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LANDSCAPE COVERS CLASSIFICATION FOR THE PURPOSE OF UNITED TERRITORIAL COMMUNITY'S MANAGEMENT (FASTIV REGION CASE STUDY)

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Currently, there are a number of problems related to the lands use and management in Ukraine. A number of consequences arising from improper land management and enhanced by direct and indirect warfare activities impact lead to lands degradation and their loss. To control and counteract negative processes in land degradation hereby we are considering lands classification of one of the typical regions of Kyiv oblast, namely the Fastiv region.

As far as the management of territories is an important issue in many aspects, we are here considering and emphasizing the environmental aspect. So, the aim of this research is to characterize and classify the landscape covers of the Fastiv region for further development of their changes assessment for a certain period of time. Below we present a brief description of the Fastiv region landscapes as typical ones for the south-western part of the Kyiv oblast.

The Fastiv region has the character of a relief in the form of a gently undulating forest plateau with separate moraine-zandre ridges. The northern part of the region is hilly, and the southern part is partially eroded with ravines and gullies. The forest plateau is divided by the valleys of the Irpin, Unava, Kamenka, Stugna rivers and a network of beams that are widespread in the southeastern and northern parts of the region. River valleys have narrow floodplains with swampy lands and mostly one, rarely two, supraflood terraces. The banks of the rivers have gentle slopes with little erosion, and the slopes of the streams are characterized by a significant development of erosion.

In the northern part of the region, at the transition from the undulating plateau to the river floodplains, there are narrow pine terraces. River floodplains are usually narrow (from 100 to 500 meters), swampy and used mainly for haymaking. Some of them are drained and processed. Arable lands are located mainly on a gently undulating plateau, which contributes to their intensive use in agricultural production.

Geostructural, the territory of the Fastiv region is part of the northeastern slope of the Ukrainian crystalline shield. This shield was subjected to denudation processes that led to the formation of an undulating denudation plain with dislocated Precambrian crystalline rocks. Granites and granito-gneisses represent crystalline rocks. The surface of crystalline rocks is covered with sedimentary rocks of the Tertiary and Quaternary systems. The upper layers of Quaternary sediments are soil-forming rocks, in particular typical chernozems and podzolic soils. Poorer sod-podzolic soils were formed on water-glacial and ancient alluvial deposits.

Territories of depressed areas of streams and river floodplains contain alluvial, meadow-chernozem, sod and swamp soils. Modern alluvial deposits, formed during river overflows, also contain turf and swamp soils. Typical chernozems (43.8%) and podzolized soils (33.4%) prevail in the area. Meadow-black earth, turf-podzolic, meadow, black earth-meadow, swamp soils are less common. The most fertile soils of universal use are typical chernozems, which occupy a significant area of agricultural land. They are the main part of arable land.

This natural background promotes development of negative exogenous geological processes such as soil erosion, denudation, waterlogging of the territory [1]. To make the lands cover classification we used the following types of covers: tree cover, grassland, cropland, built-up areas, bare lands, water bodies, and herbaceous wetlands, which is typical for the researched territory, with the help of the Sentinel-5 images (Fig. 1) [1, 2].

