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SATELLITE GEOECOLOGICAL ANALYSIS OF THE PEAT-SWAMP SYSTEM OF THE SUPII RIVER

Supii is a young river of the Dnieper left bank with poorly developed terrace complexes. Its length reaches 144 km, and the basin equals 2165 km². It starts with swamp near the village of Svydovets in the Nizhyn district of the Chernihiv region (Figure 1). The mouth of Supii is concentrated in the conditions of the Dnieper-Donetsk depression and spurs of the Ukrainian crystalline shield [1].

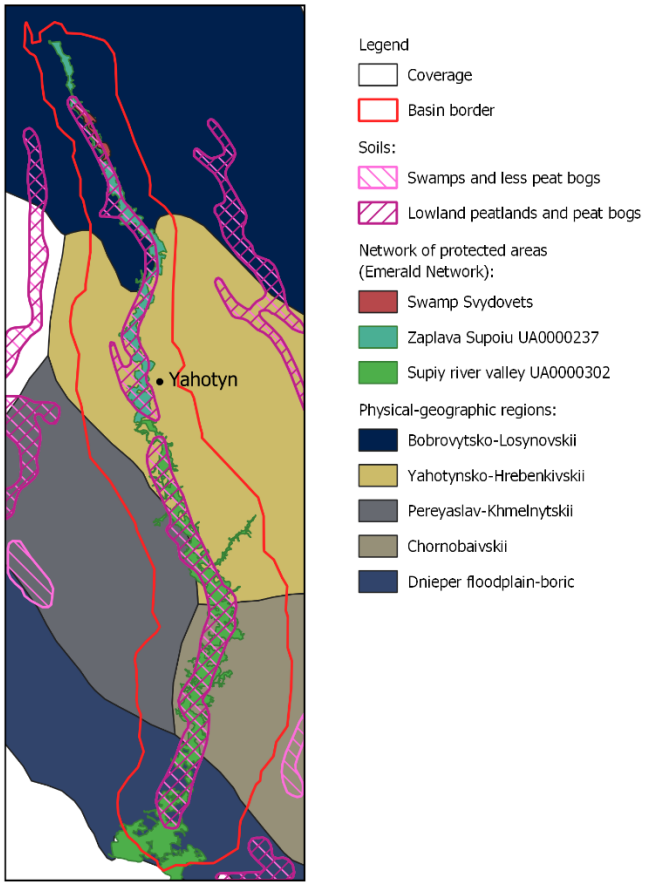

Fig. 1. Map-scheme of the Supii peat-swamp system

Characteristically, the narrowest sections of the valley are limited to the peripheral part of the positive morphostructure of the central type. There are two terrace levels in the valley: the floodplain and the 1-st (Desnian) supraflood terrace. The floodplain is two-sided, it is a bottom swamp, with a width of 500 m to 3-3.5 km, a height above the water cut from 0.5 to 1.0 m. It is mainly composed of peat, but closer to the slopes there are peaty sands and loams [2].

Limited distribution, weak water enrichment of the aquifer and low quality of underground water, high vulnerability and lack of protection from diffuse pollution by products of agricultural activity make it unsuitable not only for centralized water supply, but also for water supply of individual farms [1].

Intensive agricultural activity contributed to the further degradation of peatlands and the formation of large areas of flammable surfaces. General warming of the climate and long dry periods have become the leading factor in the occurrence of peat fires.

However, the territory has its own unique ecosystem. The river is fully and completely the approved territory of the Emerald Network of Ukraine as "Zaplava Supoiu" and "Supiy river valley" presented in Figure 1. The network aims to preserve species and ecosystems that have been recognized as rare at the

level of the whole of Europe, according to the provisions of the Berne Convention on the Protection of Wild Flora and Fauna and Natural Habitats in Europe [3].

Restoring the balance of natural and anthropogenic processes for the conditions of sustainable development of the territories of the Supii river basin is of primary importance. Research in this area helps to solve a number of sustainable development goals. That is why it is advisable to correctly assess their value [4].

To prepare progress of physical characteristics of peatlands based on remote sensing data, soil analysis was carried out. There are Normalized Difference Water Index (NDWI), Soil-Adjusted Vegetation Index (SAVI).

To reflect qualitative indicators of water content in plant leaves calculated NDWI by Gao (1996). To reflect the amount of water in water bodies chosen NDWI by McFeeters (1996). For the influence of soil brightness in areas where vegetative cover is low was used SAVI [5]. Results are presented in Figure 2.

