Monitoring Forests

in the Czech Republic

Presented by

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at the

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Czech Forestry Institute

Forest monitoring target

Timeliness
(temporal resolution)

Accuracy
(trueness, precision)

Granularity
(spatial resolution)

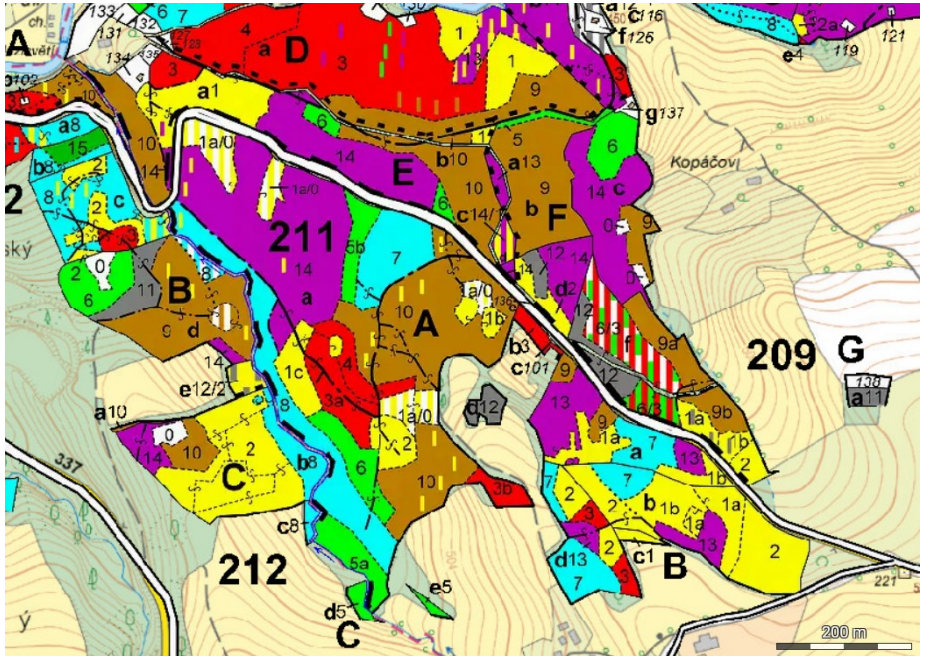
Best quality info
we can afford for given purpose

Different sources of info – our responsibility to choose the best

Quality and definitions are crucial for further use

Forest Management Plans

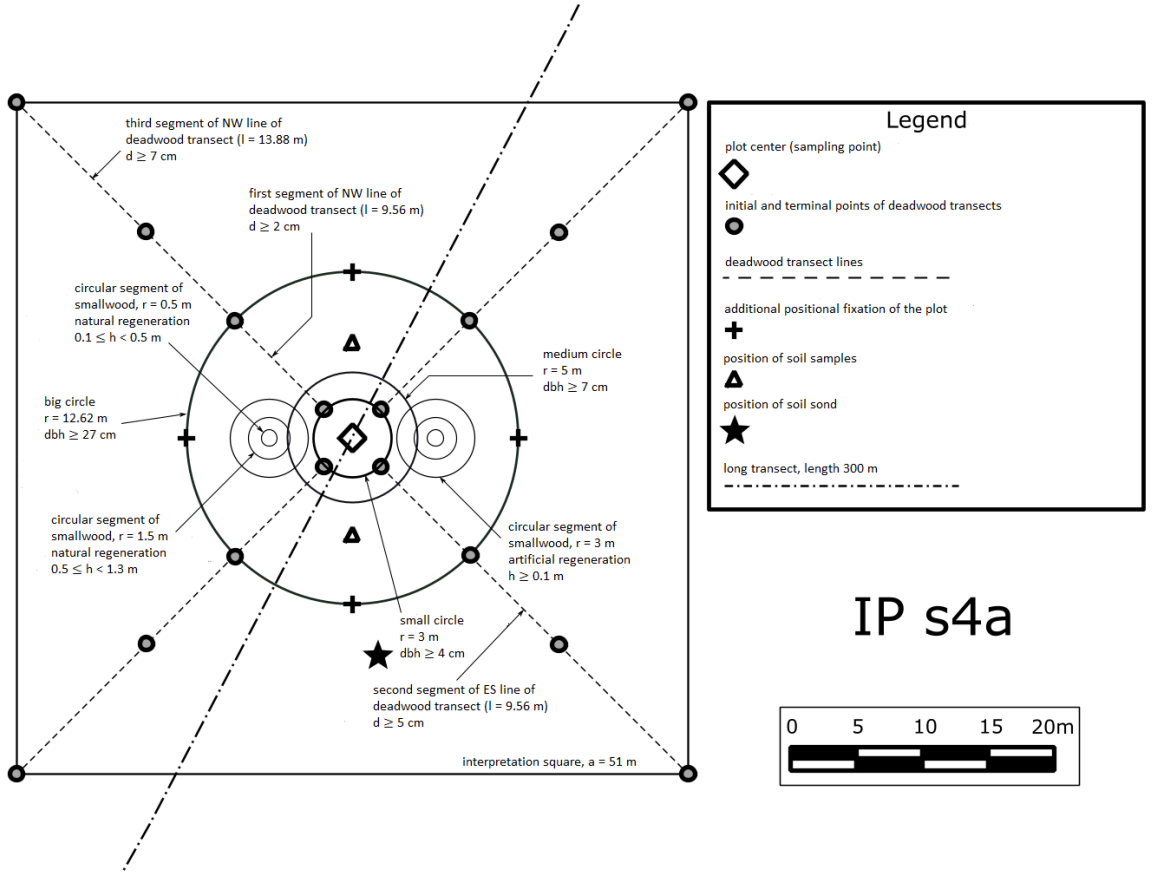
- After 1950 for all forests
- Spatially explicit system of forest units
- Very detailed information for single forest stands => any sum is possible even for whole country
- Management oriented (species, growing stock, quality)
- Other info missing (deadwood etc.)
- Timestamp
- Varying accuracy



