UDC 581.55:58.02
DOI https://doi.org/10.32782/2450-8640.2024.2.6

Svitlana Voloshanska,
PhD (Biological), Associate Professor at the Department of Biology and Chemistry
Drohobych Ivan Franko State Pedagogical University, Ukraine
orcid.org/0000-0003-4589-6376, Scopus Author ID: 56257714000,
e-mail: s.voloshanska@dspu.edu.ua

Viktor Senkiv,
PhD (Technical), Associate Professor at the Department of Medical and Biological Disciplines, Geography and Ecology
Drohobych Ivan Franko State Pedagogical University, Ukraine
orcid.org/0000-0003-2873-2599, e-mail: v_senkiv@ukr.net

Inesa Drozd,
PhD (Agricultural), Head of Laboratories of the Department of Biology and Chemistry
Drohobych Ivan Franko State Pedagogical University, Ukraine
orcid.org/0000-0003-0994-2777, e-mail: inessadr@ukr.net

Iryna Parashchak,
Student
Drohobych Ivan Franko State Pedagogical University, Ukraine,
e-mail: iryna.parashchak@dspu.edu.ua

MEADOW PHYTOCOENOSES OF THE BYSTRYTSIA TYSMENYTSKA FLOODPLAIN UNDER THE CONDITIONS OF SECONDARY SUCCESSION

Abstract. The article analyzes the state of meadow phytocenoses of the Bystrytsia Tysmenytska floodplain after pyrogenic load. Among the anthropogenic impacts in this area, pyrogenic changes resulted from burning hayfields and pastures, and the need to destroy ruderal and adventitious species. Such anthropogenic influence led to the formation of a secondary succession.

Biodiversity studies of the Bystrytsia Tysmenytska floodplain started in 2021 and continued in 2022–2024. The route method was used to collect field data. The ecological and landscape differentiation of the vegetation cover was studied using the environmental series method, based on the establishment of ecological profiles. In the floodplain valley of the river, 3 ecological profiles have been established. Higher plant determinants have been used to determine the names of vascular species. Five plots were established in the zone of anthropogenic (pyrogenic) influence to determine the species composition of the vegetation. The generally accepted methodology was used for the geobotanical descriptions. The Brown-Blanke method was used for syntaxonomic analysis. Plant abundance was determined using the Drude method.

Bystrytsia Tysmenytska belongs to the group of small rivers of the Dniester basin and is characterized by large areas of floodplain meadows, originates in the eastern part of the Upper Dniester Beskydy and has a length of 73 km. In the floodplain areas of the river, the most common are meadow soils on alluvial deposits and sod-middle podzolic sandy and sandy loam, which affect the development of phytobiota.

In the studied areas, representatives of the families Asteraceae and Rosaceae were most often encountered, plants of the families Lamiaceae, Poaceae, Fabaceaewere less numerous,

representatives of the families Caprifoliaceae, Apiaceae, Ranunculaceae, Equisetaceae, Euphorbiaceae, Plantaginaceae rarely grew. Among the identified species, the following were common and numerous in the study area: Achillea millefolium, Elymus repens, Cirsium arvense, Equisetum arvense. Ranunculus acris, Vicia cracca, Daucus carota, Carduus nutans, Mentha longifolia, which usually did not have a dominant role in phytocenoses, were much less common. Separate fragments of Agrimonia eupatoria, Tanacetum vulgare L., Rubus caesius, Potentilla anserina occurred.

The secondary succession of the meadow biocenosis in the floodplain of the Bystrytsia-Tysmenytsia river, which was formed as a result of the pyrogenic load, is characterized by rapid processes of phytobiota restoration, primarily by groups of medicinal plants.

Key words: floodplain, biodiversity, phytocoenosis, secondary succession, anthropogenic load.

