

## Data Sheets on Forest Pests

### *Melanophila guttulata*

#### IDENTITY

**Name:** *Melanophila guttulata* Gebler

**Synonyms:** *Phaenops guttulatus* Gebler  
*Phaenops guttulata* Gebler  
*Melanophila discopunctata* Fald.  
*Melanophila fulvoguttata* Kerr.  
*Phaenops fulvoguttata* Jacobs.

**Taxonomic position:** Insecta: Coleoptera: Buprestidae

**Common Name:** Larch buprestid (English); лиственничная златка (Russian)

**Bayer computer code:** MELPGU

#### HOSTS

*M. guttulata* attacks mainly larch (*Larix sibirica*, *L. gmelinii* and other larch species), but also *Abies*, *Picea*, *Pinus* and other coniferous species present in its natural range.

#### GEOGRAPHICAL DISTRIBUTION

**EPPO region:** Russia (Eastern half of European Russia, Siberia, Transbaikalia, Far East).

**Asia:** Russia (Siberia, Transbaikalia, Far East) (Pavlovskii & Shtakelberg, 1955; Issaev, 1966; Vorontsov, 1995).

**EU:** Absent, intercepted in 1985 in pine wood (*Pinus sylvestris*) imported from Russia to Finland (Siitonen, 1990).

#### BIOLOGY

The mass flight of *M. guttulata* usually occurs in June and July. Adult flight may last until September, which makes it difficult to follow the dates of pest development. Young adults feed on needles. Females usually lay their eggs on slightly stressed, dying and cut trees situated in well illuminated locations. Eggs are laid one-by-one in split-like niches in the bark and on the surface of the bark along the trunks usually on the south-facing side.

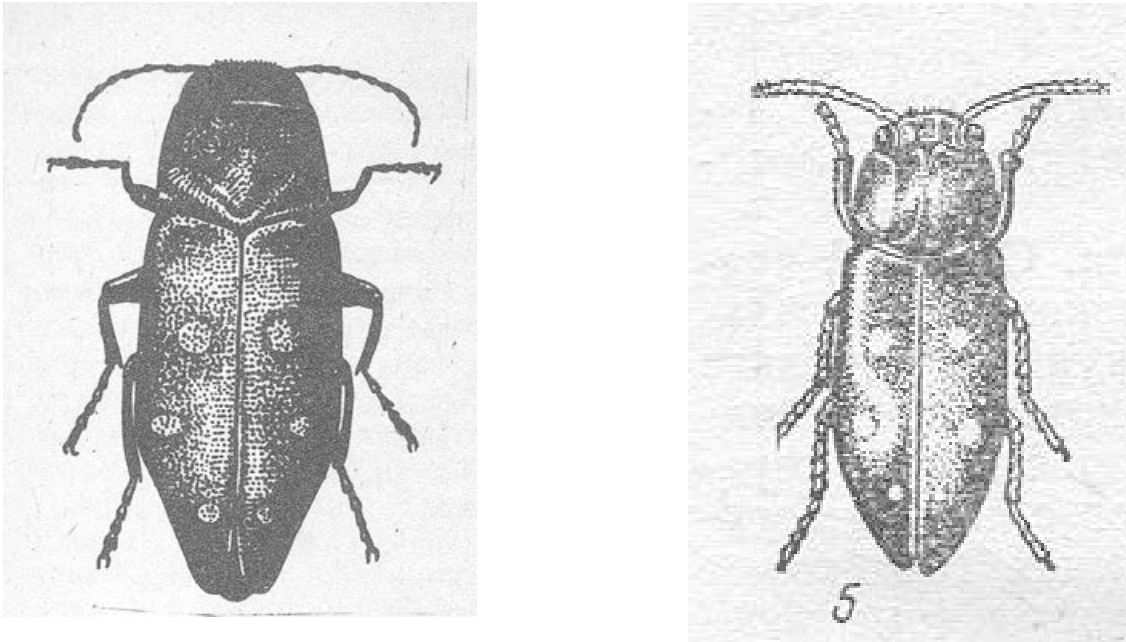


Fig 1. Adults of *Melanophila guttulata* (Mamaev, 1985; Maslov, 1988)

Neonate larvae bore through the bark and feed in the cambium under the bark and, periodically, in the wood. In more healthy trees, they feed mainly in the bark and cambium, whereas in more stressed trees, they feed in the wood (0,5 – 1,5 mm depth). Larvae galleries are very twisting, 0,6 – 1,2 mm wide in the beginning and expanding to 15 – 16 mm wide at the end close to the pupation cells. At high population density, they cross each other and may reach 2 – 3 cm wide. They are filled with frass forming characteristic "strings" interrupted by excrements.

