

Using spatial data to support planning for forest biodiversity in South Savo

Short description: In 2009 the Finnish Forest Center was interested about regional planning for ecology, conservation, and environmental management, accounting for the fact that these actions are voluntary from the part of forest owners who also incur costs. Ecological decision analysis and the Zonation software were seen as tools suitable for this task, and prioritizations were implemented jointly with the University of Helsinki. The overall aim was to gain insight into the implementation of METSO voluntary conservation in South Savo on private land. Also the South Savo Centre for Economic Development, Transport and the Environment (ELY Centres) participated in the effort and utilized the analyses.

Area: Private land in the province of South Savo.

Data: The forest inventory data of the Forest Center, forestry data of the Natural Heritage Services, and the National Forest Inventory data of the Forest Research Institute. Additionally, an up-to-date database collected by the Forest Center about forest management notifications was used to update forest inventory data. Indexes of conservation value in different types of forest were developed based on these data. Connectivity scales and feature weighting were decided by an expert group.

Aim: To identify privately owned forest plots of highest conservation value using data about structural characteristics of forest and accounting for connectivity.

What was this analysis used for? The results of these analyses have been used by regional administrators (Forest Centre, ELY-Centre) who are responsible for decisions about accepting voluntary forest conservation propositions in the area. The priority rank maps have been used for 1) evaluating individual forest parcels offered for conservation, and 2) to identify aggregates of high-quality areas where conservation efforts could be marketed to forest owners.

Special characteristics of analysis: The prioritization is based on forest inventory data of varying resolution and quality. User right of these data are strictly controlled. Also, the data is updated continuously and the protected area network changes. In this work new methods were developed for joining data sets and examining prioritization results. Also the replicability of analyses was a critical consideration in this analysis, which may need to be repeated periodically. Semi-automated capacity for repeating the analyses was thus developed.

Background reference: Lehtomäki, J., Tuominen, S., Toivonen, T., & Leinonen, A. (2015). What Data to Use for Forest Conservation Planning? A Comparison of Coarse Open and Detailed Proprietary Forest Inventory Data in Finland. *PLoS ONE*, 10(8), e0135926.
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