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## **Specific features of the establishment of parks-monuments of landscape art in the second half of the 20<sup>th</sup> century in Ukrainian Polissya**

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**Abstract.** The study analyses the establishment of parks-monuments of landscape art (PMLA) in the historical aspect. In the second half of the 20th century, 11 parks-monuments of landscape art were created in the Ukrainian Polissya: two of national and nine of local significance. The purpose of PMLA – protection and preservation of the most outstanding and valuable samples of park construction for their subsequent use for aesthetic, educational, scientific, environmental, and recreational purposes. The motivation for the creation of PMLAs was the preservation, reproduction, and enrichment of arboreal diversity in the conditions of the Ukrainian Polissya. Technical, fast-growing, rare, and valuable species of woody plants for forestry and gardening were planted in parks, followed by their use for scientific and economic purposes. Some of the plantings in the parks were memorable, anniversary, or dedicated to significant events (the anniversary of the October Revolution and the birthday of V.I. Lenin). The Ukrainian Polissya contains three parks created on the basis of existing oak stands (“Klevanskyi”, “Antonivka”, “Bondaretskyi”), one – on the basis of artificial plantings of *Acer platanoides* L., *Carpinus betulus* L., *Fraxinus excelsior* L., *Tilia cordata* Mill. (“Ovrutskyi”). Three parks of culture and recreation (“Horodnyanskyi”, “Vysokovskiy”, Slovyanskyi, in particular, the meadow park Slovyansky), children’s park (“Bondaretskyi”), four arboretums (“Dubrechnenskyi”, “Bayrak”, “Novostavskiy arboretum”, “Zhornivskiy”) were transformed over time or were granted the status of PMLA. According to the location in the planning structure of settlements, there are city, village, and district parks. In terms of size, PMLAs can be small, medium, large, star-shaped, axial, fan-shaped, looped, cross-shaped, and combined planning structures. In four PMLAs there are artificial and natural reservoirs, fountains. Five parks are combined (memorial park and park of culture and recreation), where memorial complexes, monuments, and obelisks are concentrated. Park plantings are represented by groups, solitaires, alleys, ordinary plantings, hedges, and sometimes groves and wooded areas. 176 species of woody plants grow on the territory of 11 PMLAs, of which 119 are listed in the IUCN Red List. Since the beginning of its creation, the number of species has increased by 75-129% in four parks, and the dendro-diversity has decreased in six parks, with 29-87% of woody plant species remaining, including 66-94% of arboretums. 11 PMLAs are valuable centres of dendro-diversity and unique plantings of Ukrainian Polissya, an example of the establishment of didactic, ethnographic, memorial, children’s, cultural, and recreational combined parks that require further protection and expansion of the area and collection. Some parks require landscaping

**Keywords:** history, park, species, planning structure

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## Introduction

Protected areas are key to preserving biodiversity. Parks-monuments of landscape art (PMLA) are part of the natural and artificial landscape, where changes occur due to anthropogenic actions and under the influence of abiotic and biotic factors. Human activity eventually turns into history, and the landscapes created by it become a cultural heritage. Restoration and preservation of landscapes, valuable plantings, and rare woody plant species are of great importance for future generations (WWF Ukraine, 2020).

A number of studies in various areas were conducted in the Ukrainian Polissya. Savoskina & Popovych (2019) analysed the structural floral analysis of the species composition of dendrosozoexotes, in particular, century-old trees, found out the role of dendrosozoexotes in landscape phytodesign, and described the history of the park construction network. Pokotylova (2018) investigated the ecological and geographical structure of dendroflora in 25 artificial protected parks of the Rivne Oblast, some of which are located in the Ukrainian Polissya. Kotsun et al. (2010) considered the history of creation, compositional construction, and species composition of the PMLAs of the Volyn Polissya of the 19 century – “Zdorovya”, “Litynskyi”, “Lyubeshivskyi”, “Makarevychivskyi”, and the 20<sup>th</sup> century – “Dubechne”. Klimenko (2010) established the modern composition of species and cultivars of ancient Polissya PMLAs “Zdorovya”, “Ivnytskyi”, “Horodnytskyi”, distributed their green area by types of garden and park landscapes. The historical features of the establishment of the network of PMLAs of the Ukrainian Polissya during the 17<sup>th</sup>-20<sup>th</sup> centuries were considered (Savoskina, 2015). The current state of PMLA “Bayrak” (Volyn Oblast) was investigated (Kotsun, Kuzmishyna & Kotsun, 2010), and the species composition and bioecological features were summarised *Pinopsida* (Tsikhotska & Kotsun, 2011), a model ecological trail was developed (Dzyba & Pokotylova, 2016), functional zoning and the values of the “Bayrak” park were highlighted (Pokotylova & Dzyba, 2016). The study analyses the state of 14 PMLAs and their representativeness in the Volyn

Oblast, among them 8 parks located in the Ukrainian Polissya: “Bayrak”, “Dubechnenskyi”, “Zdorovya”, “Litynskyi”, “Lyubeshivskyi”, “Makarevychivskyi”, “Sadyba Lypynskoho”, “Slovianskyi” (Boiaryn, Voloshyn & Tsos, 2020). Century-old trees of the “Zhornivskyi” PMLA were studied in Kyiv Polissya (Kushnir, Sukhanova & Snihyr, 2016). In Chernihiv Polissya, a comparative analysis of the dendroflora of the botanical nature monument “Horodnyanskyi Square” and PMLA “Horodnyanskyi” was carried out (Dzyba & Shytiuk, 2015). In Volyn Polissya, the dendroflora of PMLA “Klevanskyi Park” was investigated (Dzyba, 2016) in the historical aspect of the establishment of PMLA “Novostavskyi arboretum” (Dzyba, 2020). Sherstiuk & Popovych (2018) analysed the representativeness of autochthonous dendrosozophytes in the protected areas of the Ukrainian Polissya, determined their role in the establishment of phytocompositions. Thus, in Ukrainian Polissya, no comprehensive study of PMLAs of the second half of the 20<sup>th</sup> century has been conducted. In addition, PMLAs are a component of the historical environment, which is transformed over time, which can lead to changes in their planning structure and dendro-diversity, so it is now relevant to identify the features of the establishment of the mentioned PMLAs for 70 years.