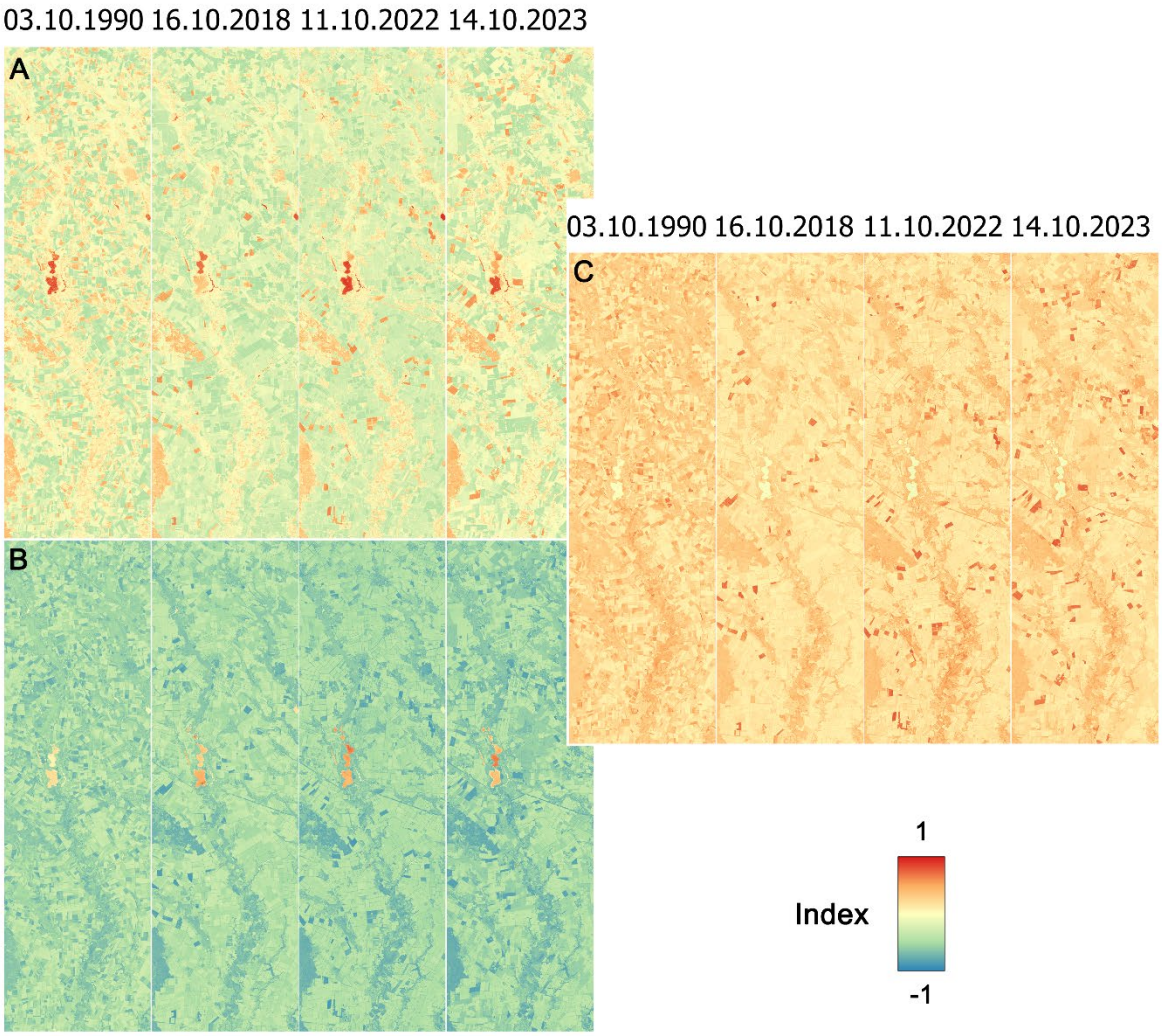

Fig. 2. Indexes of A) NDWI (Gao, 1996), B) NDWI (McFeeters, 1996) and C) SAVI

The degradation of land is quite noticeable in the images of recent years. To obtain a better result, such as an assessment of the risks of burning peatlands, it is planned to conduct an analysis of the temperature distribution of the land surface (LST).

References

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