

# Prague's 88 nature reserves threatened by invasive plant species

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Cities are generally regarded as hostile for wildlife and urbanization a dramatic form of destruction of natural habitats. Still, they are far from dead zones. Their biodiversity may even exceed that of surrounding landscapes, owing to heterogeneous environments and frequent localization in naturally rich areas that historically supplied diverse resources for their human inhabitants.

"This is definitely the case of the city of Prague, Czech Republic", says the lead author Prof. Vojtěch Jarošík of the study published in the open access journal *NeoBiota*. "Prague contains spectacular natural features, rarely seen in other metropolitan areas of comparable size, protected in 88 [nature reserves](#). Our analyses build on systematic surveys of vascular plants flora, carried out in these reserves in the late 1980s/ early 1990s. The reserves are important sanctuaries hosting more than half of the plant [species](#) occurring in the Czech Republic."

"On the other hand, it is alien species that contribute to this remarkably high species richness", adds the Prof. Petr Pyšek. "It has been repeatedly documented that urban environment and life style promote introductions of alien species. The conservation in cities focuses on the diversity of native species, and urban areas are therefore the place where these 'two diversities' come to a sharp conflict, resulting from the discrepancy between human efforts to protect natural [biodiversity](#) and, at the same time, by human activities that create ideal environment for invasions by alien species. Nature reserves in large urban agglomerations are therefore seen as a testing ground for exploring the patterns of resistance

of natural vegetation against penetration of alien plants."

The study found that archaeophytes, i.e. [alien species](#) introduced since the beginning of Neolithic agriculture up to 1500 A. D., are affected positively by the extent of arable land that was in place at the time of the reserve establishment at low altitudinal ranges. Though it may be questioned whether species of alien origin should be a part of red lists, endangered archaeophytes are perceived by botanists as elements of local nature, typical of traditional cultural [landscapes](#) in Europe and considered as species of cultural and historical importance. This suggests that for endangered archaeophytes it might have been difficult to adapt to changing agricultural practices, and shrubland might act as a [refugium](#) for them.

Forty-six of the 155 neophyte species (introduced after 1500 A.D.) recorded in the reserves are classified as invasive. The reserves thus harbour 67% of the 69 invasive neophytes recorded in the country, and particularly warning is that among the most invasive species are many shrubs and trees, a life form that is known to account for widespread invasions with high impacts. The results thus strongly suggest that in Prague nature reserves there is a warning potential for future invasions.

**More information:** Jarošík V, Pyšek P, Kadlec T (2011) Alien plants in urban nature reserves: from red-list species to future invaders? *NeoBiota* 10: 27-46. [doi: 10.3897/neobiota.10.1262](https://doi.org/10.3897/neobiota.10.1262)

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