

## *Ips subelongatus*

**Other scientific names:** *Ips fallax* Eggers

**Order and Family:** Coleoptera: Scolytidae

**Common names:** larch bark beetle; larch engraver beetle; oblong bark beetle

*Ips subelongatus* Motschulsky, 1860 is considered to be the most destructive bark beetle pest of larch within its natural range. It is considered by many to be of equal importance to the European spruce bark beetle, *Ips typographus*, which is generally regarded as Europe's most damaging bark beetle.

### DISTRIBUTION

**Native:** Asia and the Pacific (mainland)

Europe: Russian Federation

**Introduced:** No reports to date

### IDENTIFICATION

Adult beetles are completely brown in colour and have an elongated body approximately 4.5 to 6.0 mm long (Kimoto and Duthie-Holt, 2006). The posterior end of the forewings is completely covered with long hairs and also has four spines on each side, the third of which has a characteristic bulge at the top (Kimoto and Duthie-Holt, 2006).

Eggs are round and pearly white in colour. The larvae are white grubs with amber coloured head capsules that are typically 4 to 5 mm long when mature (Orlinski, 2004).

### HOSTS

*Larix* spp., including *L. sibirica*, *L. gmelinii*, *L. leptolepis* and *L. olgensis*; *Abies* spp.; *Picea* spp.; *Pinus* spp., including *P. sylvestris*, *P. sibirica* and *P. koraiensis*

### BIOLOGY

In the southern part of its distribution, the first spring mass flight usually occurs from mid-May to the end of June, when midday temperature reaches 16 to 20 °C, and lasts for 15 to 17 days (EPPO, 2005). Attacks are initiated by the males, who construct nuptial chambers under the bark, emit aggregation pheromones and are subsequently joined by 2 to 5 females (Kimoto and Duthie-Holt, 2006). After mating, each female constructs an egg gallery, typically 16 to 18 cm long and 3 to 3.5 mm wide, and deposits her eggs. The shape and depth of egg galleries varies depending on the health of the host tree; in healthy trees, they radiate downwards and upwards from the nuptial chamber but in stressed trees they radiate vertically and horizontally (Kimoto and Duthie-Holt, 2006). Larval galleries are typically perpendicular to the egg galleries.

Adults must feed in order to achieve sexual maturity. Maturation feeding usually occurs along the trunk but may also occur on the root collar or on branches (Kimoto and Duthie-Holt, 2006). These galleries are characterized by large quantities of frass. Mature beetles overwinter in forest litter whereas pupae, larvae and some adults overwinter under the bark of larch host trees (EPPO, 2005).

## SYMPTOMS AND DAMAGE

*Ips subelongatus* is capable of attacking both apparently healthy trees and stressed trees but they most frequently occur on trees that have been stressed by other factors such as wildfire or other pests. Mature trees are preferred. It is often found in association with infestations of other bark beetles and wood-borers such as *Scolytus morawitzi*, *Xylotrechus altaicus*, *Monochamus galloprovincialis* and *Melanophila guttulata* (Orlinski, 2004).

Repeated attacks by this species can affect the growth and rate of timber production, occasionally leading to dieback or death of a host tree. Characteristic symptoms of attack by *I. subelongatus* include: sparse crowns of larch trees with partly dead tops and branches; wilting of needles; fading of foliage from green to yellow and finally to red; resin flow from entrance holes; the presence of small round exit holes, pitch tubes, reddish frass on the bark surface and a gallery system with central chamber and radial larval galleries under the bark (EPPO, 2005). As with other conifer bark beetle species, *Ips subelongatus* is a vector for blue-stain fungi (*Ophiostoma* spp.) which hastens the death of trees and discolours the wood resulting in loss of timber grade and value.



Galleries created by *Ips subelongatus*

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## DISPERSAL AND INTRODUCTION PATHWAYS

Adult *Ips* beetles are capable of flying up to 4 km in search of suitable host material and they are also subject to wind dispersal. Transport of untreated larch wood can provide a means of introduction of immature stages and adults.

## CONTROL MEASURES

Control measures include silvicultural measures such as rapid removal and processing of infested trees, improving the resistance of forests, thinning, and treatments with chemical and biological preparations (EPPO, 2005). Biological control agents such as nematodes, microorganisms, parasitoids and predators may also play a role in regulating *I. subelongatus* populations. A forecasting system has been developed in China.

Since it is virtually absent from Europe with the exception of a small area in northeastern European Russia, *Ips subelongatus* was added to the EPPO A2 action list of pests recommended for regulation as quarantine pests in 2004. Recommended control measures include requiring imported *Larix* wood and bark to be from a pest-free area and debarking or kiln-drying wood and bark from infested areas. These requirements are also extended to the less important hosts of *Abies*, *Picea* and *Pinus* species.