

Decision support for a 10 000 ha expansion of the national forest conservation area network

Short description: The Finnish government decided in 2008 that the forest conservation area network of South-Central Finland should be expanded by 10 000 hectares on state-owned land. The locations of ideal expansion areas were identified in a joint project between the Natural Heritage Services of Parks Finland and the University of Helsinki. The analysis was implemented using Zonation, and it used data about forest density, forest age structure, tree species composition, and the amount of dead wood, etc. Herb-rich forests and deciduous forests were given elevated preference in the analysis, because these habitats have declined strongly in South Finland. Also the connectivity of the protected area network was accounted for in analysis. This was a groundbreaking piece of work, because never before had quantitative spatial prioritization been used in Finland.

Area: All state-owned land located within the Metso-region (1 594 000 ha). Even though surrounding private land was accounted for, the search of expansion areas was targeted to unprotected, state-owned, land only.

Data: Forest inventory, habitat type and dead wood data from the Natural Heritage Services databases. etsähallituksen luontopalveluiden kuviotietokannan puusto-, luontotyyppi-inventointi- sekä lahoppuutiedot. National forest inventory data from the Forest Research Institute. Based on these data, index layers describing conservation value of forests were developed. Weighting of features (index layers) and connectivity scales were decided amongst an expert group.

Aim: To identify ideal expansion sites for the protected area network using quantitative spatial data about structural characteristics of forest.

What was this analysis used for? This analysis supported decisions done in 2009 about a 10 000 hectare expansion of the protected area network. Also expert knowledge from Parks Finland and the opinions of environmental NGOs influenced decisions.

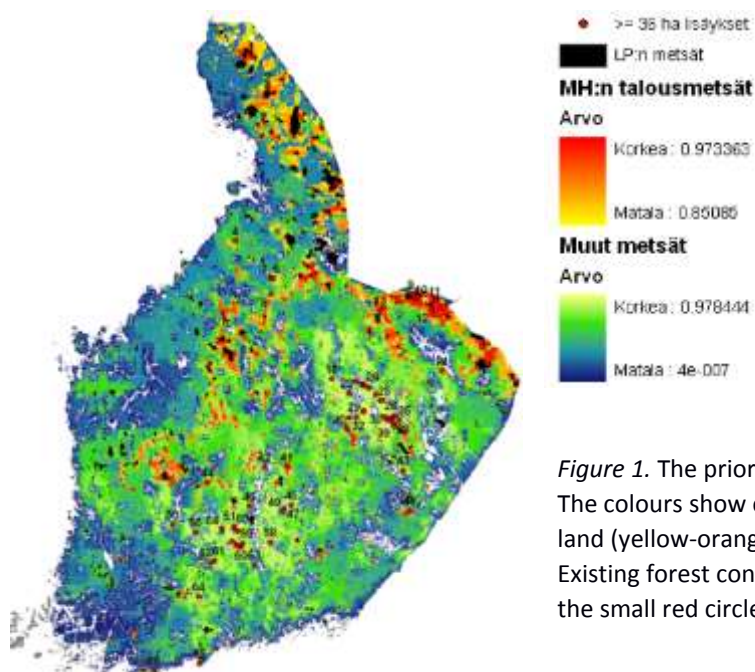


Figure 1. The prioritization covers the entire Metso-region. The colours show conservation priority on state-owned land (yellow-orange) and on private lands (blue-green). Existing forest conservation areas are shown in black, and the small red circles show highest-priority expansion areas.

Special characteristics of analysis: Connectivity had a special importance in this analysis, both for species and implementation, because the objective was to add to the existing conservation area network. There was a new connectivity method implemented into Zonation during this work, matrix connectivity, which is able to account for connectivity between multiple partially similar forest types. The complementarity of new conservation areas, i.e. their ability to complement and improve the existing conservation area network, was implemented via a standard Zonation technique, the hierarchical analysis.

Reference: Lehtomäki, J., Tomppo, E., Kuokkanen, P., Hanski, I., & Moilanen, A. (2009). Applying spatial conservation prioritization software and high-resolution GIS data to a national-scale study in forest conservation. *Forest Ecology and Management*, 258(11), 2439–2449.
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More information: Joona Lehtomäki (jlehtoma@pm.me), Development director Jussi Päivinen (Metsähallitus Parks & Wildlife Finland, jussi.paivinen@metsa.fi)