



MINISTRY
OF AGRICULTURE



CARPATHIAN CONVENTION COP5

10-12 October 2017, Lillafüred, Hungary

‘VIRGIN AND NATURAL FORESTS IN THE CARPATHIAN’

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European Topic Centre
on Urban, Land and
Soil Systems

The Context

Woodland and forests in the Carpathians are Europe's largest continuous temperate forest ecosystem

- Natural Capital with high concentration of virgin forests,
- providing a wide range of ecosystem services,
- **threatened by land use changes, unsustainable management, and illegal logging.**



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The Process

The “protocol for sustainable forest management”, adopted by the Carpathian Convention formalises the need to preserve the richness and ensure sustainable use of forests

→ identification and protection of natural forests, with a special focus on virgin forests

Since 2014, EEA and ETC/ULS support the Forest WG of the Carpathian Convention in setting the basis to locate, monitor, and prioritise virgin and HNV forest areas:

- Assessing forest resources supporting sustainable management efforts;
- Support in the virgin forest inventory for better conservation;
- Develop an Integrated Data platform to host data

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Top-down

2014-2016

Global / European scale

Approach

Regional Forest Indicators

Protocol for sustainable forest management

Virgin Forests Inventory

CZ

HU

PL

RO

RS

SK

UA

2017

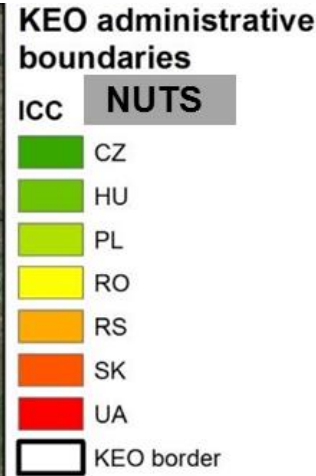
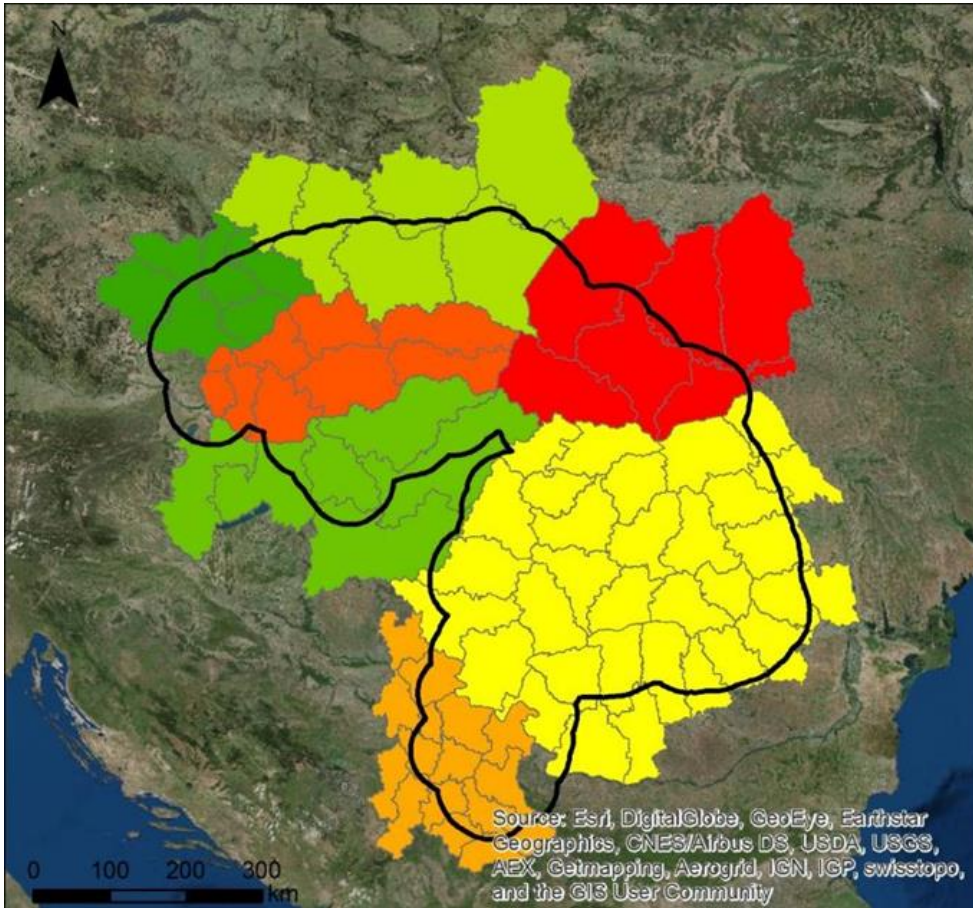
Bottom-up



