VASCULAR PLANTS – TRANSFORMERS OF THE OMSK OBLAST

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Introduction. According to preliminary data, there are at least 90 invasive and potentially invasive species of vascular plants in the flora of the Omsk oblast (Plikina & Efremov, 2017). Among actively settling and naturalizing in disturbed, semi-natural and natural habitats there are *Amaranthus retroflexus* L., *Amelanchier spicata* (Lam.) K. Koch, *Axyris amaranthoides* L., *Erigeron canadensis* L., *Echinochloa crus-galli* (L.) P. Beauv., *Echinocystis lobata* (Michx.) Torr. & A. Gray, *Epilobium adenocaulon* Hausskn., *Malus baccata* (L.) Borkh., *Medicago sativa* L., *Melilotus officinalis* (L.) Pall., *Plantago lanceolate* L., *Setaria viridis* (L.) P. Beauv., *Tripleurospermum inodorum* (L.) Sch.Bip. The most environmentally and economically damaging transformers are *Acer negundo* L., *Elodea canadensis* Michx. and *Hordeum jubatum* L. The purpose of this publication is the assessment of the nature and current status of these species in the region.

Materials and methods. The assessment of the distribution characteristics of transformer species is based on the results of analysis of literary sources of the XIX–XXI centuries (*q.v.* Plikina & Efremov, 2017) and regional herbarium collections. Distribution patterns and environmental features were specified by authors' field studies in various biotopes between 2000 and 2020. To characterize the invasive component of flora, we adopted a scale, based on the assessment of the level of aggressiveness of invasive species and the features of their distribution (Notov, Vinogradova & Mayrov, 2010).

Results. *Acer negundo* was unknown in the region before the XX century (Ebel et al., 2016). The distribution of this species in the Omsk oblast is associated with the creation of a system of state forest protection belts in the 1960–1970s. Currently, *A. negundo* is widely found in the south of Western Siberia, growing in forest belts, parks, garden plots, garbage dumps, widely distributed along ravines and river valleys, in the undergrowth of birch outliers (Ebel et al., 2016). In the Omsk oblast, the species is found everywhere in disturbed and natural biotopes (as part of the undergrowth of birch outliers, along river valleys and ravines). The species is more common and abundant for the forest-steppe zone, in the forest zone it grows mainly in disturbed habitation.

The exact time of appearance of *Elodea canadensis* is unknown, probably it was repeatedly imported. In July 1962 scientists of Omsk Agricultural Institute intoduced *E. canadensis* into the ponds of the Institute educational farm (Omsk) and Lake Goreloye (Tyakalinsk district) in order to increase the fodder base of water bodies for duck breeding. Despite systematic studies of hydromacrophytes in the region from the late 1990s up to 2006, the species had not been found (Ebel et al., 2016). Currently, *E. canadensis* may be occasionally found in the forest-steppe zone (especially in the south subarea) and in the steppe zone, less frequently in the forest zone. It is mainly found in the valley of the Irtysh River, less frequently found in the valley of the Om River. It occurs both in monodominant communities and in phytocenoses with the dominance of *Ceratophyllum demersum* L., *Stratiotes aloides* L., *Phragmites australis* (Cav.) Trin. ex Steud. In case of widespread distribution, it can have a general negative impact on aquatic ecosystems, as it displaces aboriginal species, changes lighting conditions and chemical composition of water, contributes to the development of overseas phenomena, impedes navigation.

Hordeum jubatum was discovered in the Omsk oblast in the early 1930s (Borisovsky district, village Borisovka, 90 km west of the city of Omsk, marshy lake shore, 3–20.VII.1933,

M. Elizarieva, TK) (Ebel et al., 2016). At the end of the XX century in Omsk oblast it was considered an ordinary species of weeds (Bekisheva, 1999). Currently, the invasion is threatening the southern part of the region (central and southern forest-steppe, steppe). The species has less partial activity in the forest zone. *Hordeum jubatum*, being an edificator, it forms monodominant communities occupying vast areas in wastelands, diggings, near buildings, along roads and railways, alkaline meadows (Sviridenko, 1999). In semi-natural and natural habitats it may be found together with *Poa pratensis* L., *P. annua* L., *Juncus gerardii* Loisel., *Festuca pseudovina* Hack. ex Wiesb. In the first few years of *H. jubatum* the projective cover is 10–20 %, in 2–3 years it can reach 50–80 %. Resistance to mechanical effects and salinization, tolerance to habitat conditions, spreading along roads, high seed productivity largely determine the effectiveness of invasion. The most active settlement of *H. jubatum* in the region began in 1990–2000. Currently there is an expansion of the northern distribution border.

It is worthwhile to mention a group of species that have not currently overcome the reproductive barrier in the region, but are able to be grow in places of importation, sometimes for decades, often bloom and bear fruit profusely. This group includes such cultivated woody plants as *Acer tataricum* L., *A. ginnala* Maxim., *Cerasus tomentosa* (Thunb.) Wall., *Elaeagnus commutata* Bernh. ex Rydb., *Pyrus ussuriensis* Maxim., *Ulmus laevis* Pall.

Conclusion. All transformer species in the Omsk oblast come from North America, and currently, their distribution to the north continues. It is necessary to organize a regional system of monitoring to track the dissemination and control the biological invasion.

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