

STRUCTURAL ANALYSIS OF DENDROFLORA OF PARK-SIGHT OF PARK AND GARDEN ART «CHERNIVTSI CULTURE AND RECREATION PARK OF SHEVCHENKO»

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This article represents short historical reference of the foundation of the park. Taxonomical, biomorphological, ecological and geographical analysis of dendroflora of the park has been undertaken. It is established that the species composition of tree Rastasite research quite rich and diverse. In this park middle-european type of species constitute an advantage. A dominant kind of hydromorphs is mesophytes. According to the trophic index mesotrophic group prevails.

Park-sight of park and garden art, dendroflora, taxonomic analysis, biomorphological analysis, geographical analysis, ecological analysis.

The Chernivtsi Central Culture and Recreation Park of Shevchenko was founded in 1830. At first it was called The People's Garden. It was founded on the place of natural tract of forest by replacing some wild trees on ornamental species of shrubs and other plants. According to a decision of Chernivtsi municipal city council natural tract of forest was partly cut down, the main avenue and several transversal alleys were cut. History testifies that large role in organization of The People's Garden, besides architect K.T. Tomashuk, played regional engineer Adolf Marin, who ordered to plant on its area of 24 yokh's and 1495 cluster's 35 thousand bushes and trees. Thus, quite a bit of unique and rare species, left from the Europe, appeared in the park. A considerable reconstruction of The People's Garden was made at 70-th of XIX century, which was conducted with the use of landscape method, and also significant amount of introducents was planted. At 1900-1908-th the authorities conducted next reconstruction of The People's Garden. The People's Garden was renamed into the Central park of culture and recreation of Kalinin according to the decision of Chernivtsi Executive Committee from 11th of March 1946. In 1990 Kalinin's park was renamed into Shevchenko's park. Park's area constitutes near 17 hectares and it is the basic site of cultural rest of residents of Chernivtsi [3].

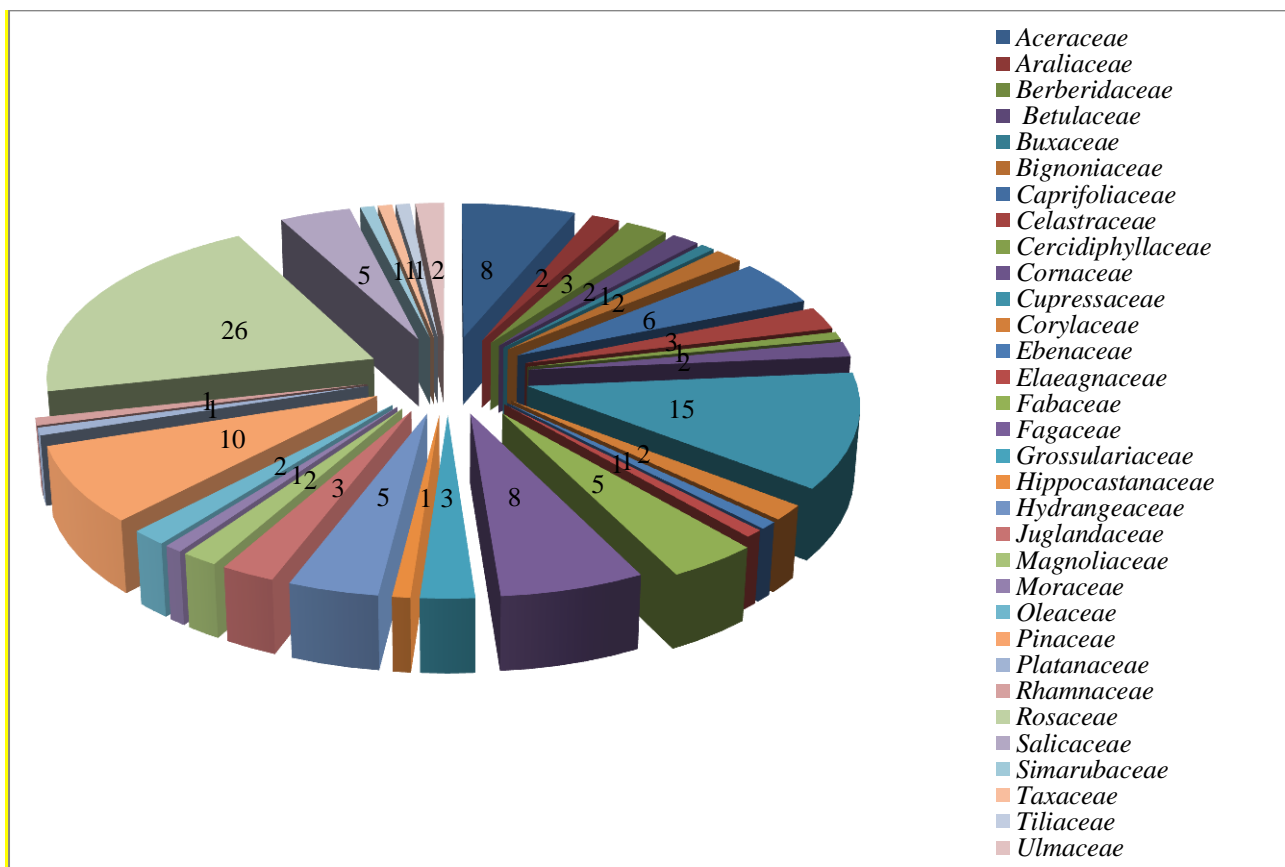
The aim of the research is to conduct the structural analysis of the park planting in order to preserve existing and introduction, in case of necessity, of new species of arboreal plants.

