

Baseline for Carpathian wide forest indicators

Virgin forest inventory

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Background

The Carpathian Mountains are one of the most important forest ecosystems in Europe due to their *high concentration of virgin forests*;

The “**protocol for sustainable forest management**”, signed by the Carpathian Convention Parties is formalising the *need to preserve the richness and ensure sustainable use of the Carpathian forests*.

In this framework, EEA signed a partnership agreement with the Carpathian Convention Secretariat in July 2014 and included a work plan that is being implemented by one of its European Topic Centres (actually ETC/ULS) represented by the University of Malaga (UMA).



Work-flow

In 2014:

The UMA produced a report assessing the multi-sourced Carpathian-wide input datasets available that could be used for this purpose;

In 2015:

The Secretariat with the support of EEA and UMA produced a questionnaire and developed an assessment shared with the MSs to identify the local and national datasets available within the Carpathian countries;

In 2016:

The activities focused on the development of specific Carpathian wide forest resource indicators to support sustainable management (forest naturalness, forest connectivity and fragmentation and temporal change in forest cover in the region 2000-2012)

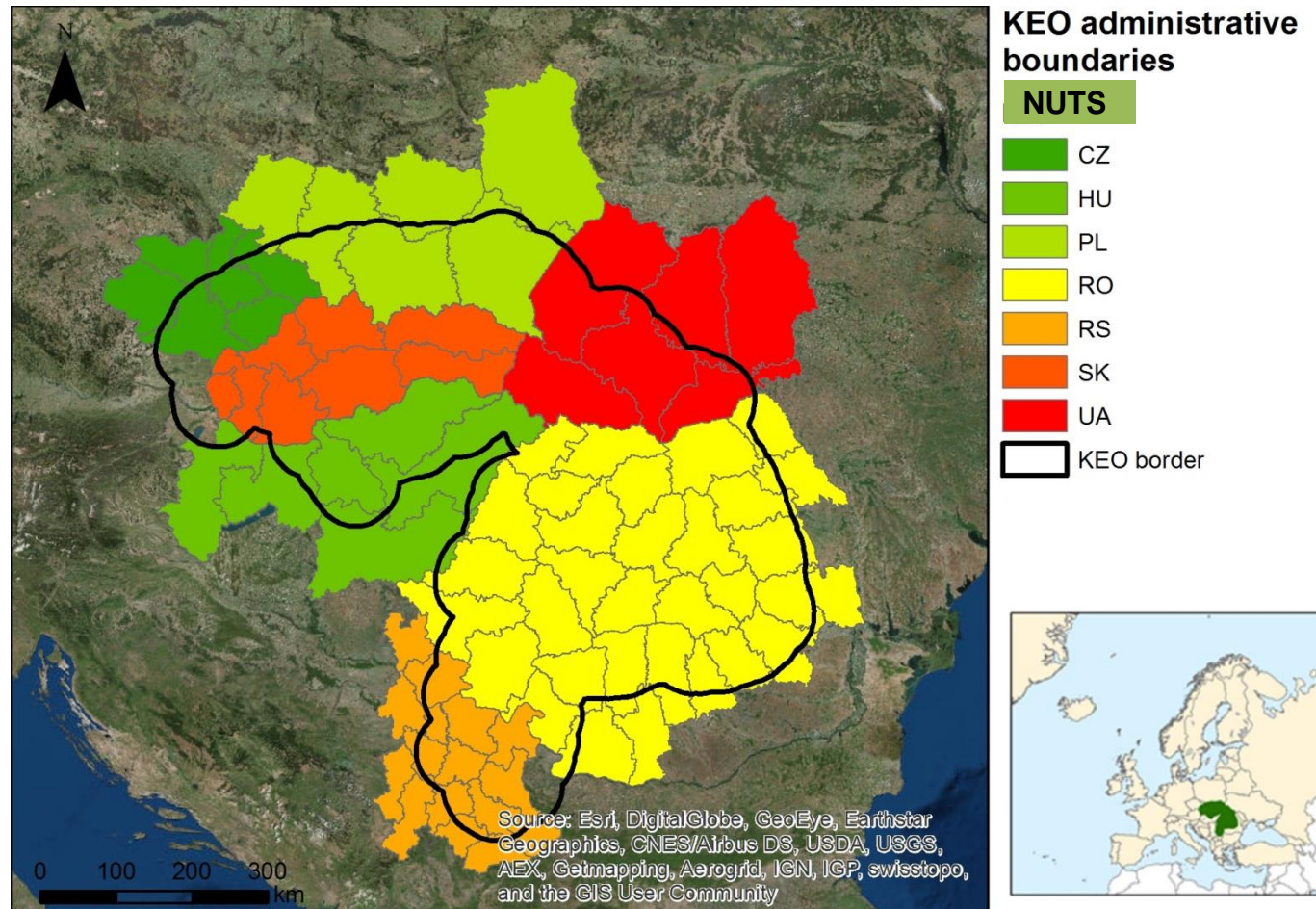
In 2017:

This work is following on the developments done in 2016 with a specific focus on HNV forest areas including information on forest extent, biodiversity, condition, naturalness and presence of ancient forest sites.

As data from MSs is now available progressively, the bottom-up approach is used as the base of the 2017 actions for validating the indicators & methodologies developed in 2016.