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Work developed between 2014-2016



- 50 km buffer (black) around Carpathian Environment Outlook (KEO) limits of the Carpathian Mountains (UNEP, 2007)
- the NUTS regions included (ETC/ULS, 2014)

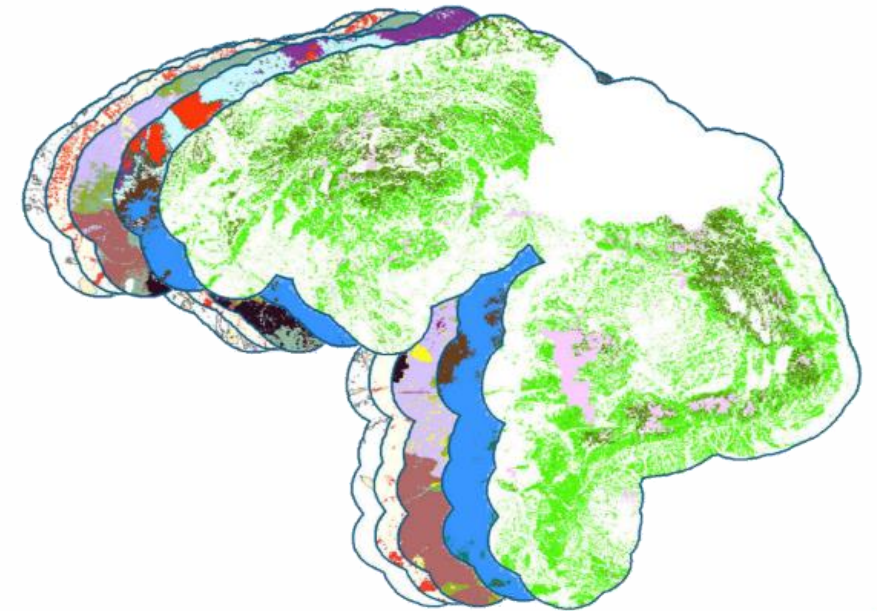


Development of Carpathian wide forest resource indicators to support sustainable management

- Forest naturalness,
- Forest connectivity and fragmentation
- Temporal change in forest cover 2000-2012

Limitations

- ✓ Gaps in the available European datasets;
- ✓ Coarseness of global datasets;
- ✓ Lack of regional harmonised datasets
- ✓ Limited accessibility to national and regional data;
- ✓ Heterogeneity of local data;

