

# Zonation 5: some study cases

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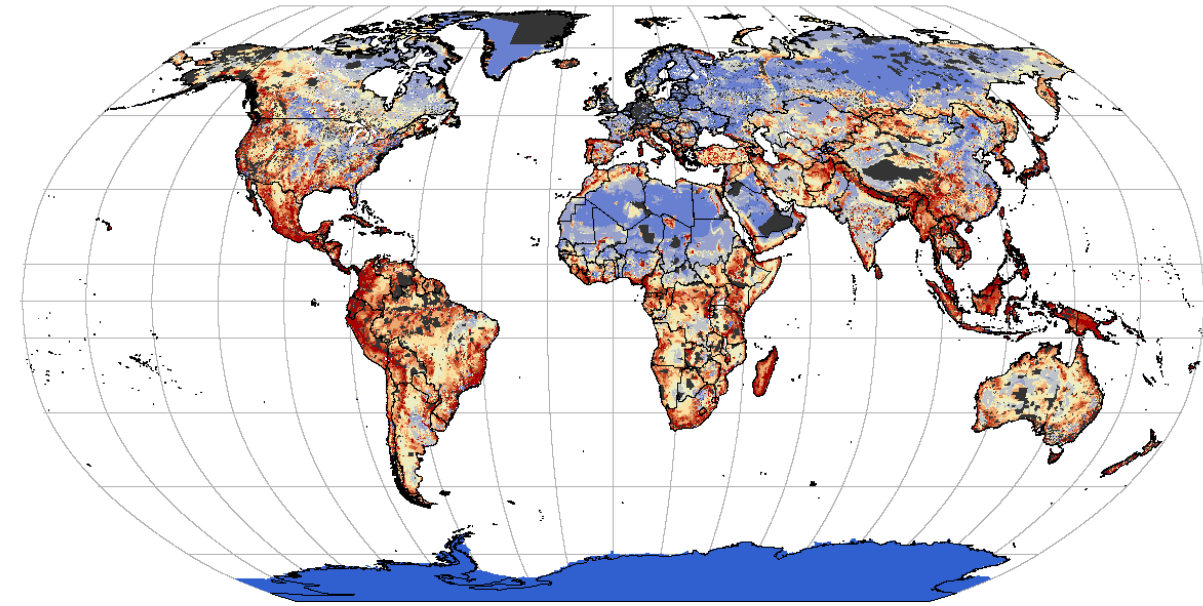
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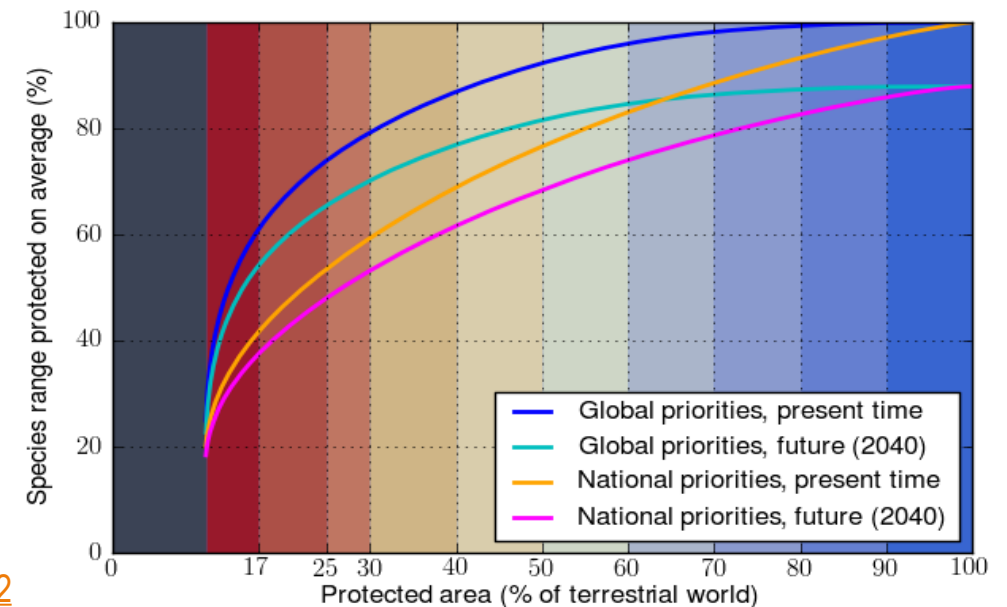
# 1

