How do National Forest Inventories contribute to the national and international forest related processes?

Kari T. Korhonen

Earth Observation for European Sustainable Forest Management -webinar

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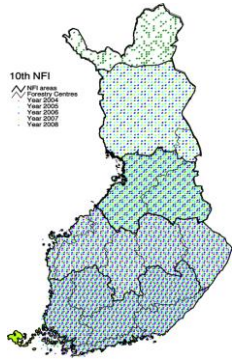
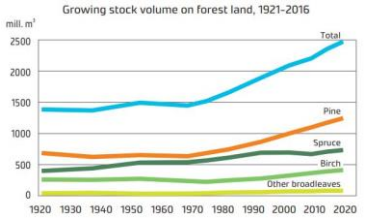
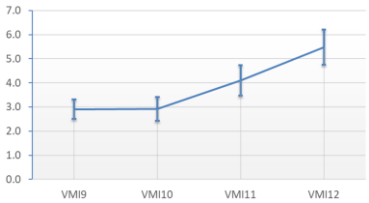
What NFI is?







- National Forest Inventory, NFI, is a forest/land monitoring system producing statistical information at country or regional level for forest/environment/land use policies and decision making
- Key requirements for NFI data
  - Monitoring system vs. one-time survey
    - Detection of changes and trends important for analysing effects of policies
  - Reliability and accuracy
    - Variance of estimates need be estimated
    - Avoid biased results, especially bias in change estimates
  - Timelines
  - Relevant information content

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Case NFI Finland

- First NFI in 1921-1924
  - Concern on deforestation and degradation of forests
  - Volume of growing stock, increment, state of forests, sustained yield
  - Line survey method, supported by field plot measurements
  - Including reliability estimates
- NFI2 (1936-1938) - NFI7 (1977-1984)
  - Methodogical changes, e.g. aerial photos in Lapland
  - No major changes in information content
- NFI8 (1986-1993),
  - Forest damages, Satellite images
- NFI9 (1994-2003),
  - Forest biodiversity, permanent sample plots
- NFI10 (2004 – 2008),
  - Forest carbon, a continuous inventory
- NFI11 (2009 – 2013)
  - Tree measurements outside forests
- NFI12 (2014-2018)
  - New Forest Act: monitoring of changes
- NFI13 (2019-2023)
  - Recreational values

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Role of NFI in Forest Programmes & Forest related policies

1) Monitoring & Early Warning System

- How forests are developing?
- Monitoring the success of programmes and policies

