

# The Big Pine Bark Of The Fargoga Valley

D. Sultanov, F. Tokhtasinov, G'ofurova, M. Teshajonova, M. Sodikova  
Fergana State University

**Annotation:** Large pine bark beetle - *Scolytus scolytus* (Fabricius, 1775) is a polyphagous insect, it is widespread in Eurasia, as well as in all regions of Uzbekistan

**Keywords:** Large pine bark,

Large pine bark beetle - *Scolytus scolytus* (Fabricius, 1775) is a polyphagous insect, it is widespread in Eurasia, as well as in all regions of Uzbekistan [2,3,4]

In Uzbekistan, the information on the study of the fruit bark beetle is very short, and almost no research has been conducted in this regard. Based on this, since 2011, studies have been conducted to study the distribution, bioecological characteristics, and food spectrum of the fruit bark beetle in the Fergana Valley [2].

Material and research methods. Observation and research work was carried out in Fergana city of Fergana region, Fergana, Uzbekistan, Bagdad, Kuva, Yozyovon, Tashloq districts, Mingbulok, Toraqorgan districts of Namangan region.

The results obtained. In the south-western regions of Fergana region (Fergana, Kuvasoi cities, Fergana, Bagdad, Furqat districts) it lives in sada alder and field alder and some fruit trees. It can be found in large numbers in trees growing mainly in sunny places - on the banks of rivers, streams, ponds, ditches, on the sides of high-rise buildings where the sunlight does not fall.

The length of the beetle is about 3.2-5.5 mm, and the body is slightly attached to the ground. The robust chitinous coating is shiny. The front side of the chin, head, back shoulder, middle and back chest are black and whiskers, top, legs and belly are brown-red, and the wings are dark reddish, shiny. The forehead is covered with flat and fine lines, and the top is covered with short, reddish-brown hairs. There are transverse folds on the back side of the eye. There are small dots on the side of the shoulder, and these dots are numerous in the upper central area of the shoulder and in the lateral areas, and are relatively sparse in between. On the upper side of the fins there are shallow parallel lines running from front to back. Small dots can be seen between the lines. The base of the fins is deepened, and the end is smooth, without edges. The end of the abdominal section is reduced and bent down, there is a hump in the 3-4 abdominal segments. The abdomen is long and thin, the edges of the last abdominal segment are covered with golden hairs. The hairs on the front legs are shorter, and the hairs on the middle and hind legs are relatively long. There are yellow hairs on the forehead, in the male it is bushy, short and sparse, and in the female it is long, thick and protruding. Both male and female beetles have sharp ridges on their abdomens. The body of the female beetle is slightly wider and longer than that of the male, the forehead is rounded, and the last segment of the abdomen has no hairs.

In some sources, it is included among oligophages that feed on plants belonging to the same family. However, it has been confirmed in researches that it occurs in plants belonging to other families [4].

From our observations, it became clear that in the Fergana valley, the large alder bark beetle feeds and develops permanently or temporarily on plants belonging to 7 families, 9 genera, and 12 species.

Below is a list of large larch crustacean food plants.

ULMACEAE: *Ulmus densa* Litv., *U. campestris* L.

ELAEAGNACEAE: *Elaeagnus angustifolia* L., *E. orientalis* L.

ACERACEAE: *Acer negundo* L.

LEGUMINOSAE: *Gleditschia triacanthus* L.

JUGLANDACEAE: *Juglandis regia* L.

ROSACEAE: *Armeniaca vulgaris* Lam., *Malus subersii* (Ldb) M. Roem., *Malus domestica* Borkh., *Cerasus vulgaris* Mill.

SALICACEAE: *Salix excelsa* S. G. Gmel.

Not all of the listed plants have the same ecological value in the life cycle and development of a large pine bark beetle, such as a fruit borer. In most of them, these insects spend their entire life cycle, while in some of them, they serve as a temporary place of residence and feeding (Fig. 1)

1 picture. Distribution of *S. scolytus* food plants by stands

Биринчи поғона ўсимликлар	Биринчи поғона ўсимликлар
<i>Ulmus densa</i> Litv. <i>U. campestris</i> L. <i>Elaeagnus angustifolia</i> L. <i>E. orientalis</i> L. <i>Acer negudno</i> L. <i>Gleditschia triacanthus</i> L. <i>Juglandis regia</i> L.	<i>Armeniaca vulgaris</i> Lam. <i>Malus suversii</i> (Ldb) M. Roem. <i>Malus domestica</i> Borkh. <i>Cerasus vulgaris</i> Mill. <i>Salix exelsa</i> S. G. Gmel.

