

Ecosystem extent & wood provision – first impressions

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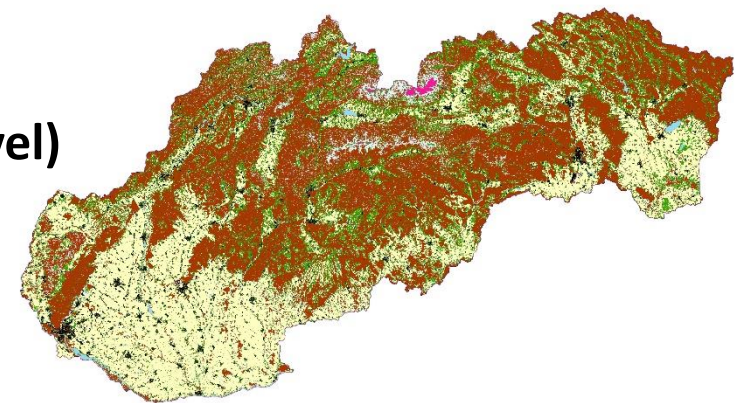
PEOPLE-EA, International Workshop,

Athens, 22 & 23 May 2024



Ecosystem extent maps

- Ecosystem extent rasters: 3 various levels
- First time in history, national ecosystem extent data sets were compiled (10 m grid) based mainly on EO in such detail.
- The first simple verification process is based on a visual check of the data and comparison with satellite images.
- Local data sets are used for visual comparison of results.
- First impressions: precision of more than 80% (very good precision level)
- Level 3 EUNIS and Extent maps is very inovative and valuable

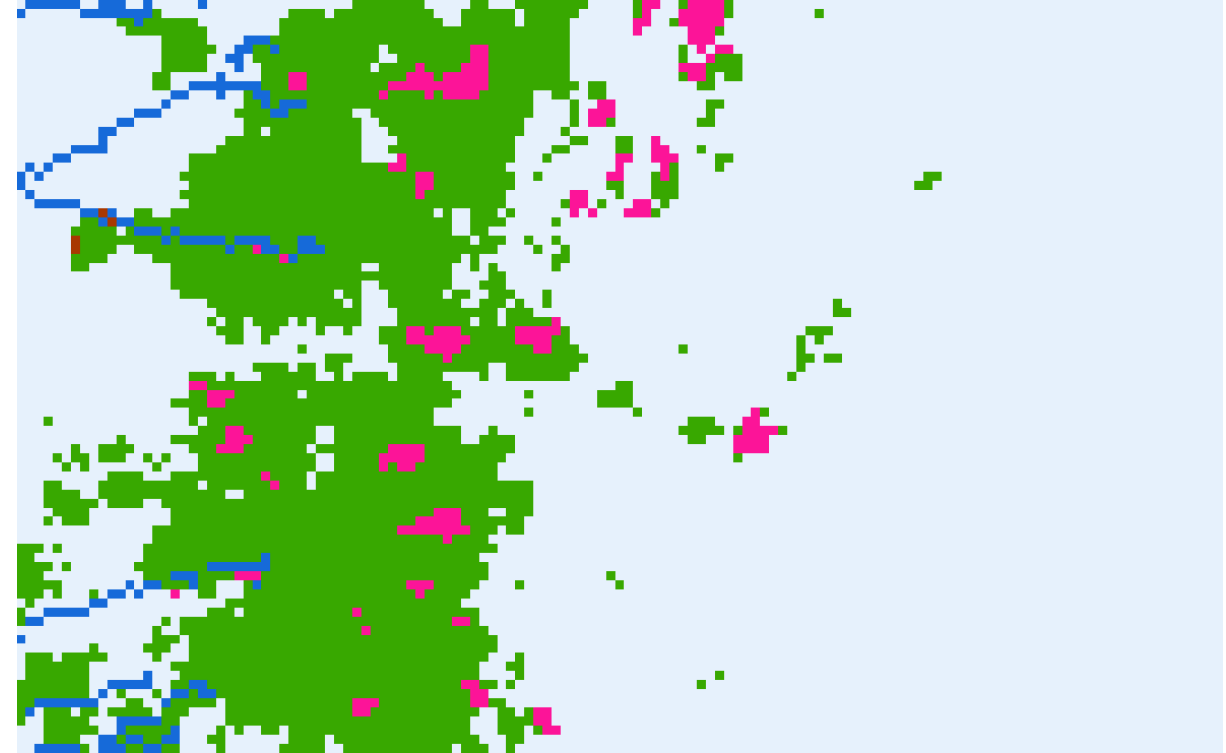
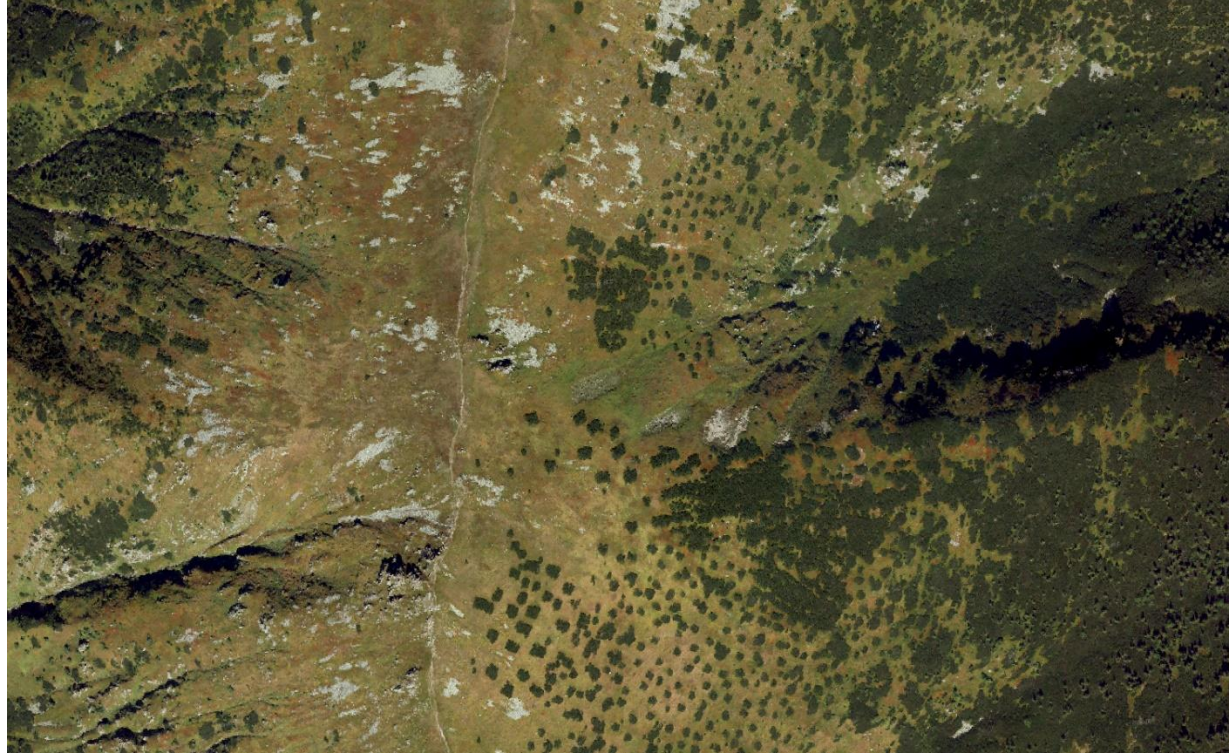


L3: T1-71 - Medio-European neutrophile *Fagus* forests / 4103 – *Fagus* dominated forests

- Areas of 4103 *Fagus* dominated forests (L3) (along with 4402 and 4200) are correctly detected and overlapping with T1-71 forest (field mapping carried out in recent years, polygons highlighted in blue).



