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Public Association "ECOS"

FLORA OF UNITED STATES OF AMERICA AND NEIGHBORING NORTH AMERICAN COUNTRIES IN POLTAVA STATE AGRARIAN ACADEMY'S ARBORETUM

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Distribution by geographic prevalence was made after the ecological-geographical analysis of dendroflora in Poltava State Agrarian Academy's park. Completed: generic analysis - the distribution of flora by geographical origin and history of settlement criteria, botanical and geographical analysis – establishing links of arboretum flora with other flora. Highlighted the plants that come from the North American region. Shown the environmental standard for plants: edaphic requirements, conditions of light, temperature, phytopathological stability. Ecological- phytocoenosis analysis was made for distribution of flora in conditions of growth.

Keywords: *dendroflora, North American region, ecological environmental factors, dendrologic parks, edaphic factors.*

Setting the problem. Requirements for quality of greening urban areas has increased. In addition, due to global climate change have changed temperature and moisture conditions. In recent decades, the average temperature has risen significantly: routine is the lack of permanent snow cover throughout the winter, significantly increased arid climate (ie, its desertification). Peak summer temperatures close to 40 ° C; besides the temperature persists for a long time. This requires searching another plants for new conditions, that could be used in greening urban landscapes.

Analysis of major research and publications which discuss the problem. Poltava - a pioneer in the creation of botanical gardens in Ukraine. The first botanical garden was founded here in 1805 [2]. Traditions of parkmaking in Poltava maintained continuously, and in the middle of the twentieth century Poltava was considered one of the greenest cities in Ukraine [1]. Due to climate change and the emergence of new quarantine facilities phytopathological individual tree species used for landscaping, were unsuitable for this purpose. For example, a quarantine pest moth chestnut horse chestnut is so damaging that it completely lost its decorative and needs replacing. Many species of trees that are damaged mistletoe, also lost its importance in gardening landscapes, as this parasitic plant is very difficult to efficiently destroyed.

Exotic tree species that could potentially be used in greening landscape in Ukraine, usually considered in geographical literature. Particular value gain data on how these species feel in Poltava.

Accumulated during the last decades experience of growing exotic trees opens suitability for use in planting forest in Ukraine.

The purpose and objectives of research. The goal of study is a geographical analysis of the flora in the Poltava State Agrarian Academy's park, an analysis of the requirements for environmental factors of North American flora in arboretum.

Research objectives: floristic diagnosis of Poltava State Agrarian Academy's arboretum.

Methods:

- Geographical Analysis of flora - distribution of flora by geographic prevalence;
- Botanical-geographical analysis - establishing links of arboretum flora with other flora;
- Ekological- phytocoenosis analysis - distribution of flora by conditions of growth.

Results of research. Climatic conditions in the Americas differ considerable diversity, which makes it possible in theory to distinguish the region from dendroflora species acclimatization which can successfully take place in the forest-steppe zone of Ukraine. This implies the proper analysis of soil conditions, temperature in the cells forming species that are of interest in terms of greening landscape and planting in urban areas. Numerous varieties of humidity and temperature conditions in North America formed a woody community with a wide range of adaptive capacity. The rainfall on the Pacific coast of Canada (near Vancouver) twice the figure for Poltava (569 mm), reaching 1199 mm per year. Under these conditions, forming wet rain forests of temperate regions such as the Pacific. Relic forests of the Pacific Northwest region of America in productivity and species diversity - the best in the world. Stocks pristine hardwood forests sometimes reach 6 thousand m³ per hectare. They are the home of the giants among forest plants. For example, some specimens Sequoia (*Sequoia sempervirens*) reaching a height of over 110 meters. This is one of the highest trees on the Earth. Their maximum age - more than three and a half thousand years. Tree species of the Pacific coast of North America - champions of the planet of life among living organisms.

Out of forest plants in the region in the arboretum of Poltava State Agrarian Academy grows Douglas Menzies, also known as pseudo-Menzies, Douglas Fir, Oregon Pine, Douglas fir, Douglas fir (on behalf of the Scottish botanist J. Douglas D. Douglas; 1798-1834). It grows in western North America, forming huge forests along the Pacific coast from British Columbia to California, Montana, Colorado, Texas and New Mexico. At an altitude of 600-2900 m forms as pure stands and mixed conifer forests - Hemlock heterophyllous, sithinskoyu spruce, fir great. Duhlasiya - powerful, beautiful evergreen tree reaching a height of 100 m in thickness trunk up to 4 meters. He has more than 10 species and many varieties of varietal forms, including manytrunk, compact, with bluish and bluish-green needles. Both natural and high-quality varieties are not only extremely hard, but does not suffer from the spring sun. Douglas Menzies - drought-resistant species, not demanding for soil fertility, although better grows on well-drained loams, poorly growing in swampy, poor sandy and heavy clay soils. It grows quickly. Lives up to 400 years.

