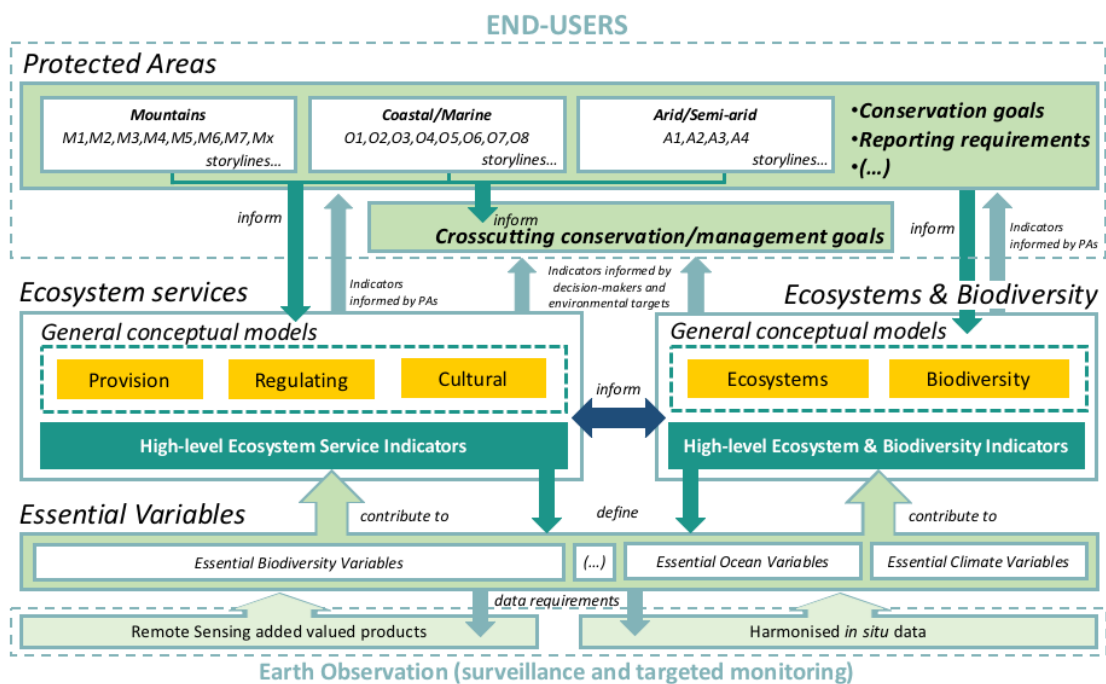


**WP2 progress report**  
**“Conceptual framework”**  
 (Lead: MLU)

*Published outputs (from 1<sup>st</sup> of June 2015 to 30<sup>th</sup> of January 2018)*  
*Upcoming outputs (from 1<sup>st</sup> of February 2018 to 1<sup>st</sup> of April 2018)*

**Task 2.1 – Review of Existing EVs (lead: MLU)**

- *Current outputs (from 1<sup>st</sup> of June 2015 to 30<sup>th</sup> of January 2018)*  
 The aim of this Task was to review existing Essential Variables and underline their context within Protected Areas. Following this **Deliverable 2.1.** (Review of existing Essential Variables (EVs) relevant to PAs studies) was edited and a **workshop was hosted in Leipzig** dedicated to developing a conceptual framework to the identification and development of Essential Variables. Following these developments **2 newsletters** for the ECOPOTENTIAL website were also produced.



**Figure 1** General representation of the conceptual framework developed within ECOPOTENTIAL to connect all WPs and activities (from D2.1)

- *Upcoming outputs (from 1<sup>st</sup> of February 2018 to 1<sup>st</sup> of April 2018)*  
 No more outputs are expected from this task.

**Task 2.2 – Identify Relevant Essential Variables for PAs in ECOPOTENTIAL (lead: MLU)**

- *Current outputs (from 1<sup>st</sup> of June 2015 to 30<sup>th</sup> of January 2018)*  
 The aim of this Task is to identify relevant variables for Protected Areas in order to facilitate a bottom-up process for Essential Variable identification. Within **Deliverable 2.2.** (EO-driven essential variables) an ecosystem based process was developed for 15 storylines that allowed to identify specific variables to be monitored for all Protected Areas, and from these the ones that can be monitored from Remote Sensing.
- *Upcoming outputs (from 1<sup>st</sup> of February 2018 to 1<sup>st</sup> of April 2018)*

Foreseen scientific publications:

- Carlos A. Guerra, Isabel M.D. Rosa (submitted). Change vs Stability: are protected areas particularly pressured by global land cover change?. *Global Change Biology*
- Guerra C.A., Pendleton L., Drakou E.G., Proença V., Appeltans W., Domingos T., Geller G., Giamberini M., Gill M., Hummel H., Imperio S., McGeoch M., Provenzale A., Serral I., Stritih A., Turak E., Vihervaara P., Ziemba A., Pereira H.M. (in prep). Finding the essential: improving conservation monitoring across scales.
- Roxanne Leberger, Isabel M. D. Rosa, Carlos A. Guerra, Florian Wolf, Henrique M. Pereira (in prep). Spatial and temporal pattern of forest loss across the IUCN protected areas categories.
- Roxanne Leberger, Ilse Geijzendorffer, Thomas Galewski, Eli Gaget, Carlos A. Guerra (in prep). Using essential variables to monitor and inform wetland conservation in the Mediterranean basin

**Task 2.3 – Identify Essential Variables for Macrosystem Ecology (lead: UBT)**

▪ *Current outputs (from 1<sup>st</sup> of January 2018 to 31<sup>th</sup> of January 2018)*

In this task we investigate climate change in individual protected areas (PA) worldwide. For this purpose, we use current and future climate data from WorldClim (Global Climate Data version 1.4, Hijmans et al. 2005) as well as PA data from the World Database on Protected Area (WDPA, Version January 2018). We involve ten global climate models representing emission scenarios RCP 4.5 and 8.5 for time 2070. The climate space of PAs now and in future is quantified via Principal Component Analyses. Several climate change metrics for individual PAs are calculated.

▪ *Upcoming outputs (from 1<sup>st</sup> of February 2018 to 1<sup>st</sup> of April 2018)*

An upcoming output will describe the relationship between climate change in individual PAs and PA characteristics such as the geographical location and irreplaceability (Le Saout et al. 2013).

Foreseen scientific publications:

- Hoffmann S., Irl D.H.S., Beierkuhnlein C. (in prep.). Climate Change in Protected Areas Worldwide. *Global Change Biology*

**Task 2.4 – Development of an Essential Variables framework (lead: MLU)**

▪ *Current outputs (from 1<sup>st</sup> of June 2015 to 30<sup>th</sup> of January 2018)*

This Task has the aim to develop, implement and streamline an assessment framework to identify, prioritize and describe Essential Variables. To progress on its development, a **workshop was held in Stanford** (29-31 March 2017) that invited several international experts to discuss bottom-up and ecosystem centered approaches to the identification of Essential Biodiversity Variables and how to introduce these approaches in the implementation of national biodiversity observation networks. As a result of these early activities, WP2 made a **direct contribution to the GEO BON Implementation plan 2017-2020** ([http://geobon.org/Downloads/Other\\_documents/geobon\\_imp\\_plan\\_20172020.pdf](http://geobon.org/Downloads/Other_documents/geobon_imp_plan_20172020.pdf)) particularly for its conceptual framework on the identification of EBVs, within the EBV development Task Force, and with specific tasks coming from ECOPOTENTIAL on the identification and reduction of uncertainties in the estimation of future ecosystem functions.

▪ *Upcoming outputs (from 1<sup>st</sup> of February 2018 to 1<sup>st</sup> of April 2018)*

It is being prepared a workshop (to be held in Leipzig in December) for Essential Variable development for specific ecosystem types relevant at global scale.

Related scientific publications:

- Díaz S., Pascual U., Stenseke M., Martín-López B., Watson R., Molnár Z., Hill R., Chan K., Baste I., Brauman K., Polasky S., Church A., Lonsdale M., Larigauderie A., Leadley P., van Oudenhoven A., van der Plaats F., Schröter M., Lavorel S., Aumeeruddy-Thomas Y., Bukvareva E., Davies K., Demissew S., Erpul G., Failler P.,

**Guerra** C.A., Hewitt C., Keune H., Lindley S., Shirayama Y., 2018. Assessing nature's contributions to people, *Science*, (359) 6373, DOI: 10.1126/science.aap8826

- Navarro, L.M., Fernández, N., **Guerra**, C.A., Guralnick, R., Kissling, W.D., Londoño, M.C., Turak E., Yahara T., Kissling D., Skidmore A., Kim E., Kim H., Geijzendorffer I., Costello M., Mwampamba T., Martin C., Balvanera P., Vergara S., El Serafy G., Delavaud A., Pinto I., Jetz W., McGeoch M., Nel J., Xu H., Vihervaara P., Pettorelli N., Ferrier S., Geller G., Muller-Karger F., Guralnick R., Nicholson E., Schaeppman M., Gill M., Pereira, H.M., 2018. Monitoring biodiversity change through effective global coordination. *Current Opinion in Environmental Sustainability*. [in press]