# Global analysis

- Global priorities for achieving the Aichi target
- ~25,000 species (IUCN), 827 ecoregions (WWF)
- Setup
  - Present & future land-use (2040)
  - Protected areas (hierarchic mask)
  - Country borders (administrative units)
  - Comparison btw. national & global priorities



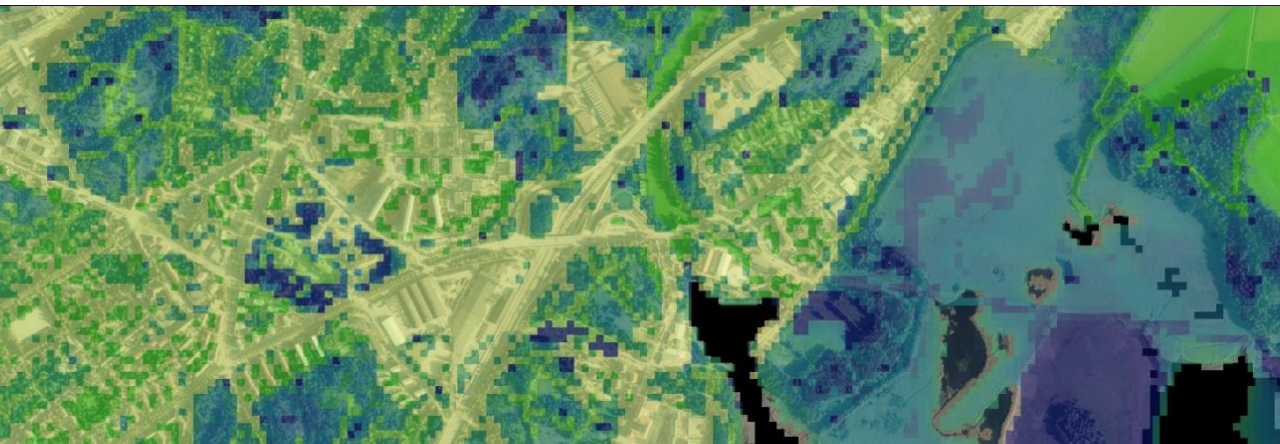
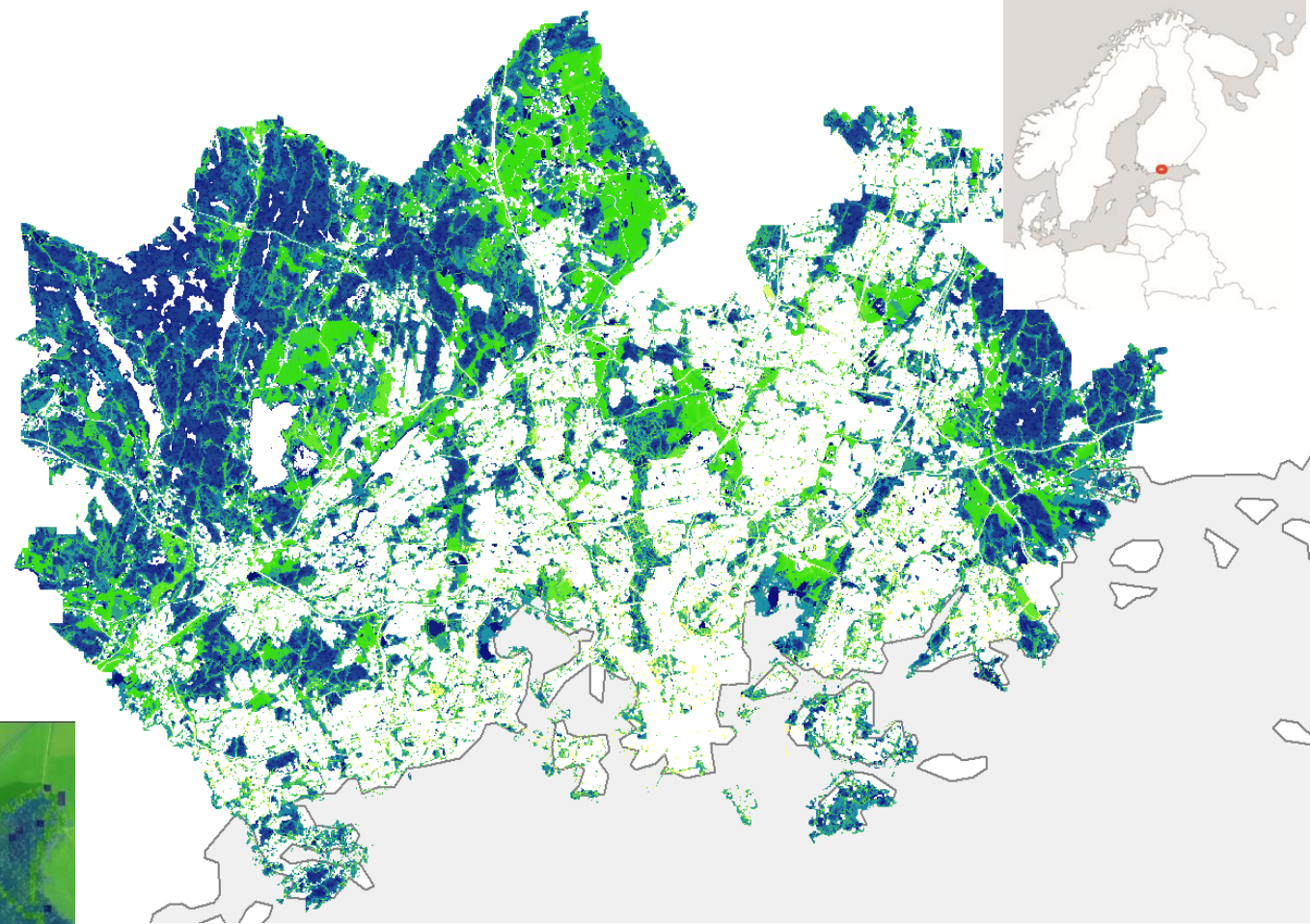
Current PA's Expansion to 17 % 17-25 25-30 30-40 40-50 50-60 60-70 70-80 80-90 90-100 %



