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MAES-related developments in Estonia and ELME project

Madli Linder

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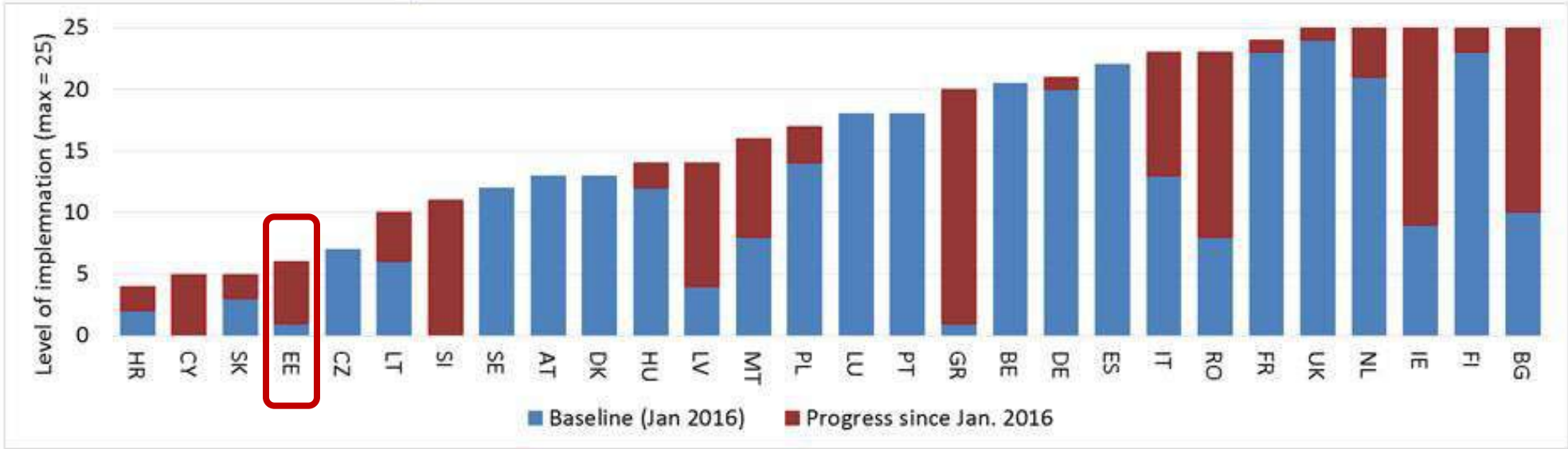
Miguel Villoslada

Estonian University of Life Sciences

28.02.2019

LIFE Viva Grass final conference, Vilnius

★ **ESMERALDA** ★ MAES barometer



Level of implementation of MAES September 2018: 66% EU wide
(Full implementation = all countries score 25)

Project ELME

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„Establishment of tools for integrating socioeconomic and climate change data into assessing and forecasting biodiversity status, and ensuring data availability“

- funded by the European Union Cohesion Fund and the foundation Environmental Investments Centre;
- lasts from 2015 to (2020) 2023;
- coordinated by the **Estonian Environment Agency**.
- ELME's main objectives are:
 - **mapping and assessment of priority ecosystem services by ecosystems on national scale**;
 - developing, testing and implementing **novel methods** (eDNA, camera traps, drones, acoustic sensors, etc.) for monitoring biodiversity;
 - establishing **tools** (incl. the new portal for dissemination of biodiversity data) for integrating socioeconomic and climate change data into assessing and forecasting biodiversity status, and ensuring data availability.

MAES works completed under ELME project

- In the beginning of 2018, **the road map (action plan)** for MAES in Estonia was completed.
- In summer 2018, **the analysis of green infrastructure** as it has been implemented so far in the county-wide spatial plans and comprehensive plans according to the Planning Act, was conducted, and the respective **guidelines** for planners for enhancing green network (and taking into account ES) in the course of updating the comprehensive plans (over 50 under way in Estonia at the moment after the administrative reform) was completed.

- **The main work under ELME project: countrywide mapping and assessment of the ecosystems and their services:**
 - 4 ecosystem types: **grasslands, wetlands, forests and agro-ecosystems;**
 - about 75 priority ES (CICES) in Estonia, from which the ones to be assessed and mapped will be chosen;
 - methodologies will be developed and agreed with stakeholders; biophysical (spatially explicit) countrywide as well as pilot-area based assessments will be given, maps will be generated;
 - the public procurement lasted >10 months;
 - duration 20 months (the results by the end of 2020);
 - University of Tartu, Estonian University of Life Sciences.