The purpose of the study is to identify the features of the establishment (history, planning structure, types of plantings, dendroflora) of parks-monuments of landscape art of the second half of the 20<sup>th</sup> century in Ukrainian Polissya based on the compartment description.

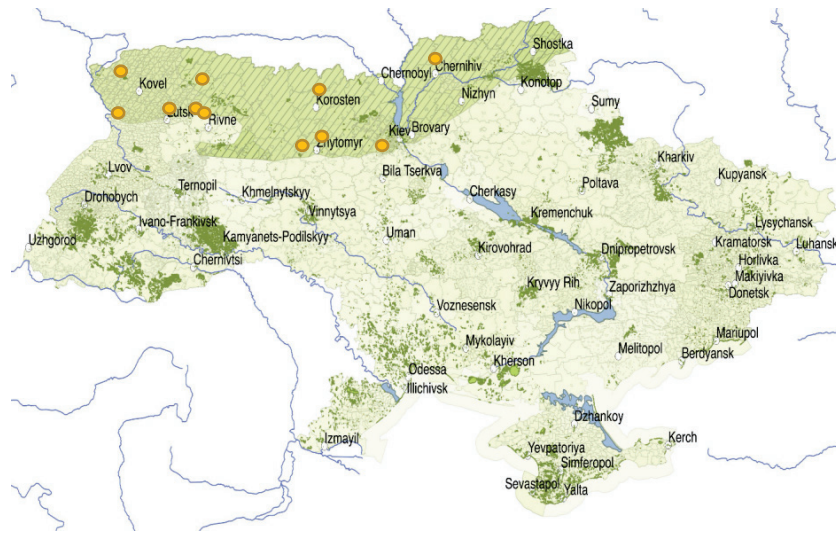
## Materials and Methods

A systematic approach and comparative analysis of factual material are applied. The study was conducted in three stages. The first stage is the investigation of archival materials. The second is reconnaissance, survey of the planning structure of parks by the route method, and grouping according to the reference composition of the road and trail network (axial, cross-shaped, star-shaped, fan-shaped, loop, and combined)

(Rudenko, Elenskaia, Aleksandrov, Herasymchyk & Potaev, 1980). The third stage – detailed route, during which woody plants and their species were described (Spohn & Spohn, 2014; Kokhno *et al.*, 2001), species name – according to the International Classification (World Flora Online, 2021). Woody plant species were tested for belonging to the International Union for Conservation of Nature (IUCN) Red List of Threatened Species (the IUCN Red List, 2021). The authors of this study identified types of green spaces in the PMLA (alleys, solitaires, groups, groves, wooded areas, hedges) (Bohovaia & Fursova, 1988).

## Results and Discussion

11 parks-monuments of landscape art (PMLA) of the Ukrainian Polissya, created during the last fifty years of the 20<sup>th</sup> century, were studied. PMLA is concentrated in five regions: Volyn (“Dubechnenskyi”, “Bayrak”, “Slovyanskyi”), Rivne (“Novostavskyi arboretum”, “Klevanskyi”, “Antonivka”), Zhytomyr (“Vysokovskyi”, “Bondaretskyi”, “Ovrutskyi”), Kyiv (“Zhornivskyi”), Chernihiv (“Horodnyanskyi”) (Fig. 1). Among them are PMLA “Dubechnenskyi”, “Bayrak” – of national significance, the rest of PMLAs – of local significance.



**Figure 1.** Parks monuments of landscape art of the second half of the 20<sup>th</sup> century in Ukrainian Polissya

By location in the planning structure of localities, these are citywide, rural, and district parks. Approaches to creating parks vary. Parks created based on existing plantings, such as parks of culture and recreation, meadow park, children’s park, arboretum, have been transformed over time or have been granted the status of PMLA. “Klevanskyi”, “Antonivka”, “Bondaretskyi” parks were created on the basis of oak forests, in order to preserve plantings of *Quercus robur* L. over 100 years old, “Ovrutskyi” – based on artificial plantings of *Acer platanoides* L., *Carpinus betulus* L., *Fraxinus excelsior* L., *Tilia cordata* Mill., which now serve as recreation areas for community residents. “Bondaretskyi” was transformed into a children’s park on the territory of a children’s

camp, it is not functioning now. “Dubechnenskyi”, “Bayrak”, “Novostavskyi”, “Zhornivskyi” – arboreta that eventually transformed into PMLA, and the area of “Novostavskyi” park decreased by 20 times. “Vysokovskyi”, “Horodnyanskyi”, Slovyanskyi – parks of culture and recreation, and part of the PMLA “Slovyanskyi” is also a meadow park.