## 2

# Local analysis for urban planning

- Prioritization of urban green spaces for urban biodiversity
- Impact avoidance → Low-priority areas favorable for urban development
- Setup
  - Habitat quality attributes for 10 taxa
  - Single-feature (functional) connectivity
  - Hierarchic weighting

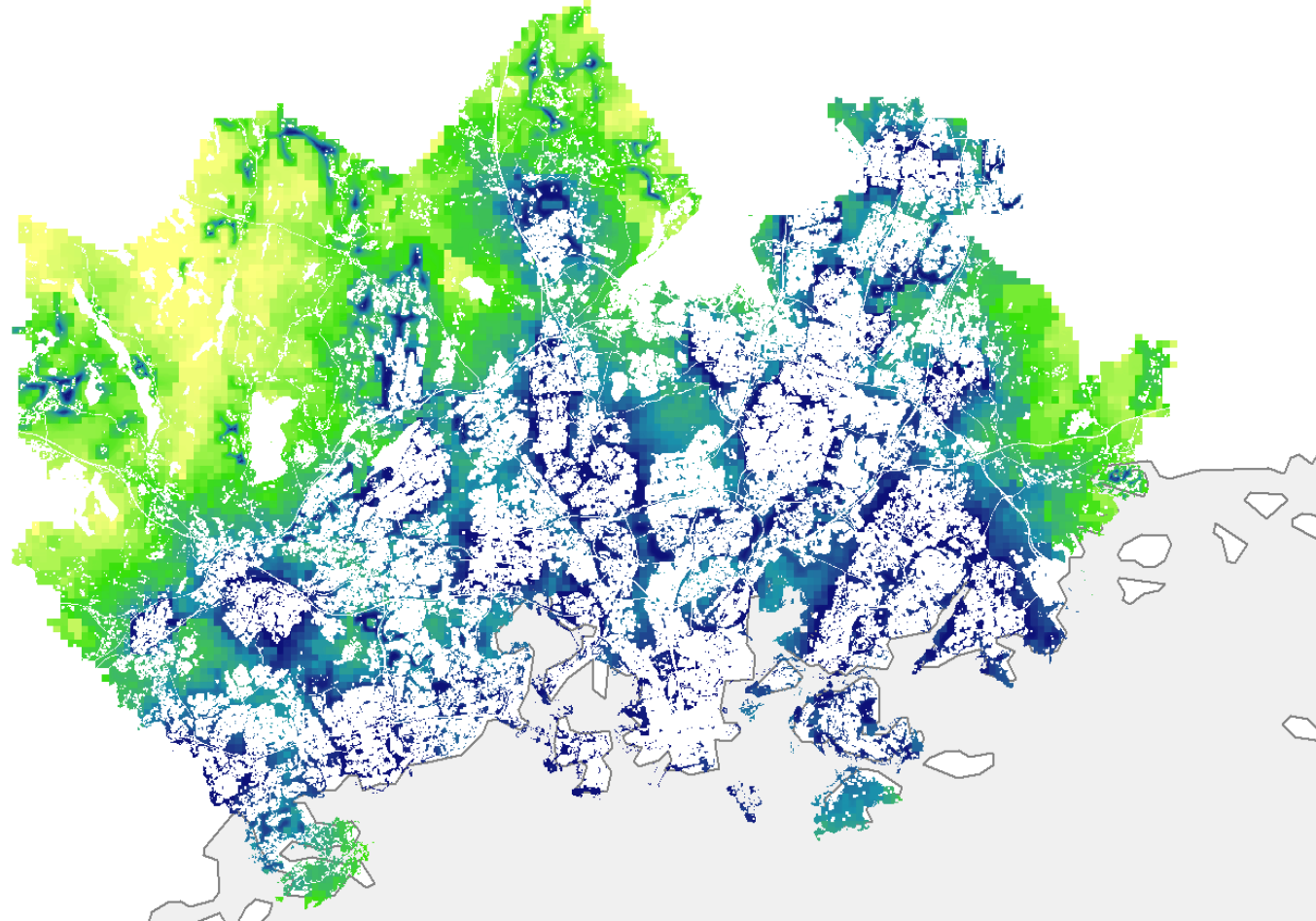




# 3

## Prioritization for human accessibility

- Prioritization with accessibility data
- Layers describing the accessibility of urban parks for each city districts (181) in Helsinki region
- Weights by No. residents  
→ Social equitability perspective



## 4

# Forest connectivity

- Connectivity between different forest types
- Connectivity to existing protected areas