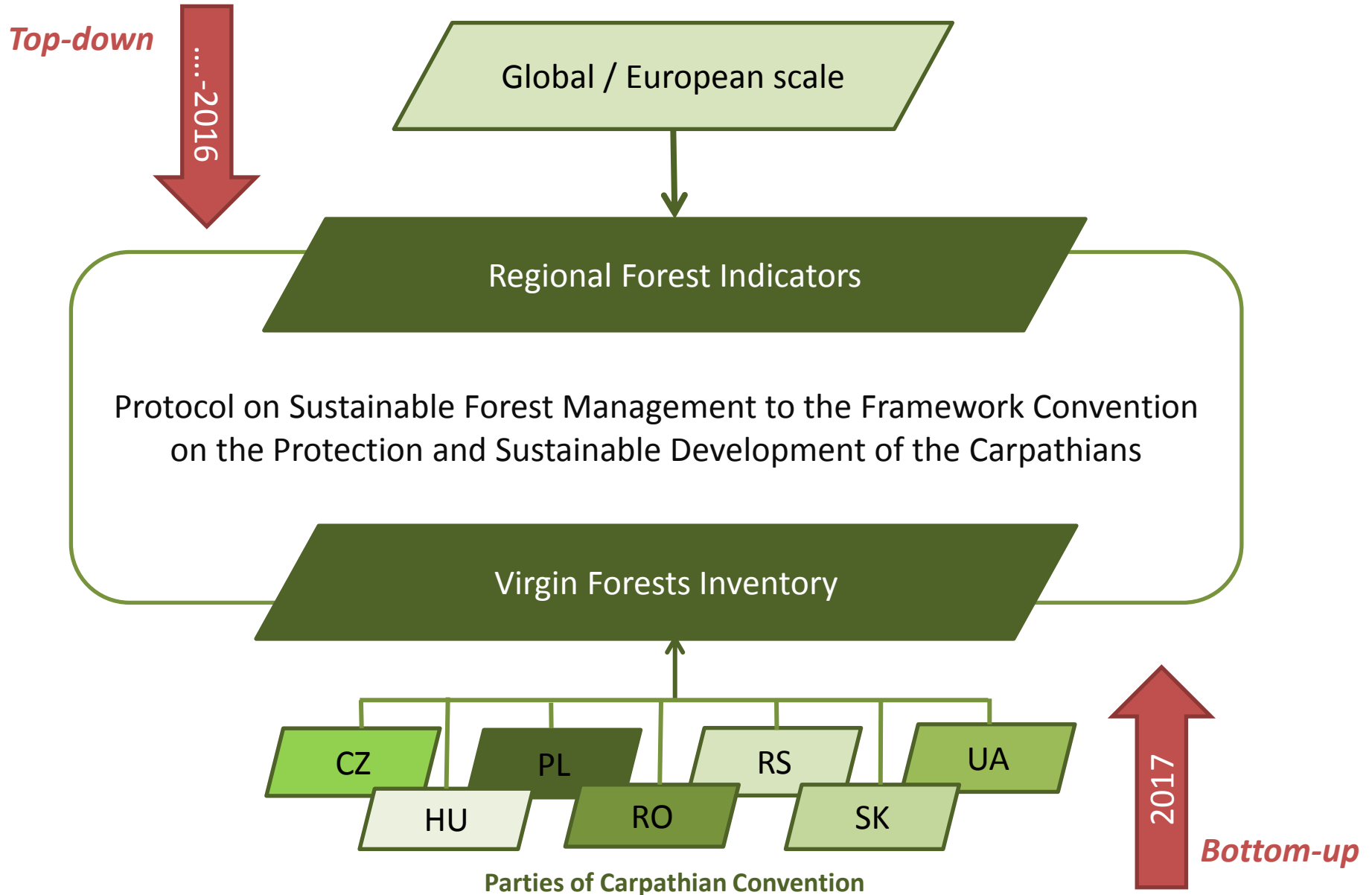


Carpathian Environment Outlook



50 km buffer (black) around KEO limits of the Carpathian Mountains (UNEP, 2007) and the NUTS regions included (ETC/ULS, 2016)

Approaches



Limitations until 2016 (*top-down*)

- ✓ **Coarseness of global datasets;**
- ✓ **Lack of regional harmonised datasets**
(i.e. different resolutions; different time coverage);
- ✓ **Gaps in the available European datasets;**
- ✓ **Very limited accessibility to national and regional data;**
- ✓ **Heterogeneity of local data;**



Bottom-up Approach

***1^o Virgin forest
inventory (2017)***

EEA 2012 layer in KEO Carpathian Area showing the gap of data in the case of Ukraine



Provision of Virgin forest geoinformation

The Structure of the table filled by the Member States for providing their validated information on the location of virgin forests in their countries

Carpathian Inventory of Virgin Forests																	
No.	Name of the virgin forest	Based on		Type of property	Latitude N	Longitude E	Altitude		(Administrative) Location								the level of the forests protection (fully protected, in progress, not protected)
		Forest management plan, edition (year)	Study, edition				minimum	maximum	County	Owner, administrator	Production Unit	basic forest unit (compartment) u.a.	Type of forest	Area (ha)	of which surfaces that do not meet the criterion of naturalness		
															u.a.	Area (ha)	
0	1	2	3	4	5	6	7	8	9	10	11	12		13	14	15	16
A. Virgin Forests																	



