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CLASSIFICATION OF TREE AND SHRUB VEGETATION OF THE MELIORATIVE SYSTEM OF THE TNYA RIVER VALLEY

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Introduction. At the beginning of the 20th century, climate change began to take on catastrophic proportions. This was especially acutely reflected in the quality and quantity of water resources. In this issue, we can observe a multi-vector crisis. One of them is that our approaches to solving the shortage of water resources are based on actions and environmental conditions that were characteristic of the current acceleration of climate change. New circumstances create new challenges, and an adequate response to them will be comprehensive studies of ecosystems [1].

Until the last quarter of the 20th century, important elements of regulating the movement of moisture in temperate latitudes were land reclamation systems and river flow regulation. Drainage systems were built, swamps were drained, river beds were straightened, and dams were built. These actions caused considerable damage to the environment, so the requirements for the implementation of projects with reverse consequences became logical [2]. However, while we have reached this decision, climate change has gone even further. Now we have a moisture deficit caused by irregular precipitation. Long droughts with record temperatures alternate with short-term showers [3]. Disturbed ecosystems in the area of river sources and in the first supra-terrace floodplain are not able to retain such volumes of water, which is why instead of gradually entering water bodies, it quickly flows into the sea, carrying with it washed mineral and organic substances of the soil [4]. It should be added that such rapid rains are not able to saturate the soil and its aquifers with moisture. Because of this, agriculture becomes problematic in areas that previously did not suffer from moisture deficiency. Also, a large part of the population, which receives it from 2-3 aquifers, experiences a shortage of drinking water.

Restoration of the natural moisture retention system remains an urgent task. We are talking about the restoration of natural underground sources and swamp ecosystems in the area of small river sources, the renaturalization of rivers, the formation of floodplain forests in the area, etc. However, this process will take quite a long time, and the result should be today. Socio-ecological changes will lead to an exacerbation of the socio-political crisis, which will exacerbate the ecological crisis and lead to a civilizational catastrophe. A quick and inexpensive solution is needed. This may be the use of the existing system of meliorative canals and reservoirs as water reservoirs, which will temporarily replace natural water retention systems. It should be added that today we do not know whether such natural systems are able to cope with irregular precipitation on their own. However, approaches to the use of existing water regulation systems should be changed. This will involve converting the meliorative system of Polissya into an irrigation system, and dams on them as reservoirs of moisture for feeding small rivers. One of the important factors that needs to be investigated is the course of autogenic successions within the ameliorative canals and the process of ecosystem formation that will influence their performance of the above functions [5]. In our study, we are talking about independently formed forest ecosystems, the dominant flora of which, on the one hand, is able to reduce evaporation in their water bodies by creating shading, retain precipitation on vegetation, and on the other hand, absorb some of the moisture for its physiological functions.

Materials and methods. The materials of the study are 201 standard geobotanical descriptions made in the period from March to July 2025. The studies were conducted in the valley of the middle reaches of the Tnya River. Vegetation classification was carried out using the principles of the Brown Blanke school using the TURBOVEG for Windows program. Indicators of environmental factors were determined by synphytoindication methods using the Simargl 1.12 program package [6-9].

Results of the study and their discussion. The vegetation of the studied area is very diverse and belongs to 20 classes, 31 orders, 54 unions, and 117 associations according to the Brown Blanke classification. The following classes of plant groups are found here:: *Lemnetea* de Bolós et Masclans 1955, *Potamogetea* Klika in Klika et Novak 1941, *Isoëto-Nanojuncetea* Br.-Bl. et Tx. in Br.-Bl. et al. 1952, *Phragmiti-Magnocaricetea* Klika in Klika et Novak 1941, *Molinio-Arrhenatheretea* R.Tx 1937, *Calluno-Ulicetea* Br.-Bl. et Tüxen ex Klika et Hadač 1944, *Trifolio-Geranietea* Th.Müll 1962, *Sedo-Scleranthetea* BR.-BL. 1955, *Epilobietea angustifolii* Tx. et Preising ex von Rochow 1951, *Robinietea* Jurco ex Hadac et Sofron 1980, *Vaccinio-Piceetea* Br.-Bl. in Br.-Bl. et al. 1939, *Salicetea purpurea* Moor 1958, *Alnetea glutinosae* Br.-Bl. et Tüxen ex Westhoff, Dijk et al. 1946, *Franguletea* Doing ex Westhoff in Westhoff et Den Held 1969, *Stellarietea mediae* R.Tx., Lohmaer et Preising 1950, *Artemisietea vulgaris* Lohmeyer et al. ex von Rochow 1951, *Polygono-Poëtea annuae* Rivas-Martínez 1975, *Plantaginetea majoris* Tx. et Preising ex von Rochow 1951, *Galio-Urticetea* Passrge et Kopecký 1969, *Bidentetea tripartiti* Tx. et al. ex von Rochow 1951