INTRODUCTION

Among the environmental factors actively affecting biogeocenoses, anthropogenic pressure plays a leading role in modern conditions, transforming natural ecosystems and reducing flora and fauna species richness. In recent decades, more and more attention has been paid to the study of the problems of anthropogenic load on the small river floodplains. This is due not only to the need to implement an overall environmental strategy for the use of water resources, but also to the awareness of the role of small water bodies in the functioning of medium and large rivers. Because of climate change, the problem of preserving small rivers and their coastal areas has become a major issue worldwide [6].

Unique natural conditions and the type of phytobiota formation characterize river floodplains. Floodplains indirectly determine the nature of the population's livelihoods in riverside villages and cities, and their vegetation cover has ecosystem and habitat-forming significance for the urbanized environment. However, at the same time, economic activity has a reciprocal impact on the floodplain phytobiota and riverbed processes. Significant anthropogenic impact on floodplain ecosystems leads to various disturbances in their functioning. As a result, the typical floristic composition of the phytobiota is changing, the transformation of the natural ecological and cenotic structure of vegetation is observed, and its habitat-forming role is decreasing [2, 3].

It is well known that floodplains are formed in the process of erosion-accumulative activity of rivers. It is one of the factors regulating the flow of high waters. They are covered with a specific soil and vegetation cover, have their own biological resources, are an important element of nature sensitive to natural hydroclimatic changes and to anthropogenic actions [4].

The floodplains are characterized by a rich phytocenotic diversity. Floodplain vegetation performs a specific function, especially in areas of rivers within human settlements. First and foremost, it secures river banks, which prevents (to a certain extent) erosion during floods, improves air quality, reduces the destructive power of wind, and ensures the preservation of the natural environment and biological diversity. It is also of great economic importance: as a fodder base for livestock, as a source of medicinal and flowering plant species, as a habitat for birds and animals, and in recent years it has been increasingly used for recreational purposes. Thus, the functions of floodplain vegetation are very diverse, ranging from economic to aesthetic, recreational, and resource conservation [1].

The main component of floodplain ecosystems is meadow vegetation, which includes a significant species diversity. The meadow type of vegetation is the second most represented

in the natural vegetation cover of Ukraine and occupies about 9 million hectares. In recent years, the area under grass ecosystems has been increasing due to a decrease in arable land. Therefore, it is likely that the area of floodplain meadows will also increase, primarily due to the conversion of arable land in floodplains to natural areas [7].

Most small river floodplains are characterized by synanthropic influence. This leads to qualitative and quantitative changes in the composition of vegetation, and loss of flora's distinctive features. Among anthropogenic influences, pyrogenic changes are most often detected. They are the result of burning hayfields and pastures, the need to destroy ruderal and adventitious species.

Literature sources indicate that fires occur in the floodplains of many rivers. However, in different regions, this is carried out starting with the winter and ending with the summer season and every 1–4 years [3]. Regulated burning prevents the penetration and further growth of ruderal species of Artemisietea vulgaris and Stellarietea media in meadow phytocoenoses. In particular, such weeds as Cirsium arvense (L.) Scop., Onopordum acanthium L., Raphanus raphanistrum L., Consolida regalis S. F. Gray, Solidago virgaurea L., Phalacroloma annuum (L.) Dumort., Artemisia absintium L., A. vulgaris L., seedlings of trees and shrubs, etc. cannot withstand fire. Frequent or late scorching leads to the replacement of groups of true and wet meadows of the orders Arrhenethalia elatioris, Molinietalia with the stepped-beam cenoses Galietalia veri (Molinio-Arrhenatheretea) and the grouping of the classes Artemisietea vulgaris, Koelerio-Corynephoretea [5].