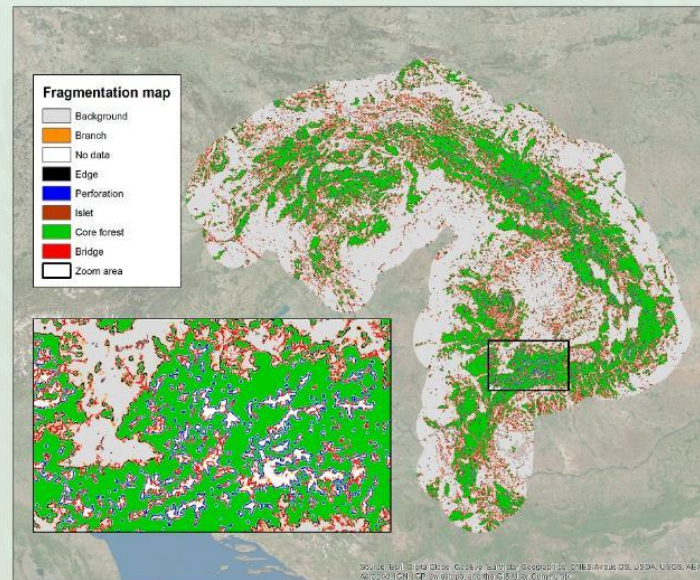


Work developed between 2014-2016

Improvements of results

Fragmentation

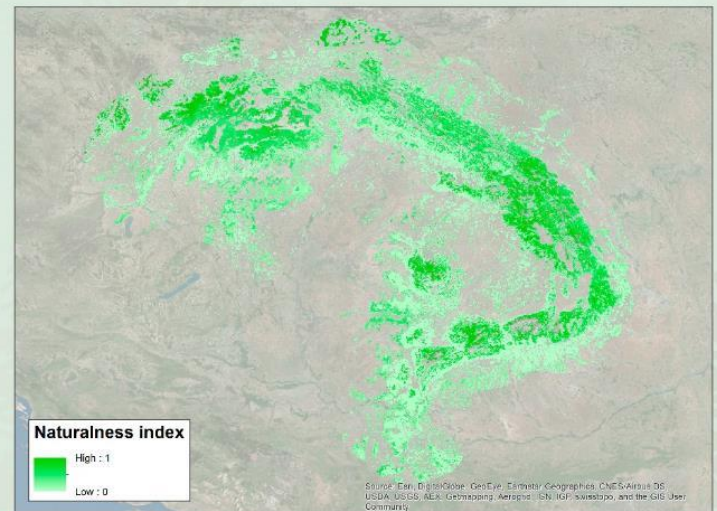
Forest fragmentation map is obtained by applying a geometric model namely Guidos Toolbox (Vogt P., 2016) and offering a picture of the forest structure, differentiating Morphological Spatial Patterns (Soille P. et al., 2008). This indicator showed a high level of un-fragmented forest for Carpathian Mountains, being higher than 77% of core forest.



Naturalness

The Naturalness indicator (ETC/SIA, 2014) is calculated considering the biogeographical regions maps and the linkages between dominant forest species types under each biogeographical region. The naturalness indicator (N_i) is equal to the relation between the high percentage of natural species presence (DA) and the percentage of forest coverage (TF).

$$N_i = DA / TF$$



Use of Earth Observation data to fill data gaps (specially for Ukraine)

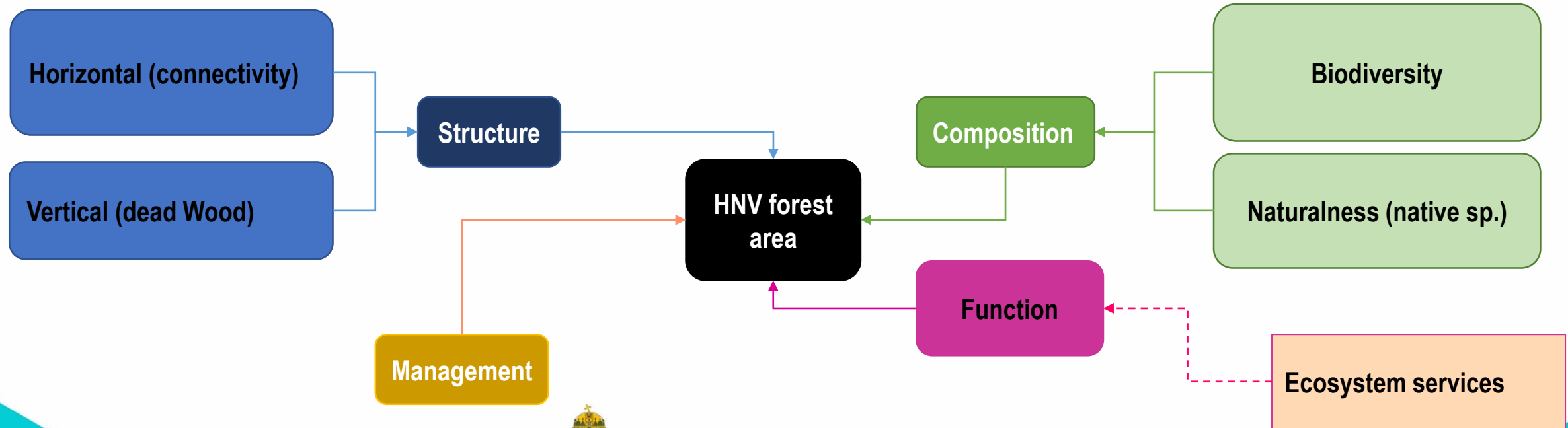
Satellite imagery used:

- Landsat
- Sentinel 2

Work under development in 2017

Assessing High Nature Value forest areas in the Carpathian

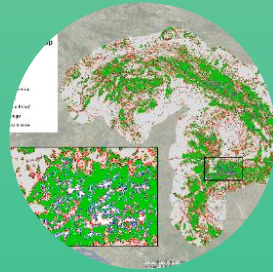
“all forests, managed or non-managed, having the principle characteristics and key elements of native forest ecosystems, in terms of composition, structure and ecological functions that support a high diversity of native species and habitats including the presence of species of European, and /or national, and/or regional conservation concern”.



