

Data Sheets on Forest Pests

Dasychira albodentata

IDENTITY

Name: *Dasychira albodentata* Bremer

Synonyms: none

Taxonomic position: Insecta: Lepidoptera: Lymantriidae

Common name: Coniferous orgiid, White-dented orgiid, Larch orgiid (English); Wollspinner, Russicher (German); хвойная волнянка, белозубчатая волнянка (Russian).

Notes on taxonomy and nomenclature:

In Russian publications, there exists sometimes a confusion between *D. albodentata* and *Calliteara* (= *Dasychira*) *abietis* Denis & Schiffermüller, a species, which is widely distributed in Palearctic region and has a larger host range (including *Abies* and *Picea* species). Some scientists believe that many records on outbreaks of *Calliteara abietis* concern in reality *D. albodentata* (Gorshkov, 1963; Ivliev, Sinchilina, 1964). Some other scientists believe that many records on outbreaks of *D. albodentata* concern in reality *Calliteara abietis* (Petrenko, 1979).

Bayer computer code: DASCAL

HOSTS

D. albodentata can damage several species of *Larix* (mainly *Larix gmelinii* (= *Larix dahurica*)), *Pinus* (mainly *Pinus sylvestris*, *Pinus pumila* and *Pinus koraiensis*) and some other coniferous. Its preferred hosts are *Larix gmelinii* and *Pinus sylvestris*.

GEOGRAPHICAL DISTRIBUTION

EPPO region: Russia (east of Southern Siberia, Transbaïkalia, south of North – Eastern Siberia, Southern Far East).

Asia: Russia (east of Southern Siberia, Transbaïkalia, south of North – Eastern Siberia, Southern Far East), north of Mongolia, north of China.

EU: Absent

The main outbreaks of *D. albodentata* occurs in Transbaïkalia, Amur region, republic of Sakha and the Far East.

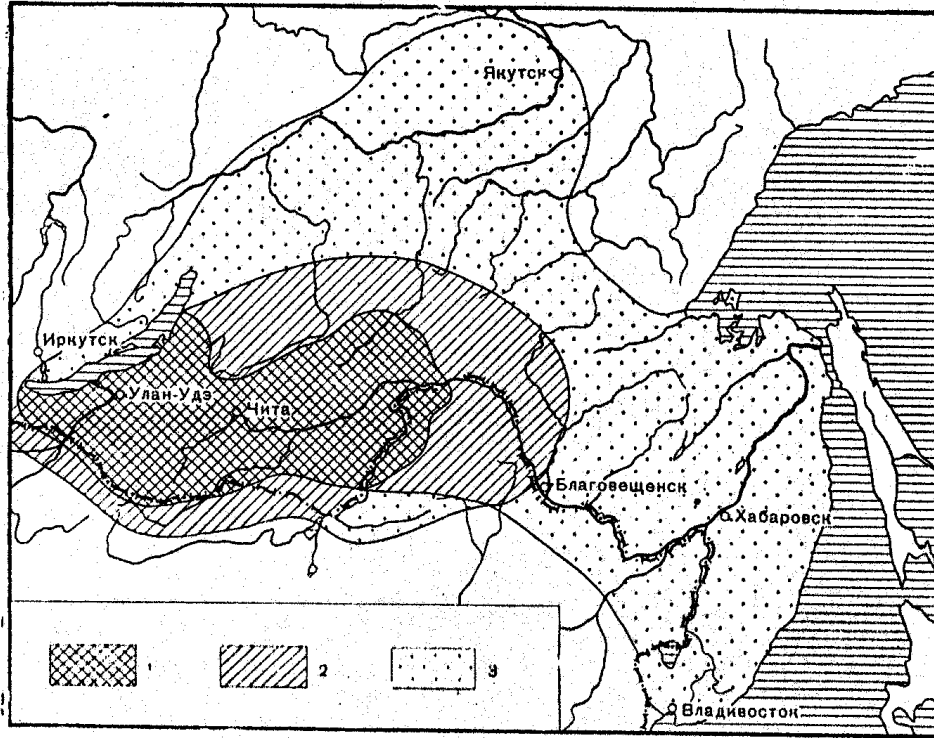


Fig. 1 - Geographical distribution of *D. albodentata*: 1 – zone of permanent damage, 2 – zone of periodical damage, 3 – zone of occurrence (Ivliev, Sinchilina, 1964).

BIOLOGY

Flight of *D. albodentata* in its natural range usually occurs in the beginning of July and lasts till the end of July with the maximum in the middle of July. Males appear 3 – 5 days earlier than females. The flight is most active in twilight till the midnight. Mating occurs soon after hatching of moths only once (both for male and female) and lasts during several hours. Immediately after mating, females lay eggs on the bark, dry branches and needles in one layer homogeneously on the height of the crowns preferring well warmed places. One egg mass may contain from 1 to 162 eggs. Each female lays an average 110 – 300 eggs (Ivliev, Sinchilina, 1964; Pleshanov, 1982). The egg development usually takes 10 – 18 days. First instar larvae begin to eat the edges of needles 3 – 4 days after hatching. They moult 2 – 3 times before going to the soil in the beginning of October to overwinter under the moss (at the depth of 2 – 10 cm).

