Application of spatial conservation prioritisation for proposal of protected areas extension in Latvia

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In the context of EU Green Deal

«...to protect, conserve and enhance the EU's natural capital...»

NATURAL CAPITAL - the stock of natural ecosystems that provides an important and valuable flow of ecosystem goods or services



Aim of the project: prepare a proposal for a network of protected areas in Latvia in line with the objectives of the EU Biodiversity Strategy 2030, extending the coverage of protected areas to 30% of Latvia's terrestrial territory

Criteria and guidance for protected areas designations

https://environment.ec.europa.eu/publications/criteria-andguidance-protected-areas-designations-staff-workingdocument_en Spatial conservation prioritization is a process of identifying areas that are most valuable for conservation and determining where conservation efforts should be focused to maximize the protection of biodiversity and ecosystem services.

The aim of spatial conservation prioritization is to help authorities make data-driven decisions on where to invest scarce resources.







Ecological values: species distribution ecosystem condition ecosystem services





Zonation is a spatial conservation prioritization tool that uses advanced algorithms to identify areas that are most important for conservation. It works by assigning a conservation value to each individual location in a study area based on its importance for meeting specific conservation objectives. The tool then prioritizes these locations based on their conservation value, producing a map that highlights areas of high conservation priority. Zonation uses a hierarchical approach that considers both the ecological value of individual locations as well as the connectivity between them. The tool can be used to identify areas that are critical for maintaining biodiversity, areas that are most vulnerable to threats, and areas that are best suited for restoration or conservation interventions.

Distribution of EU priority habitats

Distribution of EU habitats



Proportion of EU habitats



Conservation status of EU habitats





Distribution of protected species (records)





Distribution of protected bird species (records)





Layers representing ecological value: Distribution of grassland habitats





Layers representing ecological value: Ecological assessment of rivers





Layers representing ecological value: **ES Climate control**



Layers representing ecological value: **ES filtration/accumulation**



Layers representing ecological value: **ES flood control**





Layers representing ecological value: ES maintaining habitats



'Costs' dataset

Hierarchical data layer model:

a) the more natural the LULC the lower the cost (for the ELC data layer);

b) the higher the land value in points, the higher the cost (for the agricultural landlayer);

c) the higher the bonitet, the higher the cost (forest inventory);

d) the stricter the restrictions on economic activity, the lower the cost (forest inventory)



Costs layer

Hierarchical model of data layers, where each successive layer complements (replaces/updates) the previous layer, ensuring that each area has the highest quality data available

MVR-BON/APROB



hierarchical removal mask

Natura 2000

Weighting

Layer	Weights
Distribution of EU priority habitats	5
Distribution of EU habitats	10
Proportion of EU habitats	5
Conservation status of EU habitats	10
Distribution of protected species (records)	5
Distribution of protected bird species (records)	3
Distribution of grassland habitats	5
Connectivity value of grassland habitats	5
Ecological assessment of rivers	15
ES Climate control	10
ES filtration/accumulation	5
ES flood control	5
ES habitat maintanance	20



Valsts mērogā modelēta aizsargāto dabas teritoriju indikatīva karte (nemot vērā tikai ekoloģiskās vērtības (bioloģiskā vērtība un ekosistēmas pakalpojumi))



Valsts mērogā modelēta aizsargāto dabas teritoriju indikatīva karte (nemot vērā ekoloģiskās vērtības un saimniecisko nozīmi)



Modelēšanā izmantoti DAP, VMD, LVQMC, LAD, VZD, LVM, CSP, BTOR, LDF ģeotelpiskie dati

Modelěšaná izmantoti DAP, VMD, LVGMC, LAD, VZD, LVM, CSP, BLOR, LDF geotelpiskie dati

Valsts mērogā modelēta aizsargāto dabas teritoriju indikatīva karte (nemot vērā ekoloģiskās vērtības un Natura 2000 teritoriju tiklu)



Valsts mērogā modelēta aizsargāto dabas teritoriju indikatīva karte (pemot vērā ekoloģiskās vērtības, saimniecisko nozīmi un esošo Natura 2000 teritoriju tiklu)



Modeléšaná izmantoti DAP, VMD, LVGMC, LAD, VZD, LVM, CSP, BECR, LDF geotelpiskie dati

Modelēšanā izmantoti DAP, VMD, LVGMC, LAD, VZD, LVM, CSP, BIOR, LDF ģeotelpiskie dati