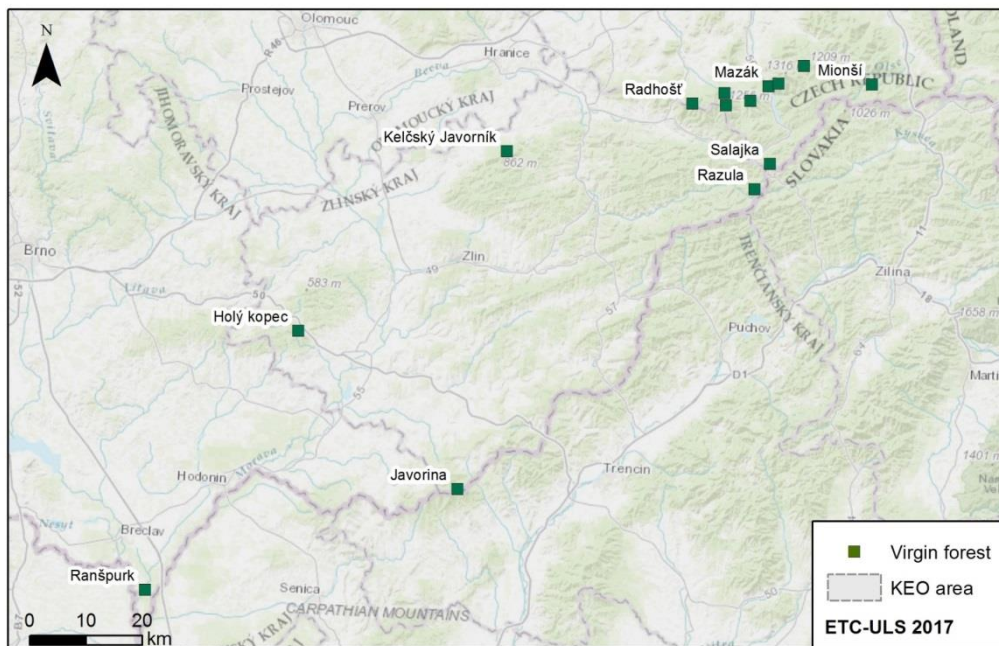
Provision of Virgin forest geoinformation

Country	Official provision of data	N. of sampling point provided	Area (ha)
Czech Republic	✓	14	856
Hungary	✓	1	42.9
Slovakia	✓	123	<i>Pending</i>
Poland	✓	57 *	9.098*
Romania	✓	151	2.569
Serbia	✓	44	1.849
Ukraine	✓	39	16.120

**additional 9 sites were reported, but are outside the KEO area*



Inventory of Virgin Forests in the Carpathian - data from Czech Republic

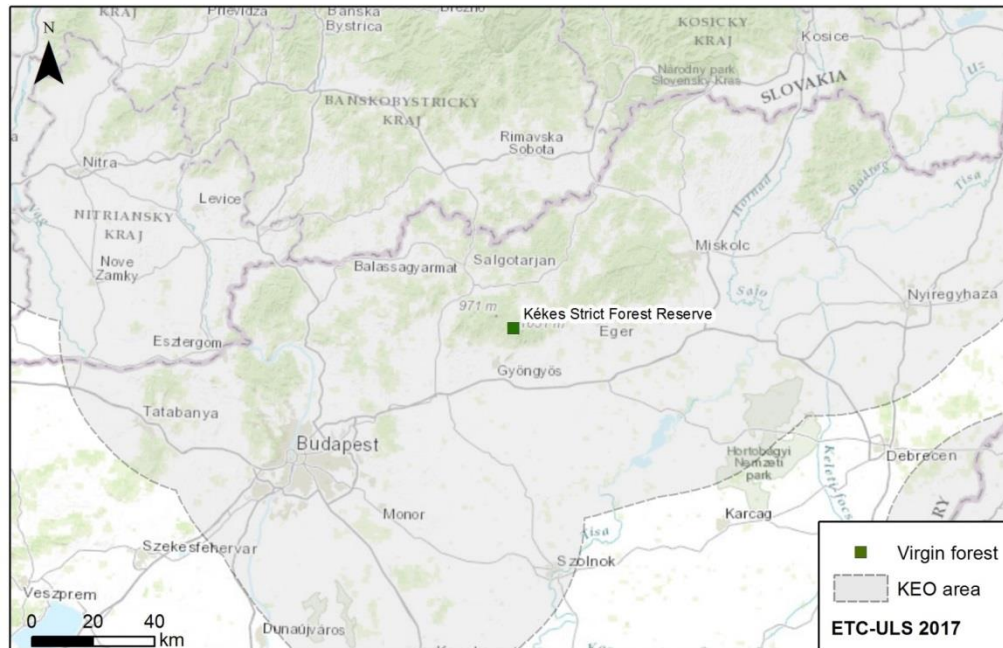


Virgin forest locations. Czech Republic

Information	State of provision
N. of data	14
Name of the virgin forest	Completed
Forest management plan, edition (year)	No info
Study, edition	Completed
Type of property	Completed
Geoposition (Lat / Long)	Completed
Altitude (min/max)	Completed
Location: County	Completed
Location: owner	Completed
Location: Production Unit	No info
Location: basic forest unit	No info
Type of forest	Completed (Habitat Dir. classification)
Area (ha)	Completed
of which surfaces that do not meet the criterion of naturalness	No info
Level of the forests protection	Completed