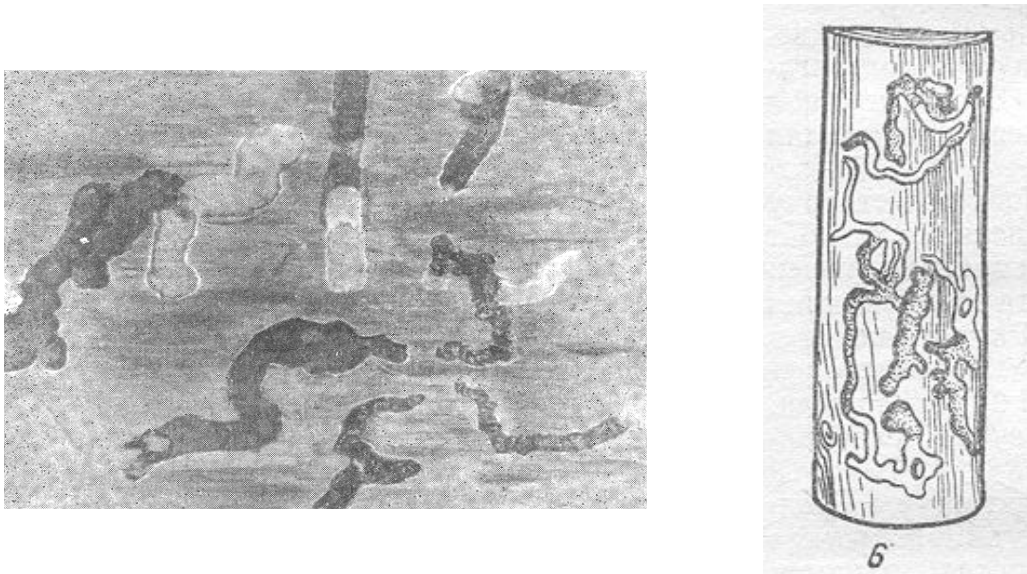


Fig 2. Larvae galleries of *Melanophila guttulata* (Issaev, 1966; Maslov, 1988)

Larvae of *M. guttulata* are able to feed in the bark for long periods (up to two months) and then to go deep into the living parts of cambium and wood when the tree is sufficiently stressed. They are more resistant to larch resin from almost healthy trees than most xylophagous insects. Pupation cells of

ellipsoid form are situated either in the bark, under the bark (between wood and bark) or even in the wood to a depth of 0,5 – 0,8 mm. Young adults emerge, making round/ellipsoid holes of 5 x 3 mm in average dimensions. The developmental cycle of *M. guttulata*, normally, takes one year but may be prolonged to two years (Issaev, 1966; Mamaev, 1985; Maslov, 1988; Vorontsov, 1995).

## DETECTION AND IDENTIFICATION

### Symptoms

Characteristic symptoms are: flow of resin coming from the places where young larvae have entered the cambium, tunnels filled in borings forming characteristic “strings” interrupted by excrements made by larvae, large ellipsoid emergence holes in trunks, and beetles sitting on the trunks. The needles of attacked trees often show yellowing and wilting.

### Morphology

#### Larva

The larva is pale yellowish up to about 16 – 18 mm long, with black mandibles.

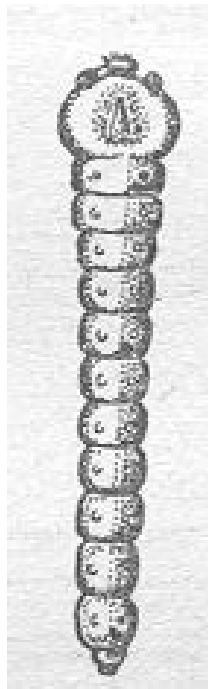


Fig 3. Larva of *Melanophila guttulata* (Maslov, 1988)

#### Adult

The adult of *M. guttulata* has an elongated bronzed black body, 7 – 12 mm long, with 3 pairs of yellowish spots on elytra.

