

Is current management of semi-natural ecosystems short-sighted and limited, rather than science based and having a long sight?

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Abstract:

Heathland ecosystems is an example of protected ecosystems that are heavily managed by fire, cutting and removal of the upper soil layer. This management was developed in the Netherlands to remove nitrogen from the ecosystems to compensate for a high atmospheric nitrogen deposition originating from agriculture, industry and traffic.

The result of this management has been a much more uniform heathland landscape with a high cover of mainly common heather *Calluna vulgaris*. Besides having the effect that the diversity known from old heathland landscapes, the result has been that very few species thrive in these ecosystems.

The big question is then: Should we change management to make it more diverse, leaving a more mosaic like heathland landscape for the biodiversity? Or is it the management and the way it is carried out that is the problem?

Current management successfully removes excess nitrogen, which is important for the ecosystem. However, with the removal of live and dead biomass as well as the upper morlayer, base cations and deposited clay particles are also removed from the ecosystem. In many heathland these management measures are repeated with 10 – 20 year intervals or shorter. In the long term such repeated management may be problematic and in ecosystems with a low ability to buffer acidifying deposition such as heathlands, sulphur deposition and biomass removal may in the long result in massive acidification of the upper soil layers, with dramatic impact on ecosystem engineers and accompanying biodiversity.

Science based alternatives to current heathland management methods are suggested and discussed based on natural soil and vegetation development.