From forest plants of that region in the arboretum of Poltava State Agrarian Academy also find mahonia oakleaf or Oregon grape (*Mahonia aquifolium* Nutt.). Species range covers the western states of North America - from British Columbia to California. Evergreen shrub height of about one meter. It forms thickets through the proliferation of root branches. Most Mahon prefer partial shade, but grow in the sun. These plants are picky about soil: prefer neutral or acidic, humus-rich loam. Plants although waterdemanding, but do not tolerate stagnant water. In the cold winter, and especially during the return of cold weather in early spring may ice up above the snow. In our climate zone mahonia not damaged by insects.

Out of forest plants of the Pacific region in Poltava State Agrarian Academy's arboretum grows arbor vitae well folded, or giant arbor vitae (*Thuja plicata* Donn.). In nature, species range covers northwest North America, especially the Pacific coastline from Alaska to northern California. Tree height 45-60 (75) feet and a trunk diameter 120-240 mm, with a pyramidal or conical crown, horizontal branches and several hanging, flat shoots. For soils low demanding, although it is best developed in moist fertile well drained soils. The life span of the plant - 500-800 years.

Quite different climatic conditions prevailing on the eastern slopes of Cordillera and plateaus that are behind them. It emerged stony semidesert with infrequent rainfall and long hot summers. Under these conditions formed tree species represented in the Poltava State Academy's arboretum blue spruce, spiky (*Picea pungens* Engelm.). In the wild this species is found in the northwest U.S. (Utah, Colorado, Arizona and New Mexico) at altitudes of 1750-3000 meters. It grows in mountainous valleys along rivers and streams where the soil is wetter. Blue Spruce - evergreen coniferous tree 25-30 m tall, sometimes - up to 46 meters. To soil conditions undemanding. In good condition persists needles on the branches of 5-7 years, often - 3-4 years, light-dependent, prefers average soil fertility and moisture, but can not withstand waterlogging.

Climatic conditions and formed their woody vegetation east coast of North America does not like the terms and dendroflora Pacific coast. Cold water is Labrador stream from Ice Ocean to the east coast of Canada and the United States. Above them are formed cold moist air mass that cooled much of the north of the continent. In addition to this without noise penetrating cold northern winds flowing from the glaciers of Greenland and adjacent archipelagos. These air masses pereoholodzhuyutsya especially during the long polar nights. These conditions formed a broad zone of taiga. These forests consist of trees that can withstand considerable cold, long snowy winters, cold spring, early (in August) the short fall. In our academy park this climate zone represented by spruce bluish or white or Canadian - *Picea glauca* Voss. [Syn. *Picea canadensis* Britt.], Originating from northern USA. The plant is winter-hardy and very drought resistant. He lives about 300-500 years. Successfully grow in the sea and in continental climates. Do not fastidious to soil makes the poor and sandy soils. Good resists winds grown as Barge breed. For gases and smoke less sensitive than European spruce.

South of the taiga along the U.S. Atlantic coast, forests stretch associated with the Appalachian mountain system. Some of them formed around the Great Lakes, U.S. foresters called pine "forest lake." From the Great Lakes and mountains in the north Adirondack Mountains they stretch away to the south, up to the subtropical zone. Broad-leaved forests of this mountain range are typical American species: sugar maple, tulip tree [4].

In the Agrarian Academy's arboreum dendroflora of the designated area presented by American basswood, Weymouth pine, eastern white pine, or red oak, *Thuja occidentalis*, Virginian juniper, hydrangea tree, *Robiniya usual*, *Physocarpus opulifolius*.

Weymouth pine, and eastern white pine (*Pinus strobus* L.) under natural conditions common to the northeast United States (all states east of Minnesota, Iowa and Georgia) and south-eastern provinces of Canada (Newfoundland, Quebec, Ontario). There subspecies in Mexico and Guatemala. Prefers dry soil and cool, humid climate. Less demanding to light than pine and black. Grows best on fresh deep sandy and loamy soils. Stop suffering from bubbly rust, especially on poor soils.

