

**Demeter, L, ÁP Molnár, K Öllerer, Gy Csóka, A Kiš, Cs Vadász, F Horváth, Zs Molnár (2021)  
Rethinking the natural regeneration failure of pedunculate oak: The pathogen mildew hypothesis. Biological Conservation 253, 108928**

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Abstract

Highlights

- Ecologists and conservationists often overlook the impacts of alien microorganisms.
- An alien microfungus impedes natural regeneration dynamics of a keystone species.
- Oak powdery mildew reduces shade tolerance and growth in seedlings and saplings.
- Proposed hypothesis explains the failure of natural regeneration of pedunculate oak.
- The alien microfungus threatens the rich biodiversity associated with oaks in Europe.

Abstract

Introduced pathogen microorganisms are important drivers of ecosystem change. This paper highlights the impact of the non-native pathogen mildew multi-species complex on the natural regeneration dynamics of pedunculate oak (*Quercus robur*). Pedunculate oak is a European keystone tree species, hosting a great amount of biodiversity, but its future role in (near-)natural forests is uncertain due to the lack of natural regeneration. We reviewed historical and recent ecological, pathological and forestry literature on topics related to the impact of mildew on