L1: Shrubs vs Sparsely vegetated land



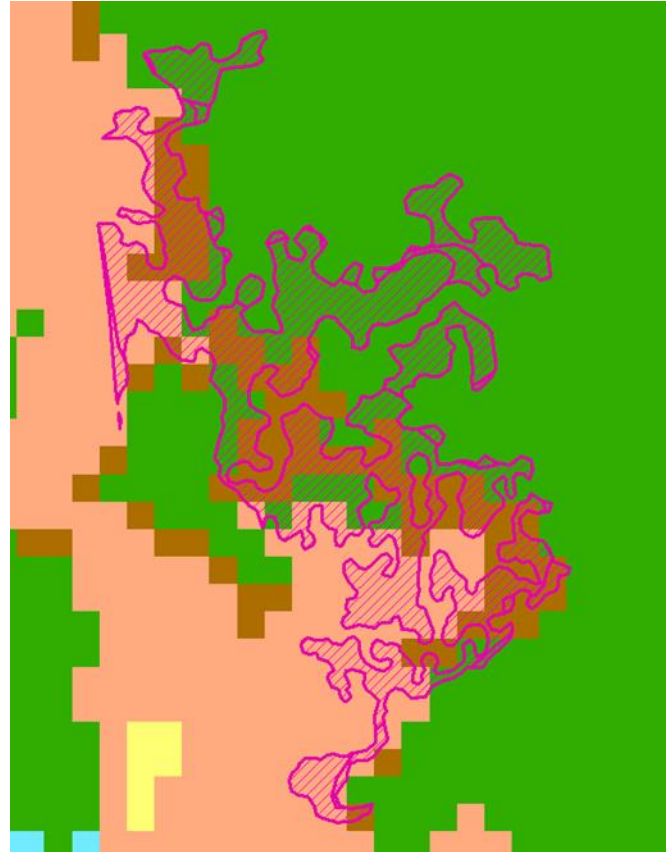
L3: T1-E16 - Sub-continental *Quercus* - *Carpinus betulus* forests / 4103 – *Fagus* dominated forests

- Areas of T1-E16 forest from field mapping (carried out in 2022, pink polygons labelled as national category Ls2.1) are overlapping with incorrectly detected 4103 (*Fagus* dominated forests) category in L3 extent.



L1: S3-2 - Temperate *Rubus* Scrub / Forest

- ‘Temperate *rubus* scrub’ polygons from field mapping (carried out in 2023, pink polygons) are detected partially as forests (L1, green), mainly at the north and centre.



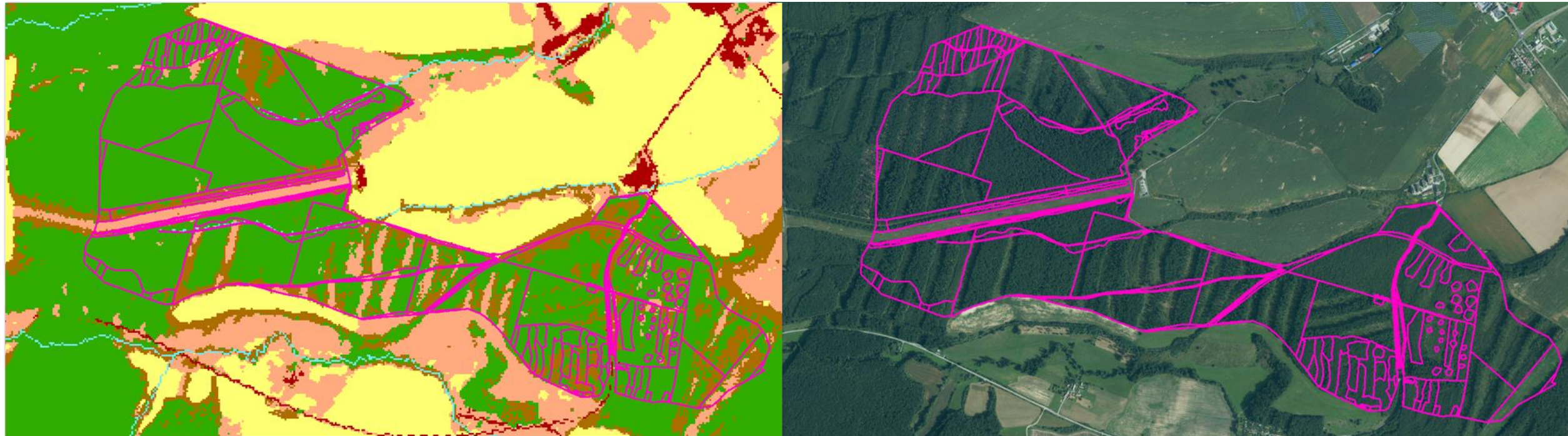
L1: S3-2 - Temperate *Rubus* Scrub / Forest

- ‘Central and western patches of ‘Temperate *rubus* scrub’ habitat inside the forest (data from 2023 field mapping as pink polygons) are detected as forest (L1). Only the parts at the edge are correctly detected as non-forest parts.