2) Data and tools for policy planning

- Projections for future
- e.g. Energy and Climate Strategy 2025

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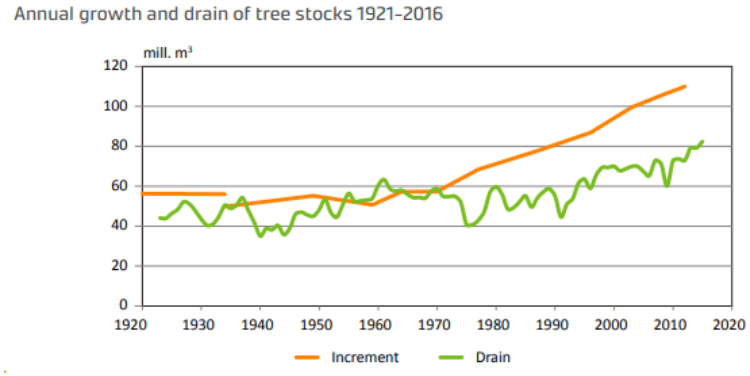
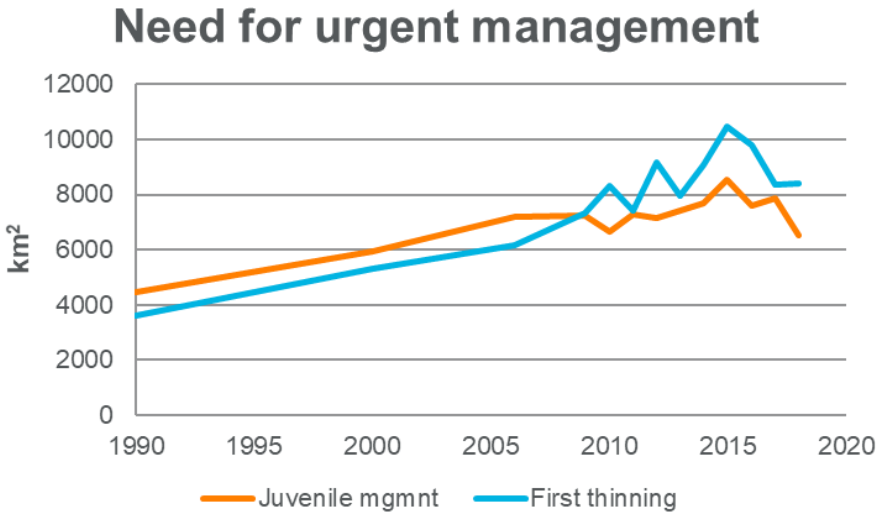
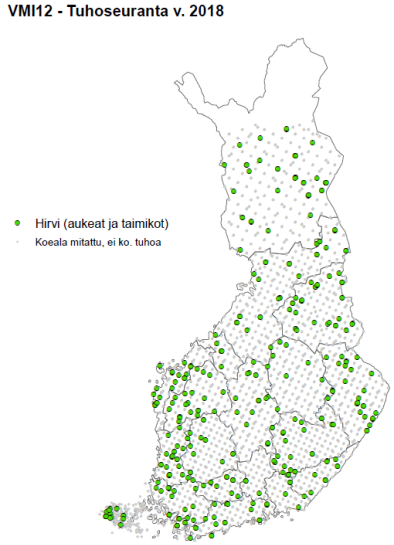
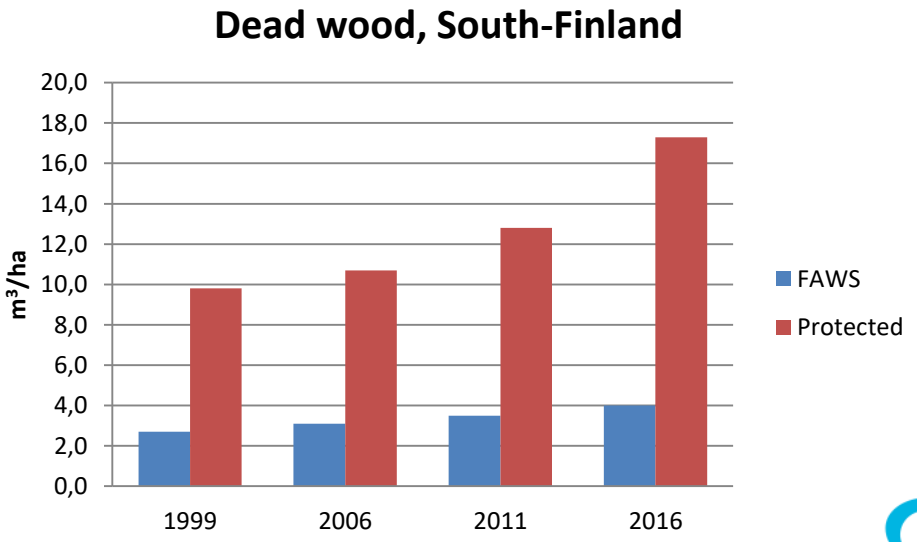
Examples of the role of NFI in monitoring





