
Are forest reserves or deadwood retention key elements for bryophyte diversity?

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Abstract

Extending the network of strict forest reserves is one of the conservation measures promoted by the French National Strategy for Biodiversity. It is based on the worldwide literature, according to which strict forest reserves may help preserving a part of the biodiversity that is threatened by forestry. However, this strategy is based on poor knowledge in the temperate context. In a national-scaled project based on data from 213 study plots set up in 15 forest sites throughout France, we analyzed the effect on forest management cessation and associated forest structure variables on the richness of 7 taxonomic groups: bats, vascular plants, birds, carabids, bryophytes, lignicolous fungi, saproxylic beetles. Bryophytes and lignicolous fungi appeared as the more favored by forest reserves and stand variables linked to deadwood or large old trees. Focusing on bryophyte groups, and distinguishing between all species and strict forest species, we here present further analyses including the additive or interactive effects of other variables known as important for bryophytes, namely humidity, light, temperature, precipitations or altitude. Although some of them enhanced the models in addition to deadwood variables, their additional effect was low compared to the strong positive effect of deadwood variables.

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