

ECOLOGICAL STRATEGIES OF INVASIVE SPECIES OF TRANSFORMERS IN ZHYTOMYR RUDERAL HABITATS

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Every year, within the territory of the city of Zhytomyr, you can observe an increase in the population of invasive plants. Invasive species are representatives of introduced flora capable of growing in extreme conditions and in maximum numbers, suppressing populations of native plant species. One of the key reasons for their successful expansion is their high adaptability to new environmental conditions, uncontrolled rapid reproduction, and the ability to establish themselves on the site. After entering the soil, representatives of foreign flora attack native plants, competing with them for resources. As a result of the spread of invasions, local species can be displaced, which leads to the complete destruction of the ecosystem.

Ruderal habitats are usually territories with a disturbed ecosystem structure, where mainly invasive species of transformers settle due to the lack of competition and changed environmental conditions. About 300 species of adventitious species have settled among the invasive plants that grow on the territory of the Zhytomyr region. In the composition of ruderal settlements, the following representatives can often be

distinguished: *Heracleum sosnowskiy*, *Solidago canadensis*, *Ambrosia artemisiifolia*, and others.

The aggressive plant-transformer *Heracleum sosnowskiy* is especially dangerous for both plants and humans. This plant is capable of transforming entire ecosystems. *Heracleum sosnowskiy* mainly grows in landfills, along roads, in meadows, near water bodies, along forest strips, and abandoned areas. The plant contains photosensitizing furanocoumarins, which have the ability to cause 1-3 degree burns on human skin.

Ambrosia artemisiifolia is an allergenic plant that produces more than 100,000 seeds as a result of its spread. *Solidago canadensis* is morphologically similar to *Ambrosia artemisiifolia* but differs in its inflorescences and leaves. *Solidago canadensis* also has an allergic effect on humans. Due to the fact that the representative of this species has a "cute appearance", people tried to domesticate the invasive plant and planted *Solidago canadensis* on their own plots.

In order to overcome invasive plants, mechanical and chemical methods of control are mainly used. The most effective method of destruction is chemical control by applying the herbicide "Roundup". "Roundup" contains glyphosate, which inhibits the growth of plant pests. "Roundup" belongs to the III class of danger of moderately dangerous pesticides according to the "Hygienic classification of pesticides by degree of danger". It should be noted that the use of pesticides is regulated by the Law of Ukraine "On Pesticides and Agrochemicals", so their use within settlements is limited. The popular drug "Ambrostop" did not show its effectiveness within a safe dose. Increasing its dosage not only threatens the green areas of the city but can also be washed away by rainwater and have a harmful effect on the environment.

References:

Dubyna, D. V., Iemelianova, S. M., Dziuba, T. P., Tymoshenko, P. A., Protopopova, V. V., & Shevera, M. V. (2021) Alien plant invasion in the ruderal vegetation of Ukraine. *Environmental & Socio-economic Studies*, Vol. 9(4), 57–70.

Gubar, L., & Koniakin, S. (2021). Populations of *Heracleum sosnowskyi* and *H. mantegazzianum* (Apiaceae) in Kyiv (Ukraine). *Folia Oecologica*, 48, 215–228.

Khomiak, I. V., Demchuk, N. S., Kotsiuba, I. Iu., & Yastrebova, Ya. V. (2019). Ekolo-ho-tsenotychna kharakterystyka populiatsii *Heracleum sosnowskyi* Manden na terytorii Tsentralnoho Polissia [Ecological and coenotic characteristics of the population of *Heracleum sosnowskyi* Manden in the territory of Central Polissia]. *Ekolohichni nauky* №1 (24). T. 2., 126-129 [in Ukrainian].

Khomiak, I. V., Vasylenko, O. M., Harbar, D. A., Andriichuk, T. V., Kostiuk, V. S., Vlasenko, R. P., Shpakovska, L. V., Demchuk, N. S., Harbar, O. V., Onyshchuk, I. P., & Kotsiuba, I. Iu. (2020). Metodolohichni pidkhody do stvorennia intehrovanoho synfitoindykatsiinoho pokaznyka antropohennoi transformatsii [Methodological approaches to the creation of an integrated synphyto-indicative indicator of anthropogenic transformation]. *Ekolohichni nauky*. 32, 136–141 [in Ukrainian]

Khomiak, I.V. (2018). Vplyv invazii vydiv-transformeriv na dynamiku roslynnosti perelohiv Ukrainskoho Polissia [The influence of invasions of transformer species on the dynamics of vegetation in the fallows of the Ukrainian Polissia]. *Bioresursy i pryrodokorystuvannia*. T10, № 1-2, 29-35 [in Ukrainian]. DOI:

Khomiak, I., Harbar, O., Demchuk, N., Kotsiuba, I., & Onyshchuk I. (2019). Above-ground phytomas dynamics in autogenic succession of an ecosystem. *Forestry ideas*, vol. 25, №1 (57), 136–146.

Sax, D.F., & Brown, J.H. (2002) The paradox of invasion. *Global Ecology and Biogeography Letters*, 9, 363-371.

Zavialova, L. V., Protopopova, V. V., Kucher, O. O., Ryff, L. E., & Shevera, M. V. (2021). Plant invasions in Ukraine. *Environmental & Socio-economic Studies*, Vol. 9 (4), 1-13.