Inventory of Virgin Forests in the Carpathian - data from Hungary

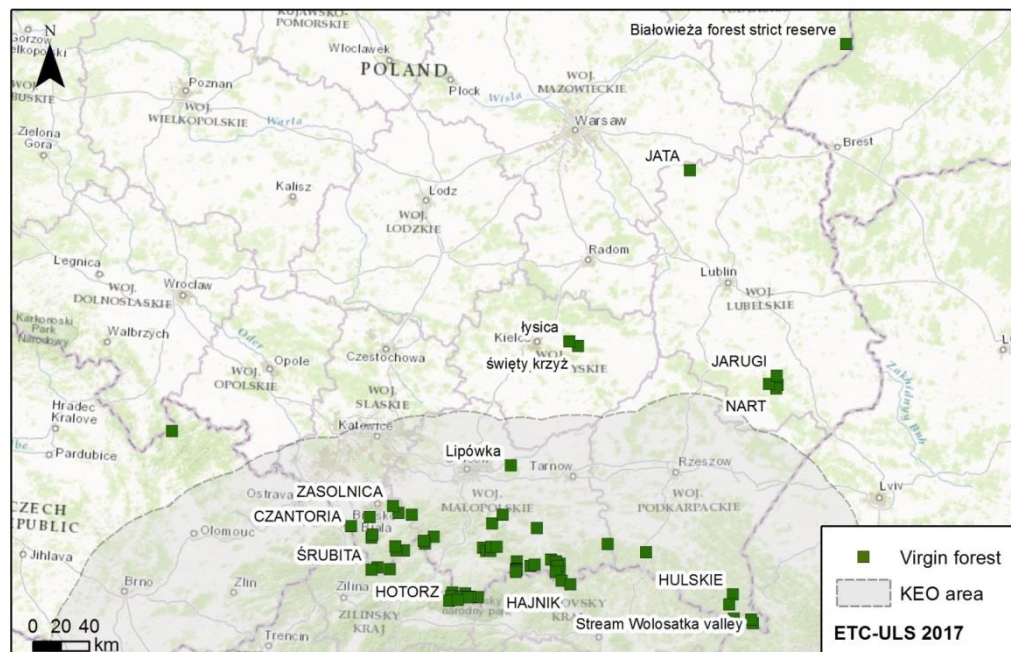


Virgin forest locations. Hungary

Information	State of provision
N. of data	1
Name of the virgin forest	Completed
Forest management plan, edition (year)	Completed
Study, edition	Completed
Type of property	Completed
Geoposition (Lat / Long)	Completed
Altitude (min/max)	Completed
Location: County	Completed
Location: owner	Completed
Location: Production Unit	Completed
Location: basic forest unit	Completed
Type of forest	Completed
Area (ha)	Completed
of which surfaces that do not meet the criterion of naturalness	No info
Level of the forests protection	Completed



Inventory of Virgin Forests in the Carpathian - data from Poland



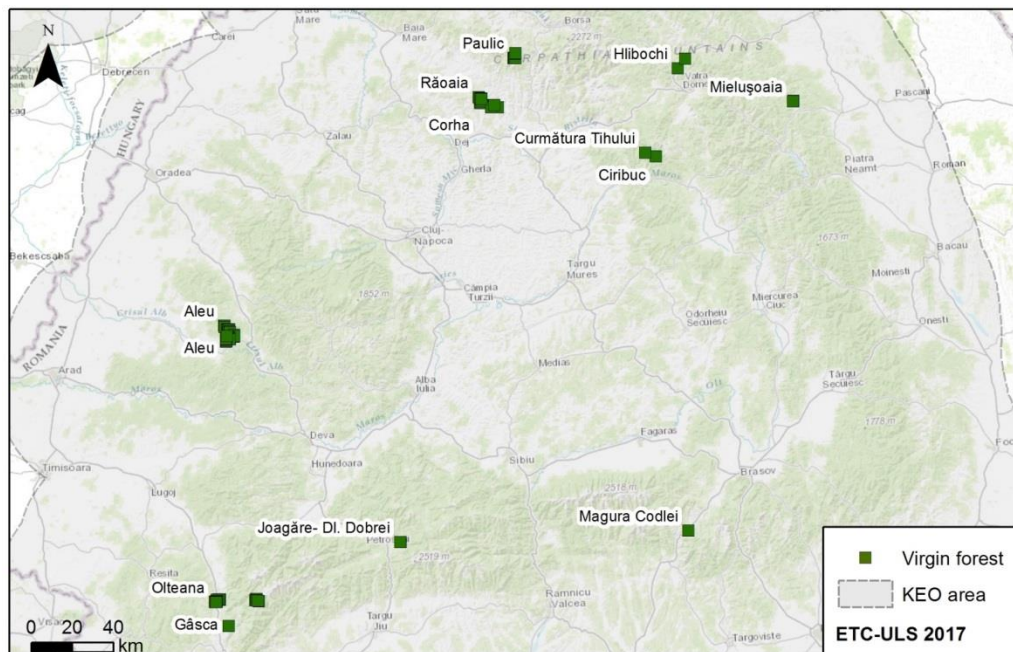
Virgin forest locations. Poland

Poland provides its information on virgin forest using different data architecture and information

*Point shapes for Poland are the centroids of polygons provided as geodata info on virgin forest.