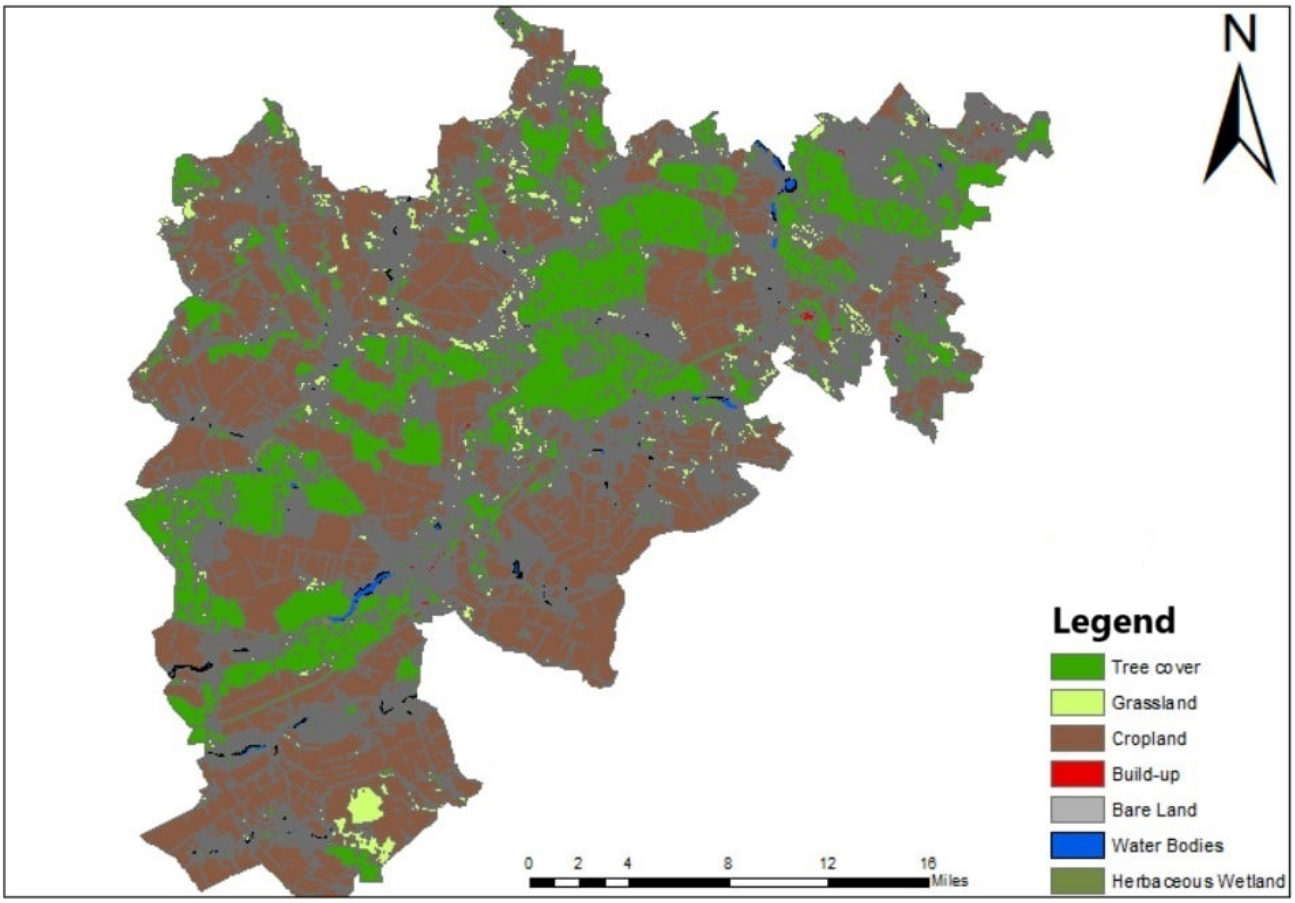

Fig. 1 Land cover classification of the Fastiv region

Meadow and swamp vegetation, such as sedge, sedge, reeds, grows on virgin areas of the floodplains of the Unava, Irpin, Stugna, and Kamenka rivers, as well as on the bottoms of streams; among the moisture-loving cereals - common sedge, meadow fescue, marsh fieldwort; various herbs include meadow geranium, meadow sedge, marsh sedge, horse sorrel. The predominant part of grass coverage in such areas is 70-80%. Percentages of the land cover types is given in table 1 and Fig. 2.

Table 1. Percentages of land cover types

Type of landscape	Area (Ha)	Percentage (%)
Tree cover	61261,55	35,17
Grassland	24463,14	14,04
Cropland	78872,91	45,28
Built-up	4853,42	2,79
Bare	118,2	0,07
Water bodies	1481,32	0,85
Herbaceous Wetland	1140,67	0,65

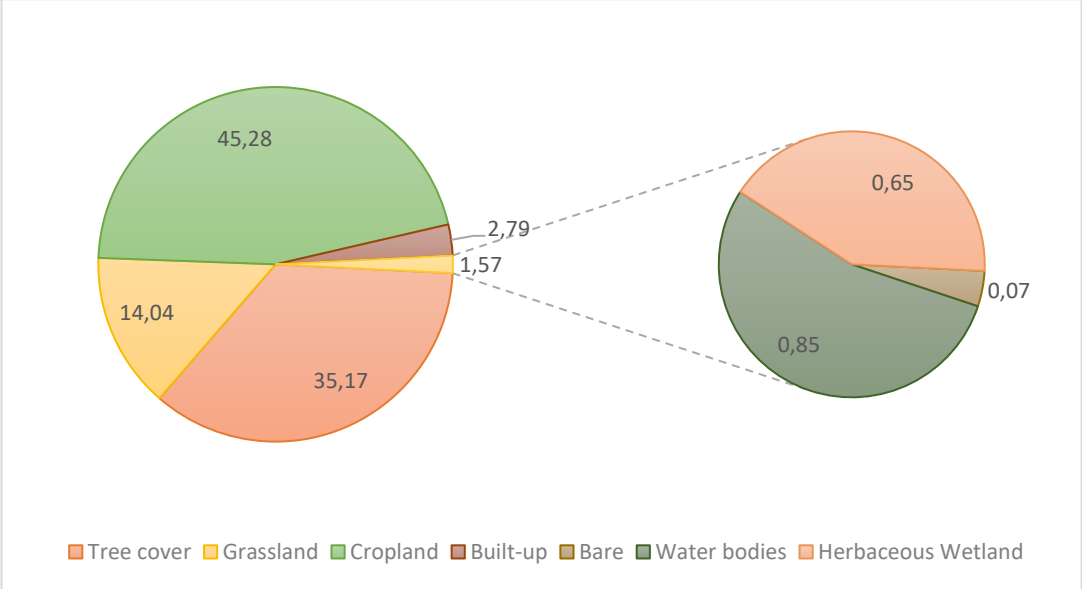

Fig.2 Percentages of land cover types (%)

On arable lands, especially among crops and perennial crops, various weeds are common, such as horsetail, field horsetail, white quinoa, field cornflower, thistle, wild radish, and others. The vegetation of the hayfields is represented by grass and grass-swamp communities, which are formed according to the relief and soil cover.

It is specially striking that wetlands occupy almost 1% of the entire territory and might get higher since time. It is not typical for the researched territory and worth paying attention for the future united territorial communities (UTC) management. This type of classification is worth to be made in every UTC in Ukraine as it will definitely help in their territory's management.

Further research will be aimed at assessing the change in land cover over a certain period of time. It will be very useful for territory management and rational use of natural resources in general.

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