Of these, we have attributed to tree and shrub vegetation 5 classes, 6 orders, 8 unions, and 15 associations. Their syntaxonomic scheme looks like this:

Robinietea Jurco ex Hadac et Sofron 1980: *Chelidonio-Robinietalia pseudoacaciae* Jurko ex Hadač et Sofron 1980: *Chelidonio-Acerion negundi* L. Ishbirdina et A. Ishbirdin 1991: *Chelidonio-Aceretum negundi* L. Ishbirdina et A. Ishbirdin 1991; *Chelidonio majoris-Robinion pseudoacaciae* Hadač et Sofron ex Vítková in Chytry 2013: *Chelidonio-Robinietum* Jurko 1963; *Sambucetalia racemosae* Oberd. ex Doing 1962: *Sambuco-Salicion capreae* Tx. et Neum et Oberd.1957: *Salicetum capreae* Schreier 1955.

Vaccinio-Piceetea Br.-Bl. in Br.-Bl. et al. 1939: *Pinetalia sylvestris* Oberdorfer 1957: *Dicrano-Pinion* (Libbert 1933) Matuszkiewicz 1962: *Cladonio-Pinetum* Juraszek 1927, *Dicrano-Pinetum* Preising et Knapp ex Oberdorfer 1957,

Salicetea purpurea Moor 1958: *Salicetalia purpureae* Moor 1958: *Salicion albae* de Soó 1951: *Salicetum albae* Issler 1926, Salici-Populetum Meijer Drees 1936, *Populetum nigro-albae* Slavnić 1952; *Salicion triandrae* Müller et Görs 1958: *Salicetum triandrae* Malcuit ex Noirfalise in Lebrun et al. 1955.

Alnetea glutinosae Br.-Bl. et Tüxen ex Westhoff, Dijk et al. 1946: *Alnetalia glutinosa*e R.Tx 1937: *Alnion glutinosae* Malcuit 1929: *Ribo nigri-Alnetum* Solińska-Górnicka (1975) 1987, *Carici acutiformis-Alnetum* Scamoni 1935, *Carici elongatae-Alnetum* Schwickerath 1933, *Calamagrostio canescenti-Alnetum glutinosae* Mikoška1956, *Angelico sylvestri-Alnetum* Borhidi 1966.

Franguletea Doing ex Westhoff in Westhoff et Den Held 1969: *Salicetalia auritae* Doing 1962: *Salicion cinereae* Th.Müll et Görs ex Pass 1961: *Salicetum pentandro-cinereae* Pass 1961.

In absolute values, the highest phytocenotic diversity indicators are in the classes Alnetea glutinosae (5 associations) and Salicetea purpurea (4 associations), and the lowest in Franguletea (1 association) and Vaccinio-Piceetea (2 associations). However, each of these generally has a different number of subordinate units. Based on this, the relative indicator of phytocenotic diversity will be more significant, which is established through the ratio of the number of recorded associations of the class to the number of associations of the class for the region. In relative terms, the highest phytocenotic diversity indicators are also in the classes Alnetea glutinosae (63%) and Franguletea (50%). The lowest relative indicators are in Vaccinio-Piceetea (20%) and Robinietea (38%) (Table).

Phytocoenotic diversity of tree and shrub vegetation communities

Classes of plant communities	Number of associations	A share of the phytodiversity of the class for the Ukrainian Polissia
Robinietea	3	38%
Vaccinio-Piceetea	2	20%
Salicetea purpurea	4	44%
Alnetea glutinosae	5	63%
Franguletea	1	50%

Absolute and relative phytocenotic diversity only partially correlates with the areas occupied by different classes of plant communities. The largest areas are occupied by vegetation of the class Robinietea (association Salicetum capreae). In second place is the class Alnetea glutinosae (association Ribo nigri-Alnetum), whose communities are found en masse in the western and northwestern parts of the territory.

Forest communities of the melioration system arise as a result of self-renewal of natural vegetation (autogenic successions) [10]. Their formation begins in the first year after complete disturbance of vegetation and soil [11]. However, such ecosystems have all their members only after 5-10 years for the classes Robinietea and Franguletea, 10-15 years for the classes Salicetea purpurea and Alnetea glutinosae, and 15-20 years for some associations of the class Vaccinio-Piceetea.

Conclusions. The vegetation of the studied area is very diverse and belongs to 20 classes, 31 orders, 54 unions, and 117 associations according to the Brown Blanke classification. Of these, we have attributed 5 classes, 6 orders, 8 unions, and 15 associations to tree-shrub vegetation groups.

In absolute values, the highest indicators of phytocenotic diversity are in the classes Alnetea glutinosae (5 associations) and Salicetea purpurea (4 associations), and the lowest in Franguletea (1 association) and Vaccinio-Piceetea (2 associations).

In relative terms, the highest indicators of phytocenotic diversity are in the classes Alnetea glutinosae (63%) and Franguletea (50%), and the lowest in Vaccinio-Piceetea (20%) and Robinietea (38%).

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