- Mapping and assessment of **marine ES**, the 5th ecosystem type
 - The preliminary **methodology** for **marine and inland water ecosystems** was worked out during the project “Development of methods for assessment and mapping of ecosystem services of marine and inland waters” that was conducted in 2014–2015 in Estonia.
 - Now, in the framework of **marine spatial planning process**, the selected marine ES will be **modelled and mapped**:
 - MAES works of marine ES are conducted under **ELME project**;
 - integrating MAES with developed **economic impact model** of marine areas;
 - close collaboration with the Ministry of Finance that is responsible of the marine spatial planning process and developing the economic impact model;
 - the work will be completed before summer 2019.
- **Other MAES-related projects**
 - **EUROSTAT natural capital accounting** project (**Statistics Estonia**);
 - LIFE Viva Grass (**grasslands**);
 - LIFE UrbanStorm (**urban** ecosystems and nature-based solutions);
 - etc.



Quick links

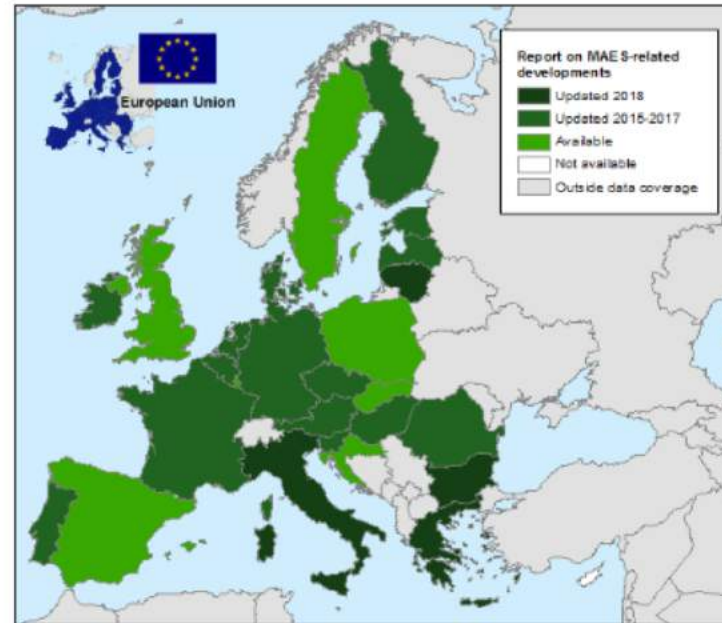
MAES-related developments in the European Union

- Austria
- Belgium
- Bulgaria
- Croatia
- Cyprus
- Czech Republic
- Denmark
- Estonia**
- European Union
- Finland
- France
- Germany
- Greece
- Hungary
- Ireland
- Italy
- Latvia
- Lithuania
- Luxembourg
- Malta
- Netherlands

MAES-related developments in the European Union

Target 2 Action 5 of the EU biodiversity strategy to 2020 states that "Member States, with the assistance of the Commission, will map and assess the state of ecosystems and their services in their national territory by 2014, assess the economic value of such services, and promote the integration of these values into accounting and reporting systems at EU and national level by 2020." In order to deliver Action 5 the Working Group MAES (Mapping and Assessment of Ecosystems and their Services) was established in 2012 under the Common Implementation Framework (CIF).

Click on the map below or use the menu on the left to see the overview on MAES related developments in a specific Member State or for the European Union.