At the beginning of May in the following year (at the soil temperature + 6-7°C), the larvae return to the crowns, eat complete needles, and moult 3 times before making cocoons in the crowns. Development of chrysalids takes 15 – 18 days. The full life cycle usually takes one year.

D. albodentata prefers for outbreaks dry conditions in areas with continental climate. It often occurs together with Siberian moth *Dendrolimus sibiricus*. The natural enemies of *D. albodentata* (*Telenomus gracilis*, *Trichogramma dendrolimi*, *Kramerea schützei*, *Parasarcophaga pseudoscoparia*, *Pimpla instigator* and some other parasitoids, predators and diseases) play the important role in regulation of its populations (Ivliev, Sinchilina, 1964; Nakonechnyi, Ivliev, Yashchenko, 1973; Vorontsov, 1995).

DETECTION AND IDENTIFICATION

Symptoms

Defoliation of larch or pine is usually very spectacular. The presence of caterpillars is easily detected. The adults and especially caterpillars have characteristics which permit entomologists to easily distinguish the species from other species of moths. The only possible confusion may be with *Calliteara abietis*.

Morphology

Eggs

About 1.2–1.3 mm in diameter, slightly flattened, light-grey when laid, then becoming darker and turning grey.

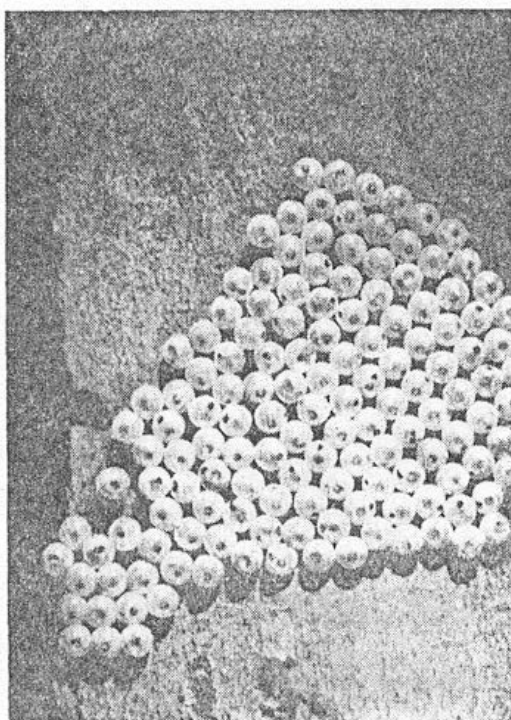


Fig. 2 Egg mass of *D. albobdentata*

Larva

The caterpillar (before pupation) is 31–35 mm long, containing a body of 12 segments and a head of 3.0–3.2 in diameter. A knob with a bundle of long (10-14 mm) black hairs is situated on each lateral side of the first thorax segment. Four knobs of ectodermal origin with bundles of whitish-yellow hairs are situated on the dorsal side of 4th, 5th, 6th and 7th segments. A bundle of long (7-8 mm) yellow hairs is situated on the dorsal side of the next to last segment. Velvety black bands are well seen between 3rd, 4th, 5th, 6th and 7th segments. On the 8th, 9th, 10th and 11th segments, these bands turn in black spots wide of 1.5-2.0 mm. Along each lateral side of the body, there is a black dotted stripe. One row of knobs with hairs is situated upper this stripe and two rows – lower it.

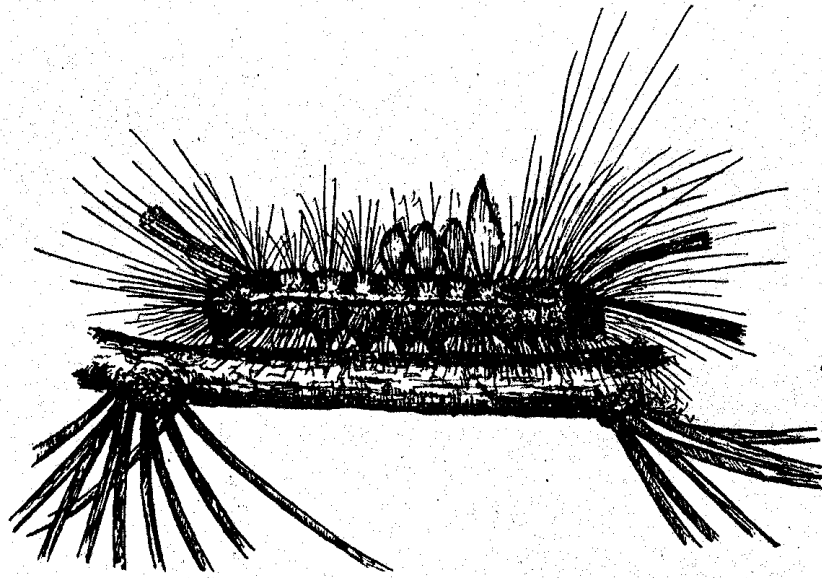


Fig. 3 - Caterpillar of *D. albodentata*

Pupa

The pupa is 23–26 mm long and 6 – 8 mm large, brown, flattened from dorsal and ventral sides, dilated in the middle, covered with bundles of long hairs from lateral and dorsal sides, situated in flimsy cocoon.