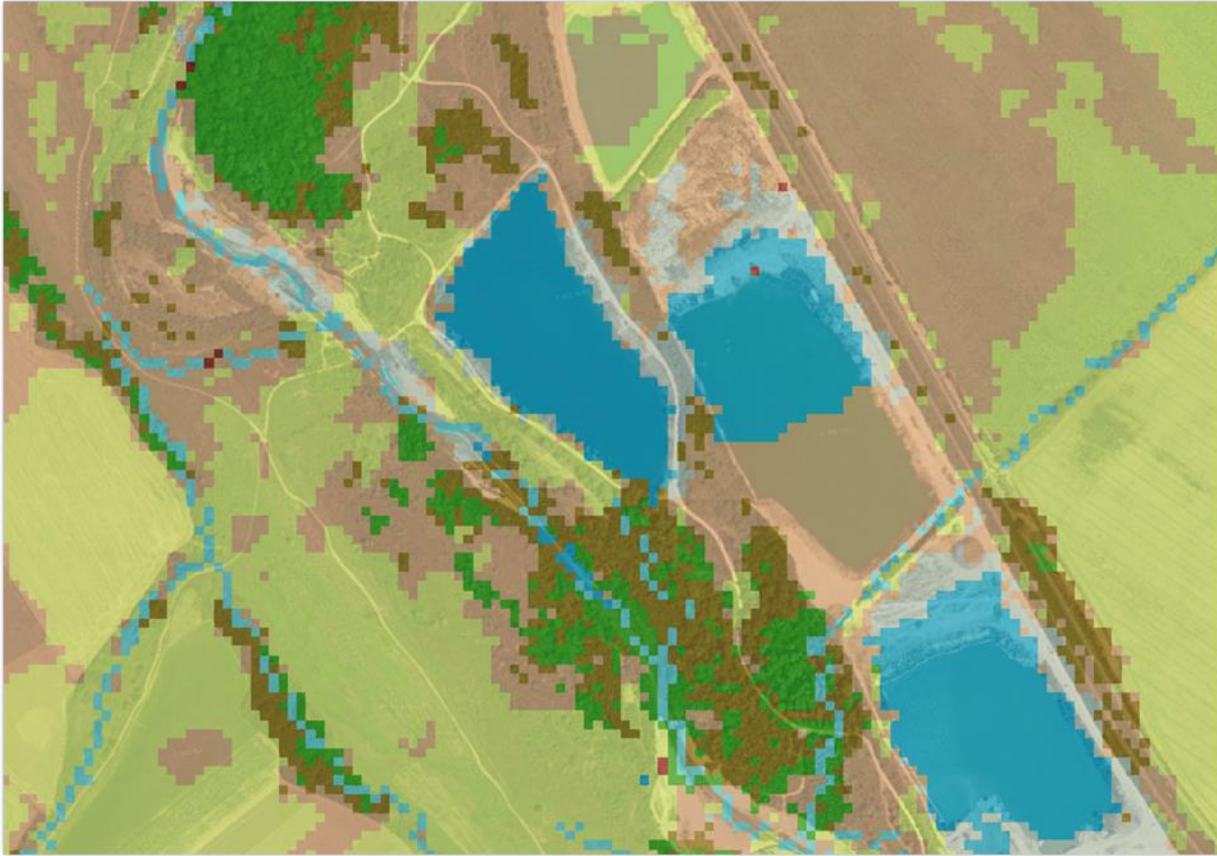


L1: T1-991 - Euro-Siberian Steppe *Quercus* Forests

- Inconsistencies in detections of genuine forest and non-forest parts.



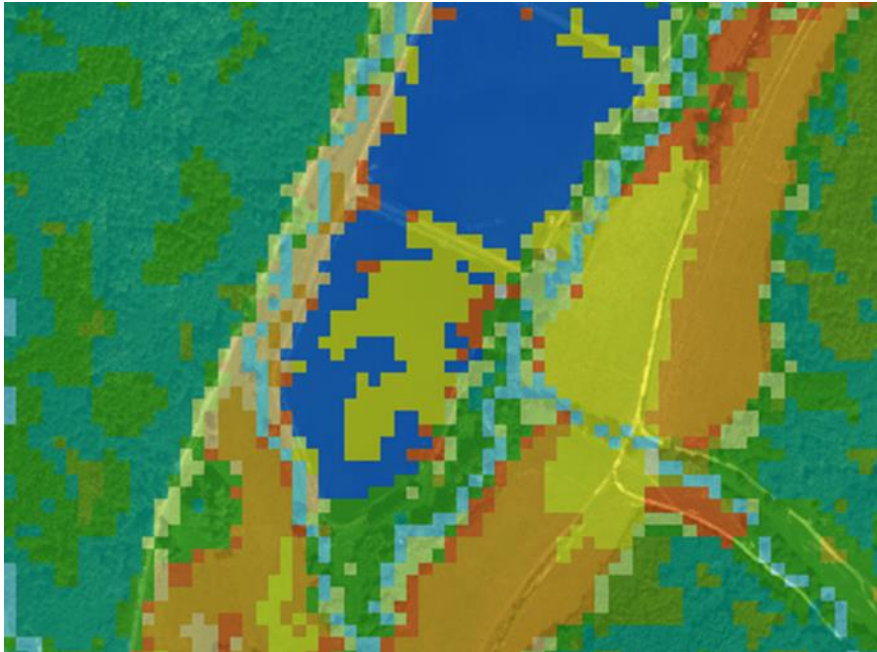
L1-L3: Parts of lakes and reservoirs missing



L1-L3: Parts of lakes and reservoirs missing

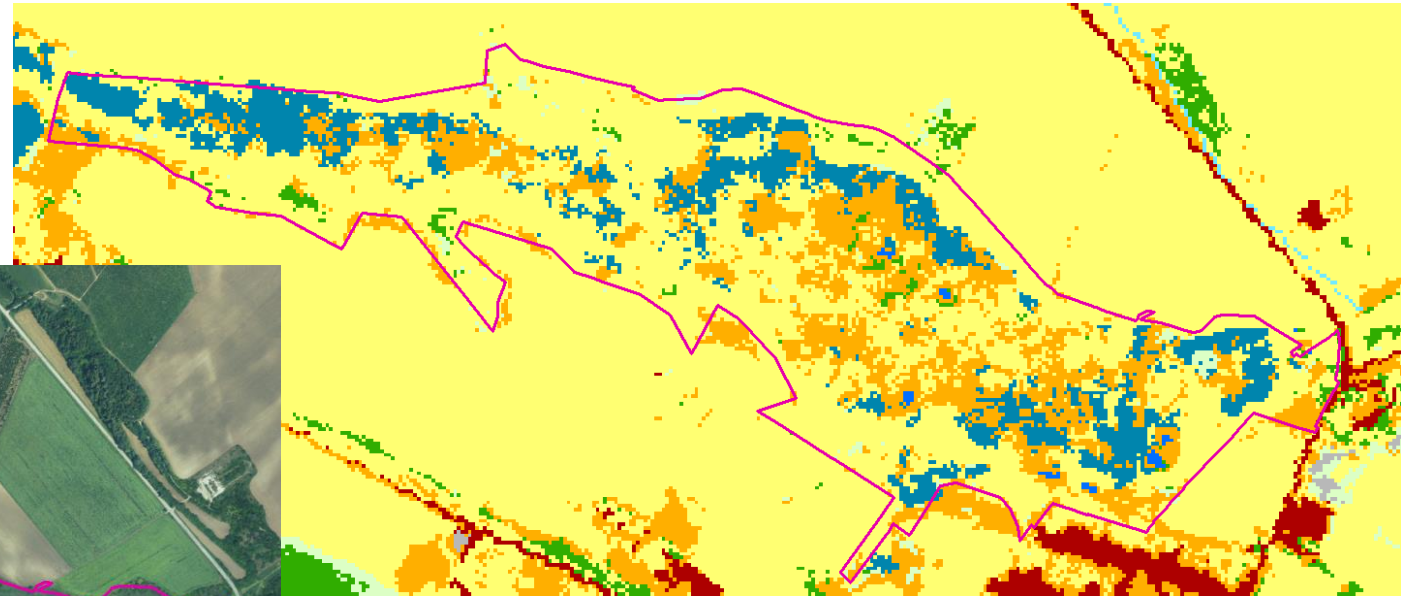


L1-L3: Parts of lakes and reservoirs missing



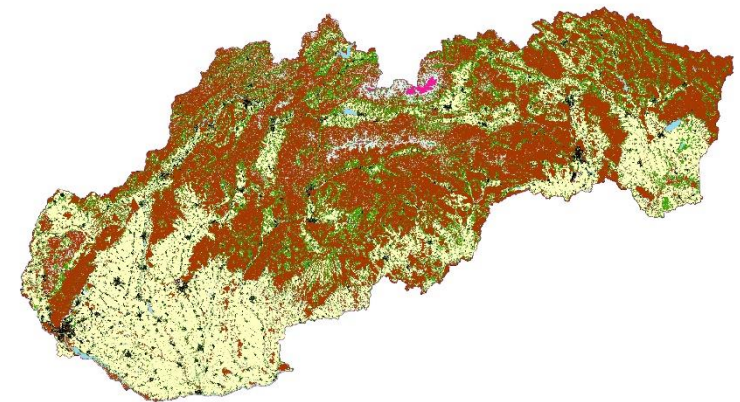
V4_0_2, L1: 7000 Inland Wetlands

- Patches of wetlands detected at RAMSAR locality Parížske močiare.



