

Establish distribution of Ladybug (*Coleoptera: Coccinellidae*) in the Nature Park „Silene” (Latvia) using GIS tools

Silene Nature Park is a part of Natura 2000 network. It is located in the SE part of Latvia near the Latvia - Belarus border. In 1977 Nature Park "Silene" was originally created as a forest complex nature reserve of Rich Lake and Silene, 37,9 km² area. This area is distinguished by high species and habitats diversity. The aim of the study was the inventory of the bugs (Coleoptera) fauna, including ladybugs (Coccinellidae), in the territory of Silene Nature Park and the use of the results of the studies to create GIS based database for a nature protection plan and its management.

The most important stage in doing inventory is study of research territory and location of Ladybug typical biotopes. In the solution of this exercise the most important tool for data processing and visualization are geomatic technologies – GIS (Geographic information system), GPS and various geospatial data. With these technologies the user gathers information about various measures of characteristics and their mutual interaction (e.g. location, areas a.o.).

Data base of biotopes prepared by State Forest Service was taken as the basis and it was linked to LKS-92 coordinate system. The obtained data were imported into GPS receiver, which eased inspection of the territory in field conditions.

The studies of bugs' fauna in Silene Nature Park are carried out every year since 1984. All in all nearly 2,000 species of bugs, among which around 30 are ladybugs (Coccinellidae) species, are found in a protected natural area. Several species, such as *Scymnus auritus* Thunb., *Nephus redtenbacheri* (Muls.) *Hyperaspis campestris* (Hbst.) *Halyzia sedecimguttata* (L.), *Coccinella Magnifico* Redt., etc. are rare or very rare in Latvia. Part of these species is present in the EU protected habitats. Developing GIS database and maps for a nature protection plan of Silene Nature Park, the results of the studies of bugs' fauna are taking into consideration. In key areas of Silene Nature Park, where the highest biological diversity was found, was proposed to establish a nature reserve areas by mentioning it in the nature protection plan.