PMLA “Dubechnenskyi” (Dubechne village, Kovel district, Volyn Oblast) was created in four years from 1956 to 1960 on the initiative of the Honoured Forester of Ukraine A.L. Dmytruk (Kotsun *et al.*, 2010). During this time, 123 species of autochthonous and introduced woody plants were planted, in particular *Chamaecyparis pisifera* Sieb. Zuss., *Catalpa bignonioides* Walter., *Platanus occidentalis* L.,

*Fagus sylvatica* L. and others. The status of PMLA of national significance was granted in accordance with Presidential Decree No. 715/96 of 20.08.1996 (The protection obligation No. 24, 2012). The area is 2 hectares (Dubchnivske forestry, compartment 29, stratum 24 (area 1.1 ha) and compartment 30, stratum 27 (area 0.9)) (Fig. 2, b). There is an artificial reservoir on the territory of PMLA “Dubchnenskyi” (Fig. 2, c). Combined layout structure (Fig. 2, a). The following types of

plantings were found in the park: groups, solitaires, ordinary plantings of *Picea abies* Karst., *Picea engelmannii* Parry ex Engelmann., alleys with *Thuja occidentalis* L., *Chamaecyparis pisifera* Sieb. Zuss., *Tilia cordata* Mill. Currently, the park’s dendroflora is represented by 64 species of woody plants (21 families, 45 genera). 51 species belong to the IUCN Red List (Fig. 6), among them *Juglans cinerea* L. – to disappearing categories (EN), *Aesculus hippocastanum* L. - vulnerable (VU).

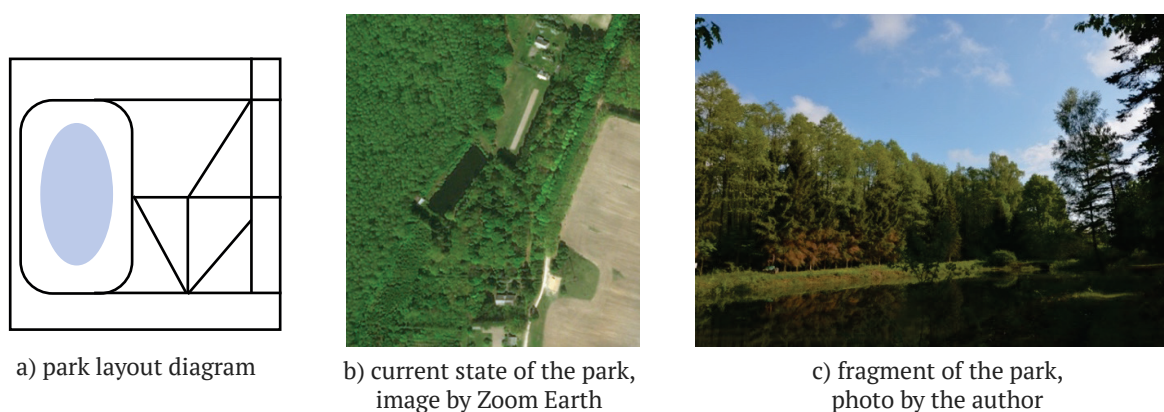


Figure 2. PMLA “Dubchnenskyi”

PMLA “Bondaretskyi” (Bondartsi village, Zhytomyr district, Zhytomyr Oblast). The area of the park is 1.8 hectares (Korabelne forestry, compartment 20, stratum 4 (Fig. 3, b)). This is a former plot of forest stands of the oak grove, which was transformed into a children’s park as a place of recreation for children. The status of PMLA was provided by the decision of the Zhytomyr regional executive committee No. 149 of 31.03.1964. At the beginning of the reconstruction

of the park (1964), 21 species of woody plants were growing, including six 600-year-old specimens of *Quercus robur* L., 75 100-year-old specimens of *Quercus robur* L., 40 100-year-old specimens of *Acer platanoides* L., 50 100-year-old specimens *Carpinus betulus* L., five specimens of *Tilia cordata* Mill., and also *Aesculus hippocastanum* L, *Acer negundo* L, *Picea abies* Karst. (alley) and other species aged 15-40 years old Passport No. 36, 1970).



Figure 3. PMLA “Bondaretskyi”

Currently, 18 species of woody plants (eight families, 14 genera) aged from 50 years grow on the territory of the park in groups and as solitaires of *Quercus robur* L., *Carpinus betulus* L. (fig. 3, c), *Populus nigra* L. The oldest – 430-year-old *Quercus robur* L., 170-year-old *Carpinus betulus* L. The planning structure of the park is axial (Fig. 3, a). 17 species of woody plants belong to the IUCN Red List (Fig. 6), 14 types have least concern (LC) category.

PMLA “Ovrutskyi” (Ovruch, Korostensky district, Zhytomyr Oblast) (Fig. 4, b). Area – 1.2 ha. The status of PMLA was granted in accordance with the decision of the Zhytomyr regional executive committee No. 149

of 31.03.1964 (The protection obligation, 2010). At the beginning of the park’s creation, there were 15 species of woody plants. The park has a star-shaped planning structure (Fig. 4, a) with a fountain in the centre. Plantings are represented by groups mainly of *Acer platanoides* L., *Aesculus hippocastanum* L., *Carpinus betulus* L., *Fraxinus excelsior* L., *Tilia cordata* Mill., *Tilia platyphyllos* Scop. (Fig. 4, c), ordinary plantings of *Picea abies* Karst. Age of *Acer platanoides* L., *Carpinus betulus* L., *Fraxinus excelsior* L. and some *Tilia cordata* Mill. makes up 130-180 years old. The number of species is still unchanged – 15, all 9 families and 12 genera belong to the IUCN Red List (Fig. 6).