A	Pi	Sp	Bi	Ob
Pi	1	0.7	0.4	0.2
Sp	0.7	1	0.6	0.4
Bi	0.3	0.6	1	0.8
Ob	0.5	0.5	1	1

## Main tree species

Pi = pine

Sp = spruce

Bi = birch

Ob = other broadleaves

## Understory type

Dr = dry upland

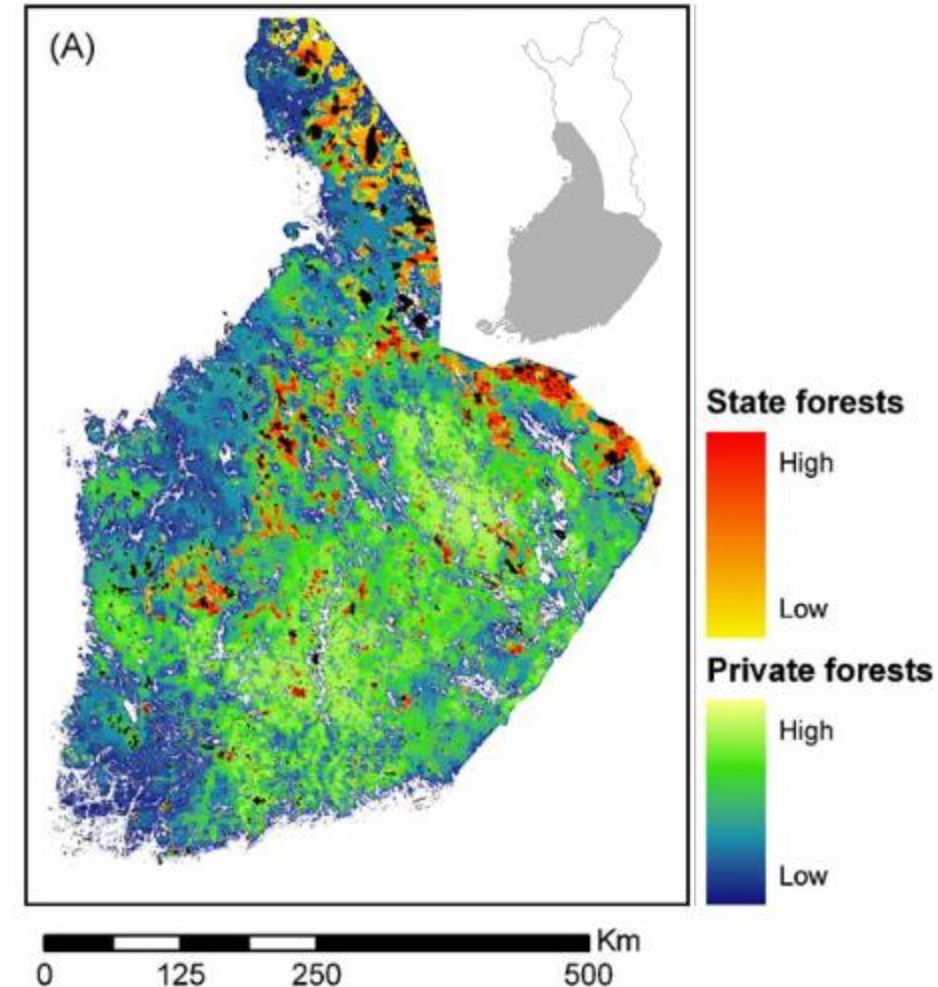
Vs = *Vaccinium* type