Ecosystem extent maps – future steps

- **Plans for more complex feedback**
- **Verification based on actual complex field data sets in selected regions**
- **As results GIS comparison of data sets with statistics of positive and negative overlap**



Ecosystem service accounts – wood provision

- **Added value of EO approaches**
- **Net annual increment as proxy (more in Marcel Buchhorn presentation) – first impressions from the fresh SK product**
- **How to validate?**
- **Future steps**

Net annual increment – current status in Slovakia

- Field based mapping – great tradition and practice
- Forest management unit (parcels) serve as elementary mapping unit
- Huge datasets in GIS – aggregation statistics

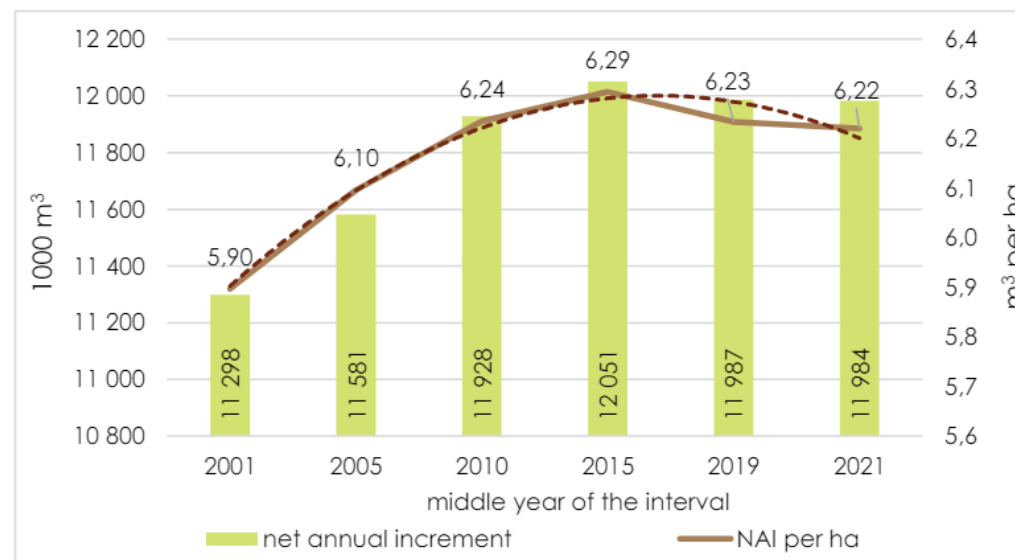


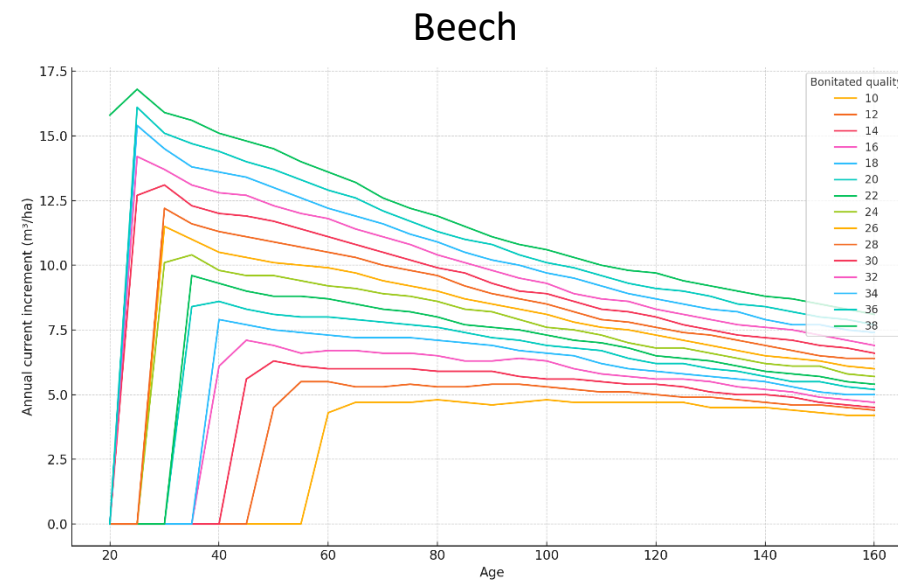
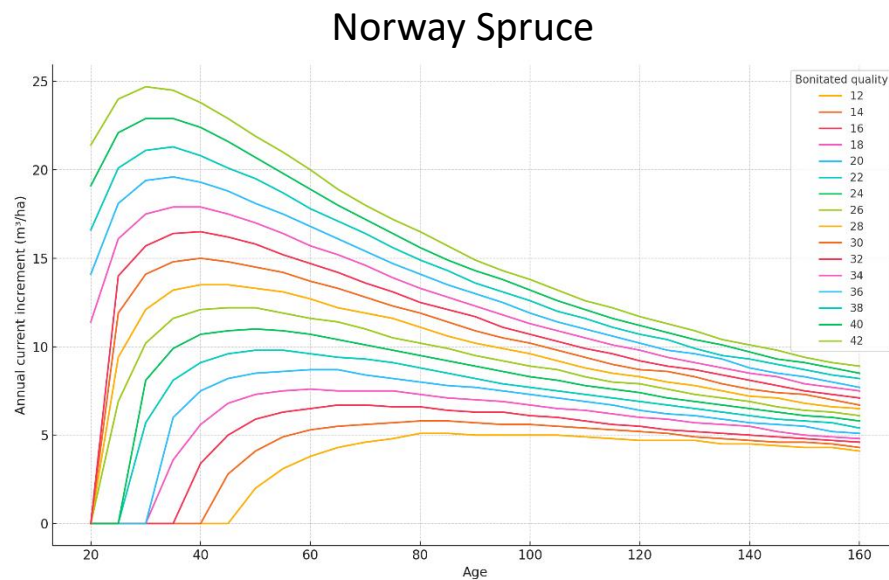
Figure 2.3-7 Total current increment – volume (1,000 m³) and per hectare (m³/ha)

Source: NFC 2000-2022.

Note: The values for the presented central years were calculated as an arithmetic average of the intervals: 2000-2002, 2003-2007, 2008-2012, 2013-2017 and 2018-2020. Values for 2021 represent the data for this year only.

