



Long-term development of the Czech landscape studied on the basis of old topographic maps

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The paper deals with long-term land use changes in the Czech Republic with the help of old topographic maps. Departments of Landscape Ecology and GIS Applications from the Silva Tarouca Research Institute for Landscape and Ornamental Gardening, v.v.i. study these changes mainly in the research project MSM 6293359101 Research into sources and indicators of biodiversity in cultural landscape in the context of its fragmentation dynamics, the subpart Quantitative analysis of the dynamics of the Czech landscape development. In this paper, the authors concentrate mainly on map sources, which were acquired for the purpose of the project and also introduce partial results.

Maps, which are the sources for the analyses, are following: maps from 2nd Austrian military survey in the scale 1:28 800 (created for the territory of the Czech Republic in the period 1836-1852), maps from 3rd Austrian military survey in the scale 1:25 000 (created for the Czech Republic in the period 1876-1880), Czechoslovak military topographic maps in the scale 1:25 000 from 1950s and 1990s, and Czech topographic base maps in the scale 1:10 000 from 2002-2006. It is necessary to complete maps of the 2nd and 3rd Austrian military survey thanks to their incompleteness, mainly along state borders. Also maps from 1st Austrian military survey in the scale 1:28 800 (created for the Czech Republic in the period 1764-1783) are available; however, their usage for the accurate analyses in the GIS environment is restricted by their poor cartographic accuracy. Apart of the above mentioned maps, there has been progress in collecting maps from the interwar and war period (revised maps of the 3rd Austrian military survey maps, maps of the provisional military survey from 1923-1933, maps of definitive military survey from 1934-1938 and maps from survey of Moravian part of the Protectorate of Bohemia and Moravia, so called Messtischblätter from 1939-1945).

Maps from five periods are manually vectorised in the GIS environment. When vectorizing maps, nine land use categories are distinguished according to the methodology created at the author's workplace. Only areas larger than 0.8 ha are vectorized with regard to the output scale of the project (1:200 000), which includes the whole territory of the republic. The so far vectorized areas are shown in the overview maps.

The main analyses lay in overlaying vectorized maps and in calculation of the number of land use changes for the whole researched period. These then show stable areas, i.e. areas where no change in land use occurred, and dynamic areas with one or more changes. Also types of the land use changes both among individual maps and for the whole period can be detected.