Another example of pyrogenic succession is the succession in agricultural fields after they are no longer cultivated. Studies show that the succession dynamics and the emergence of certain species are determined by the type of land use: meadow, pasture, fields of cultivated plants. A study of the naturalness of species in abandoned meadows in Hungary showed that the dominance of competitors in the vegetation cover of abandoned pastures and meadows increased, while the dominance of ruderal species in meadows increased and decreased in pastures. The presence of stress-resistant species in the vegetation cover decreased in meadows and doubled in pastures. As for changes in the species diversity of abandoned cropland, several studies have shown that overall species diversity increased during the succession period and at the site scale studied, and then stabilized. In contrast to previous observations, early studies of succession showed that species diversity was highest in the first year after cessation of use, and then significantly decreased over the next 3 years of the study or had an overall downward trend, nonlinear change, and did not have a clear trend as the succession progressed. The succession of abandoned land was initially strongly influenced by the date of abandonment, the type of the last crop grown before abandonment and its weediness, the previous history of the landscape, groundwater availability, and organic carbon content [8–15].

Examples of combining the effects of agricultural use and fires were also investigated. In the foothills of North Carolina, abandoned fields underwent secondary succession. Studies have shown that in the first year after the land was abandoned, grasses and horsetails dominated the land. In the second year, aster became the main plant in the fields. In the third year, bentgrass became the dominant plant until it was replaced by young pines. Then the main trees in this area were large trees, hardwoods. Periodic disturbances, fires every 5-7 years, helped to preserve young pines and stop the complete dominance of deciduous trees [9–10].

Secondary succession plays an important role in preserving biodiversity and maintaining the stability of ecosystems. Restoring natural communities after a disturbance helps provide ecosystem services such as air and water purification, soil fertility support, and providing

habitat for a variety of species. Biodiversity is a key element of ecosystem stability, as it provides resilience to changes and stressors. Secondary succession helps restore lost biodiversity and ensure the long-term sustainability of natural communities.

MATERIALS AND METHODS

Biodiversity studies of the Bystrytsia Tysmenytska river floodplain were initiated in 2021 and took place during 2022–2024. Field data was collected by the route method. Ecological and landscape differentiation of the vegetation cover was studied by the method of ecological series, which is based on the laying of ecological profiles. 3 ecological profiles were laid in the floodplain valley of the river.

The names of vascular species were established according to the determinants of higher plants. Geobotanical descriptions were performed according to the generally accepted methodology. To determine the species composition of vegetation, 5 sites were laid in the zone of anthropogenic (pyrogenic) influence. Syntaxonomic analysis was performed using the Brown-Blanke method. The abundance of plants was determined by the Drude method.

RESULTS

Among the natural phytosystems of the southwestern part of the Lviv region, the floodplains of small rivers are the least studied and practically not protected. They are marked by peculiar natural-historical and ecological-landscape conditions, play a leading role in the migration of organisms and the maintenance of biological and coenotic diversity, have an important phyto-resource value. Over the past century, the floodplain vegetation of the region has been significantly affected by drainage reclamation, groundwater abstraction, inefficient use of natural resources, etc.

Bystrytsia Tysmenytska belongs to the group of small rivers of the Dniester basin and is characterized by large areas of floodplain meadows. Bystrytsia Tysmenytska flows within the Sambir and Drohobych districts of the Lviv region and is the right tributary of the Dniester (the Black Sea basin). The river originates in the eastern part of the Upper Dniester Beskydy and has a length of 73 km. The area of the water intake basin is 1160 km^2, the floodplain is 100–300 m wide. The depth of the river is from 0.5 to 2.5 m, the river is winding 10–50 m wide. It is mainly rain-fed, the water regime is unstable, and spring floods and rain floods are common. Novoshitska HPP, 4 dams and several ponds were built on the river. The Bystrytsia Tysmenytska river is used for technical needs, fishing, recreation.

In the floodplain areas of the study, the most common are meadow soils on alluvial deposits, sod-middle podzolic sandy and sandy soils on water-glacial deposits. Meadow soils are formed under grassy vegetation in conditions of constant flooding with groundwater, so their profile is accumulative. These soils are dark gray, light loamy, powdery coarse, humous to a depth of 50 cm. They occupy significant areas in the study zone. Sod-middle podzolic sandy, sandy loam soils on water-glacial deposits are common in a large area of research. They have a humus-eluvial horizon (20–25 cm), below which lies a structureless, yellowish-gray sand (up to 25 cm). The illuvial horizon is composed of gray, grayish-yellow sand with a thickness of up to 30–35 cm.

