

PHD program “Biology and Biodiversity”

Assessment of mountain ecosystem state in Latorica river basin

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Latorica river basin is located in Transcarpathian region of Ukraine. It includes mountain, submountain and plain part. The mountain part is characterized by subalpine, dark-coniferous-beech forest and beech forest zones (Herenchuk, 1981; Holubets, 2003).

The plots in subalpine zone include: etalon plots (SAE), under recreation pressure (SAR), after fire (SAF), logistic succession with *Picea abies* (L.) Karst (SAL). In dark-coniferous-beech zone were established such types of plots: etalon (DCBE), logistic succession (DCL), after cutting (DCC) and pasture (DCP). And in beech forest zone was performed following types of plots: : etalon beech forest (BFE), degraded beech forest under recreation pressures (BFR), logistic succession (BFL), hay meadows (BFHM), pastures (BFP) and ruderal habitats (BFRU). The number of plots per site was 20. So, 280 plots were established in this research. The size of each plot was 25 m².

Per site, mean Didukh (2011) indicator values for 12 ecological indices were calculated. Detrended correspondence analysis (DCA) was performed to demonstrate relationships between species distribution and environmental conditions among plots of habitat types. It shows that under ecosystem degradation environmental conditions has been changed.

The indicator species analysis demonstrates that in etalon ecosystems indicators are presented by species of different life forms and families while in ecosystems under degradation processes are presented mainly by hemicryptophytes and species of Poaceae and Asteraceae.

Biodiversity indices were calculated. It has been varied in different zones and in different ecosystems. In subalpine zone the highest biodiversity indices are in etalon plots while in plots under different degradation processes indices are lowest. In forest zones in etalon ecosystems biodiversity indices are highest in ecosystems under degradation processes.

Ecosystem structure varies among research plots. Different types of anthropogenic impact influence species composition, habitat structure, vegetation cover, species richness, diversity indices, indicator species and other characteristics in different habitats.

Key words: ecosystem state, biodiversity, indicator species, ecological factors.