

University of South Bohemia, Faculty of Science, České Budějovice, Czech Republic

Vít Latzel

supervisor: Doc. RNDr. Jitka Klimešová, CSc.

Institute of Botany, Academy of Sciences of the Czech Republic, Třeboň, Czech Republic

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As sedentary organisms, plants have to develop many mechanisms to cope with disturbance events, which are common in most habitats, and occur over a range of intensities and frequencies. Some species are able to tolerate disturbance events by rebuilding their lost parts via resprouting from adventitive or axillary buds. This thesis aims to reveal some aspects of tolerance of herbs to disturbance on the level of plant individuals as well as entire plant communities.

Prohlašuji, že svoji doktorskou práci jsem vypracoval samostatně pouze s použitím pramenů a literatury uvedených v seznamu citované literatury.

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Plant traits and regeneration of urban plant communities after disturbance: Does the bud bank play any role?

Latzel, Vít^{1,2*}; Mihulka, Stanislav^{1,3} & Klimešová, Jitka²

¹*Department of Botany, University of South Bohemia, Faculty of Biological Science, Branišovská 31, CZ-370 05 České Budějovice, Czech Republic;* ²*Institute of Botany, Academy of Sciences of the Czech Republic, Dukelská 135, CZ-379 82 Třeboň, Czech Republic; E-mail klimesova@butbn.cas.cz;* ³*Institute of Botany, Academy of Sciences of the Czech Republic, Zámek 1, CZ-252 43 Průhonice, Czech Republic; E-mail plch@bf.jcu.cz*

**Corresponding author; Fax +42 384721136; E-mail latzel@butbn.cas.cz; Url www.butbn.cas.cz/latzel*

Abstract

Questions: What is the relative role of the bud bank, seed and various species traits in the regeneration of urban plant communities after severe disturbances? Do invasive and exotic species, highly abundant in disturbed communities, regenerate better than native species after disturbance?

Methods: Hand tilling was applied to three urban plant communities with and without additional herbicide treatment to exclude regeneration from the bud bank. Plant traits were determined from the literature and databases. Species responses to the treatments were evaluated with RDA analyses in CANOCO. Linear models were applied to identify traits that could predict the responses of species to disturbance.

Results: The bud bank played a key role in regeneration in the plots without herbicide. In the plots with herbicide treatment, the seed bank was important in re-establishing vegetation after disturbance. Exclusion of the bud bank by using herbicide allowed the establishment of small annuals, whereas biennials and perennials were successful in plots where the bud bank was not inhibited by herbicide. Exotic species with a long residence time in the local flora were successful in plots where regeneration from the bud bank was excluded, whereas species with short residence times or that were invasive were suppressed by both types of disturbance.

Conclusion: In response to various types of disturbance, species with different regeneration strategies (either seeds or bud bank) were promoted. Exotic species were suppressed primarily by disturbance, which suggests that factors other than just regenerative capability contributed to the high abundance of exotics in urban communities.

Keywords: Community response; Exotic plant species; Functional trait; Man-made habitat; Roundup; Seed bank; Urban flora.