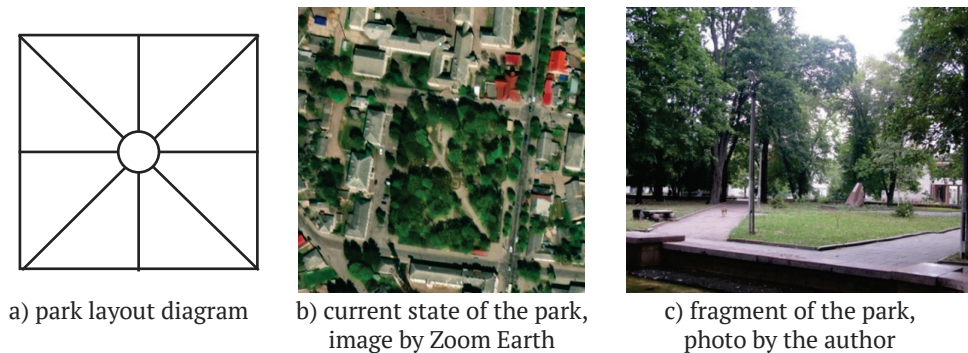


Figure 4. PMLA “Ovrutskyi”

PMLA “Park Antonivka” Antonivka village, Varaskyi district, Rivne Oblast). Area – 9.7 ha. The park is arranged on the basis of plantings of *Quercus robur* L. aged more than 100 years, for the purpose of their safety (Passport No. 2MSPM, 1995) (Fig. 5). Created in accordance with the decision of the Rivne regional council No. 33 of 28.02.1995 (Antonova *et al.*, 2008). Now the park serves as a recreation area for residents of the community. The planning structure is combined. In the southern

part of the park there is a monument to soldiers who died during the Second World War. On the territory of the park there are such types of plantings as wooded areas, groups, hedges (Table 1). At the beginning of the park’s creation, there were 23 species of woody plants. Currently, 41 species of woody plants (15 families, 29 genera) grow on the territory of the park, of which 32 species belong to the IUCN Red List (Fig. 6) (least concern category (LC) – 31 types).

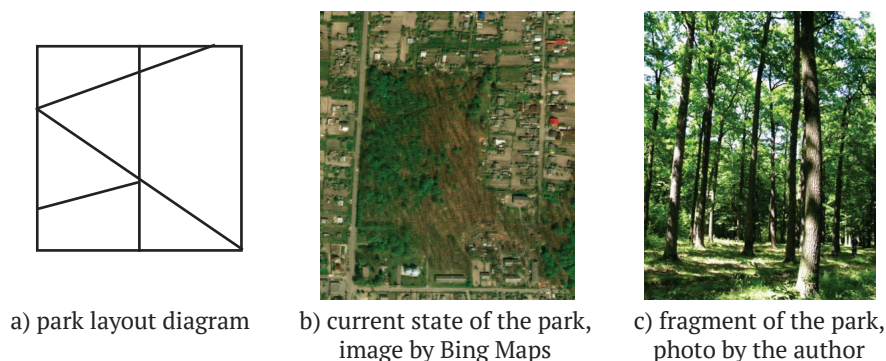
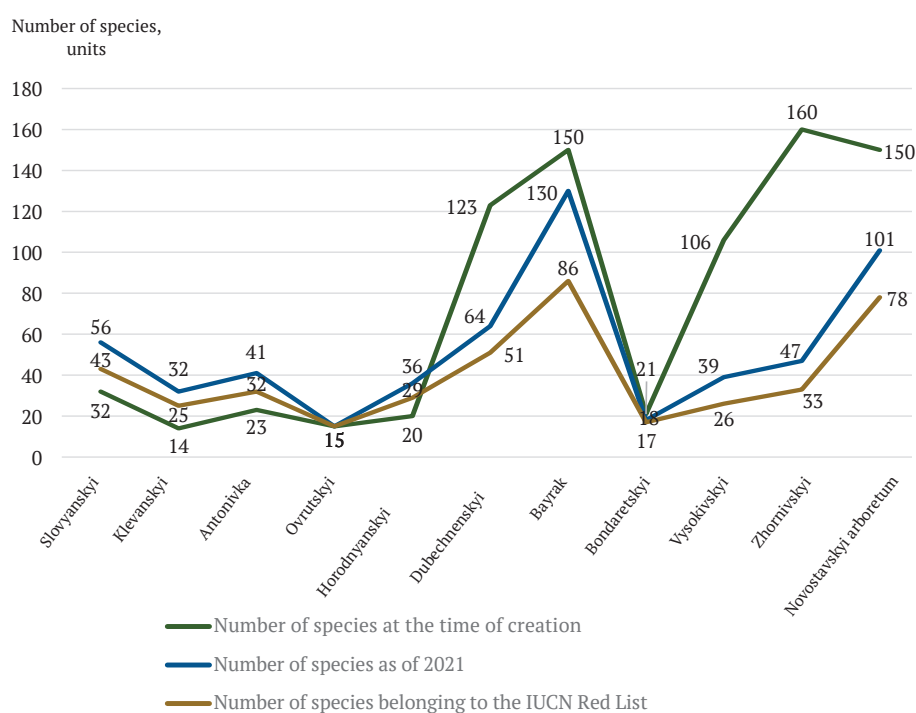


Figure 5. PMLA “Antonivka”