Net annual increment – current status in Slovakia

- Only 1/10 of the total forested area is upgraded within 1 year
- Forest mapping and estimates valid for 10 years cycle
- Methods based on empirical knowledge (stand quality and age as key predictors)

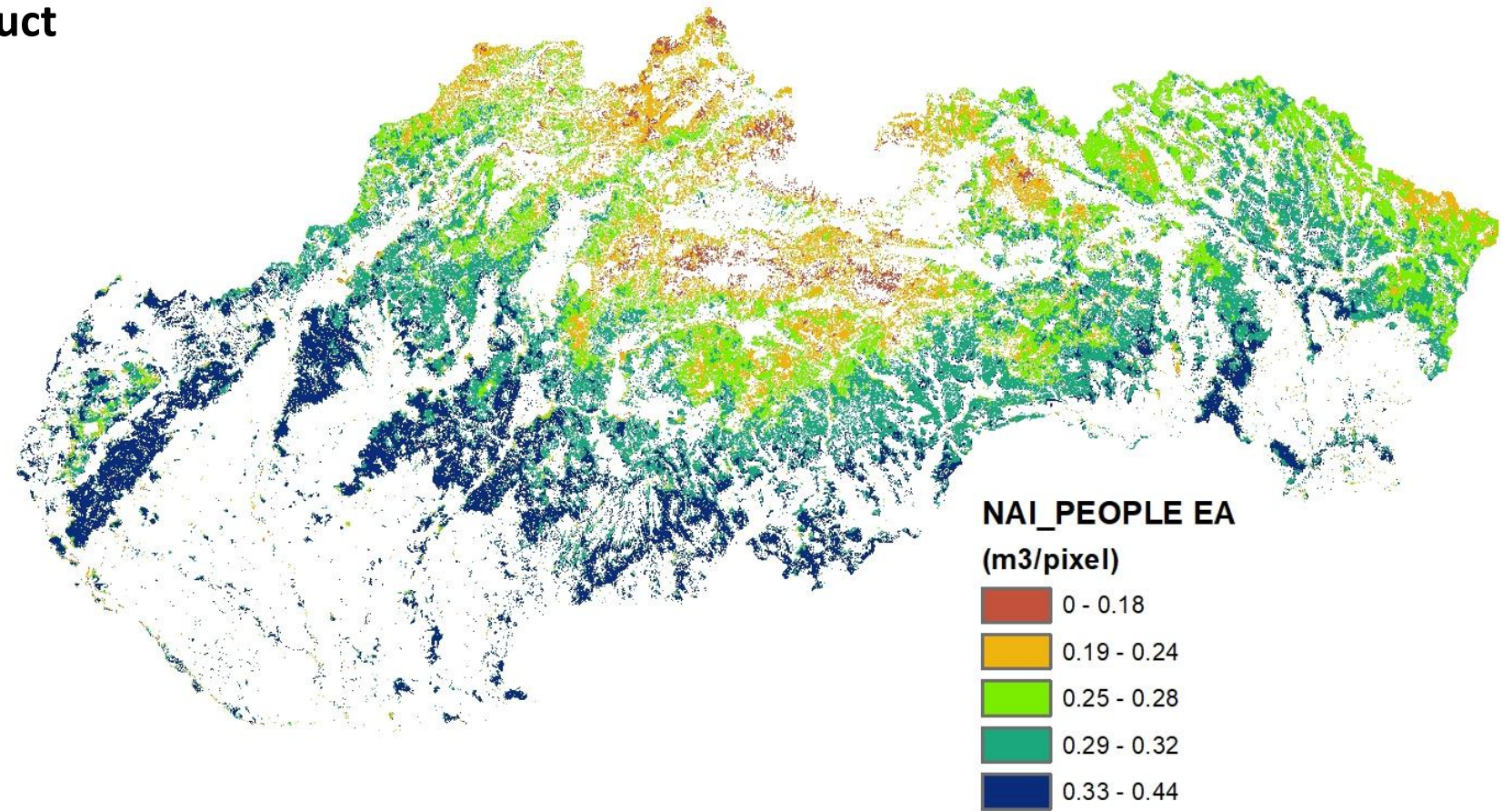


Net annual increment – 1st PEOPLE EA product

- PEOPLE EA EO based product
- NAI
- Pixel 20m
- Different sources for the production (Marcel)

First impressions:

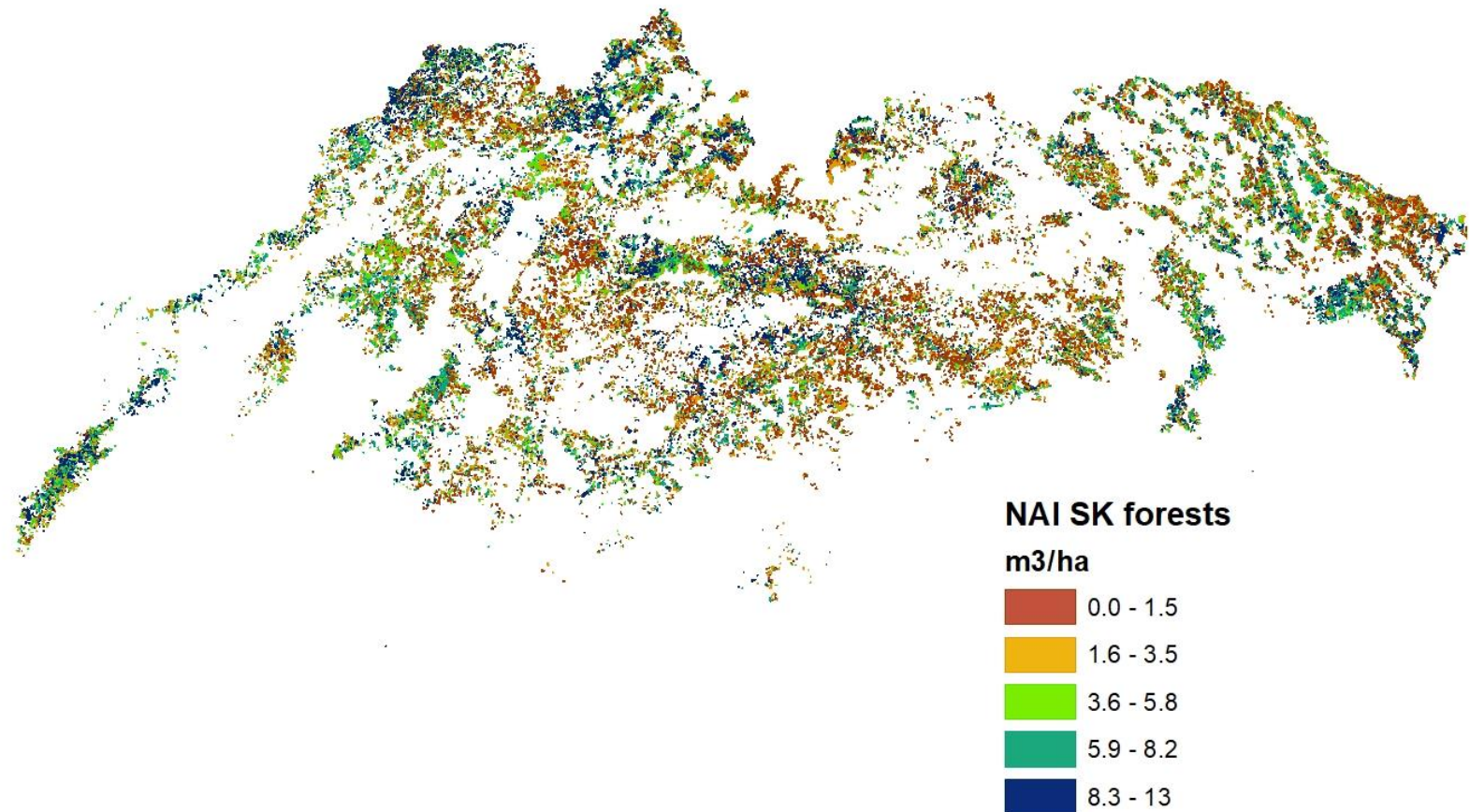
- Plausible distribution (Forest types)
- Age agents (challenge)
- Live trees, mortality (promissing)



Net annual increment – how to validate?