As a result of the research, it was found that the plant groups of the Bystrytsia Tysmenytska floodplain are dominated by species characterized by meso-hygrophytic plasticity.

Heliophytes are present in equal proportions in all cenoflora in the range of 40–60%. In the biomorphological structure, the predominance of hemicryptophytes is observed. Analysis of cenoflora by type of life forms showed that herbaceous polycarpic plants are dominant. The ratio of woody plants to herbaceous plants is 1:15. In the phytobiota of the floodplains, meadow-bog, meadow-shrub, ruderal groups are common.

As a result of our observations, we investigated the secondary meadow floodplain succession on the banks of the Bystrytsia Tysmenytska River.

In modern conditions, an invasive species – *Heracleum sosnowskyi* – has settled among the widespread vegetation on the banks of the river and in its floodplains. In order to neutralize this species and for safety reasons, residents of the village of Dolishnii Luzhok burned dead wood in this area (autumn 2021). As a result, conditions were created on the river banks for the formation of secondary succession. Over the past two or three years, meadow vegetation has restored in the riverbank area, as well as shrubs and trees, and new species have appeared. Among the species diversity, a significant number of herbaceous plants are observed. The most common species are:

Family Rosaceae: Malus sylvestris, Pyrus pyraster**,** Prunus spinosa, Rubus caesius, Rosa canina, Agrimonia eupatoria, Potentilla anserina.

Family Lamiaceae: Origanum vulgare, Mentha longifolia**,** Urtica dioica**,** Leonurus cardiaca**,** Prunella vulgaris.

Family Asteraceae: Eupatorium cannabinum, Tanacetum vulgare, Cirsium arvense**,** Cichorium intybus**,** Gnaphalium uliginosum**,** Achillea millefolium**,** Carduus nutans**,** Senecio ovatus**,** Leontodon autumnalis.

Family Apiaceae: Heracleum sosnowskyi**,** Daucus carota, Aegopodium podagraria.

Family Poaceae: Avena fatua**,** Elymus repens**,** Agrostis capillaris.

Family Fabaceae: Trifolium pratense, Vicia cracca, Lathyrus pratensis.

Family Euphorbiaceae: Euphorbia cyparissias.

Family Equisetaceae: Equisetum arvense.

Family Plantaginaceae: Plantago major.

Family Ranunculaceae: Ranunculus acris.

Family Caprifoliaceae: Dipsacus fullonum.

In general, representatives of the families Asteraceae and Rosaceae are most often represented in the study areas, among which there are both wooden and herbaceous forms. Plants of the family Lamiaceae, Poaceae, Fabaceaeare are less numerous. Representatives of the families Caprifoliaceae, Apiaceae, Ranunculaceae, Equisetaceae, Euphorbiaceae, Plantaginaceae are rare.

76 species of plants belonging to 18 families were found in the study area.

Thus, the study area is characterized by a significant variety of floral forms and species, which are represented in the vast majority of herbaceous plants, as well as shrub and tree species.

The species identified by us are characterized by different abundance of growth. Common and numerous in the research area are: Achillea millefolium, Elymus repens, Cirsium arvense, Equisetum arvense. Ranunculus acris, Vicia cracca, Daucus carota, Carduus nutans, Mentha longifolia, which usually do not have a dominant role in phytocenoses , were much less common. Separate fragments of Agrimonia eupatoria, Tanacetum vulgare L., Rubus caesius, Potentilla anserina occur. Species grow sporadically on trial plots. In general, the resource potential of these plants is low.

As a result of studies, a significant uneven distribution of these species was recorded (see Table 1).