**Table 1.** Characteristics of PMLAs of the second half of the 20<sup>th</sup> century in Ukrainian Polissya

PMLA	Park area at the beginning of creation	Area, ha	Year of creation and reconstruction	Year of granting the status	Planning style	Presence of a reservoir, fountain	Availability of a memorial, monument, obelisk, or museum	Origin of the plantation	Types of plantings
Dubechnenskyi	2.0	2.0	1956-1960	1996	c	+	-	a	gr, al, sol, h
Bayrak	13.0	13.0	1975-1977	1996	c	+	+	a	gr, al, sol, h, g, row
Slovyanskyi	27.53	27.53	1988	1997	c	+	+	a	gr, al, sol, row, h
Novostavskyi	30.0	1.5	1967	1972	row	-	- (was)	a	gr, al, sol, h
Klevanskyi	7.0	7.0	1967	1967	l	-	+	n	gr, wo
Antonivka	9.7	9.7	1993	1993	l	-	+	n	gr, wo, h
Vysokivskyi	6.55	6.55	1963	1973	row	+	+	a	gr, a, sol
Bondaretskyi	1.8	1.8	1963	1963	l	-	-	n	gr
Ovrutskyi	1.2	1.2	1964	1964	row	+(f)	+	a	gr, row
Zhornivskyi	5.2	5.2	1969-1972	1972	c	-	-	a	gr, h, sol, wo
Horodnyanskyi	10.0	10.0	1959-1966	1972	row	-	-	a	gr, a, row, g

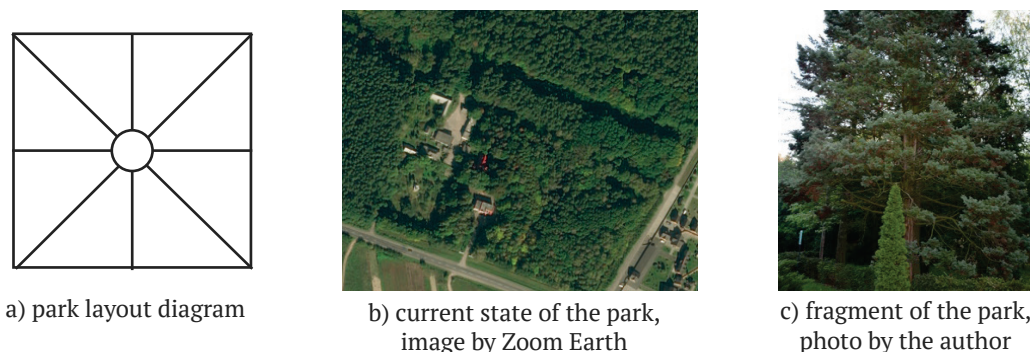
**Note:** layout structure – r (regular), l (landscape), c (combined); origin of plantings – a (artificial), n – (natural); types of plantings – gr (groups), al (alleys), sol (solitaires), row (row seating), h (hedges), g (grove), wo (wooded area); f – fountain.



**Figure 6.** Dynamics of changes in the number of species in PMLAs of the second half of the 20<sup>th</sup> century

PMLA “Novostavskiy arboretum” (Novostav, Rivne district, Rivne Oblast) (Fig. 7, b). Area – 1.5 hectares. The creation of the arboretum began in 1967 (Novostavske forestry, compartment 39, stratum 22). The territory of the arboretum covered a forestry estate with buildings (0.8 ha), a greenhouse farm (0.2 ha), an arboretum (4.0 ha), a forest area with *Pinus sylvestris* L. of more than 100 years-old (25 hectares) and small architectural forms. The area of the arboretum was 30 hectares. The park was divided into sectors with plantings of *Larix* Mill., *Pinus* L., *Acer* L., *Fraxinus* L., *Juglans* L. Along the paths there are memorable alleys: “Friendship”, “Joy”, “Happiness”, “Juniors”, “Participants of the All-Union seminar” planted with *Tilia cordata* Mill., *Tilia platyphyllos* Scop., *Quercus rubra* L., *Juglans* L. and combined C *Tilia tomentosa* Moench. and *Acer platanoides* L.; *Betula pendula* Roth. and *Picea abies* Karst., *Acer platanoides* L., *Aesculus hippocastanum* L. and *Acer negundo* L., *Tilia cordata* Mill. At the intersection of paths in the

centre, a monument was erected, which was eventually removed. The status of PMLA was granted to “Novostavskiy arboretum” by the decision of the Rivne Regional Executive Committee No. 317 of 20.06.1972 and No. 343 of 22.11.1983 (Dzyba, 2020). The planning structure of the arboretum is star-shaped (Fig. 7, a). At the beginning of the creation of the park, 150 species of woody plants were planted; some of them have survived to this day (Fig. 7, c). However, over time, their number gradually decreased: in 1983 – 130 species, in 2020 – 101 species (24 families, 57 genera), of which 78 species belong to the IUCN Red List (66 species – least concern category (LC), *Aesculus hippocastanum* L. – vulnerable category (VU), *Platycladus orientalis* (L.) Franco and *Fraxinus excelsior* L. – near threatened (NT), *Fraxinus pennsylvanica* Marsh. – critically endangered (CR), *Juglans cinerea* L., *Malus niedzwetzkyana* Dieck ex Koehne. – belong to the endangered category (EN), and 6 species belong to the DD category.



