From data to conservation decisions

Identification and assessment of top priority areas for conservation management using Natura 2000 data

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Natura 2000 monitoring
Integrating conservation management and monitoring
Eurosite seminar, Barcelona
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“The holy trinity” of conservation

Magnitude of resources, microclimate, etc.

Habitat availability for conservation purposes

Area and quality define carrying capacity

Aggregation effects the local dynamics

The spatial habitat network

Best solutions are good in both: in quality and in network view.
But how?

- **Ecological decision making** makes structural problem analyzing possible but not necessarily gives answers.

Spatial conservation prioritization such as Zonation software

Spatial conservation planning

Ecological decision making
CONSERVATION DECISION-MAKING: Spatial conservation prioritization process (and Zonation)

Monitoring

Setting of objectives

Data preparation

Computational analysis

Interpretation

On-the-ground quality verification

Recommendations
CONSERVATION DECISION-MAKING: Spatial conservation prioritization process (and Zonation)

Monitoring

Setting of objectives

CONSERVATION DECISION-MAKING: Spatial conservation prioritization process (and Zonation)

Lots of data (incl. Natura data)

Conservation area management

Need to prioritize

Zonation tool

Could we define scientifically conservation and management top priority areas?

On-the-ground quality verification

Recommendations

Data preparation

Computational analysis

Interpretation
CONSERVATION DECISION-MAKING:
Spatial conservation prioritization process (and Zonation)

Objective:
These maps are used for regional management and planning & Natura assessment in Metsähallitus forest and wildlife Finland

On-the-ground quality verification

Recommendations
CONSERVATION DECISION-MAKING: Spatial conservation prioritization process (and Zonation)

Data: Natura 2000 Nature type inventory data (Natura 2000 habitat types: natural state and representativeness of the site) from government owned land.

- Data quality and coverage are crucial in spatial conservation prioritization
- Also utilized data from Red List 2010 Finland, State of Natura 2000 habitat types in Finland (inventory 2006) and EU priority natural habitats.
Data preparation: how data is going to answer the question with Z?

Objectives must be clear

Data, ecology, conservation and Zonation experts together.

On-the-ground quality verification

Recommendations

CONSERVATION DECISION-MAKING:
Spatial conservation prioritization process (and Zonation)
**Zonation in a nutshell**

- Zonation produces **balanced**, complementarity-based priority ranking based on the **occurrence levels** of biodiversity features and **costs** in sites (grid cells).
- The ranking is generated by iteratively removing the least valuable remaining cell, accounting for **connectivity** and the **balance between features** in the process.
- Z can process quite **large data sets**.

- Zonation is **freely available**: [http://cbig.it.helsinki.fi/](http://cbig.it.helsinki.fi/)
Top priority areas and management landscapes from a national Natura 2000 network

**Results** are a decision support tool for conservation planning.

On-the-ground quality verification

Recommendations
CONSERVATION DECISION-MAKING: Spatial conservation prioritization process (in Zonation)

These maps are used for regional management and planning & Natura assessment in Metsähallitus forest and wildlife Finland

On-the-ground quality verification

Recommendations

Setting of objectives

Preparing of ecological model

Processing the data

Spatial prioritization

Priority ranking

Post-processing

Verification

Benefits, disadvantages, threats

Computational analysis

Interpretation
From results to conservation

- Decisionmakers have active role
  - Clear objectives
    - Clear benefits
  - Clear action plan
- Put effort on result discussion and user training, don’t spoil with bad GIS equipment etc.
- Clear roles inside process
- Remember: Garbage in – garbage out
Thank you!

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Forest Biodiversity Conservation Programme METSO:
metsonpolku.fi/en

Zonation software: http://cbig.it.helsinki.fi/software
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