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FOREST FRAGMENTATION MODULATES EFFECTS OF TREE SPECIES RICHNESS AND COMPOSITION ON ECOSYSTEM MULTIFUNCTIONALITY

Lionel R. Hertzog, Roschong Boonyarittichaikij, Daan Dekeukeleire, Stefanie R. E. de Groote, Irene M. van Schrojenstein Lantman, Bram K. Sercu, Hannah Keely Smith, Eduardo de la Peña, Martijn L. Vandegehuchte, Dries Bonte, An Martel, Kris Verheyen, Luc Lens, and Lander Baeten

Study Description

In this synthesis paper, we aimed at analyzing the influence of habitat fragmentation, tree species richness, and tree composition on multiple forest ecosystem functions. The data were gathered in 53 plots situated in mature forest with no recent management activities and composed of every potential combination of common beech (*Fagus sylvatica*), pedunculate oak (*Quercus robur*), and red oak (*Quercus rubra*). We found a wide range of response to fragmentation, tree richness, and tree composition between the measured functions. Aggregating these functional responses revealed that tree diversity effects were stronger in smaller and more isolated fragments than in larger and well-connected ones.

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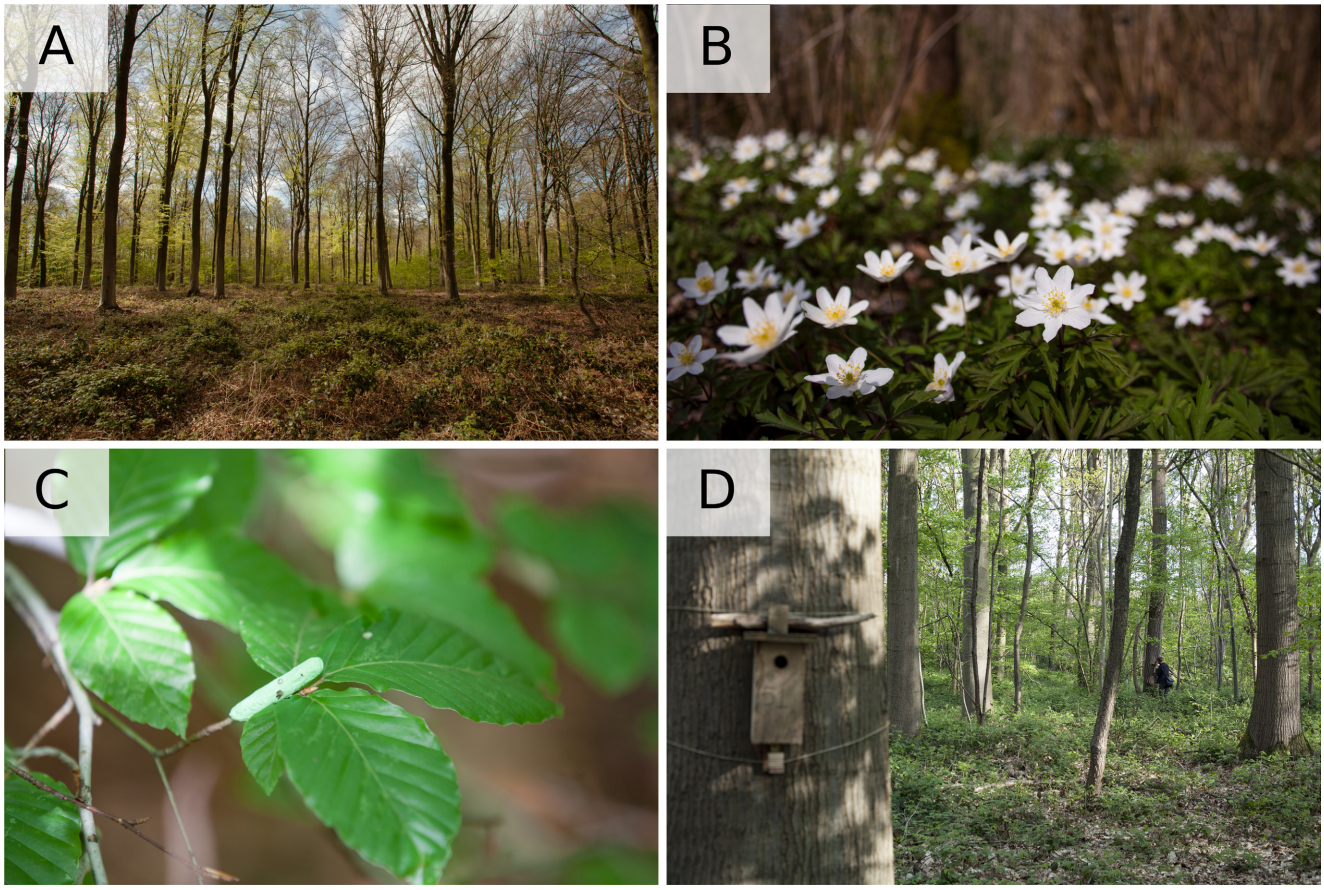

Fieldwork impression. (A) Overview of one of the studied plot (a beech monoculture). (B) Close-up view on *Anemone nemorosa*, a common flowering species in the understory and recorded in our measurement of understory diversity and cover. (C) A plasticine dummy fixed to a tree used to estimate predation rates. (D) A bird breeding box used to estimate breeding bird parameters. Photo credit: Irene M. van Schrojenstein Lantman.

These photographs illustrate the article "Forest fragmentation modulates effects of tree species richness and composition on ecosystem multifunctionality" by Lionel R. Hertzog, Roschong Boonyarittichaikij, Daan Dekeukeleire, Stefanie R. E. de Groote, Irene M. van Schrojenstein Lantman, Bram K. Sercu, Hannah Keely Smith, Eduardo de la Peña, Martijn L. Vandegehuchte, Dries Bonte, An Martel, Kris Verheyen, Luc Lens, and Lander Baeten published in *Ecology*. https://doi.org/10.1002/ecy.2653