

European and Mediterranean Plant Protection Organization

Data sheets on quarantine pests

Aeolesthes sarta

Identity

Name: *Aeolesthes sarta* Solsky

Taxonomic position: Insecta: Coleoptera: Cerambycidae

Common names: city longhorn beetle, Uzbek longhorn beetle, Sart longhorn beetle (English); городской усач, узбекский усач, сартский дровосек (Russian)

EPPO code: AELSSA

Phytosanitary categorization: EPPO A2 action list no. 307

Hosts

The preferred hosts of *A. sarta* are: *Ulmus minor*, *Ulmus pumila*, *Populus alba*, *Populus diversifolia*, *Populus euphratica*, *Populus talassica*, *Populus x canadensis*, *Salix acmophylla*, *Salix songarica*, *Salix turanica*, *Platanus orientalis*, *Platanus x hispanica*, *Malus domestica* and *Juglans regia*. In general, it may damage species of *Acer*, *Betula*, *Elaeagnus*, *Fraxinus*, *Gleditsia*, *Juglans*, *Malus*, *Morus*, *Platanus*, *Populus*, *Prunus*, *Pyrus*, *Quercus*, *Robinia*, *Salix*, *Ulmus*, and other hardwood and fruit trees.

Geographical distribution

EPPO region: Kyrgyzstan, Uzbekistan

Asia: Afghanistan, India (Western Himalayas), Iran, Kyrgyzstan (south), Pakistan (north), Tajikistan, Turkmenistan, Uzbekistan

EU: absent

A. sarta is found in mountains up to an altitude of 2000 m. The area of origin of the pest is thought to be Pakistan and Western India, from which it spread westwards to Afghanistan and Iran and northwards to the Central Asian countries of the former USSR where it was first found in 1911 (in Samarkand, UZ). The pest continues to increase its range in these countries (Orlinskii *et al.*, 1991).

Biology

Adults usually leave their pupation cells in April or the beginning of May at an average daily temperature of 20°C. They are generally active in the evening and night. During the daytime, they hide under the bark, in larval tunnels, in winter tunnels and in other refuges. After about 20:00, they leave their hiding places, males appearing first, and move about until morning on the surface of the particular tree on which they developed. This species does not fly much and maturation feeding has not been observed.

Females lay eggs in slit-like niches in the bark of trunks and large branches shortly after leaving the pupation cells and for about two months. They lay 1–3 eggs at each place. Normally, one female lays 240–270 eggs. The development of larvae in the egg lasts 9–17 days. Hatched neonate larvae are light coloured and about 4 mm long.

Each larva makes its own tunnel (even if there are several eggs at the same place) in order to feed between the bark and the wood. Borings are ejected through the entry hole. Later, larvae enter the wood and, at the end of the first season of development, make a long (about 25 cm) tunnel which first rises parallel to the long axis of the trunk or branch and then turns to form a downward gallery of 15 cm. At the bottom of this gallery, the larva overwinters protected by a double plug made from borings.

The next spring, larvae continue to feed, making tunnels deep into the wood. At the end of July, they prepare pupation cells protected by double plugs made from borings. Pupation occurs in these cells and, in about two weeks, adults appear. The adults stay in the pupation cells over winter and leave them only in the spring. The life cycle of *A. sarta* therefore takes two years (Pavlovskii & Shtakelberg, 1955; Ahmad *et al.*, 1977; Maslov, 1988; Orlinskii *et al.*, 1991; Vorontsov, 1995).

Detection and identification

Symptoms

Large emergence holes in trunks and large branches, and borings at the basis of infested trees, are indications of the presence of the pest. The adult beetles are conspicuous and may be seen sitting on the trunks. Branch and tree dieback is easily detected by seeing wilting and drying leaves.

Morphology

Eggs

White, 3–4 mm long.

Larva

Pale yellowish, covered with golden hairs, 60–70 mm long, with black mandibles (Fig. 1).

Adult

The adult of *A. sarta* has an elongated dark grey-brown body, 28–47 mm long, with elytra covered with short silvery hairs (Fig. 1). Shiny silvery spots form two irregular bands crossing the elytra. The male is usually smaller than the female. The male has antennae 2.5 times as long as the body, whereas the female antennae are shorter than the body.

