Landscape classification and mapping for Irkutsk city in Siberia region

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Traditional landscape approach is an important part of land-cover mapping in Russia. Since different regions have different landscape's hierarchy, it is impossible to use one classification for all the regions. We tried to analyze the correlation of such concepts as: land cover, landscape, geosystem, ecosystem, habitat, and biotope. Biotope is defined as a complex of factors, which determines physical conditions of existence (abiotic part) of a community (biotic part) to define geographical unites (Connor et al., 2004). Habitat is terrestrial or aquatic areas distinguished by geographic, abiotic and biotic features, whether entirely natural or semi-natural (EEA, 2014). Ecosystems can be regarded as groupings of habitat types (EEA, 2014). Geosystem is a unity, which consists of interrelated components of nature, controlled by regularities, which operate in geographical shell and landscape sphere (Sochava, 1974a). It is an organized integrality, which interacts with cosmic sphere and human society (Sochava, 1972). The term "landscape" is controversial and may be interpreted in different ways. However, landscape is a part of the Earth's surface, which is shaped by natural conditions and formed by human influences to a different extent (Bastian et al., 2014). Since the terms have close meanings, it is necessary to specify which term needs to be taken for certain aim. So, we defined land-cover as the complex of biotic, abiotic and cultural components on the Earth's surface (Monsin et al., 2014). The aim of this study is to compile the landscape classification of terrestrial units for Irkutsk city urban area which can be used for complex and narrow purposes, for example, for research of soil or vegetation and their changes, as well, for spatial planning. Irkutsk is a large regional center and is located on the South of Eastern Siberia near Lake Baikal. Accepted in European Union CORINE Land Cover and EUNIS habitat classification doesn't have data for the studied area. In our research, we elaborate a synthetic approach with using CORINE and EUNIS database and conception of geosystem to classify the Irkutsk's city terrestrial units. Using QGIS software we analyzed the following data: fieldwork, Digital Elevation Model (SRTM), and remote sensing (Landsat 7, 8).

Keywords: urban landscape classification, landscape approach, geosystem

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