Fm = lush mineral

Ug = upland grass-herb

Hr = herb-rich

B	Dr	Vs	Fm	Ug	Hr
Dr	1	0.9	0.7	0.4	0.2
Vs	1	1	0.9	0.7	0.4
Fm	0.9	1	1	0.9	0.7
Ug	0.7	0.9	1	1	0.9
Hr	0.4	0.7	0.7	1	1

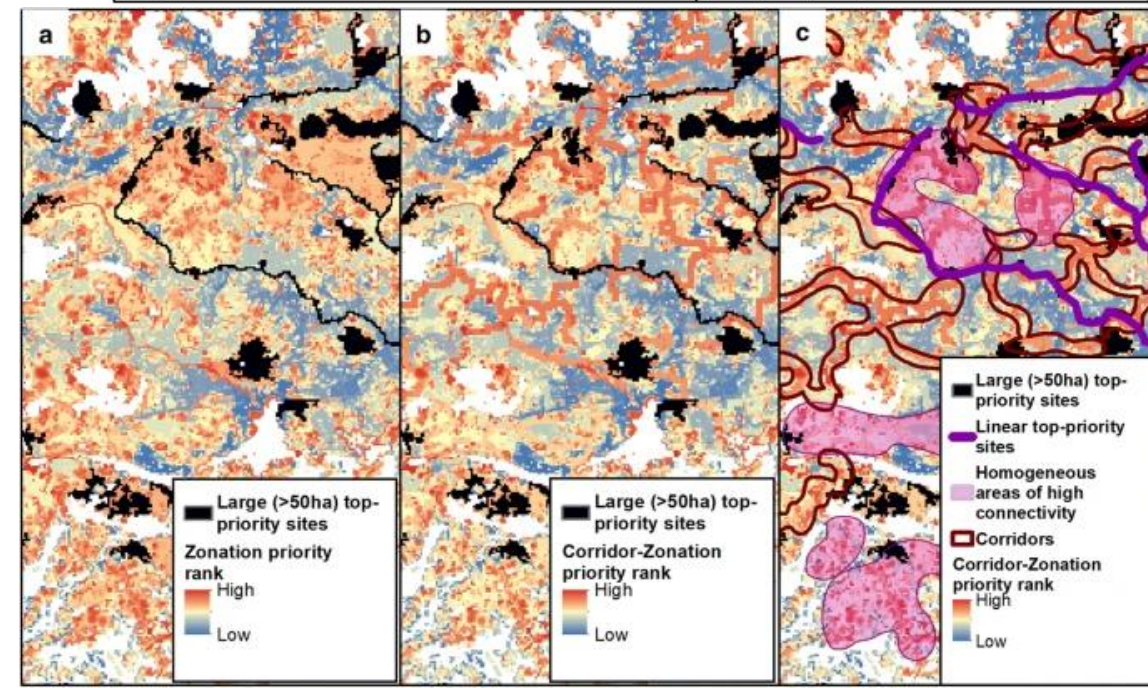
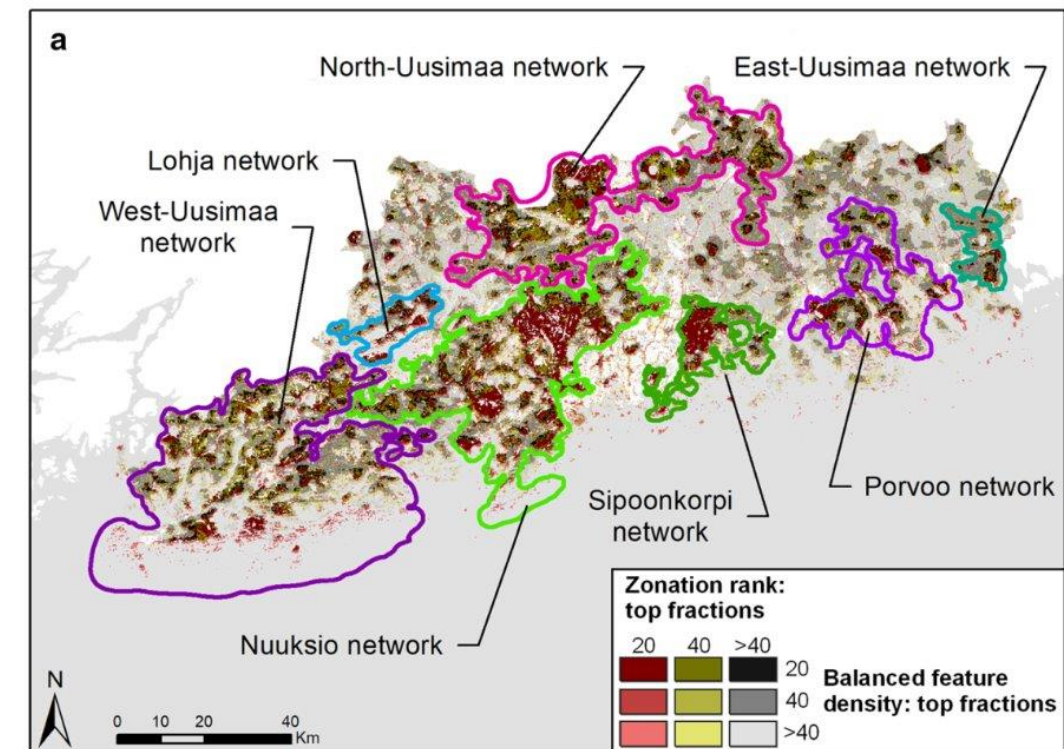




