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:		Major changes in the Nordic forests over the last 100 years – trends and maps based on National Forest Inventory data.
Take-home message:		The long time-series based on National Forest Inventory (NFI) data collected in Norway, Finland and Sweden during the last century are unique in an international context. Long trends for core forest variables provide important information for current research and policy.
Presenter name:		Anna-Lena Axelsson
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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.		

Major changes in the Nordic forests over the last 100 years – trends and maps based on National Forest Inventory data.

Anna-Lena Axelsson, Helena Henttonen, Gro Hylen and Bertil Westerlund.

Introduction: Temporal perspectives on forest resources are getting increasing attention. For climate change and biodiversity conservation long time perspectives are crucial to understand current patterns and processes. The long time series based on National Forest Inventory (NFI) data collected in the Nordic countries during the last century is unique in an international perspective and provide an important basis for both research and forest policy development. In Norway the first full-scale NFI started in 1919, in Finland in 1921 and in Sweden in 1923. During recent years the original field data from the first NFIs performed during the 1920s have been transferred from field paper sheets to digital format. We have used NFI data from Norway, Finland and Sweden collected during the last century to produce harmonised trends and maps that illustrate major changes for core forest variables at a Nordic level.

Materials and methods: We created a harmonised dataset that include both older and modern data from the Norwegian, Finnish and Swedish NFIs. Based on this dataset we produced harmonised trends and maps for all three countries. During the time span of the Nordic NFIs there have been numerous changes in statistical design, variable definitions and inventory methods. This had to be taken into account when comparing old and modern data within one country, but also when comparing data from different countries and over time. Changes in sampling design can be controlled and accounted for, but changes in definitions and inventory methods are sources of possible bias in temporal comparisons. The resolution of the data must also be considered, for example more detailed information for a larger number of variables can be extracted for shorter time periods (1950s-current) than from longer (1920s-current). For each core variable the smallest common denominator has been determined and applied to the entire data set.

Results: We present major trends for growing stock, tree species composition and diameter distribution for the Nordic forest during the last 100 years. Interpolated maps and choropleth maps are used to illustrate the regional forest status and important gradients in the forest landscape at four points in time (1920s, 1950/60s 1980s and 2010s). The observed temporal and spatial changes in forest resources are discussed in relation to major changes in the forest sector and in the society as a whole.

Conclusion: Long time series and interpolated maps are powerful tools to illustrate and communicate major changes in forest resources in the Nordic countries during the last century. Our results can be used to create a range of products aimed at different interest groups.

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