

THE INFLUENCE OF PREDACIOUS BEETLES ON SOIL PESTS IN THE URBAN ENVIRONMENT

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The aim of our investigation was to find out if predacious beetles are applicable for biological control of some soil pests in urban environment in Siberia.

During the years 1992-1997 the distribution of epigeic and soil-inhabiting beetles (Coleoptera: Carabidae, Staphylinidae), their biology and relationship with soil town's pests were studied. Twelve experimental plots within Tomsk territory (South-West Siberia) were selected. Pitfall traps and soil sampling methods were used for collection insects.

In Tomsk at least 65 species of Staphylinidae and 47 species of Carabidae occur, including respectively 58 staphylinid and 43 carabid species in suburbs and 37 staphylinid plus 25 carabid species in town's green islands (parks, gardens, lawn's territory). In the central part of town the highest diversity of species occurred in parks and in green areas of housing estates; in whole species diversity reduced in direction: parks – town agrocenoses (vegetable and flower gardens) – great lawns (more than 100 sq.m) – little lawns.

The beetles feeding was carried out on population of two widespread species of rove-beetles (*Philonthus decorus* Grav. and *Philonthus rotundicollis* Men.) and one species of ground-beetles (*Carabus aeruginosus* F.-W.). All these beetles show spring reproductive activity with the first peak in June and the second one – in the middle of September. Some species of Diptera (*Psila rosae* L.), Coleoptera (*Agriotes sputator* L.) and Ixodidae (*Ixodes persulcatus* Schul.) were indicated among the prey of predacious beetles. As to Carabidae, they prey consist of crane flies (Tipulidae) and some mollusks.

Using taiga ticks (*Ixodes persulcatus*) as a prey by adult and third instar larva of *Philonthus* species seems to be the most important fact of our work. *Philonthus decorus* sufficiently affect the density of ticks in suburb, situated just beside aspen and coniferous forests. In whole, our investigation showed, that *Philonthus decorus* and *Philonthus rotundicollis* can be considered as rather good regulators of snapping beetles (Elateridae) at early larval stages, two-winged flies at larval and pupal stages (carrot rust fly and dung flies) density. *Carabus aeruginosus* was indicated as regulator of some slugs (*Limax*) and dung beetles larvae respectively.