**Figure 7.** PMLA “Novostavskiy arboretum”

PMLA “Bayrak” (Rokyni village, Lutsk district, Volyn Oblast). The initiator of the arboretum park is P.S. Teslyuk (director of the state agricultural station). The arboretum project was developed in 1974. Volyn branch of Dipromisto (author – V.A. Tupitsa) (Kotsun, Kuzmishyna & Kotsun, 2010). During 1975–1977, the “Rokytnivskiy arboretum park” was established on the territory of the regional research and production association “Elite” on an area of 13 hectares and 250 species of woody plants were planted (Pokotylova & Dzyba, 2016). Since 1990, PMLA “Bayrak” has been protected, subordinated to the

Museum of agricultural history of Volhynia – Skansen and has become part of the open-air exhibition. The status of PMLA of national significance “Bayrak” was granted by Presidential Decree No. 715/96 (Appendix 3) of 20.08.1996. On the territory of PMLA “Bayrak” there are five garden and park landscapes: forest, meadow, park, garden and regular (Dzyba & Pokotylova, 2016). The compositional structure of the park is based on the landscape style, with elements of a regular one in the parterre (Kotsun, Kuzmishyna & Kotsun, 2010). The main plantings form areas of forest and park type, which serve as

a backdrop for groups and solitaires (Tsikhotska & Kotsun, 2011).

The planning structure of the PMLA is looped (Fig. 8, a, b). Plantings are represented by alleys, groves, solitaires, hedges, row plantings, groups (Fig. 8, c). Since the creation of the park, the number of

woody plant species has been constantly decreasing, in particular, in 2010, 143 species of woody plants grew on the territory of PMLA “Bayrak” (Pokotylova & Dzyba, 2016), and now there are 130 species of woody plants (30 families, 73 genera), of which 86 species belong to the IUCN Red List.



**Figure 8.** PMLA “Bayrak”

PMLA “Slovianskyi” (Volodymyr-Volynskyi, Volodymyr-Volynskyi district, Volyn oblast). In 1988, the park “Slovianskyi” was created (the project was developed by the Lviv design and restoration workshop for the restoration of historical and cultural monuments) on the territory of a low-lying (eutrophic) swamp on an area of 27.53 hectares, which is a floodplain of the Luha River between the Rylovytsia and Smochche rivers. In the upper part of the park, adjacent to the floodplain of the river on an area of 10.2 hectares, there is a park of culture and recreation, in the other part – a meadow park (located in its natural state). Pedestrian paths are mostly made of sand, so they do not affect the natural state and flora of this territory. In 1988, the “Prince’s alley” was built, sculptures of the princes of Kievan Rus were installed. There is also a monument to Taras Shevchenko in the park. The status of PMLA was

granted in accordance with the decision of the regional council No. 12/4 of 04.11.1997. On the territory of the park there are two “Slovianski springs” (natural monuments of local significance, decision of the regional executive committee No. 134 of 18.03.1982) (Regulations, 1999).

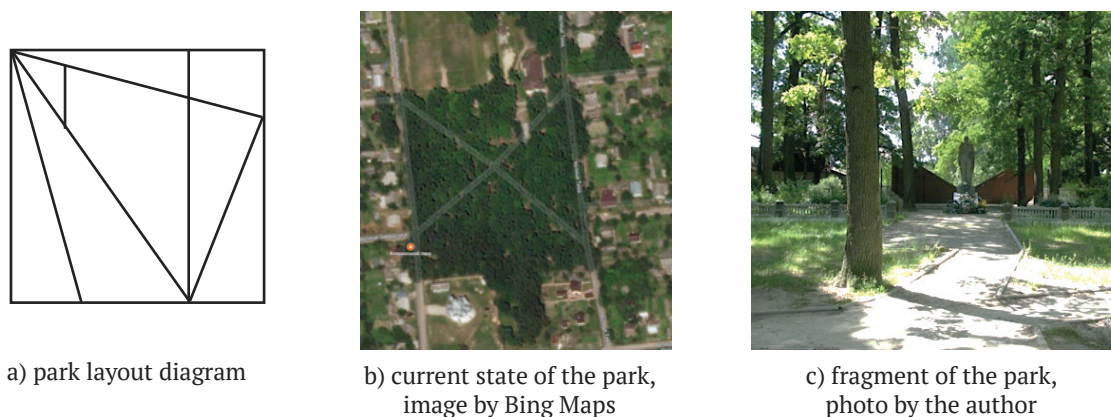
The planning structure of PMLA “Slovianskyi” is combined (axial and fan-shaped) (Fig. 9, a, b). There are the following types of plantings on the territory: alleys, groups (Fig. 9, c), row plantings, solitaires, hedges (Table 1). Now there are 56 species of woody plants growing (*Thuja occidentalis* L., *Larix decidua* Mill., *Larix kaempferi* (Lamb.) Carrière., *Fraxinus angustifolia* Vahl., *Cercidiphyllum japonicum* Siebold & Zucc. ex J.J. Hoffm. & J.H. Schult.bis., *Juglans regia* L. etc.). 43 species – belong to the IUCN Red List (Fig. 6), of which 37 species have the least concern (LC) category.



**Figure 9.** PMLA “Slovyanskyi”

PMLA “Klevanskyi park” (Klevan village, Rivne district, Rivne Oblast). Area – 7 hectares. Klevansky Park in 1967 was taken under protection on the basis of the decision of the executive committee of the Rivne regional council of people’s deputies No. 818 of 10.10.1967, No. 317 of 20.06.1972, No. 343 of 22.11.1983 (appendix No. 5) and granted the status of PMLA. The park is a remnant of an old oak grove, the plantings are represented mainly by *Quercus robur* L. of different ages, the oldest are 250-300 years old. On the territory there is a house of culture, a sports field, an Orthodox church, a memorial to soldiers who died in the Second World War (Dzyba,

2016) (Fig. 10, c). It is used as a place of recreation. Planning structure – fan-shaped (Fig. 10, a, b). The following types of plantings were identified in the “Klevanskyi park”: hedge (*Buxus sempervirens* L.), hedge (*Caragana arborescens* Lam.), row plantings (*Chamaecyparis pisifera* Sieb. et Zucc. and *Thuja occidentalis*), groups of *Populus simonii* Carr. and *Robinia pseudoacacia* L., *Tilia platyphyllos* Scop., *Tilia cordata* Mill. etc. In 1967, 14 species of woody plants grew. Currently, the dendroflora of PMLA “Klevanskyi park” is represented by 33 species, one hybrid of woody plants (15 families, 27 genera), of which 25 species are included in IUCN Red List (Fig. 6).