American Basswood (*Tilia americana* L.) in nature is found in eastern North American deciduous tree that reaches a height of 20-35 (sometimes - to 40) meters. Flowering occurs at the beginning or the middle of summer. The main pollinators - bees. Fruits - Dried rounded boxes cream color, 8-10 mm in diameter. American Basswood, like maple sugar is sodominantom maple-linden forests, the most common in western Wisconsin and central Minnesota. In a small number of species is found in many other forest associations. Abundant nectar used by various kinds of insects [5].

Red Oak (*Quercus rubra* L.) is found along rivers where there is stagnant water in the soil, north of the 35th parallel of North America up to Canada. Adult tree reaches 25 meters in height. Frost. Middle light-dependent easily tolerate lateral shading, but prefers full lighting top crown. Wind-tolerante not very picky about soil fertility, withstands even acidic, but can not withstand lime and waterlogged soils. Grows better on fresh sandy loam and loam. Not tolerate the proximity of groundwater and drought. Resistant to pests and diseases, including to powdery mildew. Has high Phytoncidic properties.

Thuja occidentalis (*Thuja occidentalis* L.) in nature is found in eastern North America. The main natural habitat - the south-eastern part of Canada and the northern part of the United States. This species is also found in some places in northwestern Ontario in the Appalachian mountains of western Pennsylvania, southern North Carolina. The tree grows slowly, reaching a height of 12-20 meters. Medium-demanding to soil moisture, tolerates drought. High light, but can also withstand a little shading. For soil fertility low demanding but prefers fresh gray forest soils with high calcium content. Due to the large number of highly decorative artificially derived forms, hardiness, longevity and resistance to local conditions, *Thuja occidentalis* fairly common in ornamental horticulture in all continents, in many climates.

Virginian Juniper (*Juniperus virginiana* L.) growing in the wild in North America, from Canada to Florida. Found in the mountains, on the river terraces along the ocean, on the rocks, sometimes - the

marshes. This evergreen tree. Height of trees - about 30 meters. It grows quickly. Resistant to pests and diseases. Winter-hardy. Sometimes suffers from snowbanks. Drought. For soil and water low demanding but grows well on fresh loamy and sandy soils. In nature and occurs on poor gravel slopes along the banks of rivers and streams. Shadow-hardy.

Hydrangea tree (*Hydrangéa arboréscens* L.) grows in eastern North America. Growing shrub height of about three meters. Water-loving plant. It grows well in the penumbra at a sufficiently moist compost and leaf soil. The plant can tolerate short-term drought and alkaline soil. Winter can freeze.

Robiniya usual (*Robinia pseudoacacia*). Rather common botanical false name "acacia". This acacia is far different and grows mainly in Australia and Africa, and in Europe acacia grown only in greenhouses. The plant is native to North America. The area covers the Appalachian Mountains from Pennsylvania to Georgia, west to Iowa, Missouri, and Oklahoma. It grows fast, especially up to 10 years, the annual growth is 60-80 cm. Develops a deep extensive root system, giving basal shoots. Pretty light-loving. It grows in any soil, preferring light and fertile, does not withstand compression. Maintains a very large salinity. Growing, forest-forming, drought-resistant species.

Physocarpus opulifolius extremely decorative deciduous shrub of the family Rosaceae, originated from the eastern part of North America. In nature, it grows along rivers, in the undergrowth. Broad rounded shrub about 3-4 meters. Known for ruggedness to growth conditions. The plant is frost, although very little snow and frosty winters can freeze the top branches. Has low to the ground, but makes no lime soils. Do not stand water stagnation. It features fast growth: growth during the growing season shrub up to 40 cm.

Conclusions. Studies have shown that represented in the Poltava State Agrarian Academy' arboretum dendroflora species from the North American continent characterized by a wide range of adaptive capacity to environmental conditions.

Drought resistant, has low soil fertility is Virginian juniper and spruce blue prickly.

The high drought resistance and light-loving attribute of an observed robiniya usual.

Moisture, light-moderate, with average demand to soil fertility is the Weymouth pine, mahonia oakleaf, *Thuja occidentalis*, *Thuja* giant.

It is frost-resistant and moisture-loving, with an average exacting to soil fertility is Douglas fir and Canadian spruce.

Moderately resistant to cold, with average insistence to moisture conditions, soil fertility and light oak red, *Physocarpus opulifolius*, American basswood.

Moisture, heat-loving and demanding soil fertility hydrangea tree.

Various combination of edafic and climatic requirements enables a forest plant in North America to choose suitable and optimal conditions for specific areas that are key to their successful growth and longevity.

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