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

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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.

Abstract title:		**The difference between knowing and not knowing**
Take-home message:		*In Denmark, the National Forest Inventory was established much later than in the other Nordic countries. The knowledge gap existing prior to the NFI has implications for present understanding of forest development as well as for e.g. greenhouse gas reporting. We demonstrate the consequences of knowledge gaps for forest policy development.*
Presenter name:		Thomas Nord-Larsen
Presenter contact info:		tnl@ign.ku.dk +45 40324394
General topic, see website: (please double click on the check box and activate the relevant one)	☒	Improving future NFIs by learning from the past
	☐	NFIs today and in the future
	☐	Cutting edge and futuristic inventory techniques and technologies
Preferred presentation form:	☒	Oral presentation
	☐	Poster
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.		

The difference between knowing and not knowing

Thomas Nord-Larsen and Vivian Kvist Johannsen

Introduction: From 1881 to 2000, national forest resource assessment in Denmark was based on a questionnaire based survey carried out roughly every 10 years (e.g. Larsen and Johannsen, 2002). Since the data was based on questionnaires and not field observations, the actual forest definition may have varied. In line with international definitions, the tree covered area should be minimum 0.5 ha to be a forest but there were no specific guidelines as to crown cover or the height of the trees. All values for growing stock, biomass or carbon pools based on data from the National Forest Census were estimated from the reported data on forest area and its distribution to main species, age class and site productivity classes using standard forestry yield tables.

In 2002, a sample-based National Forest Inventory (NFI) was initiated in Denmark (Nord-Larsen and Johannsen 2016), replacing the questionnaire based forest survey. The inventory is very similar to inventories used in other Nordic countries.

The two different sampling methods and associated means of estimating forest resources has led to serious time-series gaps in our knowledge of the Danish forests. We aim to demonstrate the consequences of knowledge gaps for forest policy development.

Materials and methods: The Danish NFI is a continuous sample-based inventory with partial re-placement of sample plots based on a 2 x 2 km grid covering the Danish land surface. In each grid cell, a cluster of four circular plots for measuring forest factors are placed in a 200 x 200 m grid. Each circular plot (secondary sampling unit, SSU) has a radius of 15 meters.

Results: In the 1990 forest census, the number of questionnaires sent to respondents was 22,300. In the subsequent inventory the number of respondents in-creased to 32,300. Not unexpectedly this led to a substantial increase in estimated forest area. The introduction of the sample-based inventory in 2002 led to a further increase in forest area of 11% and an increase in growing stock of 47%. A range of different measures has been taken to span the time-series gaps in relation to e.g. reporting of greenhouse gas emissions.

Conclusion: The data available has led to surprising conclusions on the status of Danish forests and their development. However, the knowledge gap existing prior to 2002 has implications for present understanding of forest development as well as for e.g. greenhouse gas reporting. We demonstrate the consequences of knowledge gaps for forest policy development.

References:

Larsen and Johannsen, 2002. Skove og plantager 2000. Danmarks Statistik, Skov & Landskab og Skov- og Naturstyrelsen. 171 p

Nord-Larsen and Johannsen, 2016. Danish National Forest Inventory: Design and calculations. Department of Geosciences and Natural Resource Management, University of Copenhagen

Authors affiliation for example: 1. Norwegian Institute of Bioeconomy Research NIBIO, 1431 Ås, Norway.
Corresponding authors email address in italics