Table 1

The abundance of the most common spacies of floodplain meadows of Bystrytsia-Tysmenytska

	Abundance				
Species	**Area No. 1**	**Area No.2**	**Area No. 3**	**Area No. 4**	**Area No. 5**
Origanum vulgare	Cop^3	Cop^2	Cop^1	Cop^2	Cop^3
Achillea millefolium	Sol	Sol	Sp	Sp	Sp
Elymus repens	Cop^3	Cop^3	Sol	Sol	Sol
Cirsium arvense	Sol	Cop^1	Cop^1	Sp	Sp
Agrimonia eupatoria	Sp	–	–	–	–
Potentilla anserina	Sp	–	–	–	Cop^1
Gnaphalium uliginosum	Sp	Sp	Sp	Sp	–
Ranunculus acris	Sol	–	–	–	–
Rubus caesius	–	Sp	–	–	–
Equisetum arvense	–	Cop^1	Cop^1	Cop^1	Sp
Vicia cracca	–	–	Sp	–	–
Carduus nutans	–	–	Sol	–	–
Daucus carota	–	–	Sol	–	–
Mentha longifolia	–	–	–	Cop^1	Cop^1
Trifolium pratense	–	–	–	Cop^1	Cop^1
Tanacetum vulgare L.	–	–	Sol	–	Sol

It was found that the dominant species in the selected areas due to pyrogenic impact is Origanum vulgare L. It easily colonizes open areas, attracts bees and other pollinating insects, which contributes to the restoration of vegetation cover, providing conditions for the development of other plant species.

Thus, the secondary succession of meadow biocenosis in the floodplain of the Bystrytsia-Tysmenytska River showed signs of rapid recovery after the devastating impact.

CONCLUSIONS

Human economic activity significantly affects nature and landscape, destroying and changing them, which leads to an increased anthropogenic load.

Anthropogenic successions play an important role in the dynamics of the meadow vegetation of the Bystrytsia Tysmenytska river floodplain. The river floodplain of Bystrytsia Tysmenytska after pyrogenic loading is characterized by the ability to recover quickly and the peculiarity of the phytobiota formation. The study of the biocenotic features within the floodplain areas will make it possible to monitor the meadows and establish the degree of their conservation, species richness and diversity in the future.

BIBLIOGRAPHY

1. Балашов Л. С., Соломаха С. А. Класифікація екосистем заплавних лук України. *Український фітоценологічний збірник.* Київ, 2005. Вип. 1. (23) С. 108–114.
2. Козир М. С. Динаміка рослинного покриву заплавних луків р. Сейм. *Актуальні проблеми ботаніки та екології :* Міжнар. конф. мол. учених. Кам'янець-Подільський, 13–18 серпня 2008 р. Київ, 2008. С. 157–158.

3. Козир М. С. Антропогенні зміни рослинності заплави річки Сейм. *Екосистеми, їх оптимізація і охорона*. 2014. Вип. 10. С. 46–51.
4. Козак Ю. В. Еколого-ценотична диференціація заплавної рослинності м. Луцька. Біологічні системи. 2017. Т. 9. Вип. 1. С. 108–114.
5. Кузярін О. Т. Прируслова деревно-чагарникова рослинність в басейні Західного Бугу. *Наук. зап. Держ. природозн. музею*. Львів, 2011. Вип. 27. С. 109–118.
6. Малиновський А. К. Сукцесії рослинності в річкових долинах Українських Карпат. *Вісник Львів. ун-ту*. Сер. біол. 2002. 29. С. 77–85.
7. Antoniadou C., Voultsiadou E., Chintiroglou C. C. Succession and Colonization. *Encyclopedia of Ecology.* 2019. 369–378. https://doi.org/10.1016/B978-0-12-409548-9.10594-9.
8. Hubbell S.P. The Unified Neutral Theory of Biodiversity and Biogeography. 2001. Princeton, NJ: Princeton University Press.
9. Jutila H.M. Vascular plant species richness in grazed and ungrazed coastal meadows, SW Finland. *Ann. Bot. Fennici*. 1997. *34*. 245–263.
10. Kull K., Zobel M. High species richness in an Estonian wooded meadow. *J. Veg. Sci.* 1991. *2*. 711–714.
11. Luoto M., Pykala J., Kuussaari M. Decline of landscape-scale habitat and species diversity after the end of cattle grazing. *J. Nat. Conserv.* 2003. 11. 171–178.
12. Proulx M., Mazumder A. Reversal of grazing impact on plant species richness in nutrient-poor vs. nutrient-rich ecosystems. *Ecology*. 1998. 79. 2581–2592.
13. Szirmai O., Czóbel S. Long term scale changes of land use in peasant farming of the Tardona Hills. *Cereal Res. Commun.* 2006. *34*. 837–840.
14. Yassir I., van der Kamp J., Buurman P. Secondary succession after fire in Imperata grasslands of East Kalimantan, Indonesia. *Agriculture, Ecosystems & Environment*. 2010. 137 (1–2). 172–182.
15. Young T. P., Petersen D. A. *et al.* The ecology of restoration: historical links, emerging issues and unexplored realms. *Ecology Letters.* 2005. 8. 662–673.