Information	State of provision
N. of data	57 + 9
Name of the virgin forest	Completed
Forest management plan, edition (year)	No info
Study, edition	No info
Type of property	No info
Geoposition (Lat / Long)	Completed
Altitude (min/max)	No info
Location: County	No info
Location: owner	No info
Location: Production Unit	No info
Location: basic forest unit	No info
Type of forest	Completed (dominant tree sp.)
Area (ha)	Completed
of which surfaces that do not meet the criterion of naturalness	No info
Level of the forests protection	Completed

Inventory of Virgin Forests in the Carpathian - data from Romania

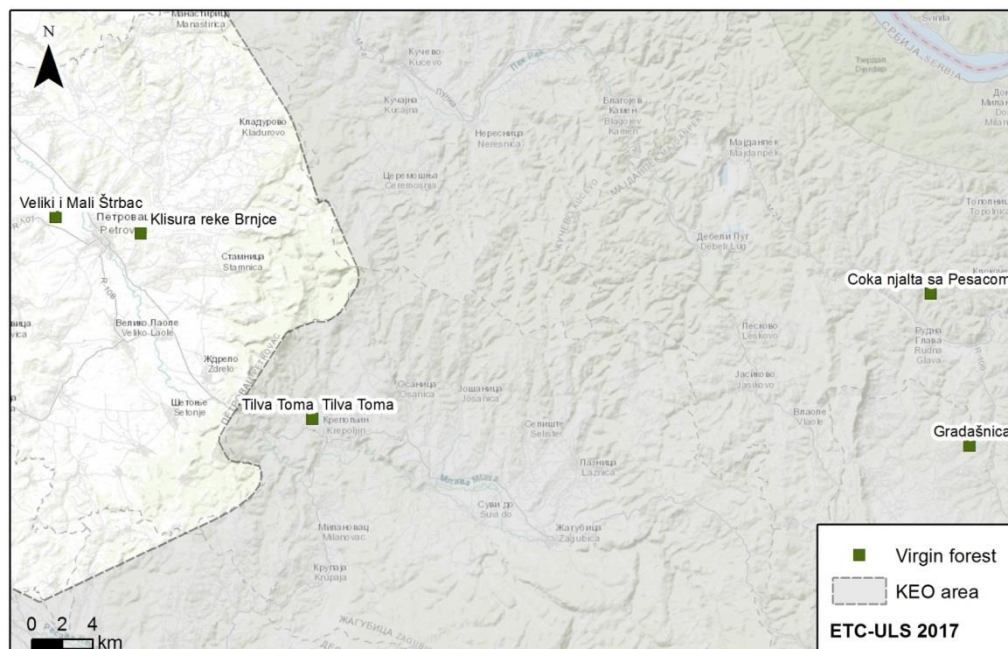


Virgin forest locations. Romania

Information	State of provision
N. of data	151
Name of the virgin forest	Completed
Forest management plan, edition (year)	Completed
Study, edition	No info
Type of property	Completed
Geoposition (Lat / Long)	Completed
Altitudine (min/max)	Completed
Location: County	Completed
Location: owner	Completed
Location: Production Unit	Completed
Location: basic forest unit	Completed
Type of forest	Completed (codes)
Area (ha)	Completed
of which surfaces that do not meet the criterion of naturalness	No info
Level of the forests protection	Completed



Inventory of Virgin Forests in the Carpathian - data from Serbia



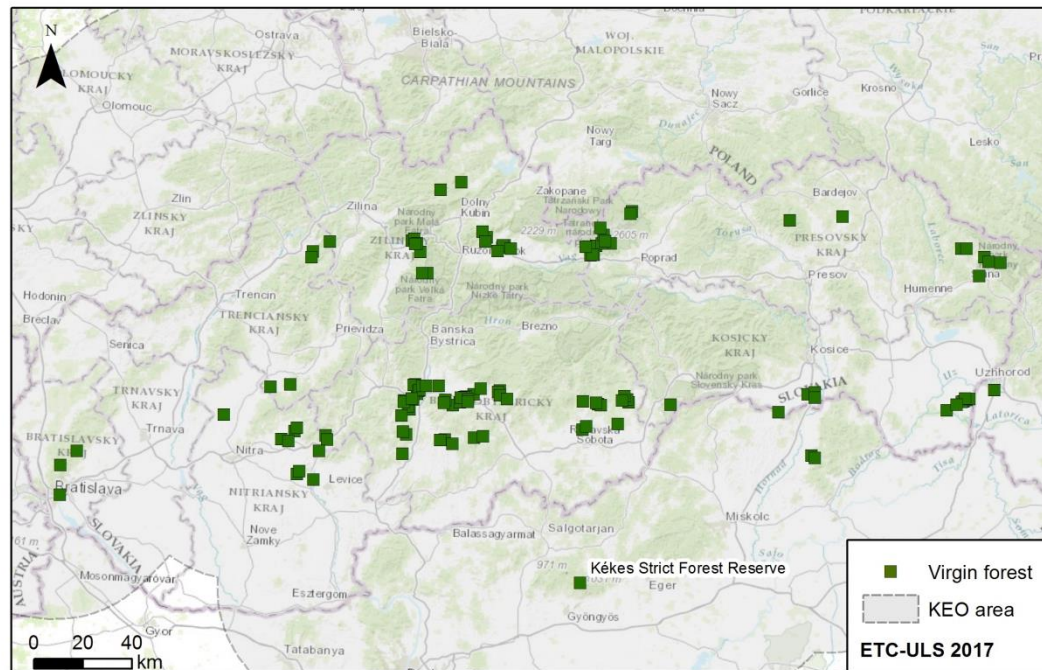
Virgin forest locations. Serbia

Data provided from Djerdap National Park

Information	State of provision
N. of data	44
Name of the virgin forest	Completed
Forest management plan, edition (year)	Completed
Study, edition	No info
Type of property	Completed
Geoposition (Lat / Long)	Completed (gaps for seconds information)
Altitude (min/max)	Completed
Location: County	Completed
Location: owner	Completed
Location: Production Unit	Completed
Location: basic forest unit	Completed
Type of forest	Completed (codes)
Area (ha)	Completed
of which surfaces that do not meet the criterion of naturalness	No info
Level of the forests protection	Completed



