Mini data sheet on *Orgyia leucostigma* (Lepidoptera: Erebidae)
White-marked tussock moth

Orgyia leucostigma was added to the EPPO A1 List in 2021. A full datasheet will be prepared, in the meantime you can view here the data which was previously available from the EPPO Alert List (added to the EPPO Alert List in 2020 – deleted in 2021).

Why: *Orgyia leucostigma* was recently identified as a potential threat to Nordic coniferous forests when screening for potential pests associated with trade of ornamental plants, and the Nordic PRA Network has proposed its addition to the EPPO Alert List. The pest was assessed to potentially fulfil the criteria to become regulated as a quarantine pest in the EU and Norway. In a German express PRA (initiated due to an application for movement and use of the organism for research and breeding purposes) the phytosanitary risk of *O. leucostigma* for EU member states was considered high with high certainty.

Where: *Orgyia leucostigma* has a distribution limited to Eastern North America where it is native.
EPPO region: Absent. There are, however, unconfirmed records of the pest from the United Kingdom (England) on an Internet forum.
North America: Canada (Alberta, Manitoba, New Brunswick, Newfoundland, Nova Scotia, Ontario, Prince Edward Island, Quebec, Saskatchewan), USA (Alabama, Arkansas, Colorado, Connecticut, Delaware, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, New Hampshire, New Jersey, New Mexico, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, South Carolina, Tennessee, Texas, Vermont, Virginia, West Virginia, Wisconsin).

On which plants: *O. leucostigma* is very polyphagous, and its known hosts include both coniferous and deciduous trees, as well as herbaceous plants. *O. leucostigma* is primarily considered to be a pest on deciduous trees, but outbreaks have also occurred in coniferous stands. Potential relevant host genera of the pest in the EPPO region are *Abies, Acer, Aesculus, Alnus, Betula, Carpinus, Castanea, Cornus, Corylus, Fagus, Fraxinus, Larix, Malus, Picea, Pinus, Populus, Prunus, Pyrus, Quercus, Rosa, Rubus, Tilia, Ulmus*, *Vaccinium* and *Zea*.

Damage: Damage to plants is caused by the larvae that feed on leaves, typically first by chewing small holes, later, as larvae mature, by consuming almost the entire leaves. On conifers, larvae also feed on the tender bark of twigs causing malformation. Repeated years of defoliation on conifers may cause top-kill, significant wood loss and tree mortality.
O. leucostigma has one to three generations per year. *O. leucostigma* overwinters as eggs, which hatch in spring. Young larvae often spin down on silk threads and float on the breeze ('ballooning') to new host plants. Cocoons are formed in bark crevices or between branches, and adults emerge in a few weeks. Females lay eggs in masses. The larvae are 25 to 38 mm long. They have a bright red head with a yellowish body, a pair of upright pencil tufts of black hairs on the prothorax, and four white to yellowish brushlike tufts of hairs on the back toward the head. The adult male moths are grey-brown, with darker wavy bands and a white spot. The female is whitish-grey.
Pictures are available on Internet:
https://www.forestryimages.org/browse/subthumb.cfm?sub=197

Dissemination: The larvae spin a silk thread that they use to 'fly' with the wind. The females are short-winged and cannot fly and thus this 'ballooning' of the larvae is the main mode of

natural dispersal of the pest. Over long distances, the pest can be transported as eggs on infested plant material including wood packaging material.

Pathways: Plants for planting, cut branches, wood and bark, wood packaging material? from areas where *O. leucostigma* occurs.

Possible risks: *O. leucostigma* is highly polyphagous and many of its host plants are widely planted and cultivated across the EPPO region. The economic impact of the pest in its native range is considered insignificant in general, but outbreaks have occurred in both deciduous and coniferous stands. An outbreak of the pest took place in 1988 in Nova Scotia and covered 1.4 million hectares, of which 60 000 hectares were treated against the pest at a cost of approximately six million Canadian dollars. The outbreaks normally last from two to four years and are typically terminated by natural antagonists of the pest, such as natural predators, parasitoids and diseases. If natural antagonists are lacking in the EPPO region, severe outbreaks and economic and environmental impacts are possible in natural and planted forests. Also, without insecticide treatments, severe defoliation could occur causing serious aesthetic damage to ornamental and Christmas trees. Infestations are recorded both in forests and in urban areas. Hairs of caterpillars are urticating and can cause allergic reactions.
The pest can be associated with plants for planting and other types of plant commodities and it is uncertain whether the current phytosanitary measures would prevent the introduction of the pest into the EPPO region. For example, plants for planting of some of the known host genera, such as *Buxus*, *Carpinus*, *Cupressus* and *Vaccinium*, can be imported to the EU according the EU plant health legislation.
The pest is present in climate types that are widely distributed in the EPPO region suggesting that it has the potential to establish throughout the EPPO region.

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