

## Abstract template for the conference “A century of national forest inventories – informing past, present and future decisions”

Dear author. This is a two-page template that in the first page will ask for information on presenter name, topic, and preferred presentation form.

On page two, you are asked to fill in your abstract in the format and font size indicated. Please remember to include authors affiliation information in the footer section of page two. The length of the abstract may not be more than one page including references.

<b>Abstract title:</b>		<b>Mapping of potentials for biodiversity - ecosystem services at multiple scales</b>
<b>Take-home message:</b>		<i>The NFI provide indicators and data that, at multiple scales, can document and monitor the provision and development of ecosystem services in forests. Through examples of combining indicators from the NFI field inventory with other data sources this is demonstrated with focus on mapping potentials for provision of ecosystem services.</i>
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<b>General topic, see website:</b> <small>(please double click on the check box and activate the relevant one)</small>	<input type="checkbox"/>	Improving future NFIs by learning from the past
	<input checked="" type="checkbox"/>	NFIs today and in the future
	<input type="checkbox"/>	Cutting edge and futuristic inventory techniques and technologies
<b>Preferred presentation form:</b>	<input checked="" type="checkbox"/>	Oral presentation
	<input type="checkbox"/>	Poster
<i>Abstracts will be reviewed by members of our scientific committee and you will be given information on decisions in due time after the submission deadline has passed.</i>		

# Mapping of potentials for biodiversity - ecosystem services at multiple scales.

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**Introduction:** Provision of ecosystem services is increasingly important for forest management. In order for forest managers to manage, protect, and document these services they need information, most often in the format of mapping. This is also valid for biodiversity as one of the ecosystem services often in focus due to e.g. in the Aichi Targets of 2020.

Mapping of biodiversity potentials is relevant at multiple scales and requires ability to capture the occurrence of species and habitats and of factors associated to the distribution of these and at the same time provide a simple, user-friendly, reliable and robust mapping. Data collected with National Forest Inventories include a wide range of indicators related to forest structure and may be used in combination with other types of data for mapping biodiversity potentials at multiple scales.

**Materials and methods:** Data from the Danish NFI were utilised to describe the forest structure including the variability in size and species of live trees and the amount of dead wood. Subsequently, NFI data was combined with a wide range of maps spanning soil types, LiDAR based mapping products (volume, canopy height, canopy variation, canopy density, terrain models etc.), lakes/streams/sea shore as well as historical data. The combined data provided both detailed and general information input on the structure of the forest area. Field validated mapping of biodiversity hot-spots for large parts of the forest area were used as response data in the model and mapping process.

**Results:** Through random forest modelling, a process of selecting variables of importance of the different variables, input data were analysed in relation to the response of biodiversity hot-spots as well as specific species occurrences. The overall analysis resulted in models predicting the probability of occurrence of biodiversity hot-spots. At the same time, the options for utilising known presence data of some species were evaluated.

**Conclusion:** Maps showing biodiversity potentials in forests were produced and tested on independent data on mapped biodiversity hot spots. The variables identified for the potentials of biodiversity hot spots were related to the NFI and can hence provide valuable input to mapping ecosystem services and other scales than the NFI can provide directly.

## References:

Johannsen, VK, Kepfer Rojas, S, Schumacher, J & Karlsson Nyed, P 2017, Kortlægning af skov med potentiale for høj naturværdi i Danmark. IGN Rapport, Institut for Geovidenskab og Naturforvaltning, Københavns Universitet, Frederiksberg.

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