EUROPEAN AND MEDITERRANEAN PLANT PROTECTION ORGANIZATION
ЕВРОПЕЙСКАЯ И СРЕДИЗЕМНОМОРСКАЯ ОРГАНИЗАЦИЯ ПО ЗАЩИТЕ РАСТЕНИЙ
ORGANIZATION EUROPEENNE ET MEDITERRANEENNE POUR LA PROTECTION DES PLANTES

Data Sheets on Forest Pests

Dokhtouroffia baeckmanni

IDENTITY

Name: *Dokhtouroffia baeckmanni* Yankovskii
Synonym: *Dochturovia baeckmanni* Yankovskii
Dokhturovia baeckmanni Yankovskii
Taxonomic position: Insecta: Coleoptera: Cerambycidae
Common Name: Baeckman's longhorn beetle (English); Усач Бекмана (Russian).
Notes on taxonomy and nomenclature:
The pest is very similar taxonomically and biologically to *D. nebulosa* Gebler, which occurs in the same area (Kyrgyzstan, Uzbekistan, Kazakhstan and China), damages the same tree species (*Picea schrenkiana*) and has similar two-year developmental cycle (Plavilshchikov, 1936; Parfentiev, 1951; Pavlovskii & Shtakelberg, 1955).
Bayer computer code: DOKHBA

HOSTS

Dokhtouroffia baeckmanni attacks spruce and fir, especially *Picea schrenkiana* (*P. tianschanica = P. prostrata = P. robertii*) and *Abies semenovii* (*= A. sibirica var. semenovii*) (Yankovskii, 1934; Plavilshchikov, 1936; Pavlovskii, Shtakelberg *et al.*, 1955; Makhnovskii, 1966; Maslov, 1988).

GEOGRAPHICAL DISTRIBUTION

EPPO region: Kyrgyzstan.
Asia: Kyrgyzstan, Uzbekistan (Yankovskii, 1934; Plavilshchikov, 1936; Pavlovskii, Shtakelberg *et al*., 1955; Makhnovskii, 1966; Maslov, 1988).
EU: Absent

BIOLOGY

The mass flight of *D. baeckmanni* in valleys (at an altitude of approximately 1200 m) occurs in May-July, whereas higher in the mountains at an altitude of 2000-2500 m mass flight is in July-August. For their additional feeding, young beetles often feed on *Eremurus altaicus*, damaging generative parts of flowers. The pest may attack trees without symptoms of stress, but also stressed, dying and recently cut trees. On cut trees, it lays eggs on the lower side of the trunk. The female usually lays eggs in cracks in the bark on the butt part of trunks of mature trees. In the first year, larvae make galleries under the bark, feeding on the phloem, and overwinter there. The density of population is usually so high that the bark is easily separated from the wood. In the second year, larvae make large longitudinal galleries deep in the wood (sometimes reaching the centre of the trunk) and overwinter there. They then pupate in a pupation cell situated in the sapwood 2-3 cm from the surface of the trunk. The developmental cycle of the pest takes 2 years. *D. baeckmanni* often attacks spruce trees together with the cerambycid species *Tetropium staudingeri* but rarely with bark beetles (Pavlovskii & Shtakelberg, 1955; Makhnovskii, 1966; Maslov, 1988).

DETECTION AND IDENTIFICATION

Symptoms

Characteristic symptoms are: large entrance and emergence holes in trunks, peeling bark, borings at the base of infested trees, tunnels made by big larvae in the wood and beetles sitting on trunks and feeding on flowers. The needles of attacked trees often show yellowing and wilting.

Morphology

No information is available on the morphology of the eggs, larvae or pupae.

Adult

The male of *D. baeckmanni* is 10.7-15.4 mm in length and the female is 17-18.5 mm long. The female body is predominantly black, and part of the antennal segments are brown or reddish at the base, but the elytra are often reddish or brownish; sometimes the elytra have some unclear brownish-orange stripes and spots (*D. baeckmanni ab. retardata* Yankovskii). The male body is black with a yellow-red or brown-red abdomen. The first segment of the antennae is black, other antennal segments are reddish-brown in the basal half and brown to brown black at the top. The legs are yellow-brown with sometimes black coxae and trochanters. The tops of the femora and tibia are darker and the tarsus is brown to brown-black. The elytra are yellowish-brown with 3 brown or brown-black, more or less conjoined spots along the border. In general, males are almost identical to a close species, *D. nebulosa*. The elytra of *D. baeckmanni* are generally broader (the length being 2.4-2.5 times greater then their width) than those of *D. nebulosa* (2.6-2.7 times longer than wide) but some specimens of the former species can also have such narrow elytra. *D. nebulosa* may be distinguished from *D. baeckmanni* by stria and epipleurae of the elytra, which are usually brown to brown-black, as well as by the absence of sexual dimorphism (Plavilshchikov, 1936).

