ZONATION
Conservation planning software

Conservation and Restoration in Decision-making

Combining decision support tools and local expertise when targeting complementarity and individual hotspots

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EXAMPLE: COMISSIONED ANALYSIS FOR 100 000 ha EXPANSION OF PROTECTED PEATLAND AREA NETWORK IN FINLAND

Goals Identifying single peatland areas with outstanding biodiversity value *per se.*

Identifying a group of peatland areas that would make the best addition to the existing network of protected peatlands in Finland.
3C principle: *Complementarity, Connectivity, Cost-effectiveness*.

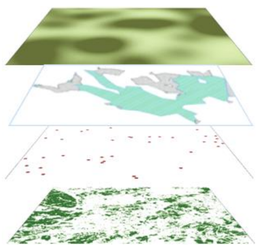
Tools Approach 1: Biodiversity data and expert knowledge based systematic scoring and evaluation of sites for identification of individual hotspots.

Approach 2: Complementarity based analysis to achieve a systematic consideration of biodiversity values, connectivity, and costs.

PHASE 1 DESIGN ANALYSIS AND PROCESS DATA FOR BIODIVERSITY FEATURES AND RESTORATION NEEDS OF EACH PLANNING UNIT

Determine planning units (PLU) with high value core areas (green) and areas needed to be restored (gray).

Process relevant data for existing protected areas and candidate expansion areas.



Cost layer
(land acquisition + restoration)
Condition penalty
(forestry-drained areas to be restored)

Multiple biodiversity
feature layers

Biodiversity value can now be balanced against the low condition of areas needed to be restored or the additional costs due to restoration.

PHASE 2 PERFORM SCORING AND SYSTEMATIC SPATIAL CONSERVATION PRIORITIZATION ANALYSIS TO IDENTIFY AREAS OF HIGH VALUE

Two separate approaches allowing 1) identification of individually best areas and the best set of areas and 2) comparison of the approaches and evaluation of the results.

Approach 1: identifying high value individual areas

Peatland experts calculate each PLU's value *per se* based on the PLU's observed features

Score (PLU 0001)

Biodiversity feature 1, points: 1
Biodiversity feature 2, points: 1
Biodiversity feature 3, points: 1
Biodiversity feature 4, points: 0
Biodiversity feature 5, points: 0
Biodiversity feature 6, points: 0
…
Condition, points: 0
Connectivity, points: 1

Score (PLU 0002)

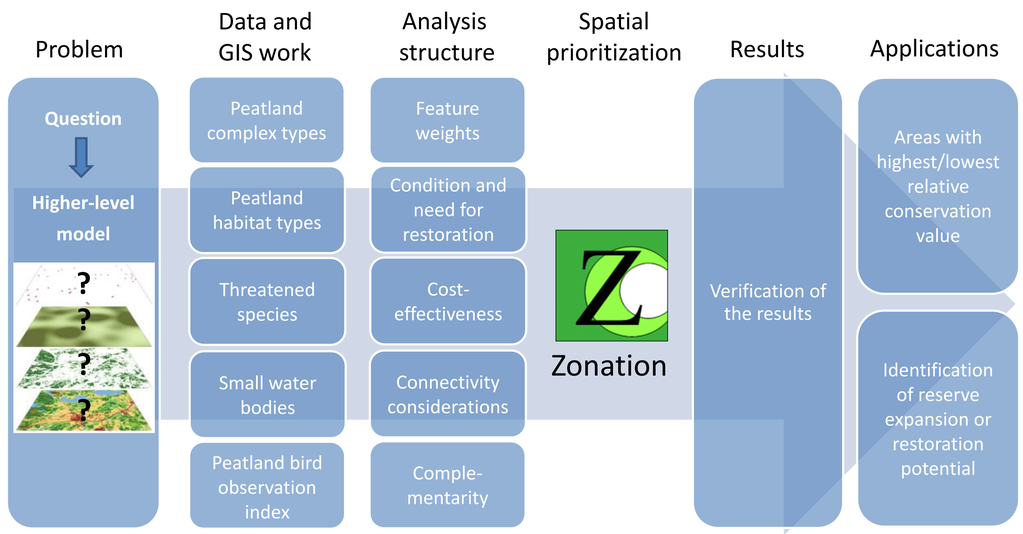
Biodiversity feature 1, points: 1
Biodiversity feature 2, points: 1
Biodiversity feature 3, points: 1
Biodiversity feature 4, points: 1
Biodiversity feature 5, points: 1
Biodiversity feature 6, points: 0
…
Condition, points: 1
Connectivity, points: 2

