

Data Sheets on Forest Pests

Ips spessivtsevi

IDENTITY

- Name:** *Ips spessivtsevi* Lebedev
Synonym: *Pityogenes spessivtsevi* Lebedev
Pityogenes perfosus Bees.
Taxonomic position: Insecta: Coleoptera: Scolytidae
Common Name: Spiral engraver, Spiral bark beetle, Spiral-gallery engraver, Spruce engraver, Spessivtsev's engraver, Spessivtsev's bark beetle (English); Спиральный гравер, спиральный короед, спиральноходный гравер, еловый гравер, гравер Спесивцева, короед Спесивцева (Russian).
Bayer computer code: PITYSV

HOSTS

Ips spessivtsevi attacks spruce, especially *Picea schrenkiana* (*P. tianschanica* = *P. prostrata* = *P. robertii*) (Stark, 1952; Kostin, 1955; Pavlovskii & Shtakelberg, 1955; Makhnovskii, 1966; Maslov, 1988).

GEOGRAPHICAL DISTRIBUTION

EPPO region: Kyrgyzstan.

Asia: Kazakhstan, Kyrgyzstan, Tajikistan (Parfentiev, 1951; Stark, 1952; Kostin, 1955; Pavlovskii & Shtakelberg, 1955; Makhnovskii, 1966).

EU: Absent.

BIOLOGY

The flight period of *Ips spessivtsevi* occurs from the beginning of May to the end of June. The pest usually occurs together with *Ips hauseri*, but, unlike the latter species, attacks only parts of trees with thin bark; its development time is longer. Beetles begin additional feeding after making emergence holes and leaving the pupation cells. The number of emergence holes is usually less than the number of emerging beetles because some of them use holes already made by other specimens. The developmental cycle takes one year at altitudes of 2200-3200 m. At lower altitudes, the pest develops 1.5-2 generations per year. At altitudes of 1200-1400 m, the pest develops 2 complete generations per year. It usually overwinters at the adult stage, less often in the larval stage. The additional feeding of young beetles takes place in the bark of trees where larval development occurred. At altitudes of 1200-1400 m, young beetles of the first generation begin to lay eggs in the beginning of August. Young beetles of the second generation appear in October. The pest may attack trees without symptoms of stress (together with *Ips hauseri*), but also attacks stressed, dying and recently cut trees. It prefers to attack zones of thin bark on trunks and branches. (Parfentiev, 1951; Makhnovskii, 1966; Maslov, 1988).

Ips spessivtsevi is a polygamous species. One pest family usually includes one male and three to six females. Female galleries start from a wide common copulation chamber and go spirally in two directions. Female galleries may reach 5-7 cm in length. Eggs are laid in special holes made by the female in the external (prominent) side of the spiral female gallery. On branches, not all female galleries have a spiral form, and in this case, eggs are laid on both sides of a gallery. Larval galleries are short, reaching 2-3 cm in length, are much

widened at the end and finish with pupation cells. Galleries are made mainly in the phloem, touching the sapwood and bark (Parfentiev, 1951; Makhnovskii, 1966; Maslov, 1988).



Fig. 1 - Galleries of *Ips spessivtsevi* (Parfentiev, 1951)

DETECTION AND IDENTIFICATION

Symptoms

Characteristic for symptoms of *Ips spessivtsevi* are: flow of resin coming from the places where attempts have been made to enter the bark, species-diagnostic gallery systems with a central chamber and radial spiral female galleries, sparse crowns of coniferous trees with partly dead tops and branches. The needles of attacked trees often show yellowing or reddening and wilting beginning from the tops of trees.

Morphology

Larva

Typical *Ips* larva.

Adult

Typical *Ips* beetle.

MEANS OF PEST MOVEMENT AND DISPERSAL

The natural spread of the pest with flying adults is not very fast. Because *Ips spessivtsevi* may be hidden in the wood and therefore difficult to detect, it may be easily transported with untreated spruce wood products (including cut branches) moving in trade. The pest may also be carried as a hitchhiker on planting material.

PEST SIGNIFICANCE

Economic Impact

Ips spessivtsevi is one of the most important xylophagous pests of *Picea schrenkiana* in the region of its present distribution. It may attack slightly stressed and healthy trees of different ages and continues to damage the same trees during several consecutive years causing their death. It often causes the death of mountain forests. 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 decrease of wood and seed production as well as reduction in wood marketability. The pest usually kills infested trees during 1 or 2 years either itself or most often in association with the bark beetles *Ips hauseri* and *Pityophthorus kirgisisicus* and the longhorn beetles *Tetropium staudingeri*, *Dokhtouroffia nebulosa* and *Dokhtouroffia baeckmanni* and/or other pests. The pest mainly occurs in mountain forests (up to very high altitudes), which are very important for soil protection against erosion. *Ips spessivtsevi* most often occurs together with *Ips hauseri*, which is considered by many authors as a more dangerous pest. The two species compete and normally *Ips hauseri* wins in the middle of the trunk and *Ips spessivtsevi* wins at the top of the trunk and on branches. Together, these two pests are able to kill trees (and forests) very rapidly. *Ips spessivtsevi* is more common than *Ips hauseri* and is able to damage trees at higher altitude than *Ips hauseri* and there it usually occurs there together with *Tetropium staudingeri* (Parfentiev, 1951; Marikovskii, 1956; Makhnovskii, 1966; Maslov, 1988).

Environmental Impact

Because it is a tree-killer, *Ips spessivtsevi* is able either itself or more often together with other pests to alter ecological relationships where spruce is an important component of the ecosystems. The pest mainly damages mountain forests and may alter mountain environment.

Control

Official control efforts are undertaken in the area of the present distribution of *Ips spessivtsevi*. Control measures include forestry and sanitary measures (improving the resistance of forests, cutting and elimination of all infested trees, cutting of “trapping trees” followed by their treatment), treatments with chemical and biological preparations (lindane, phoxim, dichlorvos).

Phytosanitary risk

Ips spessivtsevi 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 serious forest pest in the area where it occurs. It is very likely to establish in all spruce areas within EPPO region if it will develop on European species of spruce. It is very likely to be transported with untreated wood with bark and cut branches (including Christmas trees). It is unlikely to be transported in planting material since the species does not attack thin branches, small trunks or root which constitute planting material. Adults may, however, be resting on the surface of such material. Spruce is an important forest tree in some parts of the EPPO region.

PHYTOSANITARY MEASURES

The major risk of spreading *Ips spessivtsevi* is with spruce wood in which eggs, larvae, pupae and adults may be under the bark. Adults may also be transported on the surface of trunks. Wood should be debarked and inspected. Cut branches and plants for planting should be inspected.

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