## MEANS OF PEST MOVEMENT AND DISPERSAL

Adults of *M. guttulata* fly well but, for this, need warm and sunny weather. Because *M. guttulata* may be hidden in the wood and therefor difficult to detect, it may be easily transported with untreated larch wood products moving in trade. The pest may also be carried as a hitchhiker on planting material.



Fig 4. Larch tree damaged by *Melanophila guttulata* (Issaev, 1966)

## PEST SIGNIFICANCE

### Economic Impact

*M. guttulata* is one of the most important pests of larch in the region of its present distribution. It attacks slightly stressed and almost healthy trees as well as dying and cut trees of different ages. The pest continues to damage the same trees during several consecutive years causing their death.

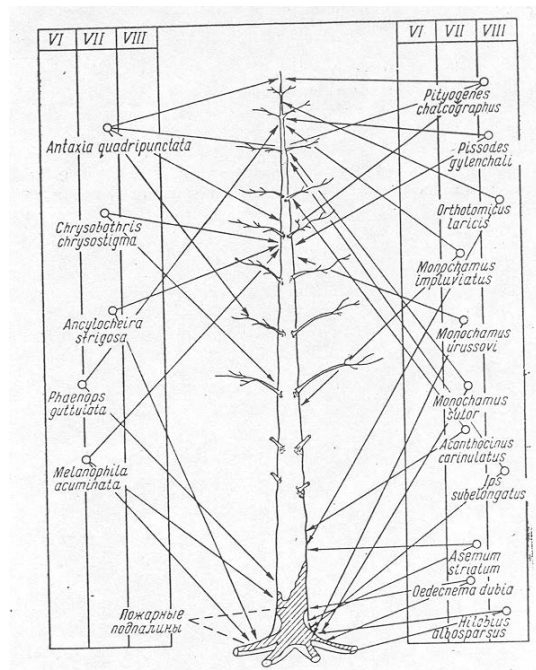


Fig 5. Areas on larch tree attacked by different xylophagous insects in Magadan region (Ivliev, Kononov, 1966)

On the tree, it attacks almost all trunk from the bottom to the top, its area of attack being one of the largest among xylophagous insects on larch. Often, larvae encircle a tree feeding on the cambium, which leads to the death of the infested tree.

The pest has strong requirements of illumination and temperature. At the same time, it is very resistant to dry conditions and to larch resin, which makes it more important than other xylophagous larch pests in hot and dry conditions. This species prefers to attack mature trees and, even in cases when it does not kill them, the infestation results in significant loss of vigour and of wood marketability (because of the bore holes). The most severe damage is usually observed in larch forests previously attacked by the Siberian silk moth *Dendrolimus sibiricus* or damaged by forest fires. In turn, outbreaks of *M. guttulata* are followed by outbreaks of other xylophagous insects, the most often being *Scolytus morawitzi* (Issaev, 1966; Maslov, 1988; Mamaev, 1990; Vorontsov, 1995).

### **Environmental Impact**

Because it is a tree-killer, *M. guttulata* is able to alter ecological relationships where larch is an important component of the ecosystems.

### **Control**

Major control efforts are undertaken in the area of the present distribution of *M. guttulata*. Control measures include forestry and sanitary measures (improving the resistance of forests, cutting and elimination of all infested trees), treatments with chemical and biological preparations (Maslov, 1988; Vorontsov, 1995). In its natural area, the nematode *Phaenopsitylenchus laricis* and other natural enemies may play some role in the regulation of its populations (Korenchenko, 1989).

### **Phytosanitary risk**

*M. guttulata* is not a quarantine pest for any individual country (as far as is known) or any regional plant protection organization. It is considered as a very serious forest pest in areas where it occurs. It is very likely to establish in all larch areas within EPPO region. Larch is an important forest tree in some parts of the EPPO region.

## **PHYTOSANITARY MEASURES**

The major risk of spreading *M. guttulata* is with larch wood in which the young larvae may be under the bark and older larvae, pupae and adults in wood and cambium under the bark. Adults may also be transported on the surface of trunks. Wood should be debarked and inspected for bore holes. It is unlikely to be transported by planting material since the species does not attack branches, small trunks or root stocks which constitute planting material. Adults may, however, be resting on the surface of such material. Cut branches and plants for planting should be inspected.

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