Materials and methods of research. The object of research was the flora of park-sight of park and garden art (further PSPGA) "Chernivtsi Park of culture and leisure. Shevchenko". Taxonomic analysis is based on methodology that is traditionally used in such studies [2]. To allocate the biotopes we used the classification, which was proposed by K. Raunkiaer in 1905 [4]. Geographical analysis of the PSPGA «Chernivtsi Culture and Recreation Park of Shevchenko» dendroflora we conducted on the basis of species belonging to the floristic areas of the Earth [2]. Environmental analysis decorative flora study area was carried out also on the basis of the traditional approach [1]. For establishment of ecological patterns we have determined spectra of ornamental species against humidity and eutrophication of the soil.

Research results. On the territory of PSPGA «Chernivtsi Culture and Recreation Park of Shevchenko» grows 127 species of trees and bushes, which belong to two division's: *Pinophyta* (20 %) and *Magnoliophyta* (80 %), two classes: *Pinales* (20 %) and *Magnoliopsida* (80 %), 27 orders, among them the *Rosales* order represents the biggest amount of species – 26, and 32 families (pic. 1).

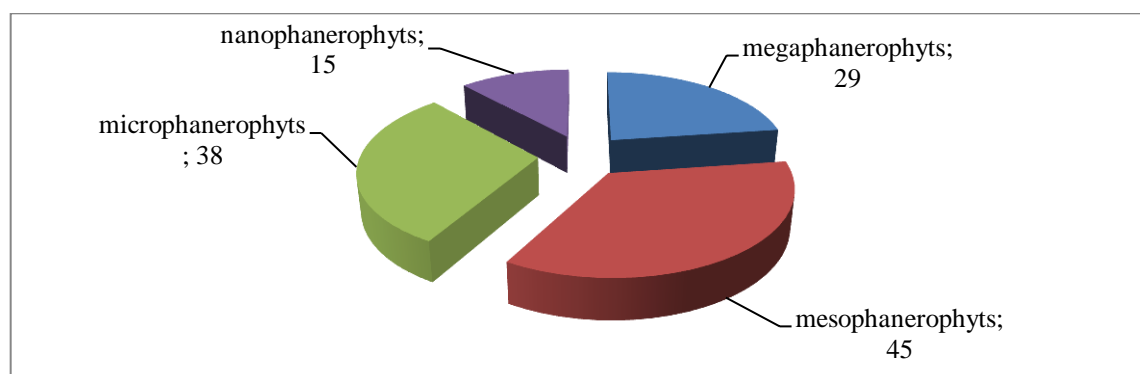
The *Rosaceae* family includes 26 species, *Cupressaceae* – 15 species, *Pinaceae* – 10 species, *Aceraceae* and *Fagaceae* includes 8 species each. Eleven families includes one species each, the rest includes from one to six species (pic. 1).