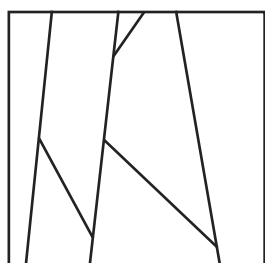
**Figure 10.** PMLA “Klevanskyi park”

PMLA “Zhornivski” (Zhornivka village, Fastiv district, Kyiv oblast). Area – 5.2 hectares. The “Yubileynyi” arboretum was founded during 1969-1972 by forester V.S. Galytskyi on the project of a researcher at the I.N. Hegelsky Boyarka Forest Experimental

Station (FES) in Zhornivskyi forestry of Boyarka FES (compartment 55, stratum 8, 9, compartment 56, stratum 1) (Kushnir, Sukhanova & Snihyr, 2016). Memorial cascades have been created in the park: “Kyivskyi”, “Komsomolskyi”, “Icebergs”, “Earth-Moon”

and “Love” (Sukhanova & Snihyr, 2015). The status of PMLA “Zhornovsky” is granted in accordance with decision of the Kyiv regional council of workers No. 118 of 28.02.1972 (Vasyliuk *et al.*, 2012). It has fan-shaped planning structure (Fig. 11, a, b). At the beginning of

the park, 160 species of woody plants grew, but over time their number has decreased and now amounts to 47 species (19 families, 33 genera), of which 33 species belong to the IUCN Red List (Fig. 6). Plantings are represented by arrays, groups, solitaires, hedges (Table 1).



a) park layout diagram

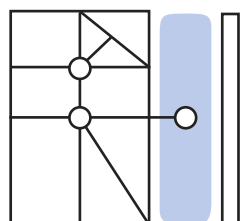


b) current state of the park, image by Google Maps

Figure 11. PMLA “Zhornivskiy”

PMLA “Vysokivskiy” (Vysoke village, Zhytomyr district, Zhytomyr Oblast). Area – 6.55 hectares (Passport No. 69, 1974). The park was established as a memorial on October 25, 1963 (now it is a place of recreation for residents of the community) according to the project of S.K. Bukata and V.M. Khapchuk. In 1963, 106 species of woody plants were planted (*Quercus robur* L., *Quercus rubra* L., *Salix babylonica* L., *Juglans regia* L., *Juglans manshurica* Maxim., *Juglans manshurica* Maxim., *Cotinus coggygria* Scop., *Populus alba* L. etc.). The park has a depression in the north-west, where a reservoir with an area of 1.55 hectares is formed (Fig. 12, c), in the centre of which is an island (Fig. 12, b). In the centre of

the park, there is an obelisk with a list of villagers who died during the Second World War. An alley of *Populus nigra* var. *italica* Münchh., the number 50 and the star from *Picea abies* Karst. were planted on the opposite side of the pond, which today are preserved only in fragments. The status of PMLA was granted by the decision of the Zhytomyr regional executive committee No. 505 of 29.12.1974 (Passport No. 69, 1974). The planning structure of the PMLA is cross-shaped (Fig. 12, a). Currently, 39 species of woody plants (18 families, 27 genera) grow in the “Vysokivskiy” PMLA, 26 of which belong to the IUCN Red List (Fig. 6). Plantings are represented by solitaires, groups, and alleys (Table 1).



a) park layout diagram



b) current state of the park, image by Bing Maps



c) fragment of the park, photo by the author

Figure 12. PMLA “Vysokivskiy”

PMLA “Horodnyanskyi” (Horodnya, Chernihiv district, Chernihiv Oblast) began to be created in 1959 on an area of 10 hectares for recreation of city residents. The initiator of the park’s creation was V.I. Konon. The development of the planning structure of the park and its implementation was carried out under the supervision of P.A. Dolsky with the participation of K.T. Chorny, the director of the boarding school I.N. Osypenko and his pupils. The park is rectangular in shape (Fig. 13, b) was divided

into eight sectors (Fig. 13, a), in the center there was a clearing with a diameter of 100 m, an area of 1.0 hectares (preserved to this day, Fig. 13, c). Within two years, alleys were planted along the sectors and a row planting of *Tilia cordata* Mill., *Tilia platyphyllos* Scop. around the clearing, along the northern and western borders of the park – an alley of *Populus nigra* L. In 1960-1961, *Pinus sylvestris* L. were planted in sectors 2 and 3, *Risea abies* (L.) Karst. – in sectors 4 and 6, and *Betula pendula* Roth. – in 5 and 8.



