ABSTRACTS FROM THE 1ST WORKSHOP OF DOCTORAL STUDENTS OF THE FACULTY OF ECOLOGY AND ENVIRONMENTAL SCIENCE, TECHNICAL UNIVERSITY IN ZVOLEN, SLOVAKIA

Diviaková A. & Bielčik B.: **Mapping of biotopes for the NATURA 2000 Project in the Low Tatras National Park (NAPANT)**

The Natura 2000 network, a system of protected areas in all the EU accession countries, conserves not only the natural heritage, but also the general integrity of the European Union. NATURA 2000 secures the protection of the rarest and most endangered species of plants, animals, and natural biotopes.

The first stage of mapping natural biotopes for NATURA 2000 was in progress through NAPANT from May to November 2003. The territory of interest in this case spans south to the Hron River, north through the dominant edge of the Low Tatras, west to the Lupčica Valley, and east through the Jasenie Valley. The subjects of mapping were 34 species of natural non-forest biotopes. The following biotope types were found within the territory of interest: *Juniperus communis* formation on heaths or calcareous grasslands (5130), hydrophilous tall herb fringe communities of plains and of the montane to alpine belts (6430), and alpine and boreal heaths (4060). One forest biotope was included: mixed ash-alder alluvial forest of temperate and boreal Europe (91E0), which lines the sides of the Hron River.

Key words: NATURA 2000 Project, biotope, mapping, Low Tatras National Park, Hron River

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Svitok M.: **Life history of five mayfly species (Ephemeroptera, Insecta) affected by the operation of a small bypass hydropower station in the submountain section of Hučava stream**

Life history of the five dominant mayfly species (*Alainites muticus, Baetis rhodani, Epeorus assimilis, Habroleptoides confusa, Torleya major*) were studied at three localities with differing influence of a small bypass hydropower station on Hučava stream. Three benthic sample-units were collected at each sampling site at monthly intervals over two years. An unaffected site was compared to a reduced flow site and a peak flow regime site.

E. assimilis, *H. confusa* and *T. major* showed univoltine winter life histories, *A. muticus* and *B. rhodani* bivoltine winter/summer life history. The start of the recruitment period and the emergence period was similar at all sites. Environmental changes did not cause modifications in life history patterns, probably because the artificial discharge regime and temperature remained within the limits of natural seasonal variation.

Key words: life history, mayflies, small bypass hydropower station, Poľana Mts.

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Vlčáková S.: **The evaluation of peat bogs in Horná Orava based on aquatic invertebrates**

The high natural value of peat-bogs is nowadays generally recognized. In Orava we can find peat-bogs in their typical form. Some of them were destroyed between 1950s and 1970s.

The aim of this work has been the inventory of communities, monitoring of water parameters, comparison of fauna structures, and suggestion of precautions for the management and protection of peat-bogs Rudné, Sosnina, Klin, Spálený Grúnik and Mendzrovka. During the research of some peat-bogs there were some groups of Oligochaeta, Ephemeroptera, Odonata, Diptera to be found.

New habitats formed by peat extraction are inhabited by significant communities. Monitoring of these communities is an important indicator of changes in peat-bogs and helps to guarantee their protection.

Key words: water quality, biomonitoring, macrozoobenthos, habitat degradation, peat-bog protection

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Wiezik M.: **Stand density influence on the structure of epigeic Coleoptera assemblages: a case study in Kováčovská Valley submountain beech forest**

The influence of different stand density (SD) on the structure of epigeic beetle assemblages was studied during the vegetation period from 1997 till 1999 in the Ecological Experimental Stationary area (EES) in Kováčovská Valley near Zvolen (7380a grid reference number of Databank of fauna of Slovakia). EES is divided into 5 different sites, each differing in SD (S0 – clear-cut, S1 – 30 %, S2 – 50 %, S3 – 70 %, S4 – 90 %). The research took place on all sites except the clear-cut.

Using a quadrate method the leaf litter on each site was sifted monthly. Altogether 483 specimens belonging to 85 species and 21 families were gathered. *Othius laeviusculus, Cymindis cingulata, Pedilophorus auratus, Hypulus bifasciatus, Orchesia blandula* found on different sites belong to the rare species of Slovak entomo-fauna.

The species structure of different sites varied markedly. Shannon Index of biodiversity, index of equitability and the ratio of phylophagous species depended significantly on the stand density, reaching highest values in low density sites and decreasing in the dense sites. Using cluster analysis (complete linkage, percent disagreement), species structure on site S1 was defined as most different from the 3 remaining sites. Decreasing of the stand density gave rise to biodiversity and equitability of epigeic Coleoptera assemblages, mainly because of infiltration of phylophagous alien species of Coleoptera bound to the dense layer of herbaceous plants present within the low-density stands.

Key words: Coleoptera, epigeic, stand density

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Perháčová Z.: **Ecological study of surface water in some man-made reservoirs in the mining system near Banská Štiavnica (Central Slovakia) according to selected parameters**

Quality of surface water from the reservoirs Bakomi, Vindšachta, Evička, V. Richňava, M. Richňava, Belianske and Počúvadlo near Banská Štiavnica was classified according to STN 75 7221 according to oxygen indexes and basic physical-chemical parameters (dissolved oxygen, pH, water temperature, conductivity) and a microbiology index (coliform bacteria, thermotolerant coliform bacteria, fecal streptococci, psychrophilic bacteria). Water quality parameters were sampled from January 2002 and December 2002.

According to the physical-chemical parameters, water from Evička reservoir is classified as I. class – clean, water from Bakomi, Počúvadlo as II. class, water from Vindšachta, Belianske, V. Richňava, M. Richňava as III. class quality – impure.

According to the microbiology index, water from Evička and Bakomi reservoirs is classified as I. class – clean, water from Vindšachta, V. Richňava, M. Richňava reservoir as III. class – impure, and water from Belianske and Počúvadlo as II. class.

Water reservoir Belianske is specific in terms of physical-chemical parameters. It is situated near surface refraction. Weathering of old mine heaps and redeposited rock fragments, which are often rich in sulfides, led to the remobilisation of some metals to the water. In this respect the content of Cd, Fe and Mn in water of some wells, springs and reservoirs may cross threshold values for drinking water. Such concentrations may adversely effect living organisms.

Protection of the water reservoirs is provided by the Law on Water (No. 184/2002). Protection of the water reservoirs is connected with the water quality.

Key words: water, oxygen index, physical-chemical indexes, coliform bacteria

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