## 5

# Regional connectivity

- Uusimaa, S-Finland
- Data about spp., habitats, human impacts
- Advanced setup
  - Post-processing: large ecological networks (well-connected areas)
  - Corridor-indentification analysis (in Zonation 4, ot 5)



- Basic Zonation Runs
  - Using Species Distribution Maps
  - Establishing Conservation Priorities
- Advanced Setup
  - Weighting Schemes
  - Dispersal Considerations
  - Connectivity Analyses Under Climate Change

1 Setting the stage  
 2 Replicability  
 3 Minimal setups  
 4 Connectivity setups  
**5 About the Author**  
 5.1 Thiago Cavalcante  
 5.2 Research  
 5.3 On the Horizon  
 6 Acknowledgments  
 References



### Exploring Zonation 5 Settings and Outputs

The Zonation 5 call was:

```
z5 -iwlwgf --mode=CAZMAX --gui settings.z5 output
```

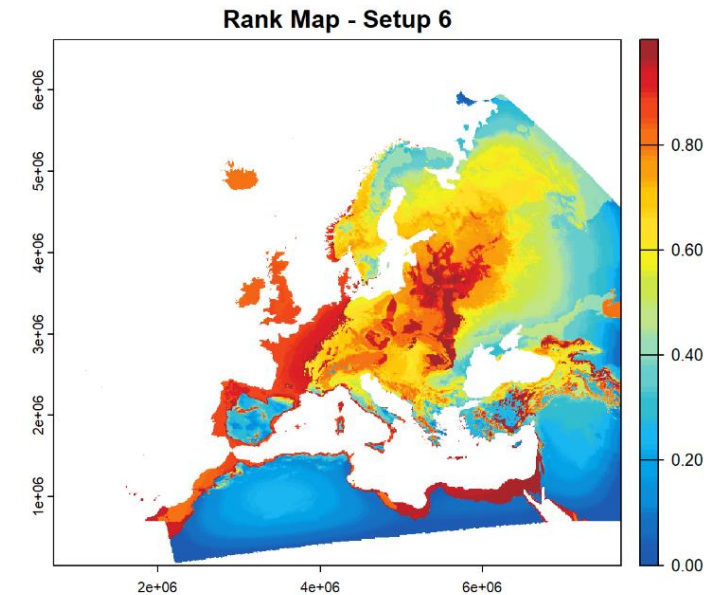
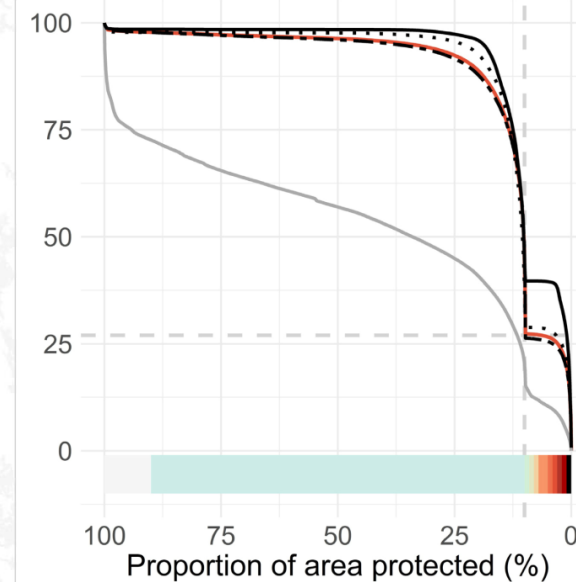
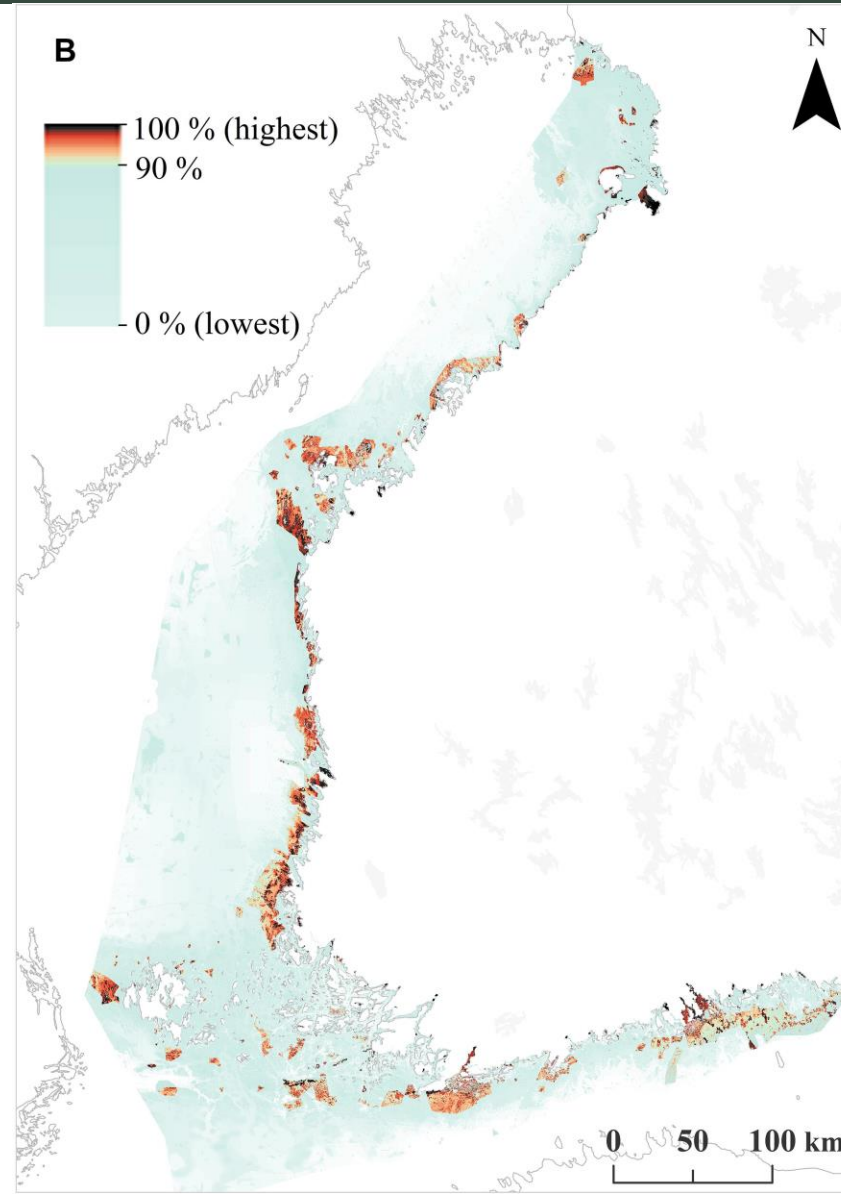


Figure 4.3: Climate resilient conservation priorities for nine mammal species (*Canis lupus*, *Cervus elaphus*, *Crocidura sicula*, *Gulo gulo*, *Lepus europaeus*, *Capra ibex*, *Bison bonasus*, *Crocidura zimmermanni*, and *Spalax antiquus*) across Europe.