Example of results: **Growing stock (2011-2020) 701.051232 mil. m³ u.b.**
Should be presented rather as **701.1 ± X mil. m³ u.b.**

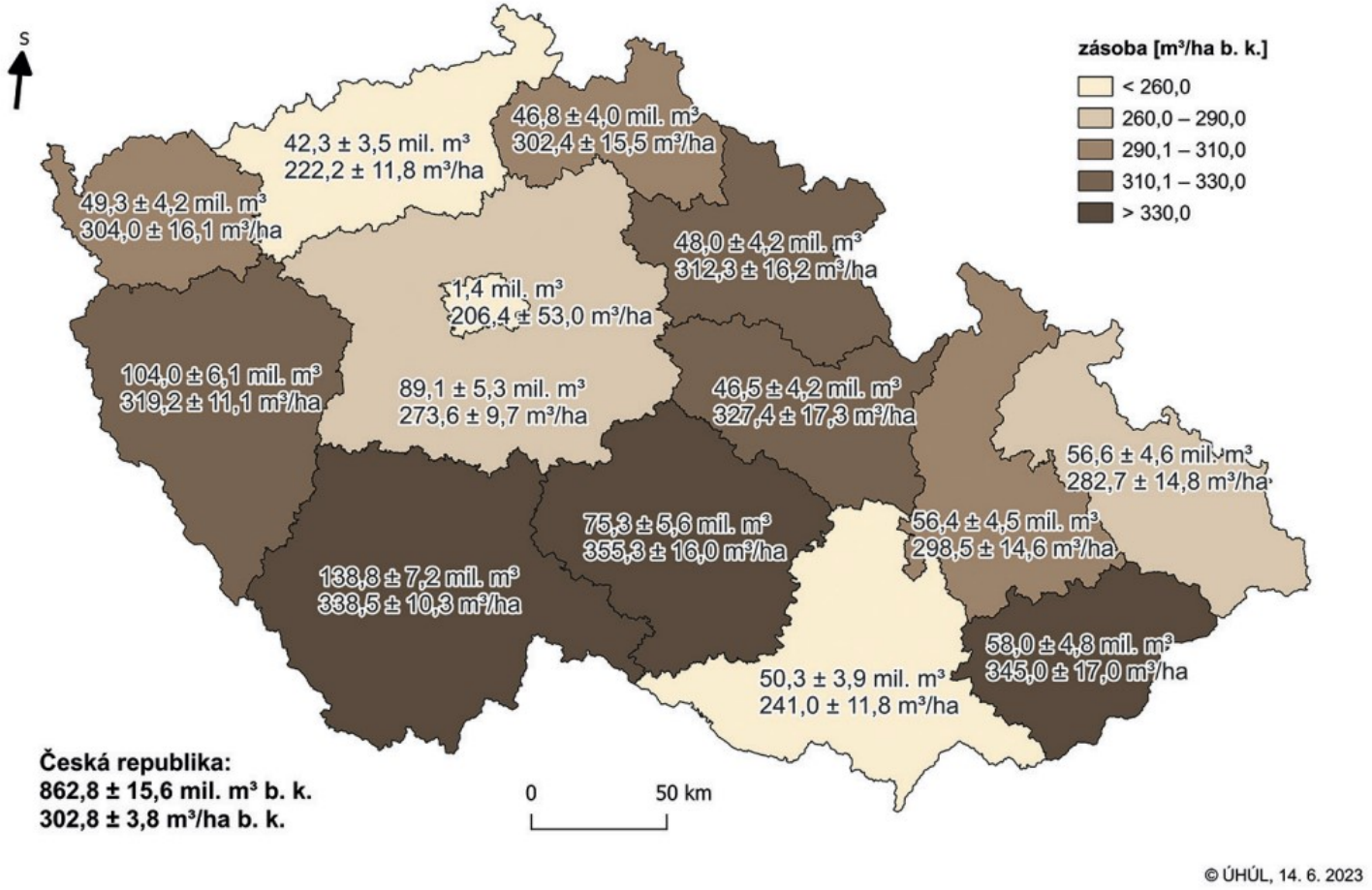
National Forest Inventory in Czechia

- First cycle 2001-2004, now continuously
- 5 years revisit cycle
- Sampling design
  - Optimized for NUTS3 regions
  - Confidence level 95%
  - Cca 14 th. permanent sample plots (0.025 %)
