Systematic targeting of management actions as a tool to enhance conservation of traditional rural biotopes

Short description: A national GIS database on traditional rural biotopes (TRBs) was analyzed in order to examine how the current TRB network can be complemented in terms of conservation value based on known ecological characteristics. TRBs are heterogeneous management-dependent grasslands and wood-pastures maintained through long-term grazing and mowing, and they are valuable for biodiversity and cultural heritage. Given different target scenarios for the amount of managed TRBs, the results demonstrate where management actions should be directed to both on protected and unprotected areas.

Region: The analysis was conducted on a national scale, including public and private land.

Data: Five different data sets were used: (1) a national network of surveyed TRBs, covering ca. 30 300 ha (Finnish Environment Institute); (2) agri-environmental subsidy contracts on TRB management in year 2014, ca. 19 200 ha (Ministry of Agriculture and Forestry); (3) habitat type inventories on protected and state-owned areas, ca. 4 620 200 ha (Metsähallitus, Parks & Wildlife Finland); (4) database on protected private and state-owned TRBs, ca. 32 200 ha (Metsähallitus, Parks & Wildlife Finland); and (5) 16 077 point occurrences of 133 TRB-specialized red-listed vascular plant species (Hertta database, Finnish Environment Institute).

Aims: The purpose of the analysis was to inform about large-scale management allocation instead of suggesting whether a specific site should be managed or not. Given the national goal of securing management of all valuable surveyed TRBs and increasing the total cover of managed TRBs to 60 000 ha, a spatial prioritization solution was formulated with four nested management scenarios (A: surveyed TRBs, B–D: surveyed TRBs with a progressive addition of managed area). In each consecutive scenario, ca. 4 000 managed hectares were added, thus forming a realistic step-wise plan for expansion of the management network. The most extensive scenario (D) yielded a spatial allocation of nearly 45 000 ha of managed TRBs.

Where to be used: The results are applicable for spatial allocation of TRB management funding through the national agri-environmental scheme. Metsähallitus Parks and Wildlife Finland can utilize the results in prioritizing TRB management among protected sites. The results are also useful in locating potential sites for field surveys on TRB sites.

Specific features of the analysis: The analysis combined information on TRB habitats and species, thus producing a spatial summary of TRB-related conservational value over Finland. Also certain complementary habitat layers were included because they contribute to TRB connectivity by sharing similar species communities. Conservational statutes of TRB habitats and species were incorporated into analysis by data structure and feature-specific weights. The analysis was tailored to meet the official target of TRB management by forcing all surveyed TRBs into the top fraction of the prioritization (hierarchical mask). Also, current management status of TRB was analyzed and compared to the optimized management network produced by Zonation. Results were presented with generalized maps, in which prioritized locations within each scenario were aggregated into 100 km^2 resolution.

Reference / Link *Raatikainen, K. J., M. Mussaari, K. M. Raatikainen & P. Halme. 2017. Systematic targeting of management actions as a tool to enhance conservation of traditional rural biotopes. Biological Conservation 207: 90–99. http://dx.doi.org/10.1016/j.biocon.2017.01.019*

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