Adult

The female wingspan is 40 – 52 mm; the male wingspan is 32 – 43 mm. The head, thorax and front wings are black-grey. The abdomen and back wings are light-grey. The forehead, lower part of the head and front legs are black, other two pairs of legs – light-grey. Male antennae are strongly comb-shaped, combs are brown-grey, antenna segments – white. Basal line of front wings is intensively black, basal field in mostly white-grey with dark spot at the base and dark-grey dorsal part. Transversal line is black and dented on nerves. The fringe of front wings is grey, the fringe of back wings – white-black.

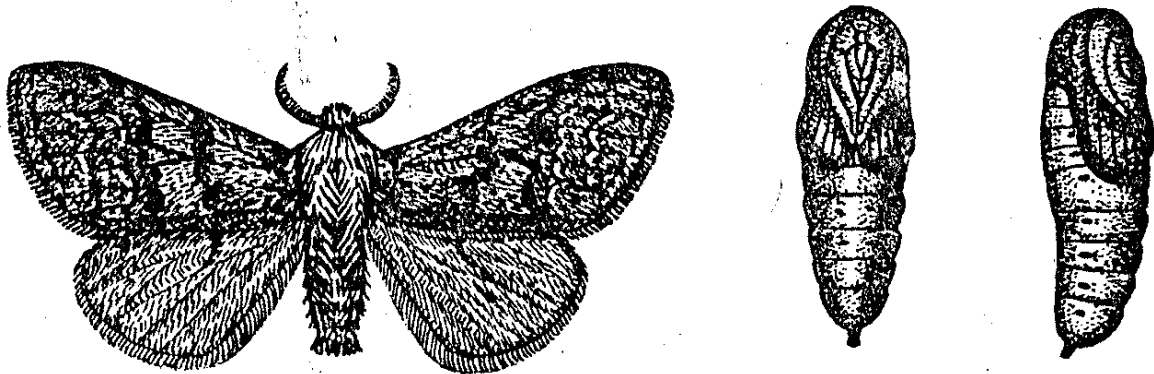


Fig. 4 - Male and pupae of *D. albodentata*

MEANS OF MOVEMENT AND DISPERSAL

D. albodentata can spread with flights of the adult moths. All stages of the life cycle can be transported on plants moving in trade particularly plants for planting and cut branches (including Christmas trees). Eggs and larvae may be associated with wood containing bark and may be hitchhikers on other products.

PEST SIGNIFICANCE

Economic Impact

D. albodentata is one of several important defoliators of larch and pine in Russia. Its outbreaks occur throughout large areas (thousands of hectares) usually cause defoliation between 10 and 20% and decrease of wood and seed production but sometimes lead to the death of forests in Transbaikalia. It often occurs together with Siberian moth *Dendrolimus sibiricus* and increases the damage caused by this major pest.

During outbreaks, trees can be seriously defoliated during 2 successive years (Epova & Pleshanov, 1995) and many trees are unable to withstand such period of defoliation. Furthermore, the outbreaks of *D. albodentata* and *Dendrolimus sibiricus* are very often followed by outbreaks of wood borers (scolytids, cerambycids and others), particularly, *Ips typographus*, *I. subelongatus*, *Scolytus morawitzi*, *Monochamus galloprovincialis*, *Xylotrechus altaicus*, *Melanophila guttulata* (Pavlovskii, Shtakelberg, 1955; Epova & Pleshanov, 1995; Vorontsov, 1995). These pests are able to kill trees, which are heavily stressed by the defoliators.

Environmental Impact

D. albodentata causes sometimes the death of forests, either directly or by leaving the forest susceptible to subsequent attack by other forest pests, and/or by predisposing the forest to forest fires (Epova & Pleshanov, 1995; Vorontsov, 1995). The reforestation of these areas is often very complicated and takes much time. This results in serious changes of environment over large areas.

Control

Significant control efforts (mainly aviation treatments with chemical and bacterial preparations) against *D. albodentata* are undertaken during years of outbreaks in Russia (Ivliev, Sinchilina, 1964; Epova & Pleshanov, 1995; Vorontsov, 1995) and other countries within the range of the pest.

Phytosanitary risk

D. albodentata is not declared a quarantine pest by any regional plant protection organization. It is considered as a serious defoliator of coniferous forests in eastern Russia (especially in Transbaikalia). It is very likely to be able to establish in most EPPO countries particularly those in the north and centre. Coniferous species are important forest trees in the EPPO region.

PHYTOSANITARY MEASURES

To prevent introduction of *D. albodentata* to other countries, the effective measure would be to prohibit import of coniferous plants for planting and cut branches from the infested areas. Inspection of wood with bark can detect eggs of the pest. Inspection of wood products, especially those with bark, can detect hitchhiking larvae and adults.

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