Conservation value of low-productive forests
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Popular scientific summary

Currently, over 70 % of all forest land set aside from forestry in Sweden are low-productivity forests; i.e. forests where the potential tree growth is less than 1 m^3/ha/year. Low-productivity forests are favored as set-asides because they are often less affected by forestry, but also because they are usually cheaper to set aside than more productive forest. This may be a problem for biodiversity conservation, because biodiversity often increases with productivity. The conservation value of low-productivity forests is therefore thought to be low, but it has not been specifically studied.

We examined the conservation value of low-productivity forests by comparing the richness of epiphytic lichens (lichens on living trees and dead wood) between low-productivity and productive pine forests. We surveyed forests in three regions in Sweden, from Småland to Norrbotten. We included two most common types of low-productivity forests: forests on mires, and forests on thin, rocky soils (rock outcrops etc.). In addition, we included both managed productive forests and productive forests that were set aside for nature conservation.

Lichen species richness was highest in the low-productivity forests on thin, rocky soils, followed by productive set-aside stands. Mires and managed productive forests had clearly lower species richness. We suggest that the high richness in stands on thin soils was because of more open environment, better quality of dead wood (for example, more old and hard dead wood) and possibly lower impact of earlier forest management, which makes them a more suitable habitat for lichens. Lower richness on mires was probably caused by the low amount of both living and dead trees, i.e. the lichens substrate.

As a conclusion, low-productivity forests can have importance for biodiversity conservation. However, their value depends on the type of forest: low-productivity forests on thin soils had high conservation value, whereas the value of mires was clearly lower. It is also likely that the value differs among species groups: low-productivity forests can be important for the preservation of some species groups, such as lichens, but not necessarily for other groups with different habitat requirements.