Setting the approach for HNV forest areas at European scale



Virgin forest inventory



Forest specific indicators (testing on Carpathian forest)



High Nature Value forest area indicator

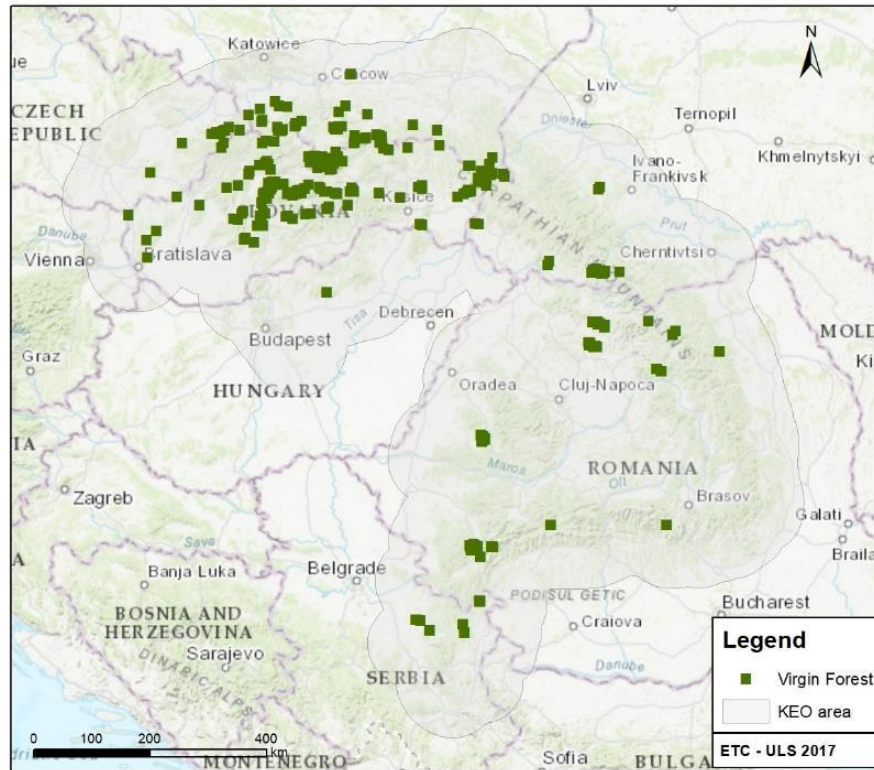
Carpathian 'model' as the entry point /test of the European approach

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Work under development in 2017

Virgin forest inventory - Compilation and harmonization



* Only 177 points from Romania are shown in the map, the geolocation of the rest is pending

Country	N. of points	Area (ha)
Czech Republic	14	856
Hungary	1	429
Slovakia	123	8951
Poland	57	9098
Romania*	515	5899
Serbia*	49	1902
Ukraine	39	16120