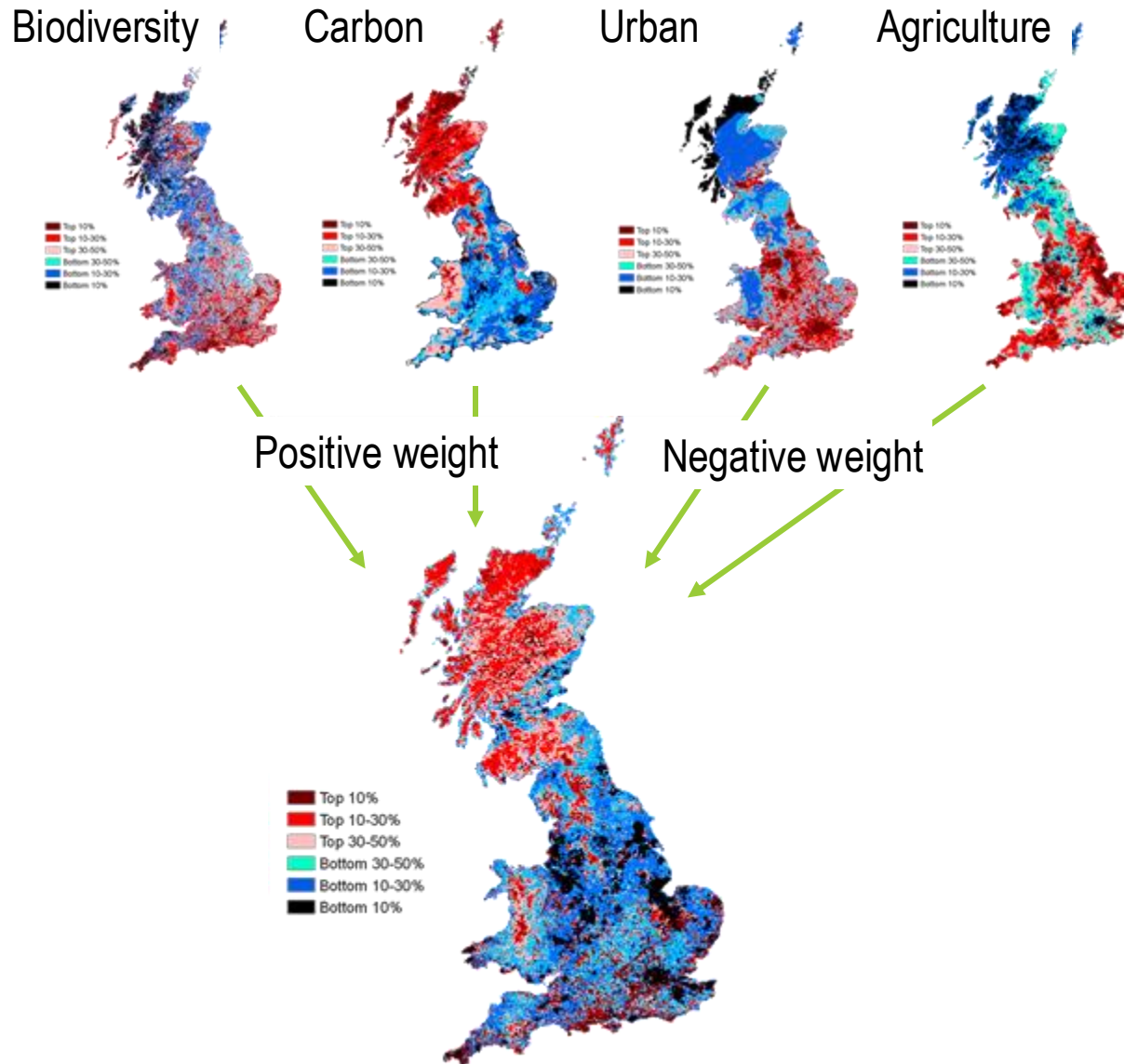


- Protected area expansion for Finnish marine areas
- Setup
  - SDMs
  - Human-induced pressures
  - PA evaluation & expansion (hierarchic mask)
  - Surrogacy analysis (spp. vs. habitats)



## 8

# Multiple objectives – balancing competing landuse



Highest priority given to areas with high biodiversity values and carbon sequestration potential while avoiding areas important for agriculture and urban development

# 9 Multiple objectives – multiaction visualisation

**CONFLICT** | valuable for both for  
biodiversity & people

**SINGLE USE** | valuable economically