- Wide range of parameters
- Partly open
  - Methodology published
  - Data available upon request
  - Exact coordinates of plots are secret to safeguard representativeness



National forest inventory results example 1

Growing stock (2016-2020) **862.8 ± 15.6 mil. m³u.b.**



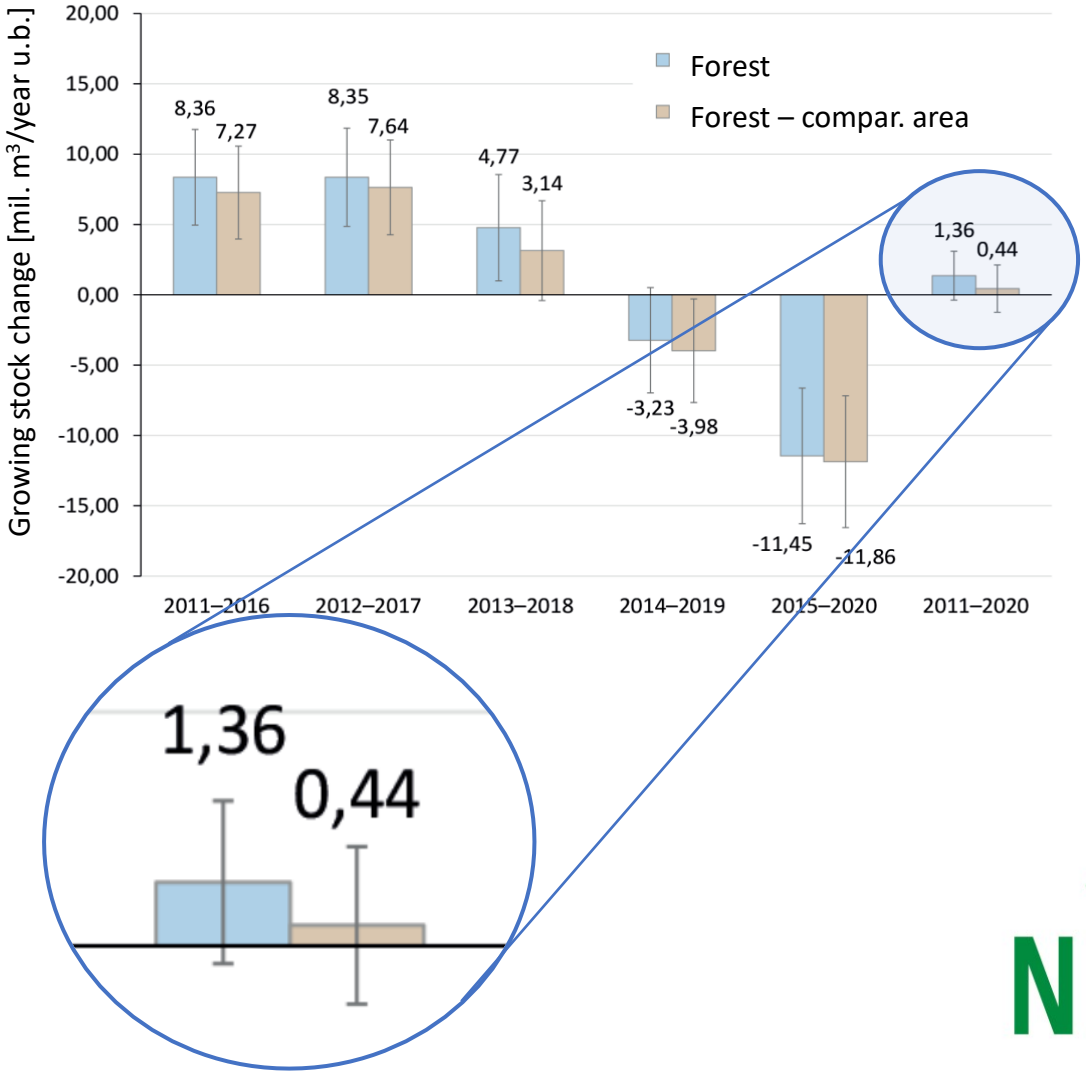
National forest inventory results example 2

