'native invader' transported by human activities into a new habitat. No data could be found for Pennsylvania, but this US state was not mentioned in the distribution list given by Furniss & Carolin in 1977.

On which plants: *Pseudotsuga menziesii* is the only known host of *C. pseudotsugae*.

Damage: larvae of *C. pseudotsugae* bore into the needles of *P. menziesii* and their feeding activity results in the formation of galls. Attacked needles are swollen and frequently bent. Initially, the damaged area is pale in colour, but as the season progresses, it darkens and eventually turns into a reddish to brownish colour. Attacked needles usually fall prematurely. In the USA, damage has occasionally been reported in plantations of Christmas trees, as the presence of the pest could significantly reduce their aesthetic and market value. Heavy infestation can cause severe defoliation and if trees are defoliated for several consecutive years, twig dieback can occur. However, damage caused by *C. pseudotsugae* is generally not a mortality-inducing factor.

C. pseudotsugae has one generation per year. It overwinters as larvae in the soil under infested trees. In early spring, larvae pupate and adult midges emerge from the soil to mate and females lay eggs in the needles of the expanding twigs. Eggs hatch within a few days and larvae bore into the needles, feeding on them throughout the summer. In autumn, larvae

drop from the needles to the ground, leaving a small triangular exit hole. In the USA, it is reported that *C. pseudotsugae* populations fluctuate widely from year to year.

Adults are small, orange flies (3 mm long). During the emergence period, they can be observed resting on the tips of the needles. Females can be distinguished by their long ovipositor with which they probe between bud scales and into partially opened buds. This elongated ovipositor enables the female to lay long, narrow, orange-coloured eggs in protected areas. Adult life span is short (male: 1-2 days - female: 2-4 days).

Dissemination: adults can fly but no data is available about their potential for natural spread. The origin of the outbreaks detected in the EPPO region (if confirmed) is unknown. Over long distances, trade of infested *P. menziesii* could cause pest spread.

Pathway: plants for planting, cut branches (including Christmas trees) of *P. menziesii*, soil from countries where *C. pseudotsugae* occurs.

Possible risks: *P. menziesii* originates from the west coast of North America, but has been planted in the EPPO region for timber production and reforestation on a large scale. It is considered that it is now the economically most important exotic tree species in European forests. It is also planted for ornamental purposes in parks and gardens. In North America, *C. pseudotsugae* is considered as a pest of *P. menziesii*, in particular in Christmas tree plantations and seed tree orchards where pest control is sometimes necessary. Management strategies against *C. pseudotsugae* usually involves trapping (emergence traps placed onto the ground near trees) to determine the emergence period of the adults and ensure application of insecticide treatments at the right moment against adults. In forest, chemical control is not considered feasible and the presence of chalcid wasps (unspecified) is reported to regulate pest populations. For the moment, no severe damage has been reported in Europe on *P. menziesii* in association with Douglas-fir needle midge. The future impacts of *C. pseudotsugae* (or related species) are difficult to predict for the moment but it cannot be excluded that this pest could present a risk to *P. menziesii* in forests, nurseries and parks and gardens.

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