REFERENCES

1. Balashov, L.S., & Solomakha, S.A. (2005). Klasyfikatsiia ekosystem zaplavnyykh luk Ukrainy [Classification of floodplain meadows ecosystems of Ukraine]. *Ukrainskyi fitotsenolohichnyi zbirnyk – Ukrainian Phytocenological Collection,* Kyiv, Issue 1 (23). P. 108–114 [in Ukrainian].
2. Kozyr, M.S. (2008). Dynamika roslynnoho pokryvu zaplavnykh lukiv r. Seim [Dynamics of vegetation cover of the Seim River floodplain meadows]. *Aktualni problemy botaniky ta ekolohii: Mizhnar. konf. mol. uchenykh [Current problems of botany and ecology: International conference of young scientists].* Kamianets-Podilskyi, August 13–18, Kyiv, 2008. P. 157–158 [in Ukrainian].
3. Kozyr, M.S. (2014). Antropohenni zminy roslynnosti zaplavy richky Seim [Anthropogenic changes in the floodplain vegetation of the Seim River]. *Ekosystemy, yikh optymizatsiia i okhorona – Ecosystems, their optimization and protection,* Issue 10. P. 46–51.
4. Kozak, Yu.V. (2017). Ekoloho-tsenotychna dyferentsiatsiia zaplavnoi roslynnosti m. Lutska [Ecological and coenotic differentiation of the floodplain vegetation within the city of Lutsk]. *Biolohichni systemy – Biological systems*, Vol. 9, Issue 1. P. 108–114 [in Ukrainian].
5. Kuziarin, O.T. (2011). Pryruslova derevno-chaharnykova roslynnist v baseini Zakhidnoho Buhu [Riparian tree and shrub vegetation in the Western Bug basin]. *Nauk. zap. Derzh. pryrodozn. muzeiu – Proceedings of the State Natural History Museum. Lviv*, Issue 27. P. 109–118 [in Ukrainian].
6. Malynovskyi, A.K. (2002). Suktsesii roslynnosti v richkovykh dolynakh Ukrainskykh Karpat [Vegetation successions in the river valleys of the Ukrainian Carpathians] *Visnyk Lviv. un-tu. Ser. biol. – Visnyk of Lviv un-ty, Biological series. 29*. P. 77–85 [in Ukrainian].
7. Antoniadou, C., Voultsiadou, E., & Chintiroglou, C.C. (2019). Succession and Colonization. *Encyclopedia of Ecology,* 369–378. https://doi.org/10.1016/B978-0-12-409548-9.10594-9.

