

Tárgytematika / Course Description Ecology of soil seed banks

N_DMA11

Tárgyfelelős neve /

Teacher's name: Dr. habil. Csontos Péter

Félév / Semester: 2023/24/2

Beszámolási forma /

Assesment: Vizsga

Tárgy heti óraszám /

Teaching hours(week): 0/0/0

Tárgy féléves óraszám /

Teaching hours(sem.): 30/0/0

OKTATÁS CÉLJA / AIM OF THE COURSE

Students are introduced to definitions and sampling methods of natural seed banks. The course discusses seed longevity studies and further issues regarding seed (fruit) viability, and deals with soil seed bank types, and their classification. A second part of the course offers a comprehensive overview of the recent knowledge on the role and importance of natural seed banks in the dynamic processes of agricultural and natural vegetation types. At the end of the course students are presented with seed bank databases, seed ecological databases and their applicability.

TANTÁRGY TARTALMA / DESCRIPTION

1. Definitions of seed bank.
2. What species have a seed bank?
3. Seed bank sampling methods: sampling depth, sample number, timing of sampling.
4. The concept and significance of the minimal soil volume.
5. Pre-treatments of soil seed bank samples (cold stratification, concentrated soil samples)
6. Detection of seed bank using the seedling emergence method.
7. Detection of seed bank based on the seeds' physical properties.
8. Further methods for detecting soil seed bank and seed longevity.
9. Seed viability tests.
10. Transient seed bank, persistent seed bank, seed bank classification systems.
11. Density of seed bank in the soils of various agricultural and natural vegetation types.
12. Similarities and dissimilarities between soil seed bank and standing vegetation.
13. Change in the significance of seed bank along geographical gradients.
14. Change in the significance of seed bank along ecological gradients.
15. Role of soil seed bank in the context of weed control and habitat restoration.
16. Seed bank databases, seed ecological databases.
17. Case studies on the applicability of seed bank and seed ecological databases.

SZÁMONKÉRÉSI ÉS ÉRTÉKELÉSI RENDSZERE / ASSESMENT'S METHOD

Meeting the conditions set by the supervisor.

KÖTELEZŐ IRODALOM / OBLIGATORY MATERIAL

- Csontos P. & Tamás J.** (2003): Comparisons of soil seed bank classification systems. *Seed Science Research* 13(2): 101-111.
- Fenner, M. & Thompson, K.** (2005): *The ecology of seeds*. Cambridge University Press, Cambridge.
- Csontos P.** (2007): Seed banks: ecological definitions and sampling considerations. *Community Ecology* 8(1): 75-85.
- Baskin, C. C. & Baskin, J. M.** (2014): *Seeds: ecology, biogeography, and evolution of dormancy and germination*. Academic Press, San Diego. (or its 1st edition from 1998)
- Csontos P., Kalapos T., Tamás J.** (2016): Comparison of seed longevity for thirty forest, grassland and weed species of the Central European flora: results of a seed burial experiment. *Polish Journal of Ecology* 64(3): 313-326.
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AJÁNLOTT IRODALOM / RECOMMENDED MATERIAL