

City Longhorned Beetle

Order: Coleoptera

Family: Cerambycidae

Scientific name: *Aeolesthes sarta*

Background: *Aeolesthes sarta* is known from India (Western Himalayas), Pakistan (north), Afghanistan, Iran, Turkmenistan, Uzbekistan, Tajikistan, Kyrgyzstan (south), in mountainous areas up to an altitude of 2000 m. The region of origin of this insect is believed to be Pakistan and Western India. It has spread west into Afghanistan and Iran and north into the Central Asian countries where it was first found in the 1920s. This insect continues to increase its range in the Central Asian countries (Orlinski et al. 1991). It is not known to occur in north America but it has a high potential for establishment here due to climate and host availability.

Potential Hosts: A number of broadleaf trees important in forestry, agriculture and arboriculture, are hosts of *Aeolesthes sarta*. These include elms, *Ulmus minor* (= *Ulmus foliacea* = *Ulmus araxina* = *Ulmus densa*), *Ulmus pumila* (= *Ulmus manshurica* = *Ulmus pinnato-ramosa* = *Ulmus turkestanica*); poplars, *Populus diversifolia* (= *Populus litwinowiana* = *Turanga diversifolia*), *Populus euphratica* (= *Populus transcaucasica* = *Turanga euphratica*), *Populus talassica* (= *Populus densa* = *Populus kanjilaliana*), *Populus alba* (= *Populus bolleana*), *Populus x euroamericana*; willows, *Salix acmophylla* (= *Salix daviesii*), *Salix turanica*, *Salix aongarica*; plane trees, *Platanus orientalis* (= *Platanus cuneata* = *Populus digitata*) and *Platanus acerifolia*; apple, *Malus pumila*, and Persian walnut, *Juglans regia* are the preferred hosts. The city longhorn beetle has also been known to attack other species of *Ulmus*, *Populus*, *Salix*, *Platanus*, *Malus*, *Prunus*, *Pyrus*, *Juglans*, *Quercus*, *Betula*, *Fraxinus*, *Acer*, *Morus*, *Geditsia*, *Robinia*, *Elaeagnus* and other broadleaf trees.

Life Cycle: *Aeolesthes sarta* requires two years to complete a generation (Pavlovskii et al. 1955, Ahmad et al. 1977, Maslov 1988, Orlinski et al. 1991, Vorontsov 1995). Adults usually leave their pupal cells in April or the beginning of May, when the temperature averages 20 °C. They are generally active in the evening and at night. During the day they hide under the bark, in larval tunnels, and in other refuges. After about 8 p.m. they leave their hiding places. The males appear first, and move about until morning on the same tree on which they developed. This species flies very little, and maturation feeding has not been observed.

Usually several generations develop on the same tree until it is eventually killed.

Females lay eggs in slit-like niches in the bark of the trunk and the larger branches. Egg laying begins shortly after females leave their pupal cells and continues for about two months. Usually 1 to 3 eggs are laid per niche and females may lay a total of 240 to 270 eggs. The development of larvae within the egg lasts 9 to 17 days.

Each larva makes its own tunnel, even if several eggs are deposited at the same place. Feeding begins in the cambium region and frass is ejected through the entrance hole. After feeding in the cambium for a period of time, the larvae enter the xylem. At the end of their first season, larvae make a long gallery that first goes upward for about 10 cm and then changes direction moving downward and resulting in a vertical gallery 15 cm long. At the bottom of this gallery, the larva over-winters protected by a double plug made from borings.

The following spring, the larvae resume feeding and construct 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 about two weeks later adults appear. Adults stay in the pupation cells over winter and emerge the following spring.

Detection: Large emergence holes are found on trunks and large branches of infested trees. Boring debris occurs at the base of infested trees, and beetles are sometimes observed on infested trees. Dieback and tree mortality occurs as a result of heavy infestations. Adults are large longhorned beetles with a striking appearance. They have an elongated dark gray-brown body, about 28-47 mm long. The elytra are covered with a fine, silvery pubescence. Shiny silvery spots form two irregular bands crossing the elytra. The male is usually smaller than the female. The males have antennae 2.5 times as long as their body, whereas the antennae of females are shorter than their body. The eggs are white, about 3-4 mm long. The larvae are pale yellowish in color and covered with golden hairs. They are about 60-70 mm long, with black mandibles (Orlinski et al. 1991, Vorontsov 1995).