Inventory of Virgin Forests in the Carpathian - data from Slovakia

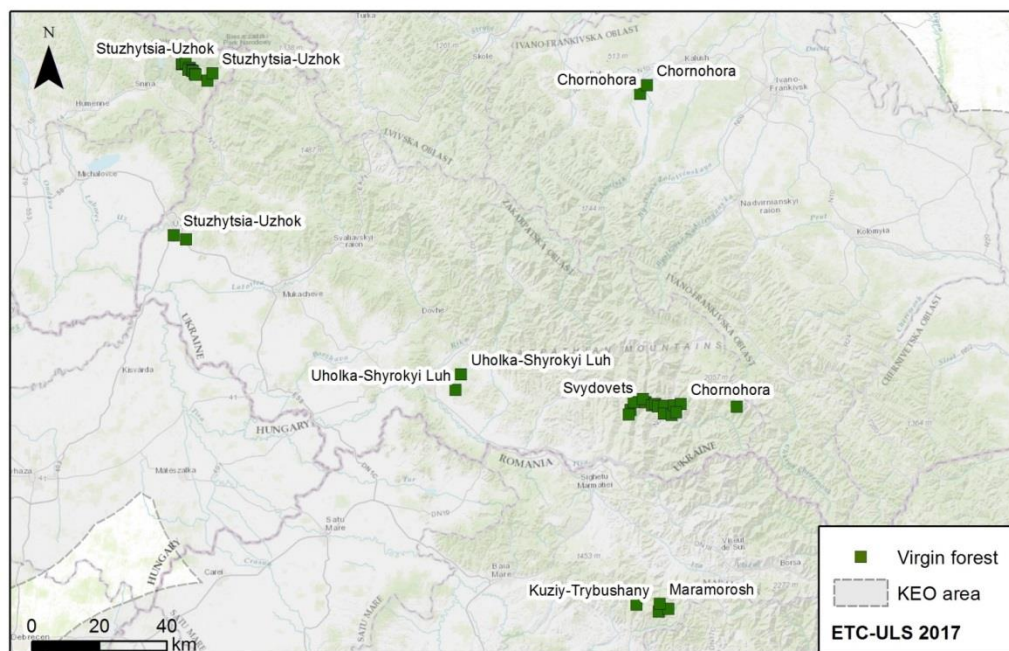


Virgin forest locations. Slovakia

Information	State of provision
N. of data	123
Name of the virgin forest	Completed
Forest management plan, edition (year)	No info
Study, edition	Completed
Type of property	Completed
Geoposition (Lat / Long)	Completed
Altitude (min/max)	Completed
Location: County	Completed
Location: owner	Completed
Location: Production Unit	No info
Location: basic forest unit	No info
Type of forest	Completed (codes)
Area (ha)	Completed
of which surfaces that do not meet the criterion of naturalness	Completed
Level of the forests protection	Completed