- Growing stock change

between 2011-2020

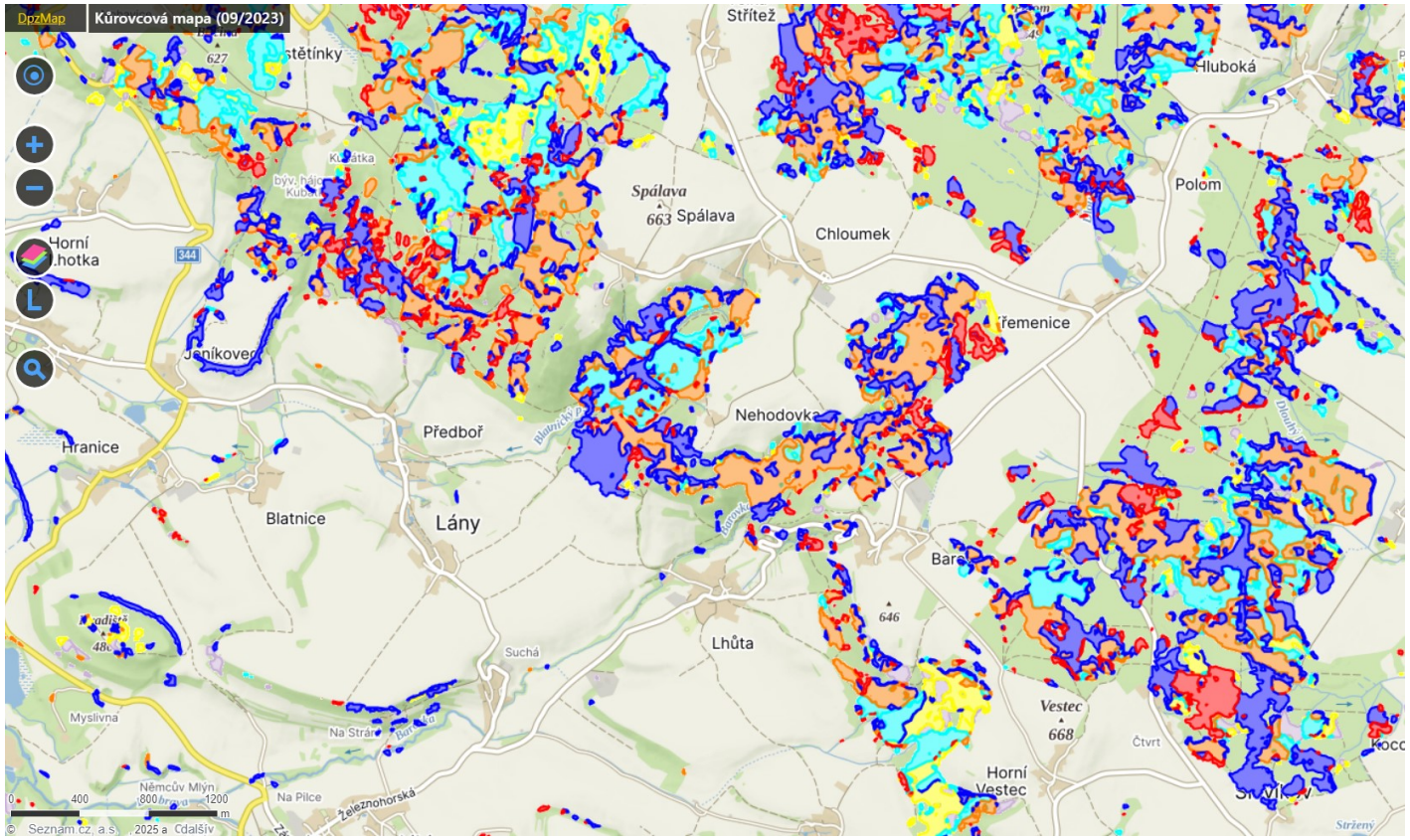
0.44 (±1.68) mil. m³/year u.b.