Thus, on the territory of this PSPGA the composition of dendroflora is quite rich and varied. Species from the *Magnoliophyta* division are predominating in the park plantations, the leading order is *Rosales*.



Pic.1. List of plant families according to the amount of species in PSPGA «Chernivtsi Culture and Recreation Park of Shevchenko»

On the territory of PSPGA «Chernivtsi Culture and Recreation Park of Shevchenko» the biomorphological variety is constituted by 15 nanophanerophyts (12 %) (*Forsythia europae* Degen. et Bald., *Berberis vulgaris* L. etc.), 38 microphanerophyts (30 %) (*Deutzia scabra* f. plena Thunb., *Euonymus europaeus* L. etc.), 45 mesophanerophyts в (35 %) (*Alnus incana* (L.) Moench., *Betula pendula* Roth. etc.) and 29 megaphanerophyts (23 %) (*Juglans nigra* L., *Picea pungens* L. etc.) (pic. 2).

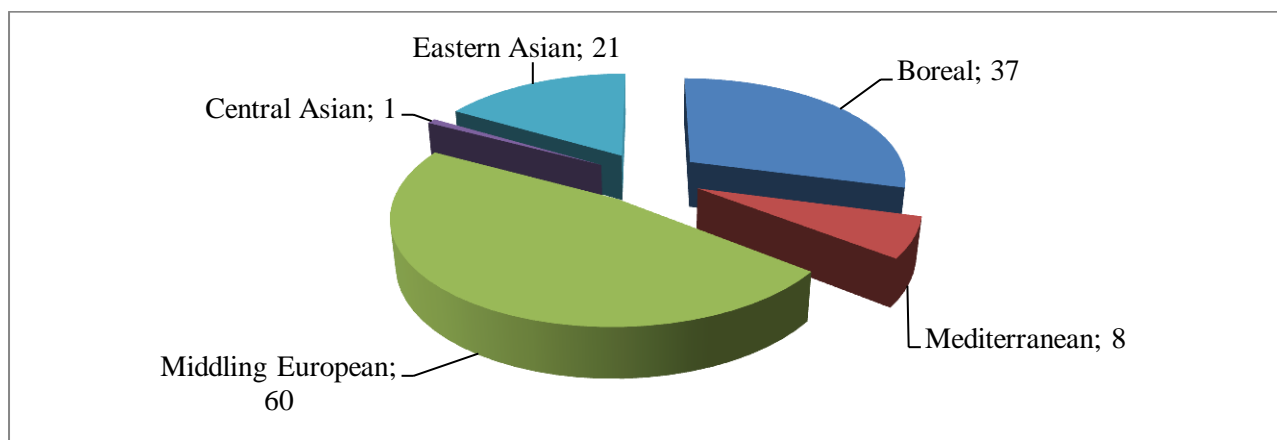


Pic. 2. The biomorphological range of dendroflora of PSPGA «Chernivtsi Culture and Recreation Park of Shevchenko»

Thus, on the territory of researches among the dendroflora prevail mesophanerophytes; the least amount is presented by bushes up to 2 m in height – nanophanerophytes. Besides, arboreal lianas are absent in this PSPGA. It can be explained by the fact, that the park was founded on place of the natural forest and here were cultivated only trees and bushes.

Research of geographic structure of the PSPGA plantations has a ponderable enough value, because it gives an opportunity to set the modern state of species distribution and, in case of necessity, analyse the terms of growth for their best preservation, cultivation and enriching. In addition, knowing the natural habitats of concrete species growth, it is possible to identify reasons of decline of its quantity or vice versa, it is possible to forecast the rates of his distribution, aggressive or regressive behavior with a view to prevent the undesirable consequences.

According to the results of undertaken studies, all species of decorative plants of the investigated territory relate to the Holarctic realm and distributed between five floristic areas (pic. 3).