8. Hubbell, S.P. (2001). The Unified Neutral Theory of Biodiversity and Biogeography. Princeton, NJ: Princeton University Press.
9. Jutila, H.M. (1997). Vascular plant species richness in grazed and ungrazed coastal meadows, SW Finland. *Ann. Bot. Fennici*, *34*, 245–263.
10. Kull, K., & Zobel, M. (1991). High species richness in an Estonian wooded meadow. *J. Veg. Sci. 2*, 711–714.
11. Luoto, M., Pykala, J., & Kuussaari, M. (2003). Decline of landscape-scale habitat and species diversity after the end of cattle grazing. *J. Nat. Conserv.* 11, 171–178.
12. Proulx, M., & Mazumder, A. (1998). Reversal of grazing impact on plant species richness in nutrient-poor vs. nutrient-rich ecosystems. *Ecology* , 79, 2581–2592.
13. Szirmai, O., & Czóbel, S. (2006). Long term scale changes of land use in peasant farming of the Tardona Hills. *Cereal Res. Commun. 34*, 837–840.
14. Yassir, I., van der Kamp, J., & Buurman, P. (2010). Secondary succession after fire in Imperata grasslands of East Kalimantan, Indonesia. *Agriculture, Ecosystems & Environment*, 137 (1–2), 172–182.
15. Young, T.P., & Petersen, D.A. *et al.* (2005). The ecology of restoration: historical links, emerging issues and unexplored realms. *Ecology Letters,* 8, 662–673.

АНОТАЦІЯ

ЛУЧНІ ФІТОЦЕНОЗИ ЗАПЛАВИ БИСТРИЦІ ТИСМЕНИЦЬКОЇ В УМОВАХ ВТОРИННОЇ СУКЦЕСІЇ

У статті проаналізовано стан лучних фітоценозів заплави Бистриці Тисменицької після пірогенного навантаження. Серед антропогенних впливів на даній території пірогенні зміни були результатом випалювання сінокосів і пасовищ, потребою знищення рудеральних та адвентивних видів. Такий антропогенний вплив зумовив формування вторинної сукцесії.

Дослідження біорізноманіття заплави річки Бистриці Тисменицької були започатковані у 2021 році й проводились упродовж 2022–2024 рр. Збір польових даних здійснювали маршрутним методом. Еколого-ландшафтну диференціацію рослинного покриву досліджували методом екологічних рядів, що ґрунтується на закладці екологічних профілів. Було закладено 3 екологічні профілі в заплавній долині річки. Назви судинних видів встановлювали за визначниками вищих рослин. Для визначення видового складу рослинності, рясності видів було закладено 5 ділянок у зоні антропогенного (пірогенного) впливу. Геоботанічні описи виконували за загальноприйнятою методикою. Синтаксономічний аналіз здійснювали за методом Браун-Бланке. Рясність рослин визначали за методикою Друде.

Бистриця Тисменицька належить до групи малих річок Дністровського басейну й характеризується значними площами заплавних лук, бере свій початок у східній частині Верхньодністровських Бескидів і має протяжність 73 км. На заплавних територіях річки найбільш поширеними є ґрунти лучні на алювіальних відкладах і дерново-середньопідзолисті піщані та супіщані, які впливають на розвиток фітобіоти.

На досліджуваних площах найчастіше траплялися представники родин *Asteraceae* та *Rosaceae*, менш чисельно представлені рослини родини *Lamiaceae, Poaceae*, *Fabaceae*, рідко зростали представники родин *Caprifoliaceae*, *Apiaceae*, *Ranunculaceae, Equisetaceae, Euphorbiaceae, Plantaginaceae*. Серед визначених видів поширеними й чисельними на території досліджень були: *Achillea millefolium, Elymus repens, Cirsium arvense*, *Equisetum arvense.* Значно рідше зустрічались *Ranunculus acris, Vicia cracca, Daucus carota, Carduus nutans, Mentha longifolia*, які зазвичай у фітоценозах не мали домінуючої ролі. Окремими фрагментами траплялися *Agrimonia eupatoria, Tanacetum vulgare L., Rubus caesius, Potentilla anserina.*

Отже, вторинна сукцесія лучного біоценозу в заплаві річки Бистриця Тисменицька, що сформувалася внаслідок пірогенного навантаження, характеризується швидкими процесами відновлення фітобіоти, зокрема угрупуваннями лікарських рослин.

Ключові слова: заплава, біорізноманіття, фітоценоз, вторинна сукцесія, антропогенне навантаження.