Score (PLU 4921)

Biodiversity feature 1, points: 1
Biodiversity feature 2, points: 1
Biodiversity feature 3, points: 1
Biodiversity feature 4, points: 1
Biodiversity feature 5, points: 1
Biodiversity feature 6, points: 1
…
Condition, points: 3
Connectivity, points: 3

Approach 2: identifying high value set of areas

Complementarity based analysis using decision support tool ZONATION

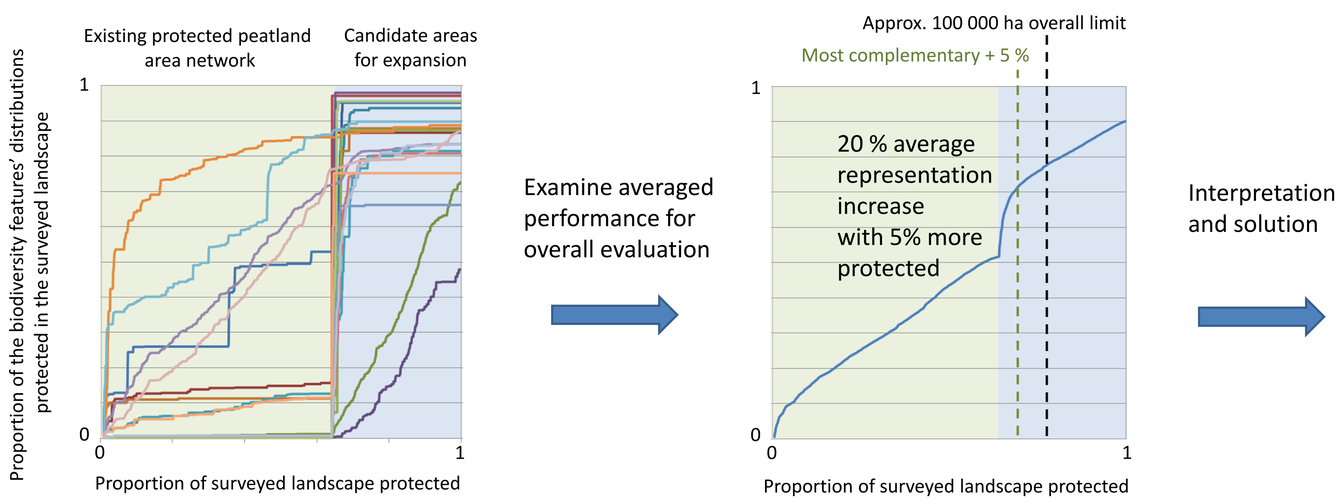


PHASE 3 COMBINE SCORING WITH SYSTEMATIC ANALYSIS TO ACHIEVE COMPLEMENTARITY WHILE IDENTIFYING HOTSPOTS

1) Evaluate national scale complementarity with respect to allocated area.

2) When "complementary enough" allocate area for individual hotspots.

Examine how the representation of different biodiversity features under protection changes when new areas are allocated for protection following the suggested prioritization.

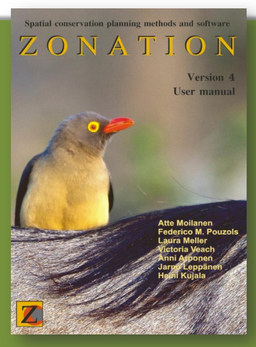


5% expansion (-> green line) chosen as suggested by the Zonation analysis gives highly complementary addition to the existing protected area network.

The complementary value of the remaining areas (green line ->) is smaller as indicated by the slope of the curves describing biodiversity feature representation.

Further expansion (green line ->) can be based on the planning units' individual value (scoring, expert knowledge, and local value) without significantly compromising the complementarity and the over all ecological value of the expansion.

Achieving: complementary expansion with national and local hotspots while considering restoration needs and connectivity.



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http://www.metsa.fi/metso-ohjelma/zonation
http://www.metsa.fi/web/en/metsoprogramme/zonation
http://cbig.it.helsinki.fi/software/zonation/

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