Inventory of Virgin Forests in the Carpathian - data from Ukraine

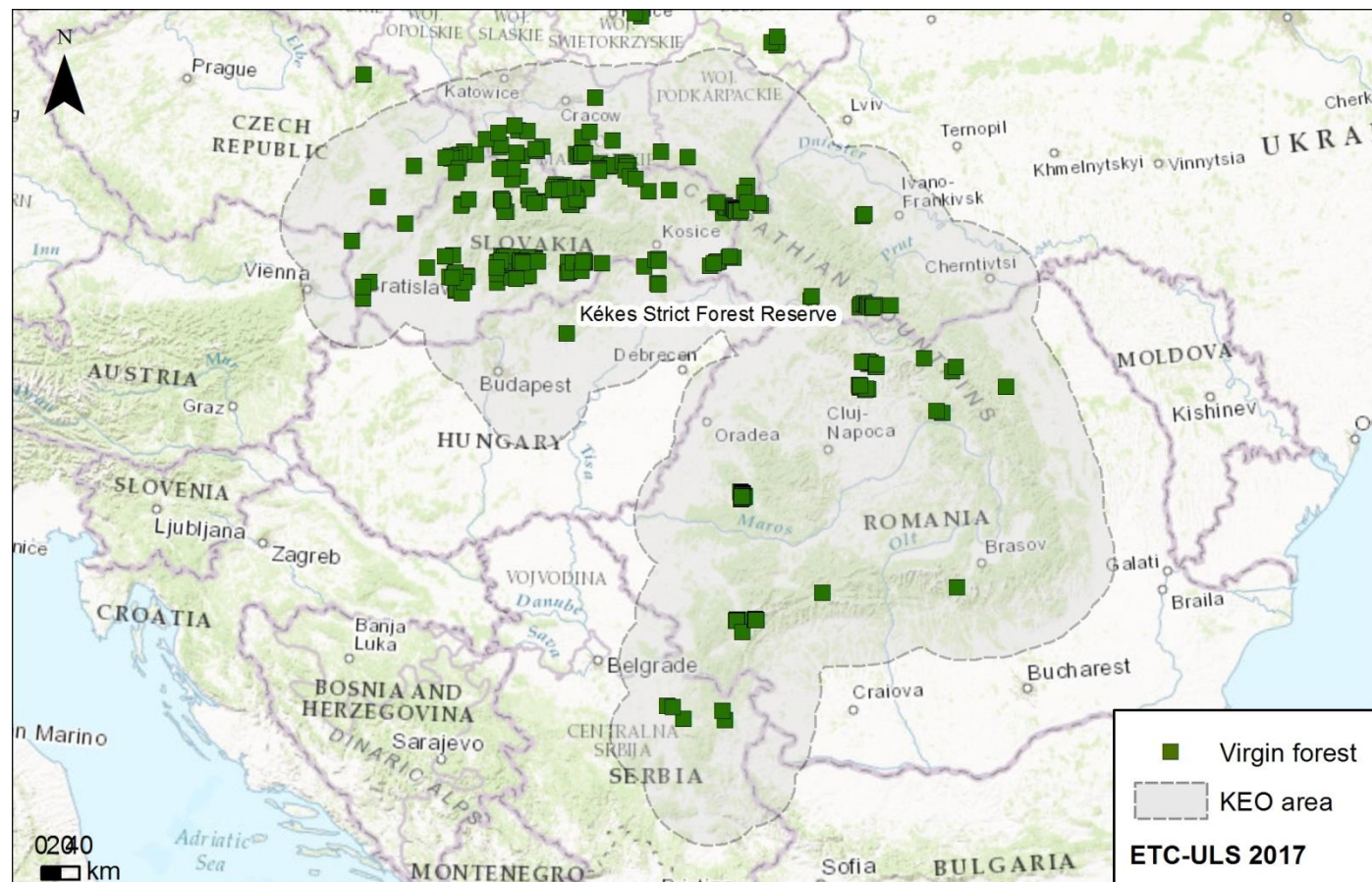


Information	State of provision
N. of data	39
Name of the virgin forest	Completed
Forest management plan, edition (year)	Completed
Study, edition	No info
Type of property	Completed
Geoposition (Lat / Long)	Completed
Altitude (min/max)	Completed
Location: County	Completed
Location: owner	Completed
Location: Production Unit	Completed
Location: basic forest unit	Completed
Type of forest	Completed (forest sp + fertility of habitat + nature of the wetting)
Area (ha)	Completed
of which surfaces that do not meet the criterion of naturalness	No info
Level of the forests protection	Completed