**Figure 13.** PMLA “Horodnyanskyi”

From 1963 to 1966, plantings were supplemented. In 1966, 20 species of woody plants grew in the park. In the future, anniversary plantings were carried out in 1967 (50 trees of *Quercus rubra* L.), 1970 (100 trees of *Acer platanoides* L.) and 1975 (30 trees of *Quercus robur* L.). In 1978, the park was granted the status of PMLA (decision of the Chernihiv regional executive committee No. 529 of 04.12.1978). In 1981, there were 37 species of woody plants in the park (Dzyba & Shytiuk, 2015). The planning structure of the park is regular and star-shaped. Plantings are represented by alleys, row plantings, groves, and groups. Currently, 36 species (28 genera, 15 families) grow on the territory of the park, conifers are sparsely distributed and are represented by *Picea abies* Karst., *Pinus sylvestris* L. and *Larix decidua* Mill. (five specimen). 29 species belong to the IUCN Red List (Fig. 6), among them *Aesculus hippocastanum* L. – vulnerable category (VU), *Fraxinus excelsior* L. – near threatened (NT), *Juglans cinerea* L. – endangered (EN).

Thus, 176 species of woody plants grow on the territory of 11 PMLAs, of which 119 species are listed

in the IUCN Red List (57% – category of least concern (LC)) (Dzyba, 2021). In four parks, the number of species has increased by 75-129% since the beginning of its creation, and the number of arboreal rarities is 77-81%. In six parks, dendro-diversity decreased by 13-71%, with 29-87% of woody plant species remaining, among which 66-94% are arboreal rarities. The results confirm the significance of PMLAs of Ukrainian Polissya and the need to replenish collections of woody plants.

## Conclusions

PMLAs, created during the second half of the 20<sup>th</sup> century, are located unevenly in the Ukrainian Polissya. Three PMLAs are represented in Volyn, Rivne, Zhytomyr oblasts, and only one in Kyiv and Chernihiv oblasts. Three PMLAs are created on the basis of natural oak stands, “Ovrutskyi” – based on artificial stands. The remaining seven parks were rebuilt from autochthonous and introduced woody plant species. They have regular, landscape, and combined planning styles, in size – small, medium, large with star-shaped,

axial, fan-shaped, loop, cross-shaped, and combined planning structures. On the territory of four PMLAs, there are reservoirs and memorial complexes, monuments, an obelisk in honour of those who died in the Second World War. On the territory of PMLA “Slovyanskyi”, there is a monument to T.H. Shevchenko and a memorial “Prince’s Alley”. A Museum of agricultural history of Volhynia – Skansen was created on the territory of PMLA “Bayrak”. 176 species of

woody plants grow on the territory of 11 PMLAs, of which 119 are listed in the IUCN Red List.

11 PMLAs are valuable centres of dendro-diversity and unique plantings of Ukrainian Polissya, an example of the establishment of didactic, ethnographic, memorial, children’s, culture and recreation, combined parks that require further protection and expansion of the area and collection. Some parks require landscaping.

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## Особливості формування парків-пам'яток садово-паркового мистецтва другої половини ХХ століття Українського Полісся

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**Анотація.** Проаналізовано формування парків-пам'яток садово-паркового мистецтва (ППСПМ) в історичному аспекті. На Українському Поліссі у другій половині ХХ ст. створено 11 парків-пам'яток садово-паркового мистецтва: два загальнодержавного і дев'ять місцевого значення. Призначення ППСПМ – охорона та збереження найбільш визначних і цінних зразків паркового будівництва з метою їхньої використання в естетичних, виховних, наукових, природоохоронних та оздоровчих цілях. Мотивацією до створення ППСПМ було збереження, відтворення та збагачення в умовах Українського Полісся дендрорізноманіття. У парках висаджували технічні, швидкорослі, рідкісні, цінні для лісового та садово-паркового господарства види деревних рослин із подальшим використанням їх із науковою та господарською метою. Частина насаджень у парках були пам'ятними, ювілейними або присвяченими знаменним подіям (річниці Жовтневої революції та дню народження В.І. Леніна). На Українському Поліссі є три парки, що створено на основі наявних дубових насаджень («Клеванський парк», «Парк Антонівка», «Бондарецький»), один – на основі штучних насаджень з *Acer platanoides* L., *Carpinus betulus* L., *Fraxinus excelsior* L., *Tilia cordata* Mill. («Овруцький»). Три парки культури і відпочинку («Городнянський», «Високівський», «Слов'янський», зокрема лугопарк «Слов'янський»), дитячий парк («Бондарецький»), чотири дендропарки («Дубечненський», «Байрак», «Новоставський парк», «Жорнівський») з часом трансформувались або їм було надано статус ППСПМ. За розміщенням у планувальній структурі населених пунктів виділяють загальноміські, сільські та районні парки. За розмірами є ППСПМ малі, середні, великі з зірчастою, осьовою, віялоподібною, петельною, хрестоподібною та комбінованою планувальною структурами. У чотирьох ППСПМ є штучні та природні водойми, фонтан. П'ять парків є комбінованими (меморіальний та парк культури і відпочинку), де зосереджено меморіальні комплекси, пам'ятники, обеліск. Насадження парків представлені групами, солітерами, алеями, рядовими посадками, живоплотами, іноді галями та масивами. На території 11 ППСПМ зростає 176 видів деревних рослин, із них 119 занесені до Червоного списку Міжнародного союзу охорони природи. У чотирьох парках від початку створення збільшилась кількість видів на 75-129 %, у шести парках дендрорізноманіття зменшилось, залишилось від 29 до 87 % видів деревних рослин, серед них 66-94 % дендрораритети. 11 ППСПМ є цінними осередками дендрорізноманіття та унікальних насаджень Українського Полісся, прикладом формування дидактичних, етнографічного, меморіальних, дитячого, культури та відпочинку, комбінованих парків, які потребують подальшої охорони та розширення площі й колекції. Деякі парки потребують реконструкції насаджень

**Ключові слова:** історія, парк, види, планувальна структура