NFI12 2018: Damage caused by moose





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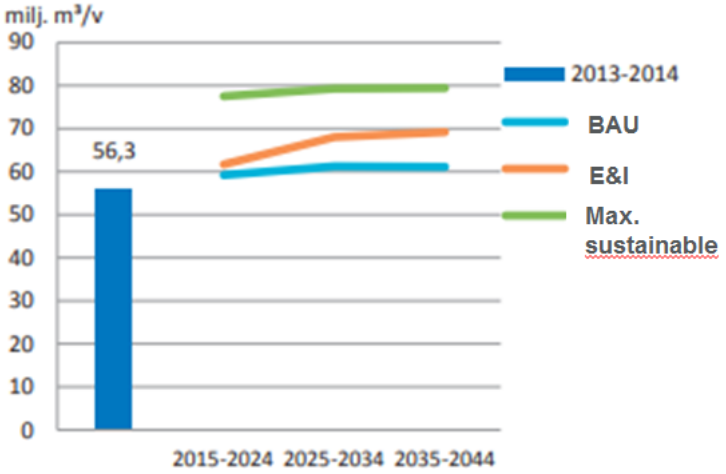
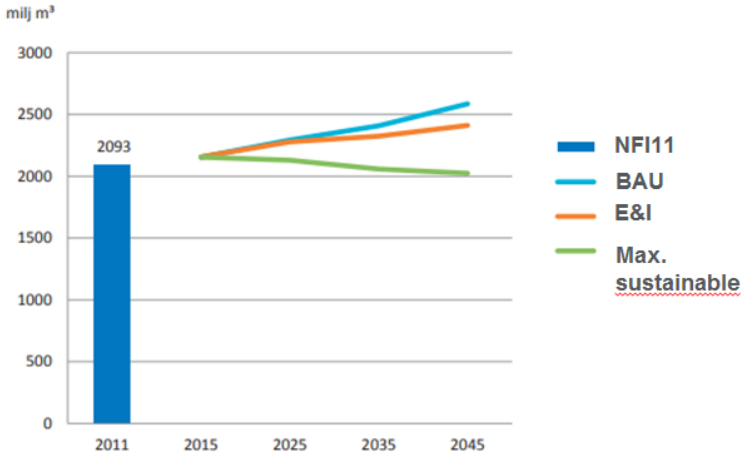
Role of NFI in policy planning

- considering long term sustainability
- analysing trade-offs between different forest products and services
- environmental impact assessments of plans and programmes
- optimal allocations of
  - resources and
  - policy measures
- Case: Energy and Climate Strategy 2015



Harvested industrial roundwood in different scenarios.



Development of growing stock volume in different scenarios.

Source: Lehtonen et al. 2016. Luonnonvara- ja biotalouden tutkimus 3/2016.

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NFI in international reporting and processes

Statistical data/monitoring

- Global FRA2020
- Pan-European C&I for sustainable forest management
- UNFCCC & Kyoto Protocol reporting
- EU Natura Habitat Directive reporting

Scenarios

- LULUCF regulation
  - Forest management practices on the reference period 2000-2009
  - Data source for making the scenarios on CO2 emissions/gains during the commitment period 2021 - 2025

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Pan-European SFM indicators where NFI is the data source

Indicator	NFI
Forest area	XX
Growing stock	XX
Age/Diameter structure	XX
Forest carbon	XX
Defoliation	X
Forest damage	X
Forest land degradation	?
Increment and fellings	XX
Diversity for tree species	XX
Regeneration	XX
Naturalness	XX
Introduced tree species	XX
Dead wood	XX
Protected forests	X
Protective forests	X

34 quantitative SFM indicators

- For 10 of these NFI the the only relevant data source
- For 4 additional indicators NFI often the data source

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NFI in international reporting and processes: scenarios

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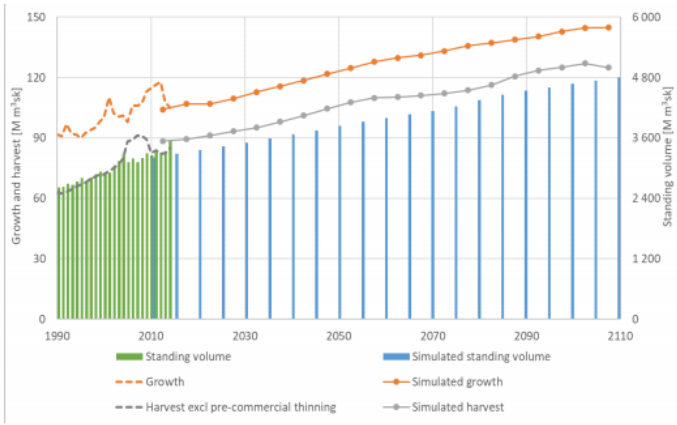

Figure 3. The development of the standing volume of biomass, annual net growth and harvest in Managed forest land 1990-2014 based on data from the NFI and for 2010-2110 based on the continuation of the simulated FRL.

Source:NFAP of Sweden

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Challenges in international reporting

- NFIs are designed for national information needs
  - Definitions
  - Information content
  - Cycle

→ Meaningful summary data over whole EU not straight forward

→ European National Forest Inventory Network ENFIN

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Thank you!

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