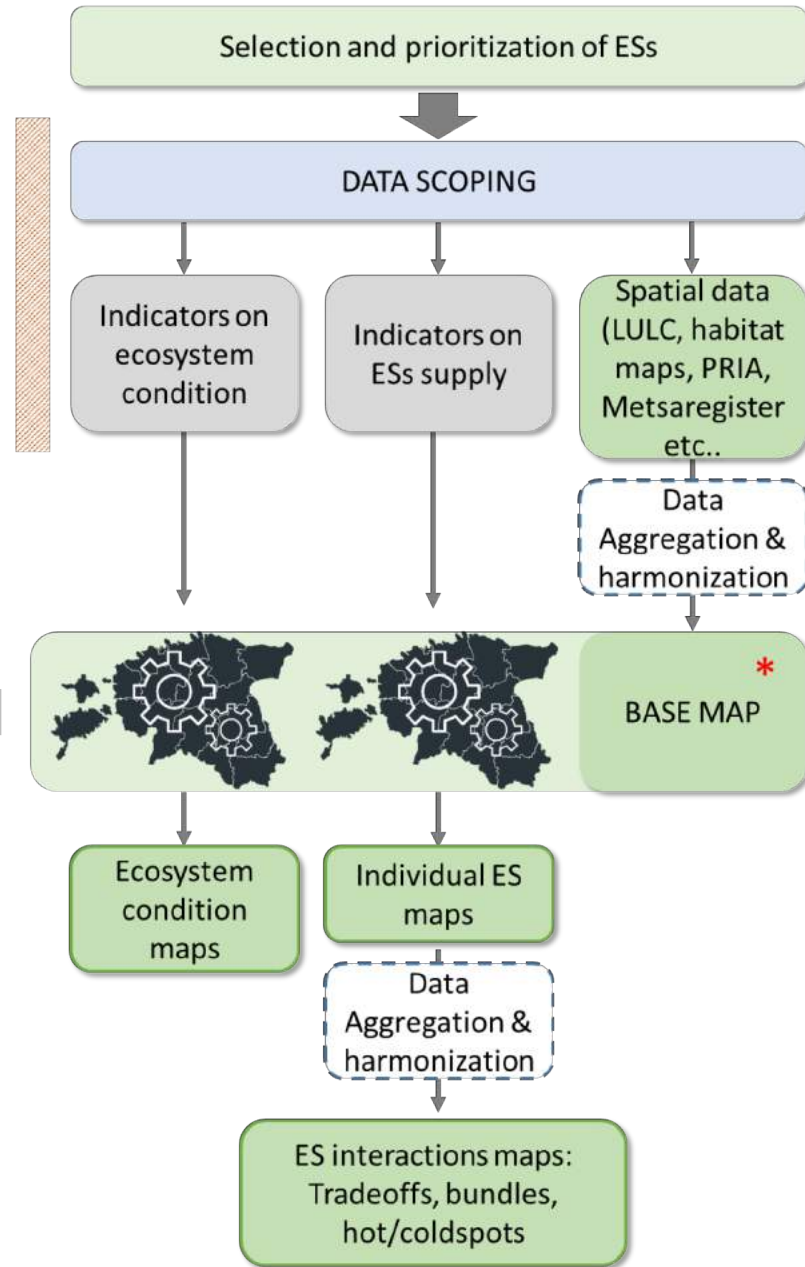
The main Estonian MAES study

Status

 Current project phase

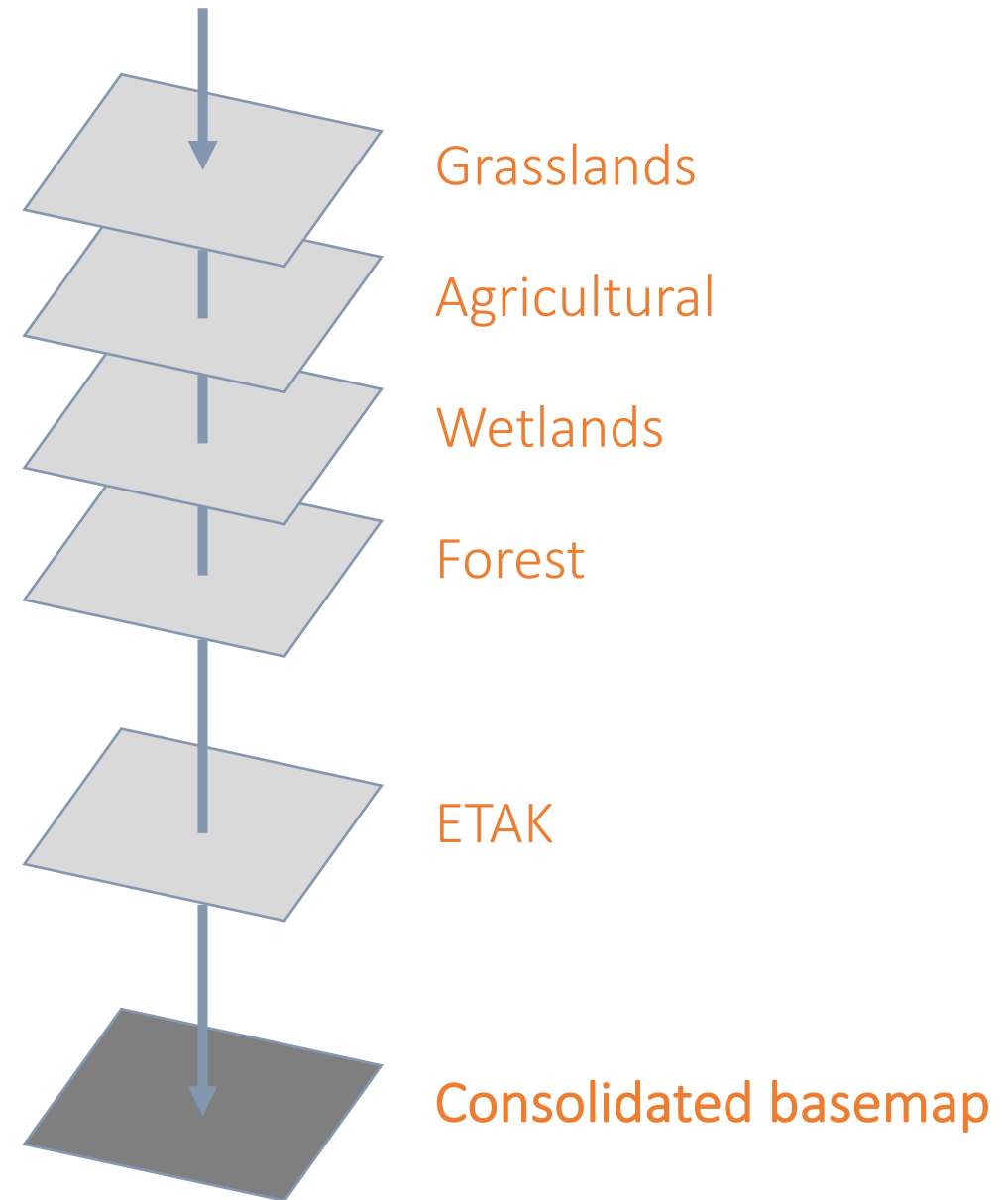
The base map provides the geographic reference to the ES data, informing the user on location while simultaneously providing a sense of the actual map scale.

The key element for an ES basemap will be the choice of geographic units, determined thematically, that will be later on linked to the supply of ES



The Basemap

- > Base layer: ETAK
- > Updated with multiple sources: e.g. PRIA, PLK, Metsaregister, etc.
- > The combination of different data sources overlaid on top of ETAK allows for a complete and more accurate representation of the ecosystems under study



