

Features of the vital activity of *Xanthogaleruca luteola* Müll., 1766 (Coleoptera: Chrysomelidae) in the protective plantating of the Volgograd region, Russia

O. S. Filimonova¹, M. N. Belitskaya¹, I. R. Gribust¹, N. Y. Bakradze²

¹Federal Scientific Centre of Agroecology, Complex Meliorations and Protective Afforestation of the Russian Academy of Sciences (FSC of Agroecology RAS), 97, Universitetskiy Ave., Volgograd, Russia, 400062, giromuvaldovna@mail.ru

²Volgograd State Social and Pedagogical University (VSSPU), 27 Lenin Ave., Volgograd, Russia, 400131, nicol_2002@mail.ru

In the Volgograd region about 80.0% of the total dendrological composition is accounted for by representatives of the genus *Ulmus*, which have more than 100 species of phyllophages [1]. One of the economically dangerous species is *Xanthogaleruca luteola* Müller, 1766 (Coleoptera: Chrysomelidae). For the first time, mass reproduction of the pest under the conditions of the region was observed in the middle of the 20th century. Currently, outbreaks of the number of *X. luteola* are noted periodically [2].



Distribution of *Xanthogaleruca luteola* abundance in plantatings

Ecological categories of plantings	Age	Index pollution IPA ₅	Recreational Load	Quantity of beetles, pcs ./100 leaves
Field protective plantings	50-65	4,0	weak	7,2±0,3
Roadside plantings	40	11,0	very high	19,8±0,5
Forest park	50	9,1	high	18,5±0,6
Parks	10-70	8,9	high	28,7±0,4
Squares	30-50	10,7	very high	43,6±0,7
Intra-quarter landings	35-50	5,8	high	36,8±0,6

The distribution of the leaf beetle by density and the state of damage to the foliage of elms in plantatings of different types is uneven. The density of *X. luteola* is highest in recreational and green plantatings. The proportion of damaged leaves here reaches 91%. The greatest extent of damage to the foliage of trees is noted in squares and street plantings (0.91%). In the forest park, the damage is almost halved. In protective forest plantating, the number of this species is rather low (0.05%).

Among stress factors negatively affecting *Ulmus* resistance and viability, phyllophages play an important role. Of these, *Xanthogaleruca luteola* poses an economic hazard. The number of pests is maximum in plantatings with high anthropogenic load indicators (roadside, intra-quarter plantings, squares), the average values of which vary from 19.8 to 43.6 pieces of individuals/100 leaves. Reducing the level of stress factors ensures a reduction in the number of pests in tree crowns: in field-protective plantatings, this indicator on average ranges at the level of 7.2 pieces of individuals/100 leaves



References:

1. Belitskaya M.N., Filimonova O.S. Trophic structure of phyllophages in the plantatings of Ulmaceae of an urbanized territory // Biological diversity - the basis of sustainable development. Materials of the international scientific and practical conference. Scientific editor: Okazova Zarina Petrovna. 2018. Pp. 56 - 60.
2. Belitskaya M.N., Gribust I.R., Nefed'eva E.E., Filimonova O.S., Golovanova M.A. The phyllophagous of woody plants of genus *Ulmus* in protective plantings of arid zone // IOP Conference Series: Earth and Environmental Science. Current Problems and Solutions. 2018. C. 012015. [DOI: 10.1088/1755-1315/115/1/012015]