Securing the Conservation of biodiversity across Administrative Levels and spatial, temporal, and Ecological Scales

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Introduction

- Different species perceive the environment differently according to their needs (traits)

- Different ecological processes act differently at different scales (competition, etc)

- Different policy decisions are made at different spatial and administrative scales (local, regional, national, EU-level)

- Policy decisions & instruments do not always match
Key objectives

- Understanding / predicting trends in biodiversity at different scales and their causes
  - Analysing & modelling anthropogenic drivers and pressures on biodiversity
  - Development of analysis / prediction tools (mathematical / models)
  - Critical distances for various species dispersal distances

- Understanding relations between species traits + needs

- Improve scale related policy instruments
  - Provision of interfaces between knowledge and decision making
  - Coherence and ecological sufficiency of networks of protected areas across scales
  - Maintenance of regional connectivity
Key objectives II

• Effects of
  – Fragmentation,
  – Disturbance
  – Climate change

  ...on biodiversity

• Applied goals
  – Ensuring regional connectivity
  – Improving coherence of the network of protected sites
  – Improving biodiversity monitoring across scales
Project facts

- Large-scale integrating project, FP7

- 28 Partners, 18 European countries & Australia, duration of 63 months (2009-2014)
Problem

Drivers & scenarios

Biological processes
(How do species respond?)

Decision making
(What should we do?)
Approach

- Drivers & scenarios
- Biological processes (How do species respond?)
- Databases
- Tool development

Decision making (What should we do?)
Drivers & Pressures

Biological scales

Administrative scales

Conceptual framework
Project structure
Drivers & scenarios

Main tasks

• Develop a typology of drivers across scales
• Analyse the interactions among drivers
• Develop socio-economic and climate scenarios
• Model effects of drivers on future land use
• Quantify current and future habitat loss and fragmentation at multiple scales

Main responsibility

University of Reading
Species needs & response

Main tasks

• Compile a database of species traits useful for predicting responses to habitat scaling;
• Model and test the effects of habitat configuration on genetic diversity, population viability, species diversity and ecosystem service provision at multiple scales;
• Integrate these results to make scale-specific recommendations for conservation strategies.

Main responsibility

University of Leeds
Method development

Main tasks
Develop
• reserve-site selection software toward WP2 and WP5
• methods for up- and downscaling (populations, biodiversity)
• models for connectivity across scales
• ways to apply PVAs for multiple species
• approaches for optimal monitoring schemes

Main responsibility
University of the Aegean
Method testing

Main tasks
Collect and prepare datasets (from WP’s and external sources) for cross-scale testing
Evaluation of methods and policy instruments in relation to:
• the coherence and ecological sufficiency of networks of protected areas across administrative levels
• regional connectivity of habitats
• cross-scale monitoring of biodiversity

Main responsibility
Aristotle University of Thessaloniki
Policy instruments

Main tasks

• Assess EU policies governing biodiversity conservation and anthropogenic processes relevant for scale-related problems
• Identify and evaluate national policy instruments potentially able to mitigate anthropogenic impact
• Identify, analyse, and develop innovative policy instruments and mechanisms to address scale-related problems

Main responsibility

SYKE (Suomen Ymparistokeskus; Finland's environmental administration)
Recommendations, integration & dissemination

Task 1

• Translation of project results into recommendations for decision-making in conservation practices
• Development of a framework that orders and structures results of SCALES
• Development of an interactive web tool (SCALESTOOL) to implement this framework

Main responsibility
Centre for Cartography of Fauna and Flora (CKFF)
Recommendations, integration & dissemination

Task 2

- Dissemination of results
- Training of stakeholders and young scientists (PhDs, PostDocs)
- Science – policy dialogue

Main responsibility
PENSOFT Publishers
Recommendations, integration & dissemination

Dissemination

- Webpage of SCALES
  www.scales-project.net

- New open-access online scientific journal on scales related issues

- Dissemination via Booklet(s), Internet, journals, leaflets, etc.

- Text book on methodology of scaling
Training

- Training of managers and other stakeholders of Natura 2000
- Six one-day trainings, three on each of following subjects:
  1. effective implementation of networks of protected areas
  2. monitoring biodiversity across scales
- Two two-day training courses for PhD students and Post Docs on methodology of scaling
Science-Policy Dialogue

- Stakeholders in the AB & at main project meetings
- Presentation of SCALES in stakeholder targeted workshops
- Implementation of SCALES results into the European Habitats and Birds Directives and the European Biodiversity Strategy
- Development of SCALESTOOL jointly with POLICYTOOL and DaEuMon database

Recommendations, integration & dissemination
Contacts & further information

• Project homepage: www.scales-project.net

• Co-ordination:
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Potential co-operations

- Trait databases and species distribution data
- Joint analysis of species distribution range shifts
Спасибо за ваше внимание!

Thanks for your attention!