5 families (Ulmaceae, Elaeagnaceae, Aceraceae, Leguminosae, Juglandaceae) and 7 species (*Ulmus densa* Litv., *U. campestris* L., *Elaeagnus angustifolia* L., *E. orientalis* L., *Acer negudno* L.) are among the first-order food plants of large larch bark beetles. , *Gleditschia triacanthus* L., *Juglandis regia* L.), the plants of the second rank are 2 families (Rosaceae, Salicaceae) and 5 species (*Armeniaca vulgaris* Lam., *Malus subersii* (Ldb) M. Roem., *Malus domestica* Borkh., *Cerasus vulgaris* Mill., *Salix excelsa* S. G. Gmel.) consists of (1 picture). It is found in the trunks and branches of young trees, and in the trunks and branches of large trees. A beetle that penetrates the bark makes its way. It opens the main road only uphill. Its length is 30-70 millimeters, and its width is 3 millimeters. Up to 70 larval tracks spread to the main road. The larvae overwinter under the bark of the food plant. In March (T=11.2 0C), the beetles turn into domes and fly out in early April (T=14.9 0C; 03-12.IV.2013, Fergana district). After the beetles feed and become adults, they lay eggs in the second and third half of the month (T=17.1 0S, 18-23.IV.2013, Fergana district). Larvae emerge from eggs in 7-10 days (T=17.3 0C, 25-30.IV.2013, Fergana Sh.). It feeds for 6-9 days (T=20.6 0C, 01-06.V.2013, Fergana Sh.) and forms its larval tracks. Larvae turn into pupae in 9-10 days (T=23.1 0C, 08-14.V.2013, Fergana district). At the end of May, the first generation of beetles fly out (T=21.7 0S, 22-28.V.2013, Fergana district). Beetles develop rapidly and lay eggs in 4-6 days (T=21.7 0S, 27.V-01.VI.2013, Fergana district). High air temperature accelerates the development of eggs, that is, larvae emerge from eggs in 3-4 days (T=26.5 0C, 30.V-05.VI.2013, Fergana Sh.). Larvae mature in 5-7 days (T=28.5 0C, 05-12.VI.2013, Fergana sh.) and in 7-9 days (T=26.6 0S, 13-21.VI.2013, Fergana sh. ) turns into a dome. The pupation period lasts 6-7 days (T=27.3 0S, 19-28.VI.2013, Fergana sh.), and the flight of the second generation beetles occurs in the third decade of June (20-29.VI.2013, Fergana sh. ). Beetles of the second generation lay eggs in 5-6 days (T=26.8 0C, 29.VI-05.VII.2013, Fergana Sh.). Larvae emerge from the eggs under the bark in 3-4 days (03-09.VII.2013, Fergana district). The larvae feed and mature in 5-6 days (T=27.6 0C, 09-15.VII.2013, Fergana Sh.), after 8-9 days (T=29.4 0C, 17-24.VII.2013 , Ferghana sh.) turns into a dome. Mushrooms develop in 6-7 days. At the end of July and the first days of August, the flight of beetles of the third generation was observed (T=28.7 0S, 26.VII-03.VIII.2013, Fergana district). A decrease in air temperature has a significant effect on the emergence of fourth-generation beetles. Beetles of the third generation lay eggs in the first ten days of August (T=28.4 0C, 02-09.VIII.2013, Fergana sh.). Larvae emerge from eggs in 7-8 days (T=25.5 0C, 09-17.VIII.2013, Fergana Sh.). Larvae feed for 8-10 days and turn into cocoons (T=25.9 0C, 18-28.VIII.2013, Fergana Sh.). In the middle of September, the last, that is, the fourth generation of beetles matures (T=20.8 0S, 09-17.IX.2013, Fergana district). In total, it gives birth to four generations in one season [Sultonov, Akhmadjonova, 2015; 239-241].

2 pictures. Emergence periods of *S. scolytus* beetles.

Note: □ – a beetle from the village, ■ – beetles of the I, II, III, IV generations