Collation of national forest inventories

-Work in progress-

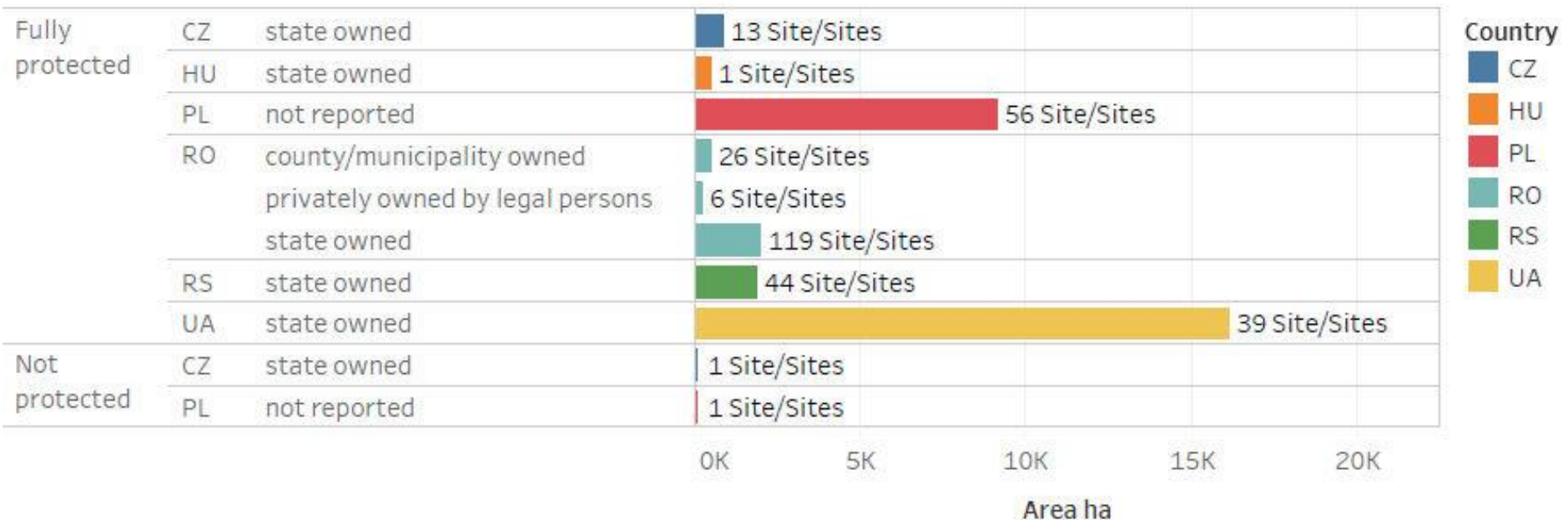


Virgin forest locations. Slovakia



Status of virgin forest in KEO

Virgin forest sites in KEO



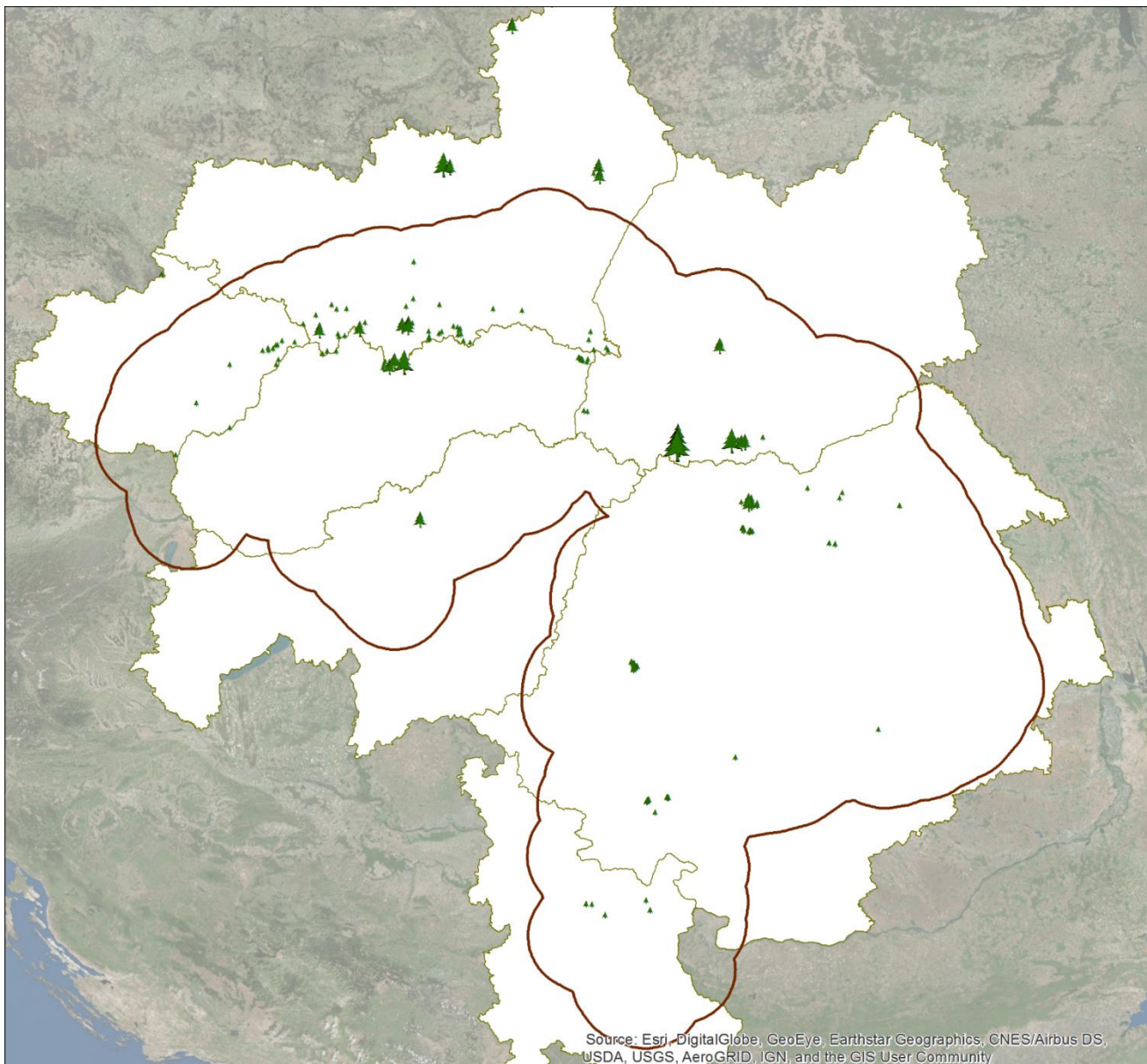
Data from SK are not included into the statistical assessment

- ownership :22 non state actor / 6 mixed ownership / 95 state
- Level of protection: 53 fully protected / 35 non-protected / 34 partially protected



Collation of national forest inventories

-Work in progress-



Virgin forest in KEO

Virgin Forest sites

Area ha

- 0 - 250
- 250,1 - 1000
- 1000,1 - 2000
- 2000,1 - 5100

KEO boundaries

Country boundaries

No SK data included

Source: ETC-ULS/EEA (2017)

Towards the Carpathian Inventory of Virgin Forests

First preliminary conclusions

- **429 different reported points** from 7 Member States of the Carpathian Convention;
- **>38'000 ha virgin forest area reported;**
- **>99,6 %** of virgin area reported is protected (excluding SK data);
- **>97,6%** of reported sites is owned by the State (or municipality) (excluding SK data).

Next steps

- To complete inventory of virgin forests:
 - ✓ Integration of information not yet included in the unique geodatabase;
 - ✓ Harmonization of the different forest type classifications reported by Member States;
- Preparation of virgin forest thematic maps (e.g. level of protection, type of forest...);
- Integration of virgin forest reported points to assess and improve indicators developed last year (e.g. species assemblage indicator, connectivity, ...)



Towards the Carpathian Inventory of Virgin Forests

Considerations:

1. **PL** provides its information on virgin forest using different data architecture and information, thus the Poland forest data missing fields (e.g. county, type of property...);
2. High heterogeneity on reported attributes (forest types)
3. **Few points** reported by UA fall in the SK territory;
4. The provision of **data as points** allow to locate the virgin forest but not delimited its extension and shape.

Open questions for the natural capital conservation

→What about the existence of virgin forest outside protected areas?,

→What about the privately owned virgin forests?

