

Data Sheets on Quarantine Pests

Ips sexdentatus

IDENTITY

Name: *Ips sexdentatus* (Börner)

Synonyms: *Dermestes sexdentatus* Börner

Ips typographus De Geer

Bostrichus pinastri Bechstein

Tomicus stenographus Duftschmidt

Taxonomic position: Insecta: Coleoptera: Scolytidae

Common names: Six-toothed bark beetle (English)

Stenographe (French)

Grosser 12-zähniger Kiefernborckenkäfer (German)

Tolvtannet barkbille (Norwegian)

Bayer computer code: IPSXSE

EU Annex designation: II/B

HOSTS

In northern Europe, *I. sexdentatus* is found on *Pinus sylvestris*, and in central and southern Europe also on *P. pinaster*, *P. heldreichii* and *P. nigra*. In Turkey, Georgia and southern Russia, it occurs on *Picea orientalis*. It is occasionally recorded on species of *Larix*. In Asia, it occurs on *Pinus armandii* and other species of *Pinus*.

GEOGRAPHICAL DISTRIBUTION

EPPO region: *I. sexdentatus* occurs in *Pinus* forests throughout Europe, but in Scandinavia it is only found north of the Arctic Circle: Austria, Bulgaria, Czech Republic, Finland (north of Arctic Circle only), France, Germany, Greece, Hungary, Italy (mainland, Sardinia), Lithuania, Macedonia, Norway (north of Arctic Circle apart from some small local populations in southern Norway), Poland, Portugal, Romania, Russia (central Russia, southern Russia, Western Siberia, Far East), Spain, Sweden (north of Arctic Circle only), Slovakia, Switzerland, Turkey, UK (England, but absent from Northern Ireland), Ukraine, Yugoslavia.

Asia: China (Hebei, Heilongjiang), Korea Democratic People's Republic, Korea Republic, Russia (Siberia, Far East), Thailand, Turkey.

EU: Present.

BIOLOGY

The species has only one annual generation north of the Arctic Circle, two generations in central areas of Eurasia and four to five generations in the Mediterranean area and in other areas with a long, warm summer season. The spring flight starts when the temperature exceeds about 20°C; in the north this is in May/June, in southern areas in March/April. The male beetle initiates the boring and releases an aggregation pheromone consisting mainly of

ipsdienol (Vité *et al.*, 1974). Brood development from the start of gallery construction until the emergence of the new generation adults may take 2-3 weeks at a constant laboratory temperature of 27°C and 3-4 weeks at 22°C. No gallery construction and brood production succeeds at a constant temperature of 12°C. Overwintering is in the adult stage. The supercooling point in hibernating adults is about -19°C, whereas in larvae it is only -9°C (Bakke, 1968).

DETECTION AND IDENTIFICATION

Symptoms

Reproduction occurs under thick bark of pines. The gallery system has two to four female galleries up to about 1 m in length, half of them in each of two opposite directions. Larval galleries are 8-10 cm long. The wood under the gallery is stained blue from fungi transferred by the beetles (Chararas, 1962). As in the case of other conifer bark beetles, *I. sexdentatus* acts as a vector for a bluestain fungus (*Ophiostoma brunneo-ciliatum*) which also damages the tree (Lieutier *et al.*, 1989).

Morphology

This is the largest beetle of the genus *Ips*, 7-8 mm in length. Both sexes have six spines at each side of the elytral declivity. The fourth is the largest and is capitate. Only the female has a longitudinal stridulatory organ on the upper hind part of the head (Balachowsky, 1949; Chararas, 1962; Grüne, 1979).

MEANS OF MOVEMENT AND DISPERSAL

Laboratory experiments have shown that adult *Ips* spp. can fly continuously for several hours. Jactel & Gaillard (1991) found, for example, that in a sample of 38 beetles, 98% could fly >5 km, 50% >20 km and 10% >45 km. The speed of flight was constant and equalled 1.3 m/s. In the field, however, flight has only been observed to take place over limited distances and then usually downwind. Beetles have been found in the stomach of trout in lakes 35 km from the nearest spruce forest, probably carried by the wind (Nilssen, 1978). Dispersal over longer distances depends on transportation under the bark of logs.

PEST SIGNIFICANCE

Economic impact

This species is of no significance as a pest in northern and central Europe, where it breeds only in fresh logs or in weakened or dying trees. It has caused death of *Pinus sylvestris* and *P. radiata* suffering from drought stress in central and southern France, northern Spain and Portugal (Goix, 1977; Perrot, 1977; Lieutier, 1984; Ferreira & Ferreira, 1986; Lieutier *et al.*, 1988; Paiva *et al.*, 1988; Cobos-Suarez & Ruiz-Urrestarazu, 1990), often in association with other pests (*I. acuminatus*, *Tomicus piniperda*). Outbreaks have occurred on *Picea orientalis* in Turkey (Schimitschek, 1939; Schönherr *et al.*, 1983).

Control

The most effective control measure is to remove infested trees before the new generation of adult beetles emerge.

Phytosanitary risk

I. sexdentatus is not considered to be a quarantine pest by EPPO or any other regional plant protection organization. It is not generally a primary pest and is only capable of attacking trees already suffering stress, either environmental or from other pests. It is already very widespread in Europe. The island of Ireland remains the principal area facing a certain risk

from this pest. *I. sexdentatus* is unlikely to spread there naturally, so that phytosanitary measures could be justified. However, it should be stressed that *I. sexdentatus* is a much less important pest than *I. typographus* (EPPO/CABI, 1996), and so presents a much lesser risk than that species.

PHYTOSANITARY MEASURES

If it is judged necessary to take phytosanitary measures against *I. sexdentatus*, measures equivalent to those taken against *I. typographus* would be effective.

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