Pic.3. Geographical spectrum of arboreal species in PSPGA «Chernivtsi Culture and Recreation Park of Shevchenko»

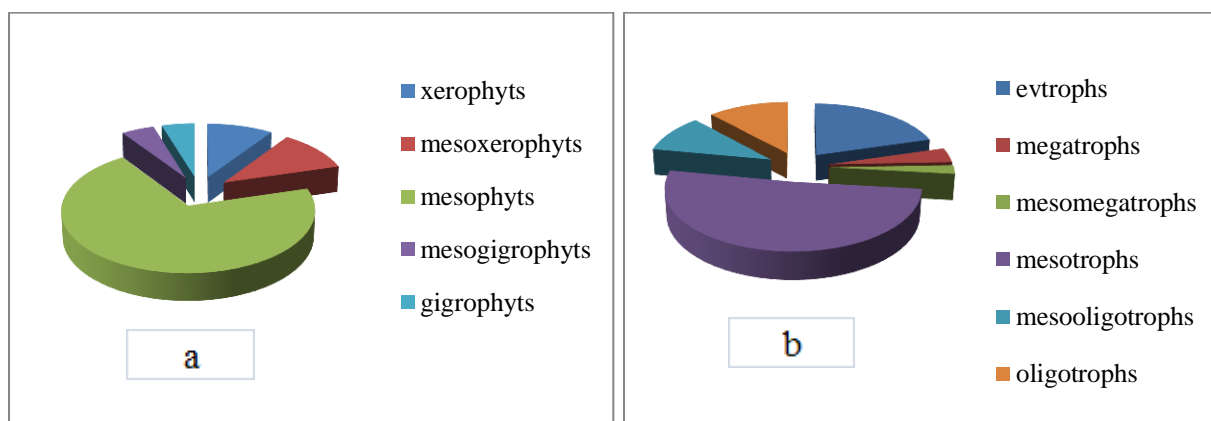
Thus, as the PSPGA was founded in XIX-th century, species introduction was realized mainly from Europe. That is why species of the Central European type predominant in arboreal plantations of the investigated territory (60 species), the least species descend from Central Asia region (one species).

Plants according to their relation to moisture divided in such groups as: xerophytes, mesophytes, and hydrophytes; to their relation to soil richness divided in: oligotrophs, mesotrophs, megatrophs [1]. The knowledge of the abiotic factors

influence on dendroflora is quite necessary, because it makes possible to create all conditions for its growth and reproduction ability, maintenance of its decorativeness. So, on the investigated territory we defined six (5 %) mesogigrophyts (*Pinus strobus* L., *Quercus rubra* L. etc.) and six gigrophyts (5 %) (*Alnus incana* (L.) Moench., *Chamaecyparis pisifera* L. etc.), 12 (9 %) xerophyts (*Mahonia aquifolium* Nutt., *Lonicera xylosteum* L. etc.), 14 (11 %) mesoxerophyts (*Biota orientalis* L., *Rhamnus cathartica* L. etc.) and 89 (70 %) mesophyts (*Larix decidua* Mill., *Hydrangea arborescens* L. etc.).

Plants are an appointed indicator of soil conditions. Knowing this gives a possibility to show a trophical content of flora's ecological structure. Hence, from the degree of arboreal and shrub species adaptation to the soil richness, on the investigated territory were found 15 oligotrophs (13 %) – *Prunus divaricata* Led., *Juniperus sabina* L., 13 mezooligotrophs (10 %) – *Acer ginnala* Maxim., *Picea omorica* Purk., 65 mezotrophs (51 %) – *Cotoneaster intergerrima* L., *Abies alba* Mill., three mesomegatrophs (2 %) – *Gymnocladus dioicus* (L.) Koch., *Juglans ailantifolia* Maxim., *Thuja plicata* Lamb., five megatrophs (4 %) – *Quercus rubra* L., *Magnolia kobus* DC and 26 evtrophs (20 %) – *Chamaecyparis pisifera* L., *Carpinus betulus* L. (pic. 5).

Thus, in the dendroflora of PSPGA «Chernivtsi Culture and Recreation Park of Shevchenko» the dominant type of hydromorphs is mesophyts, the least amount form mesogigrophyts. Mesotrophs are the dominant group according to the trophical indicator.



Pic. 4. Ecological range of plant species in PGAMP «Chernivtsy Culture and Recreation Park of Shevchenko» in relation to moisture (a) and richness of soil conditions (b)

Conclusions. As a result of undertaken studies we established, that nowadays amount of species which grows on the territory of PGAMP is quite various. Exotic species have adapted to the existing conditions of growth and well coexist with the aboriginal species.

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