Not a validation, rather intercomparison of different products/approaches

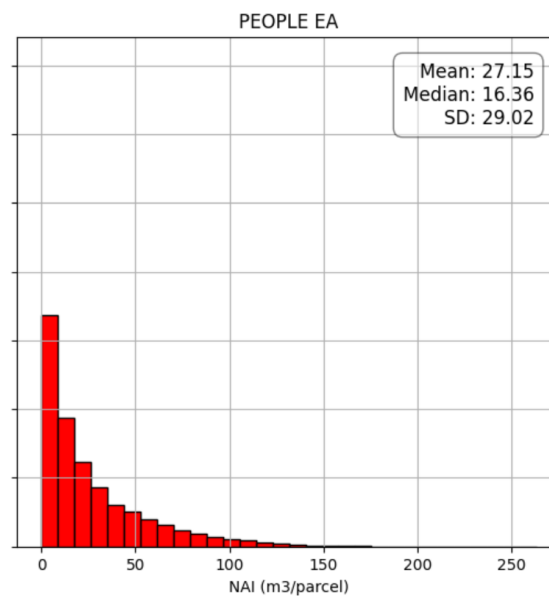
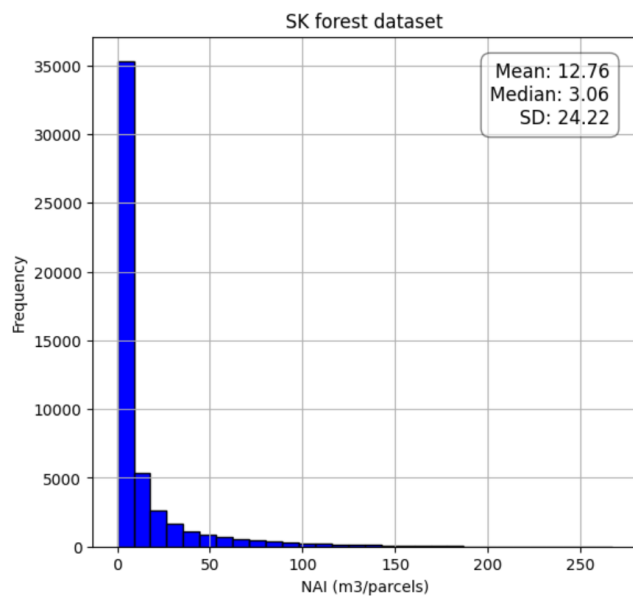
- Beech and Norway spruce forests
- Only 100 % species dominant parcels involved
- approx. 70 000 forest
- 2021 year



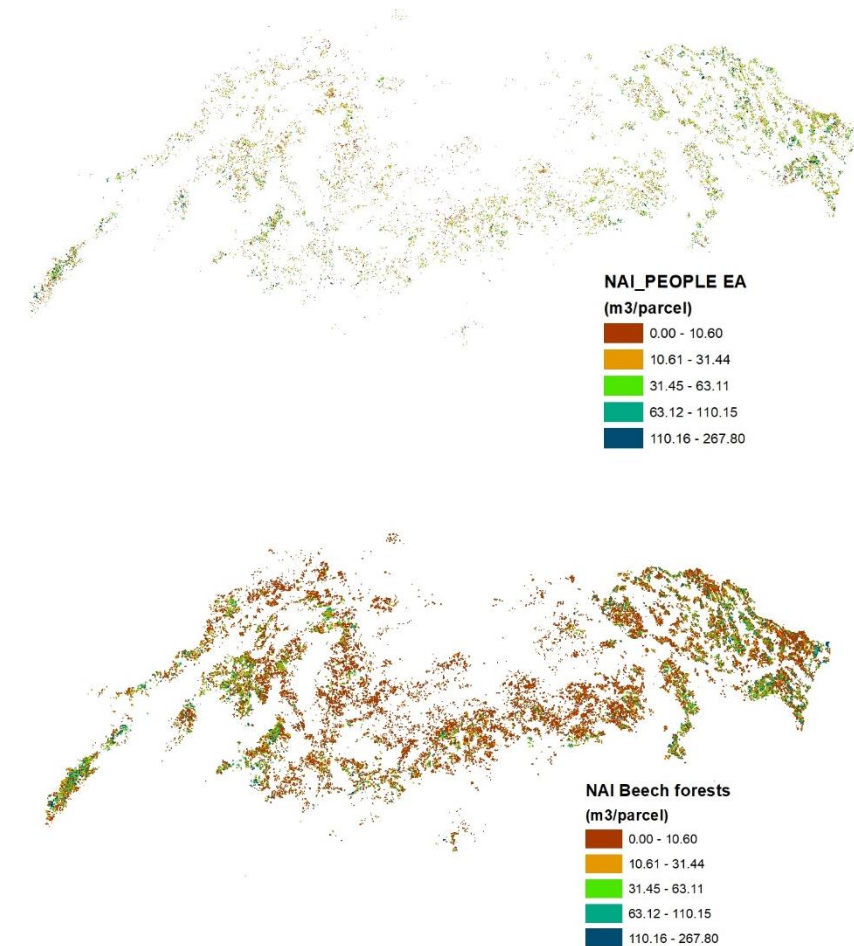
Net annual increment – how to validate?

Comparison/assessment:

- Distribution



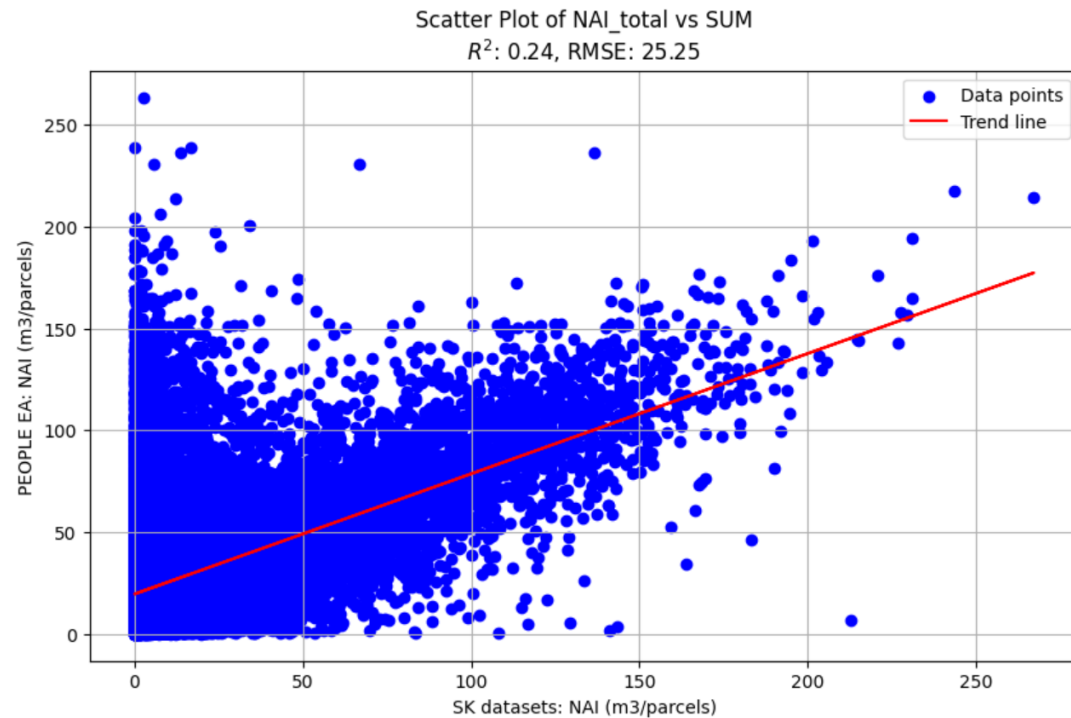
Aggregation NAI to parcel level



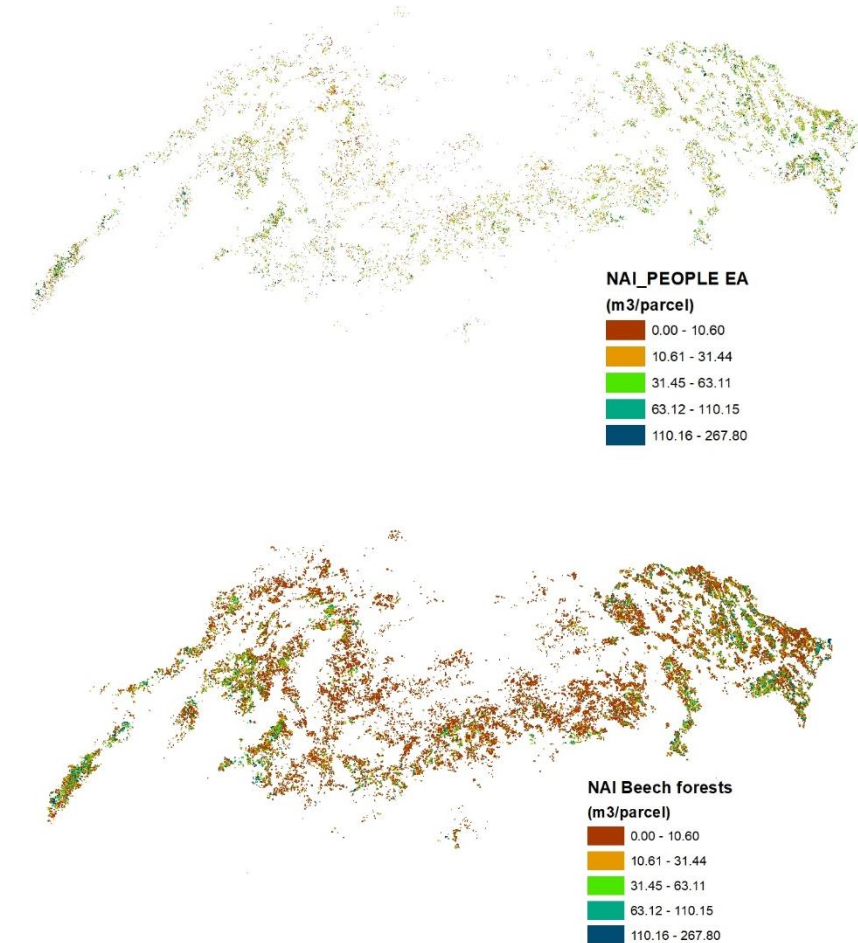
Net annual increment – how to validate?

Comparison/assessment:

- Parcel level



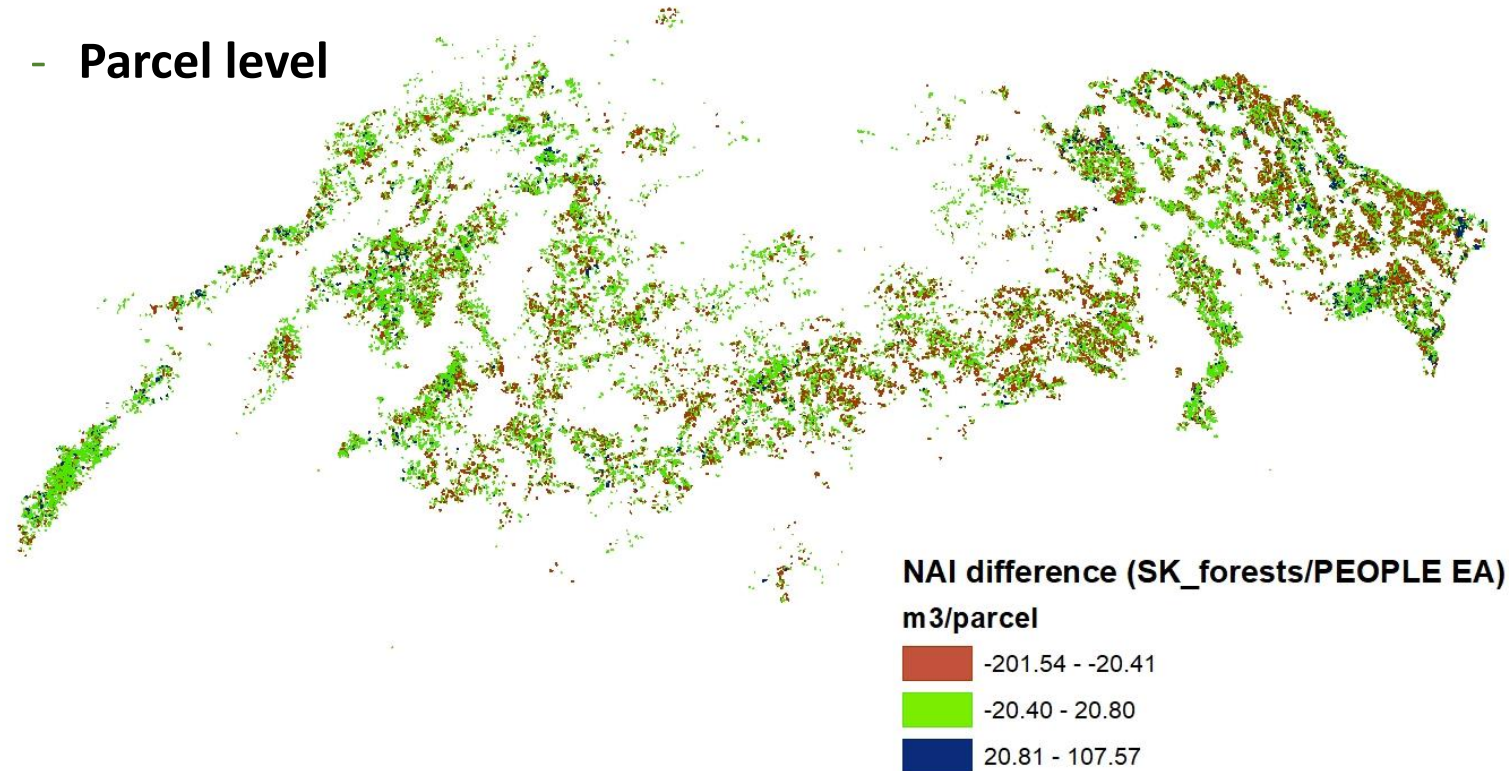
Aggregation NAI to parcel level



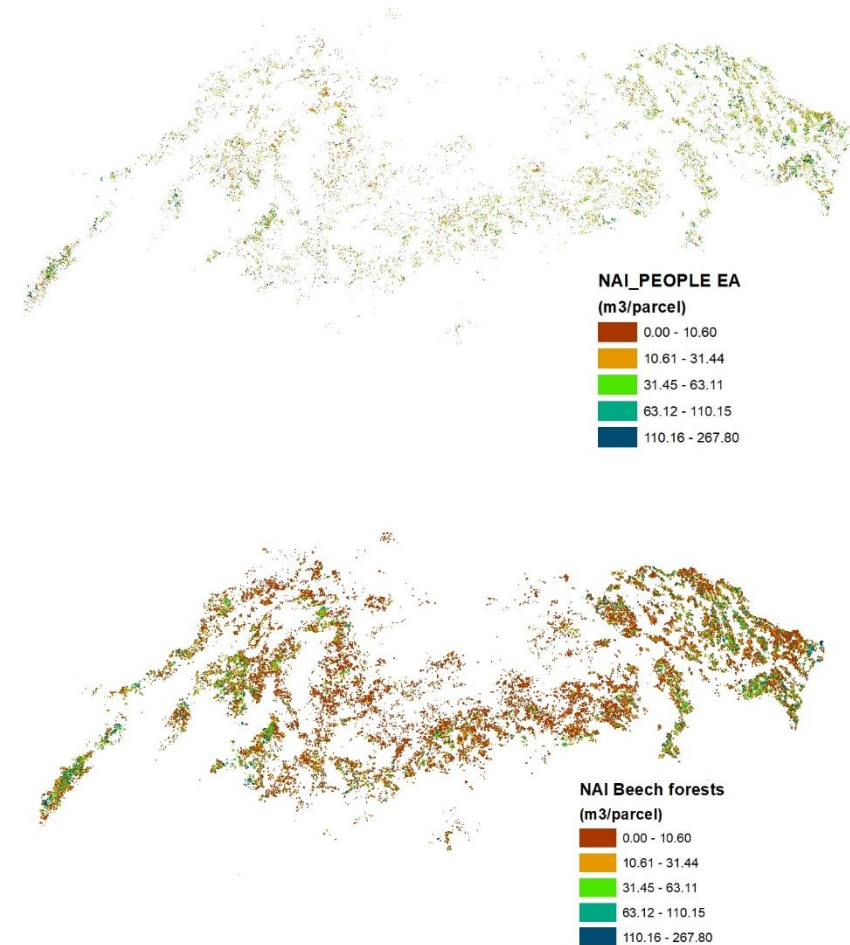
Net annual increment – how to validate?

Comparison/assessment:

- Parcel level



Aggregation NAI to parcel level



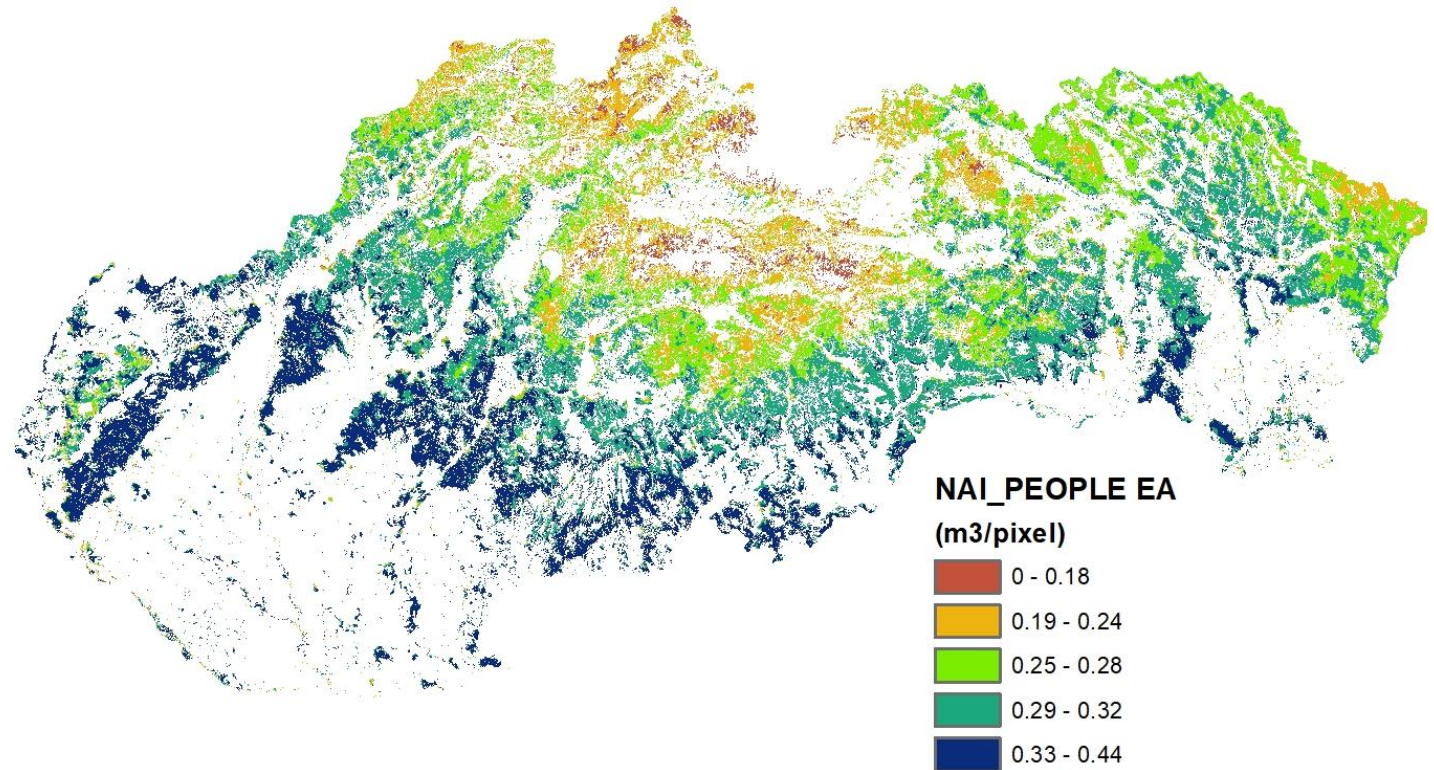
Net annual increment – follow up

Comparison/assessment:

- More forest types
- Exploring inconsistencies

Road map

- Downscaling parcel level to pixels
- Annual change/mortality mapping



Net annual increment – follow up

Acknowledgement and credits:

National Forest Centre



Thank you for attention!