* Under compilation and analysis

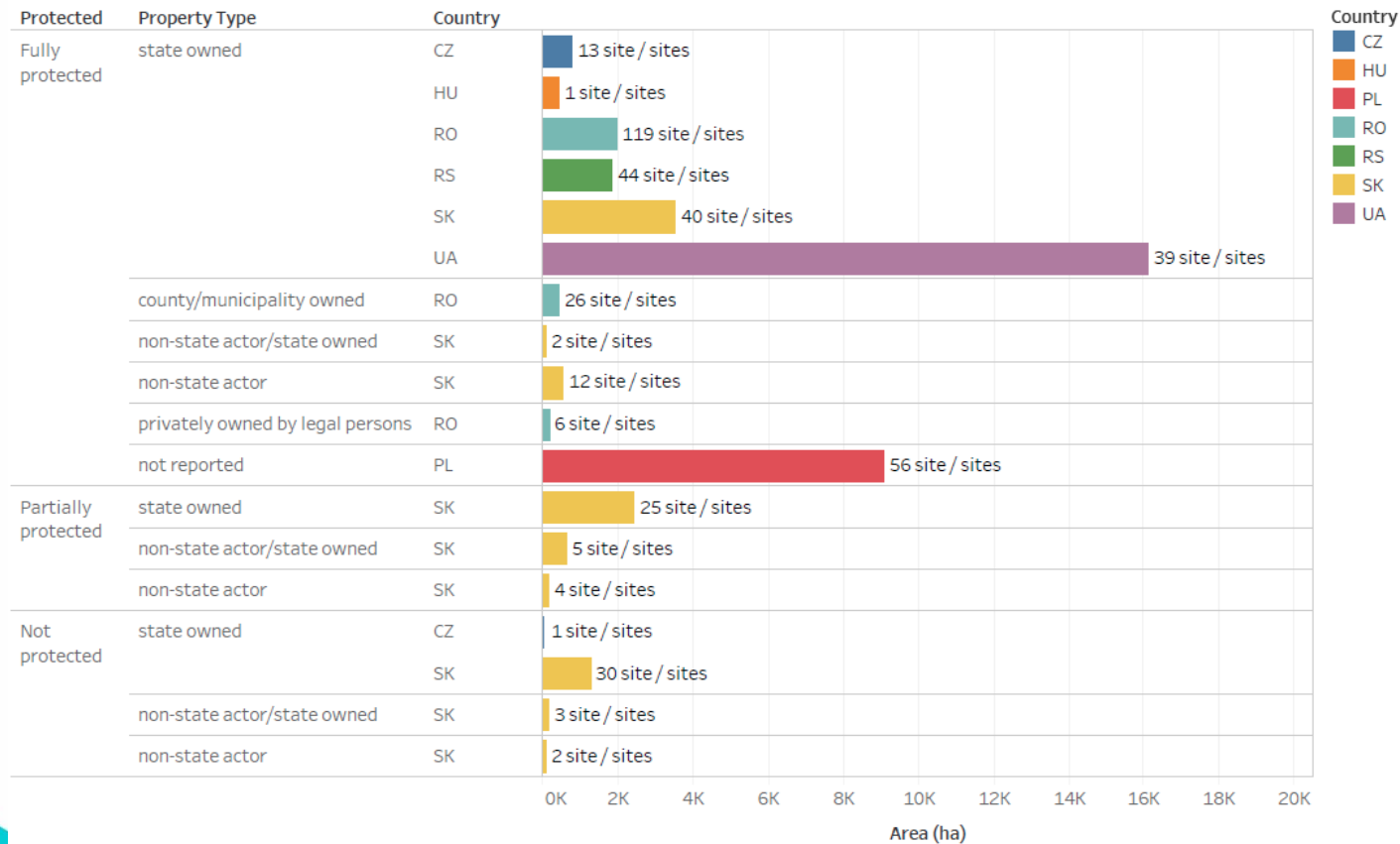
Open questions on Virgin forest inventory

- This database has been produced based on officially reported data on virgin forest. It is not harmonised and lacks attributes for many sites reported (ongoing work)
 - Data from RO were updated in September 2017.
 - the latest version (October 2017) provides 515 points (of which only 177 are geo-localised),
 - information about the protection status is missing in this last version.
 - Data from RS, 49 points were received with unidentified projection (on-going discussions with the Serbian colleagues)
 - Data from Poland were provided without using the CC template (data compiled under EU project) and the data is not criteria are compatible with the databases of the rest of the MSs.
- Carpathian wide Database on officially reported data on virgin forest is not harmonised and lacks attributes for many sites reported. Further work needs to be done to provide a harmonised dataset and to complement that missing attributes.
- The information harmonization (mainly for forest type) is still pending since the provision of data is still ongoing

Work under development in 2017

Virgin forest inventory - Statistics

Virgin forest in the Carpathian



- ✓ Where are the virgin forest outside PAs located?
- ✓ What about the privately owned virgin forests?
- ✓ Forest types reported are not harmonised and are provided in different languages

