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ANALYSIS OF SURFACE TEMPERATURES IN URBAN AND SUBURBAN LANDSCAPES FROM SATELLITE THERMAL IMAGES: A CASE STUDY OF OLOMOUC AND ITS ENVIRONS, CZECH REPUBLIC

The spatial variability of surface temperatures in the urban and suburban landscapes of Olomouc is analyzed in this paper, based on the evaluation of thermal satellite images from LANDSAT-5 (TM sensor) and TERRA (ASTER sensor). The temperatures of active surfaces were determined by the use of appropriate algorithms. Maps of surface temperatures are presented. The non-homogeneity of the active surface and thus also the relative difficulty of analysis of surface temperatures is documented by the land cover map. The surface field temperature was compared with the values of the air temperature recorded at the weather stations. The analysis showed that the description of spatial differences in surface temperatures of a city and its surroundings, based on an evaluation of the thermal imagery, was inconclusive. The differences reflect the seasons, but above all the nature of the land cover in the suburban landscape. These findings will be used in a study of the temperature regime of Olomouc and its environs.

Petr HALAS

ENVIRONMENTAL FACTORS INFLUENCING THE SPECIES COMPOSITION OF ACIDOPHILOUS GRASSLAND PATCHES IN AGRICULTURAL LANDSCAPES

The acidophilous grasslands of the south-western part of the Czech-Moravian Highlands in the Czech Republic were substantially reduced in the 20th century. These patches are addressed in this paper, in terms of the impacts of their size, isolation, and the quality of the surrounding land cover. Species recorded in the acidophilous grasslands are categorized by hemeroby and life form. Multivariate gradient analysis revealed that the greatest proportions of the variability of species data were explained by two local variables (soil pH and the shape of the patch). Some species groups were also substantially influenced by microrelief. The importance of the surrounding land cover for the species composition was studied by means of regression trees. An assumption that, aside from local factors (soil pH and micro-relief), the species composition is significantly influenced by the heterogeneity of the surrounding landscape, was confirmed.

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LONG-TERM LAND USE DEVELOPMENT AND CHANGES IN STREAMS OF THE KYJOVKA, SVRATKA AND VELIČKA RIVER BASINS (CZECH REPUBLIC)

The analysis and assessment of land use changes and changes in streams in the upper river basins of the Kyjovka and the Svatka Rivers, and over the whole Velička river basin, is presented in this article. The changes were studied using sets of old topographic maps over five periods. A numerical analysis of the changes in the main stream length and the main stream sinuosity was carried out for all three rivers. The greatest changes were found in the Velička river basin.

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SELECTED CHANGES OF ARABLE LAND IN SLOVAKIA AND BULGARIA DURING THE PERIOD 1990–2006

Changes in arable land use in Slovakia and Bulgaria over two time horizons (1990 to 2000 and 2000 to 2006) are characterized in this paper. Two data layers of land cover changes of the CORINE Land Cover Data Base were used as entry data. The evaluation of changes also considered statistical data about the changing structure of the land resources and sown areas of individual crops for the mentioned periods. The transition from a command economy to a market economy manifested itself in Slovakia by extensification of agriculture in submountainous areas, and by the spatial diversification of plant production as a result of transformation of the original cooperatives into smaller farms. In Bulgaria the changes were mainly represented by transformation of arable land to pastures and they were connected with the closures of agricultural collective farms.

Anna MEGYERI-RUNYÓ, Attila KERÉNYI

THE ROLE OF LOCAL SOCIETY IN DEVELOPING ENVIRONMENTAL CULTURE: THE CASE OF VÁC (HUNGARY)

The role of local society in the development of the environmental culture of cities is investigated in this paper, based on general models and on a survey that involved institutions and inhabitants of a Hungarian middle-sized town (Vác). Inner and outer factors forming the environmental culture of cities are analysed. The role of the size of cities in urban environmental protection is presented. The natural, social and environmental specifics of the town of Vác, with a population of 33,000, are analysed from the aspect of environmental protection. Environmental consciousness and the willingness of residents to take actions to improve the environment of the town are assessed using the results of a questionnaire survey.