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Reproductive capacity of the invasive species of *Fraxinus pennsylvanica* in comparison with native species of *Fraxinus excelsior*

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Fraxinus pennsylvanica (green ash) is a dioecious species which was introduced to Europe around 1780. In Poland, it was recorded for the first time in 1817 in Niedźwiedź near Krakow. This species was planted in forests, parks and gardens in cities for decorative purposes. And from these places, the species began to spread onto unused areas in cities and wastelands.

No detailed ecological studies of this species in Poland were conducted until now, although it expands its reach also in natural habitats. Because of the similarity of habitat requirements, it can be dangerous for native species from *Fraxinus* (*F. excelsior*) genera.

The production of a large number of seeds and anemochory can influence the rate of colonization of new habitats by this species. The main aim of the study was to compare the reproductive capacity of these species. Randomly selected 100 seeds were collected from each of 20 trees located in parks (10 trees for one species) and weight of fruits and vitality of seeds were tested. The cutting tests were used to check the quality of seeds. Seeds were classified according to four traits: non-damage, damage, yellow,

with larvae and results were compared with species of trees and their gender.

F. pennsylvanica is a dioecious species, so male trees do not produce seeds. On the other hand, *Fraxinus excelsior* is monoecious and, what is more, polygamous. It means that also male trees can produce seeds. It was observed that in the year after flowering, the percentage of seeds which could germinate were similar in two species. For *F. pennsylvanica*, it is characteristic that a significant percentage of seeds were damaged by pest larvae. In contrast, *F. excelsior* some part of seeds was allocated to the soil seed bank. Consequently, *F. excelsior* had more seeds which could germinate at all. It could mean that it was not so much threatened by alien species. The study failed to give a simple answer which of the tested species had a higher reproductive potential. Based on the study, it cannot be clearly concluded which of the species had greater reproductive potentials and whether *F. pennsylvanica* could displace the native species. More research is needed to determine the scale of the problem of the increase in the number of posts of *F. pennsylvanica* in Poland, especially in natural and semi-natural habitats.