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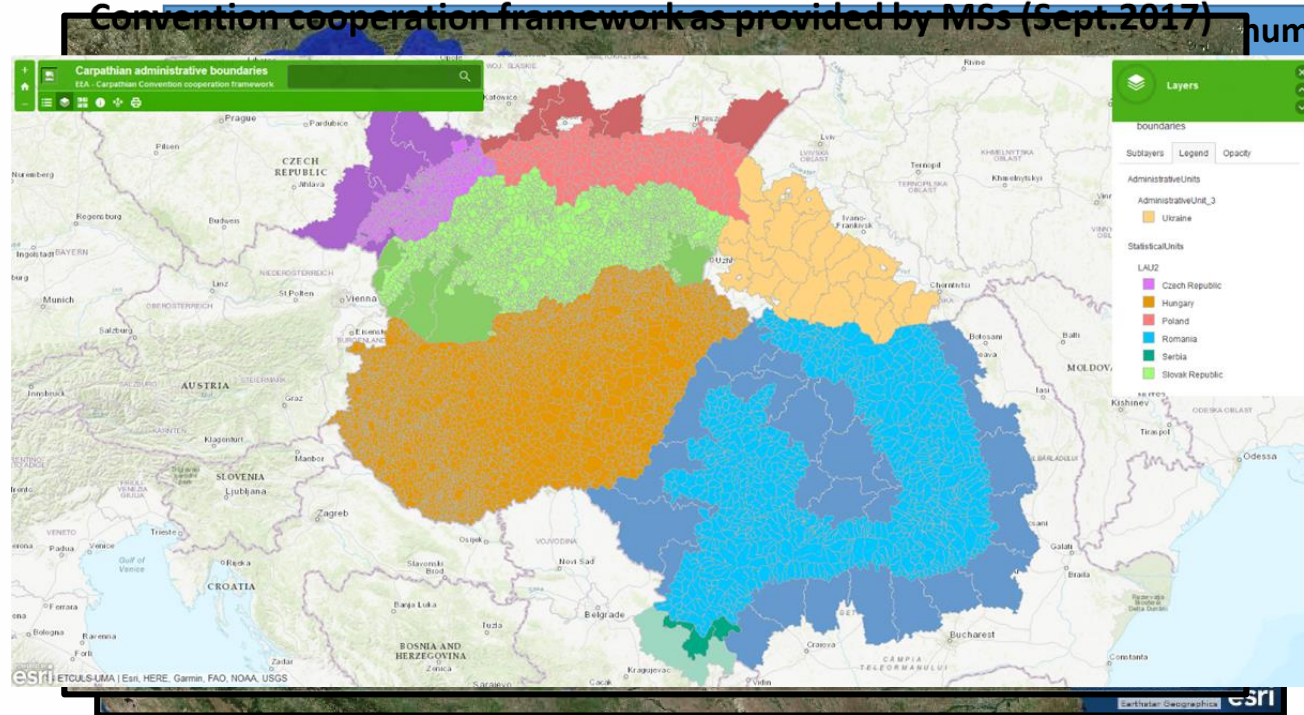
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Work under development in 2017

Integrated Data platform

<http://eea.maps.arcgis.com/apps/View/index.html?appid=8dfdde9c1a1e46a7a64b98a20a1ee4d1>

Admin. units at different levels under the implementation of the Carpathian Convention cooperation framework as provided by MSs (Sept. 2017)



number of Virgin Forest point locations
Hotspots of virgin forests

Outlook

- The first inventory on virgin forests that is validated by the Carpathian Countries, covers the entire Carpathian region and may be an important tool to ensure forest protection and strengthen awareness of these forests on the international and regional level.
- The forest indicators developed by GIS, EO, RS technologies are powerful tools for supporting initiatives on identification, protection and management of forest resources at regional and European scale. Carpathian implementation is ongoing.....
- The HNV forest area indicator will be an additional element/indicator to take into account as a monitoring tool within the Virgin/Old Growth/Natural Forest protection and managements strategies
- DATA PLATFORM, central infrastructure to allow the sharing of wide-Carpathians data as now hosting the virgin forest inventory, administrative boundaries, then integration of relevant forest related indicators, potential virgin forest collection by additional studies;
- CCS-EEA-ET CULS efforts on improving the visibility of identification and protection of Carpathian forests and on integrating data under a European framework of the Carpathian forests
- **Interesting opportunities seem to be upcoming to link efforts to better protect and sustainably use the natural capital of the Carpathian region – to state some reaction:**
 - LIFE Green-Go on targeting GI efforts on ensuring connectivity of Carpathian forests and
 - Creative EU project on ensuring sustainable uses and opportunities in the region while ensuring natural resource conservation

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Thank you for your attention

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