The Basemap – Excluded areas

Artificial landcover excluded from analysis

Artificial ETAK

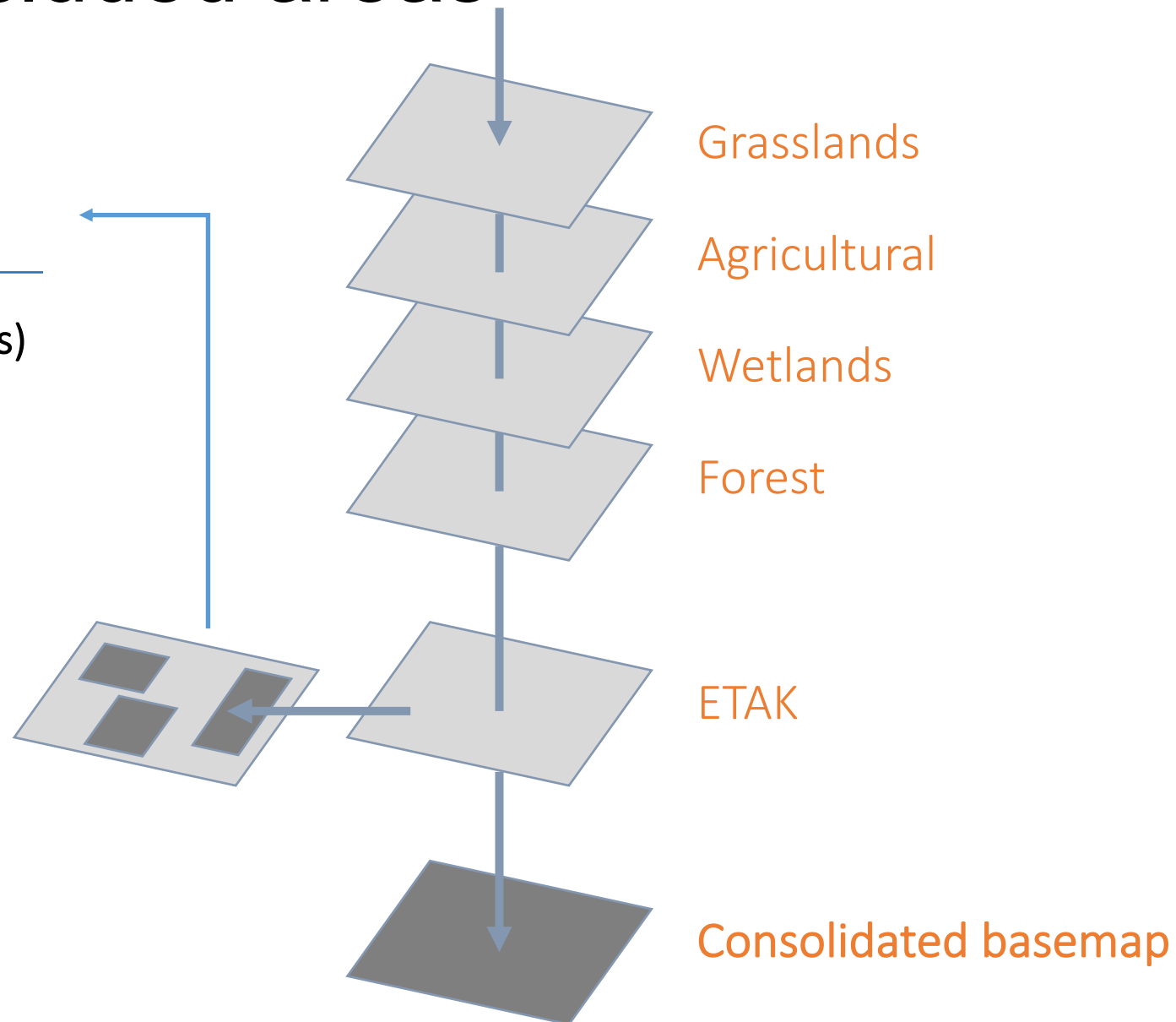
Include:

- *E_404_maaalused_a*
 - o Muu hoone, garaaz, kelder
- *E_403_rajatised_a*
 - o Katusealune, muu rajatis
 - o Kasvahoone
- *E_401_hooned_a*
 - o Elu- või ühiskondlik hoone
 - o Kõrval- või tootmishoone
 - o Vare
 - o Vundament
- *E_505_teeasjad_a*
 - o Sild või viaduct
- *E_501_teed_a*
 - o Teeala
- *E_301_inimalad_kattuvad_a*
 - o Kalmistu
 - o Karjäär
 - o Prügila
- *E_302_ued_a*
 - o Eraõu
 - o Tootmisõu
- *E_301_inimalad_a*
 - o Haljasala
 - o Jäätmaa
 - o Spordikompleks

Urban Atlas (Copernicus)

All, excluding

- 13400: Land without current use
- 2xxxx: Agri. land
- 3xxxx: Forest
- 4000: Wetlands
- 5xxxx: Water



Methods (Three methods for a flexible approach)

> **Direct/ primary data**

Primary data is collected from direct field observations. Primary data can be directly used for ES mapping and assessment, but also to validate/calibrate results from proxies and models

EXAMPLE: Forest inventories, LUCAS sampling grid

> **Proxies**

Proxy methods are derived from **indirect measurements** which deliver a biophysical value. Proxies are used when direct data is not available.

EXAMPLE: *NDVI* to estimate *net primary productivity*

> **Modelling**

Models rely on the explicit representation of ecological and physical processes that determine the functioning of ecosystems. Models also allow for the assessment of scenarios of change

EXAMPLE: *Habitat suitability* models, *pollination potential* models