	NFI2					NFI3				
Year	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Change		11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20
Panel 1		1	1	1	1	1				
Panel 2			1	1	1	1	1			
Panel 3				1	1	1	1	1		
Panel 4					1	1	1	1	1	
Panel 5						1	1	1	1	1
Weight		1	2	3	4	5	4	3	2	1
Weight [%]		4	8	12	16	20	16	12	8	4



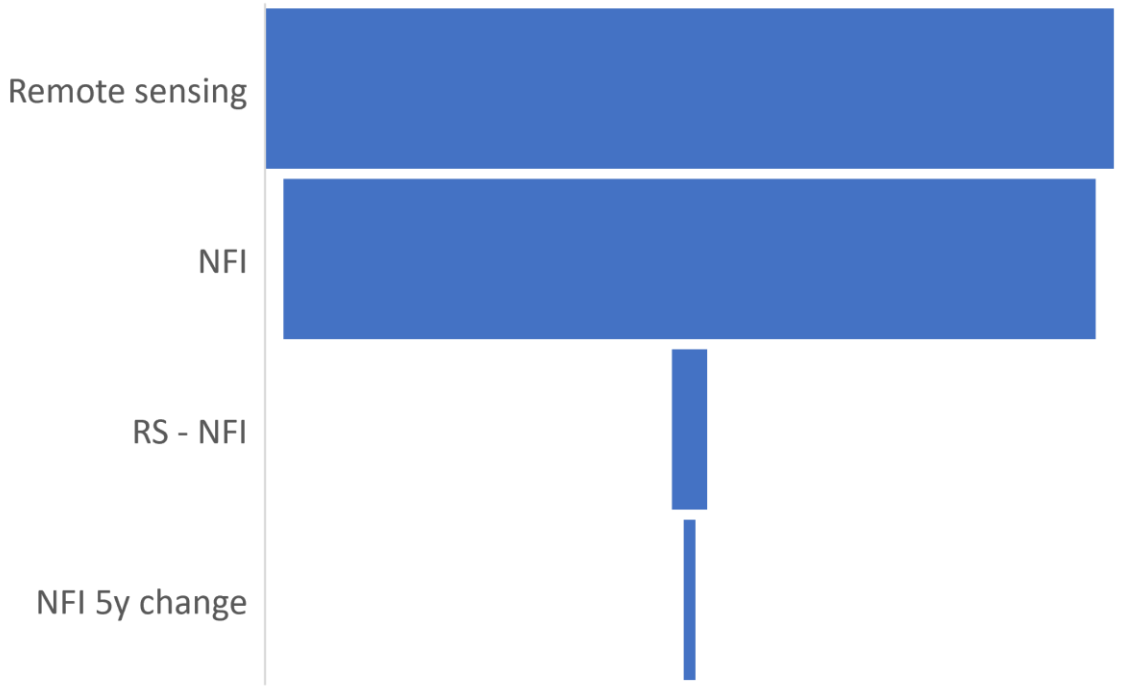
Remote sensing

- Used to improve quality of estimates within NFI
- Also for „Mapping“
  - Bark beetle outbreak
  - Clearcuts
  - „Vitality“
  - Etc.



Forest Area

	Forest area (th.ha)	± [α = 0,05]
Remote sensing	3 019.5	?
NFI	2 892.9	53.0
RS to NFI difference	126.6 (5%)	
NFI 5y change	45.2 (1.6%)	10.5



Way forward for EU level

- Realistic approach, some info needs cannot be met at a reasonable price
- Local knowledge irreplaceable also in interpreting the results
- NFIs necessary
  - Available in many MS
  - Further harmonization necessary (ENFIN association)
  - Security must be ensured
- Combination with remote sensing in a proper, statistically sound way
- nFIESTA (new Forest Inventory ESTimation and Analysis)
  - Actively developed (Cofinanced through EU funds)
  - Allows to combine different NFI designs
  - Allows to combine with remote sensing in statistically sound way

NLI

Thank You for Your attention

Questions?

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