



Clean ecological methods for sustainable development of urban area under pressure of urban pests

Valentin Sapunov

St.Petersburg State Agricultural university, control, St.Petersburg, Russian Federation (sapunov@rshu.ru)

The aim of the work is toward strategy for restoring ecological balance in urbanized environment by example of the ecosystems of the St. Petersburg city. The work is based on the materials of international conferences ICUP (International conferences of Urban Pests with participation of author) and studies of employees and students of the St. Petersburg Agrarian University. Three important processes were identified that occurred over the course of 30 years: 1. Development of fundamental knowledge about pests of urbanized territories. 2. Perfection and application of practical methods of pest control. 3. Ecological evolutionary processes in pest populations that allowed them to occupy vast ecological niches and counteract the struggle with them. At the same time, the last process was carried out most quickly and effectively, and in the end the pests proved to be stronger than mankind, despite the large investments in the programs of pest management. The number of animals, plants, microorganisms in an urbanized environment is continuously increases. This was predicted in the early XX century by Russian scientist V. Vernadsky, and may be considered as a "global environmental anti-crisis". The sustainable development of urbanized areas requires the control of undesirable introductions. This is possible only by using environmentally friendly methods that reproduce natural processes. A classification of the methods is proposed.

They are: ecological, genetic, chemical-and-ecological, physical-and-ecological. Ecological ones are based on natural intra species relations. They are: competition, host-parasites and predator-prey. The use of competition is only way to complete suffocation of unprofitable species by less dangerous one. Genetically methods are based on selection and gene engineering. Chemical-and-ecological methods are based on use of natural biological activity compounds of their analogs. Such compounds are: hormones, anti hormones, biological toxins, attractants and repellents. Ecological-and-physical methods are based on use of natural fields such as acoustical (sound, ultrasound, infrasound) and electromagnetic. Only composition and rotation of all this methods may become the basis for effective control of urban pest populations. Thus, the sustainable development of urban and agrarian territories, required by the UN policy, is possible only based on knowledge of the fundamental laws of ecology