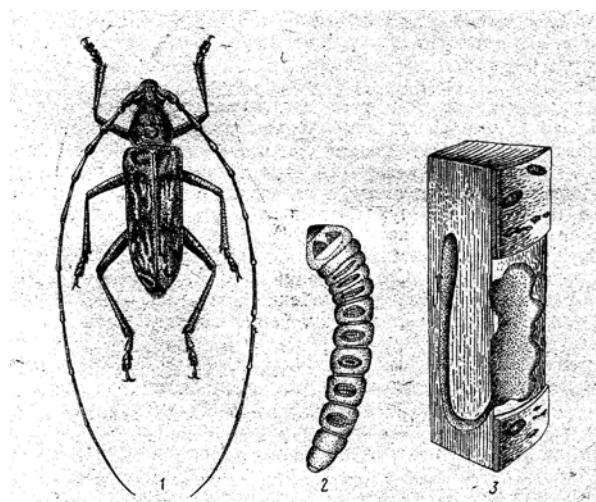


Fig. 1 *Aeolesthes sarta*: 1 – adult; 2 – larva; 3 – damage.

Pathways for movement

Natural spread of the pest by adult flight is relatively slow. Different life stages may readily be transported with untreated wood moving in trade, because they remain concealed and difficult to detect. *A. sarta* is unlikely to be carried in plants for planting (of forest, ornamental or fruit trees) as it does not attack small branches, trunks or rootstocks. Adults may, however, be carried as contaminating pests on various commodities.

Pest significance

Economic impact

A. sarta is one of the most important pests of many forest, ornamental and deciduous fruit trees in the region of its present distribution (Yagdyev, 1975, 1979, 1987; Yagdyev & Tashlieva, 1976; Ahmad *et al.*, 1977; Sengupta & Sengupta, 1981; Krivosheina & Tokgaev, 1985; Maslov, 1988; Khudaibergenov & Khodzhaev, 1992; Vorontsov, 1995). It attacks both stressed and healthy trees of different ages. Successive generations remain on the same tree for several consecutive years, eventually causing its death. Sometimes, young larvae encircle a tree feeding on the cambium, which leads to the rapid death of the tree. Young trees with thin bark are most susceptible to the beetle and 1–3 larvae may be enough to kill a tree.

There is a major impact in towns within the area of its present distribution (Yagdyev, 1987; Orlinskii *et al.*, 1991; Vorontsov, 1995). Serious damage is caused to city plantations; for example, there are no more large trees in Tashauz city (TM) because of *A. sarta* (Orlinskii *et al.*, 1991). Affected towns are usually situated in hot dry climatic conditions, where large deciduous trees are particularly important for the urban environment, and are also difficult to grow. Serious damage is also observed in shelter belts and in fruit (especially apple) orchards (Krivosheina, 1984; Vorontsov, 1995). Cases have been reported when the pest killed large areas of mountain forests (Pavlovskii & Shtakelberg, 1955; Krivosheina, 1984; Orlinskii *et al.*, 1991; Maslov, 1988; Vorontsov, 1995).

Control

Major control efforts are undertaken in countries where *A. sarta* is present. Control measures include phytosanitary measures (e.g. surveys in nurseries with burning of infested plants for planting, cutting and burning all infested trees), planting more resistant species and varieties of trees, treatments with chemical and biological insecticides (Krivosheina, 1984; Maslov, 1988; Gaffar & Bhat, 1991; Khudaibergenov & Khodzhaev, 1992; Vorontsov, 1995). Many investigations have been performed on biological and microbiological control of the pest (Mamaev & Yagdyev, 1981; Arshad & Hafiz, 1983; Hanif Gul & Chaudhry, 1992; Vorontsov, 1995) with little practical success.

Phytosanitary risk

A. sarta is absent from practically all EPPO regions (present only in southern Kyrgyzstan and Uzbekistan, and in the potential member countries Tajikistan and Turkmenistan). An EPPO PRA concluded that *A. sarta* is a serious pest in countries where it occurs, and already has a history of spread from the Indian subcontinent to Central Asia. It has a wide host range. In view of the hot dry climatic conditions of its countries of origin and present distribution, the endangered area is primarily the Mediterranean region, as well as some other southern countries (Bulgaria, Romania, etc.). Its impact would most probably concern: plantations of *Populus*; *Platanus*, *Ulmus* and other

amenity trees in cities and parks; fruit trees; various tree species in forests. Infested wood is the most likely pathway for introduction. Since there is at present little international trade in the wood of host plants of *A. sarta*, the main phytosanitary risk comes from untreated wood packaging and dunnage.

Phytosanitary measures

Aeolesthes sarta was added in 2002 to the EPPO A2 action list, and endangered EPPO member countries are thus recommended to regulate it as a quarantine pest. Phytosanitary measures for its exclusion could include origin of consignments from a pest-free area. Wood packaging should respect ISPM no. 15 (ICPM, 2003). Plants for planting of host species should be dormant and without leaves or plant debris. International movement of wood of the host plants seems relatively unlikely, but measures in that case could be debarking, plus grub-hole freedom, or kiln drying, or other treatment.

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