THE COMPOSITION OF INVASIVE PLANTS IN URBANIZED TERRITORIES ON THE EXAMPLE OF THE RECREATIONAL ZONE OF BREST

N. V. Shkuratova
Brest State A.S. Pushkin University, 21 Kosmonavtov Blvd., 224016, Brest, Belarus
(*schkuratova_n@tut.by*)

Introduction. As part of the adventive component of flora, invasive plants are the most aggressive alien species that displace local, native plants. A factor contributing to the activation of invasions may also be modern climate changes, such as warming, which promotes naturalization and viable reproduction of more heat-loving drought-resistant alien species. In recent decades, the boundaries of agroclimatic zones have changed on the territory of Belarus, including the formation of a new, warmer zone in the south of Polesie.

236 species of adventitious plants with negative impact on the diversity of the native flora fraction and the structure of phytocenoses were found in the natural ecotopes of Brest Polesie, including forest communities. Studies outside the urbanized areas of Brest Polesie showed the presence of 17 invasive species that pose a certain threat to the native biodiversity of the region (Savchuk, 2012). The purpose of this study was to identify the types of urbanized territory and classify a group of particularly dangerous invasive plants in Belarus on the example of the Park of Soldiers-Internationalists in Brest.

Materials and methods. However, the most invasive are industrial habitats, arable soils, parks and gardens. In this regard, urbanized areas, where cultural or semi-natural plant communities are concentrated, are of particular interest in regard of search for invasive species. On the territory of Brest, in Vostok microdistrict, there is a territory called the Park of Soldiers-Internationalists. This is a natural and cultural-educational complex, in which the park area smoothly turnes into forests and meadow phytocenoses. The park territory is surrounded by birch and pine communities of artificial origin, former agricultural land, as well as communities that were formed during the reclamation of disturbed lands, sand pits near the bed of the Mukhavets River, country roads. To classify a species as invasive for the Republic of Belarus, we were guided by the data of Belarusian researchers (Dubovik et al., 2017; Dubovik et al., 2020).

Results. According to the results of the study, the list of aggressive invasive plants of land-air habitats of the recreational zone of the Park of Soldiers-Internationalists in Brest includes 22 species.

The tree-shrub forms are represented by nine species: *Acer negundo* L., *Robinia pseudoacacia* L., *Quercus rubra* L., *Populus alba* L., *Sambucus nigra* L., *Parthenocissus quinquefolia* (L.) Plach., *Cornus alba* (L.) Opiz, *Sarothamnus scoparius* (L.) Koch., *Hippophae rhamnoides* L. 13 species of invasive plant were represented by annuals or perennial grasses. The species *Oenothera biennis* L., *Phalacroloma appiim* (L.) Dumort., *Conyza canadensis* (L.) Cronq., *Solidago canadensis* L., *Rumex confertus* Willd. are already familiar to Brest region. *Echinocystis lobata* (Michl. ex Willd.) Britt. and *Impatiens glandulifera* Royle are common for depressions with more moist fertile soil, overgrown with alder, ruderal habitats, in riverine shrub phytocenoses. Under the canopy of pine forests *Impatiens parviflora* DC formed numerous monodominant communities. Sand along country roads, abandoned sand dumps near the Mukhavets riverbed and other disturbed habitats are inhabited by *Helianthus tuberosus* L. and *Xanthium albinum* (Widder.) H. Scholz. *Galinsoga parviflora* Cav. is also recorded everywhere in disturbed habitats and agrocenoses.

Thus, representatives of 13 families were identified in the study area. In the context of families, the largest number of invasive species is distinctive for Asteraceae family (6 species). Fabaceae and Balsaminaceae families are represented by three and two species, respectively. One species was identified from each of the families Aceraceae, Fagaceae, Caprifoliaceae, Vitaceae, Cornaceae, Salicaceae, Elaeagnaceae, Onagraceae, Polygonaceae, Cucurbitaceae.

According to the degree of naturalization, most of the identified species can be classified as agriophytes, since they have successfully introduced themselves into natural communities. The group of apecophytes found only in anthropogenic habitats includes *Galinsoga parviflora* Cav., *Helianthus tuberosus* L., *Xanthium albinum* (Widder.) H. Scholz., *Impatiens glandulifera* Royle, *Hippophae rhamnoides* L.

By way of introduction of identified invasive species, adventive component of flora in general is dominated by ergasiophytes. The xenophytes include *Impatiens parviflora* DC., *Conyza canadensis* (L.) Cronq., *Galinsoga parviflora* Cav., *Rumex confertus* Willd., *Xanthium albinum* (Widder.) H. Scholz., since they appeared on the territory of Belarus accidentally as a result of natural migration or human economic activity.

According to the time of introduction to the territory of Belarus, the identified species can be divided into neophytes and superneophytes. Among neophytes, the earliest time of introduction is distinctive for *Sambucus nigra* L., which probably entered the territory of Belarus at the end of the XVII century, and *Sambucus nigra* L. which became naturalized at the end of the XVII century. The group of superneophytes, whose penetration into the territory of Belarus and naturalization occurred in the XX century, is quite numerous: *Cornus albus* (L.) Opiz, *Phalacroloma annuum* (L.) Dumort., *Solidago canadensis* L., *Xanthium albinum* (Widder.) H. Scholz, *Impatiens glandulifera* Royle, *Impatiens parviflora* DC., *Echinocystis lobata* (Michl. ex Willd.) Britt., *Lupinus polyphyllus* Lindl., *Quercus rubra* L., *Rumex confertus* Willd. (Dubovik et al., 2017).

The primary area of most of the identified species (11 species) is North America, which is explained by the similarity of natural and climatic conditions that contribute to the naturalization and distribution of species in the secondary area. *Galinsoga parviflora* and *Xanthium albinum* (Widder.) H. Scholz originated from Central and South America. *Cornus albus* (L.) Opiz, *Impatiens glandulifera* Royle, *Impatiens parviflora* DC., *Hippophae rhamnoides* L. have Asian origin. Species *Rumex confertus* Willd., *Populus alba* L., *Sambucus nigra* L. entered the flora of Belarus from more southern and western parts of Europe.

Conclusion. Thus, the invasive plants that constitute a part the adventive fraction of the flora of Brest are characterized by a high degree of naturalization, mainly cultural origin and generally came from North America. Among the identified invasive species there are neophytes and superneophytes, which is mainly due to the fact, that most of them were introduced on the territory of Belarus in the XIX–XX centuries.

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