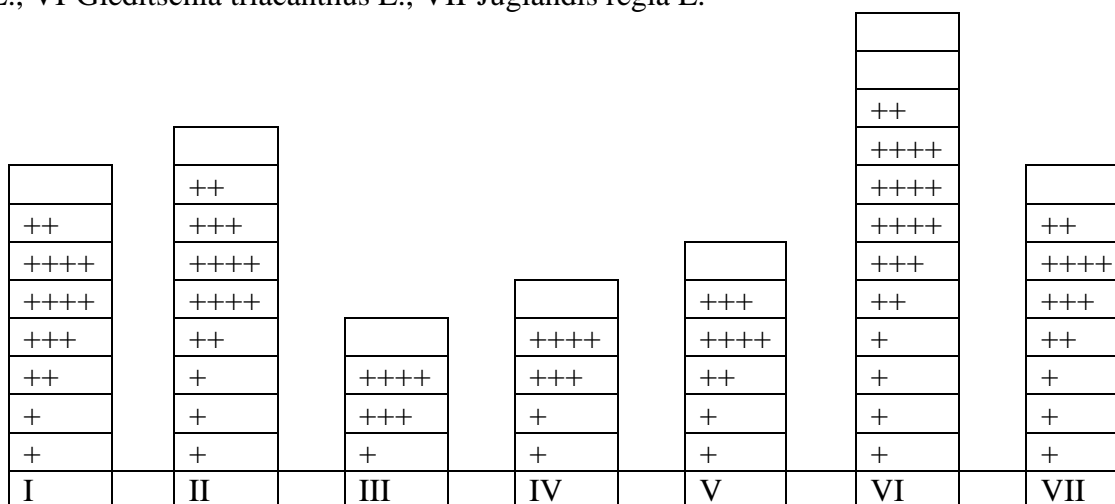
Апрел			Май			Июн			Июл			Август			Сентябр					
1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3			
□					■			■			■		■	■						■
					I			II			III									IV

Due to the large number of beetle larvae, they make holes in the inner layer of the bark. In this case, the bark separates from the body, and then the tree dries up.

In order to study the levels occupied by the large alder bark beetle in the food plant, its feeding on the first and second level food plants was compared and analyzed. The results of the analysis are shown in the figure below (Figure 3). The trunks of the observed trees were divided into 4 layers, and the height of the tree was determined. Bark eaters on the surface of 10 cm<sup>2</sup> were left colorless if there were no holes, when the number of holes was 0-10 (+) - very few, if there were 10-30 (++) - low, 30-60 (+++) - medium and more than 60 (++++) was considered a high indicator.

3 pictures. Densities of large pine bark beetles in first-story vegetation by strata.

I-Ulmus densa Litv., II-U. campestris L., III-Elaeagnus angustifolia L., IV-E. orientalis L., V-Acer negudno L., VI-Gleditschia triacanthus L., VII-Juglandis regia L.



As can be seen from Figure 3, there are very few pods (0-10 per 10 cm<sup>2</sup>) in the 1-story plants of the big pine bark beetle, and the density increases as the height increases. It was noted that the number of holes in the second layer of trees is low (10-30 per 10 cm<sup>2</sup>) and average (30-60 per 10 cm<sup>2</sup>). Observations made on a large number of the mentioned plant species showed that the number of bark eaters is very high (more than 60 per 10 cm<sup>2</sup>) in their tertiary layers. In the lower parts of the fourth layer, the number of holes is small or average, and it was found that the tips are almost not found in the thin branches (2013, Fergana vil.).

The above indicators are expressed as follows in plants of the second stage (Fig. 4).

4 pictures. Densities of large pine bark beetles in second-story vegetation by strata.

I-Armeniaca vulgaris Lam., II-Malus subersii (Ldb) M. Roem., III-Malus domestica Borkh., IV-Cerasus vulgaris Mill.

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+++				
++++		++	++	++
++		++++	++++	++++
		+++	+++	++
I		II		III
				IV

It is clear from the 4 pictures that in the second-stage plants of the large larch bark beetle, there are almost no bark beetles in the first tiers (10 cm<sup>2</sup>=0). It was noted that the number of holes in the second layer of trees is low (10-30 per 10 cm<sup>2</sup>) and average (30-60 per 10 cm<sup>2</sup>). Observations on second-story plants also showed that the number of bark-eaters in the third tier of trees is very high (more than 60 per 10 cm<sup>2</sup>). In the lower parts of the fourth layer, the number of holes was noted to be very few to moderate. The tip is almost not found on thin branches (2013, Fergana vil.).

These beetles are not limited to direct damage to elms, but also spread "Dutch disease" which is dangerous for elms [3].

Summary. The large bark beetle is widespread in Eurasia, as well as in all regions of Uzbekistan, especially in Syrdarya and Tashkent regions. It is widespread in the south-western regions of Fergana region.

In the conditions of the Fergana Valley, plants belonging to 7 families, 9 genera, and 12 species were observed to feed and develop permanently or temporarily. Its first-order food plants include 5 families and 7 species, and second-order plants consist of 2 families and 5 species. It is found in all levels of first-order plants (trees), and in second-order plants it feeds and lives mainly in the middle layers of the tree.

This crustacean develops in the conditions of the Fergana Valley with 4 joints, the worms of the last joint emerge during the winter.

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