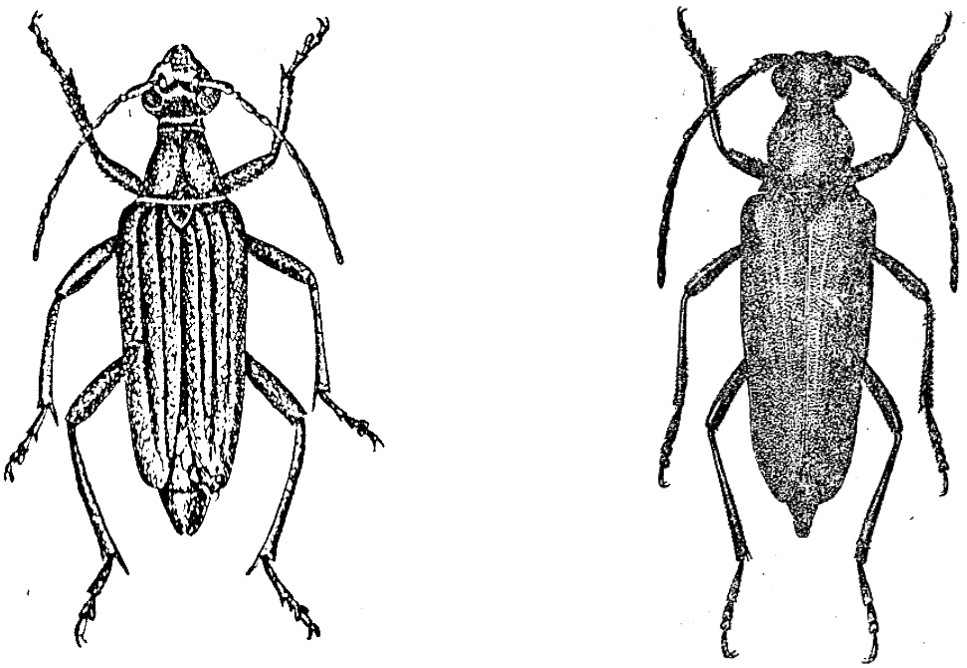

Fig. 2. Adults of *Dokhtouroffia baeckmanni* (left - from Makhnovskii, 1966; right - from Plavilshchikov, 1936)

MEANS OF PEST MOVEMENT AND DISPERSAL

The natural spread of the pest with flying adults is fast. Because *D. baeckmanni* may be hidden in the wood and therefore difficult to detect, it may be easily transported with untreated spruce and fir wood products moving in trade.

PEST SIGNIFICANCE

Economic Impact

D. baeckmanni is one of the most important and frequent pests of spruce 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. Often, the tree is killed during the first year of the attack by young larvae feeding in the phloem. 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 dense and large longitudinal galleries made by the larger larvae deep in the wood). The pest mainly occurs in mountain forests, which are very important for soil protection against erosion. It is one of the most frequent and dangerous pests of spruce forests, stressed by defoliators or damaged by diseases or forest fires. Its outbreaks sometimes lead to the death of trees and forests, either itself or in association with the cerambycid beetles *Dokhtouroffia nebulosa* and *Tetropium staudingeri* (Yankovskii, 1934; Plavilshchikov, 1936; Pavlovskii, Shtakelberg *et al.*, 1955; Makhnovskii, 1966; Maslov, 1988).

Environmental Impact

Because it is a tree-killer, *D. baeckmanni* is able to alter ecological relationships where spruce is an important component of the ecosystems. The pest mainly damages mountain forests and may alter the mountain environment. During the additional feeding, beetles of *D. baeckmanni* often feed on *Eremurus altaicus* and other honey producing plants destroying generative parts of flowers and thus damaging bees and local honey industry (Makhnovskii, 1966; Maslov, 1988).

Control

Control efforts are undertaken in the area of the present distribution of *D. baeckmanni*. Control measures include forestry and sanitary measures (improving the resistance of forests, cutting and elimination all infested trees, cutting of “trapping trees” followed by their treatment), treatments with chemical and biological preparations (Maslov, 1988).

Phytosanitary risk

D. baeckmanni 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 likely to establish in all coniferous areas within EPPO region if it will develop on European species of spruce. It is unlikely to be transported in 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. Spruce and fir are important forest trees in many parts of the EPPO region.

PHYTOSANITARY MEASURES

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

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