Transactional Environmental Support System

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Policy Impacts on Pan-European Trends in Ecosystem Services and Biodiversity

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2007 - 2013

The TESS Project

1. Investigate the use and requirements of environmental information for formal assessments, land planning and daily management decisions.
2. Investigate how environmental assessments are made across Europe and **identify indicators of best practice.**
3. Design a Transactional Environmental Support System (TESS) to encourage local collection of information and best practice in planning and management decisions.

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OBJECTIVES

Identification of associations of policies on land uses and economic activity to trends in ecosystem services and biodiversity at the Pan-European scale in order to find indicators of best practice

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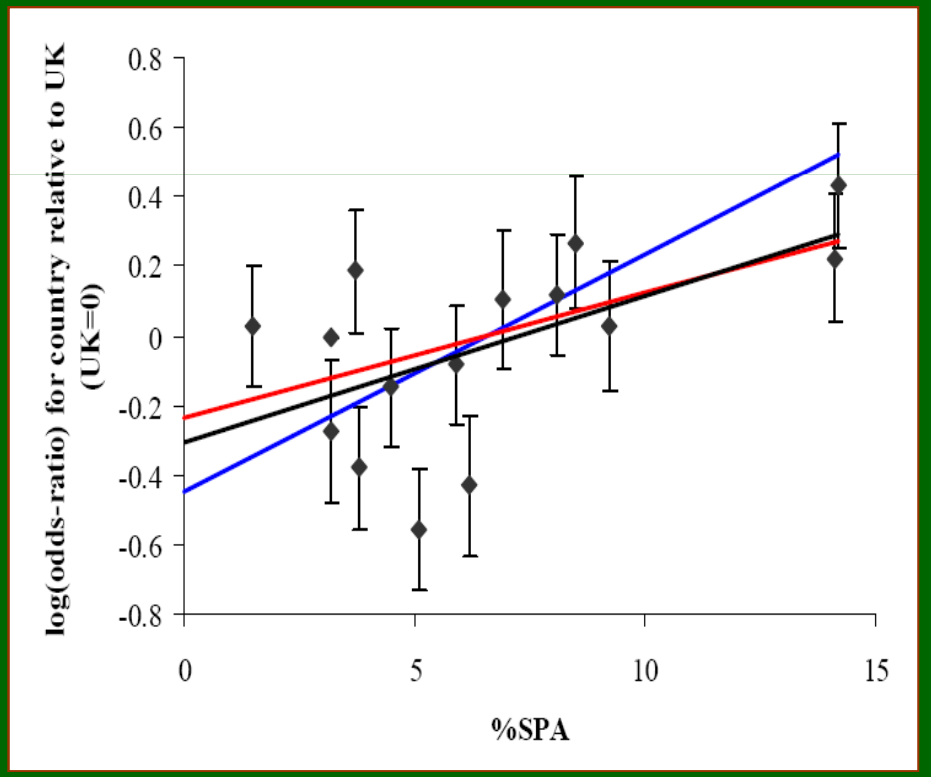
Statistical approach

Cross-country correlative analysis of associations between driver and impact variables.

Donald et al. 2007. International Conservation Policy Delivers Benefits for Birds in Europe. Science, 317, 810-813.



Analytic framework

Analysis based on the Capacity → Priority → Process → Impact framework developed in FP6 project GEMCONBIO (*Kenward et al. 2011. PNAS*).

1. **Capacity – Long-term and structural societal, governance, and ecological features.**
2. **Priority – More immediate socio-economic and environmental choices of societies.**
3. **Process – Tools adopted to address Priorities.**
4. **Impact – Environmental outcomes resulting from Capacities, Priorities and Processes.**

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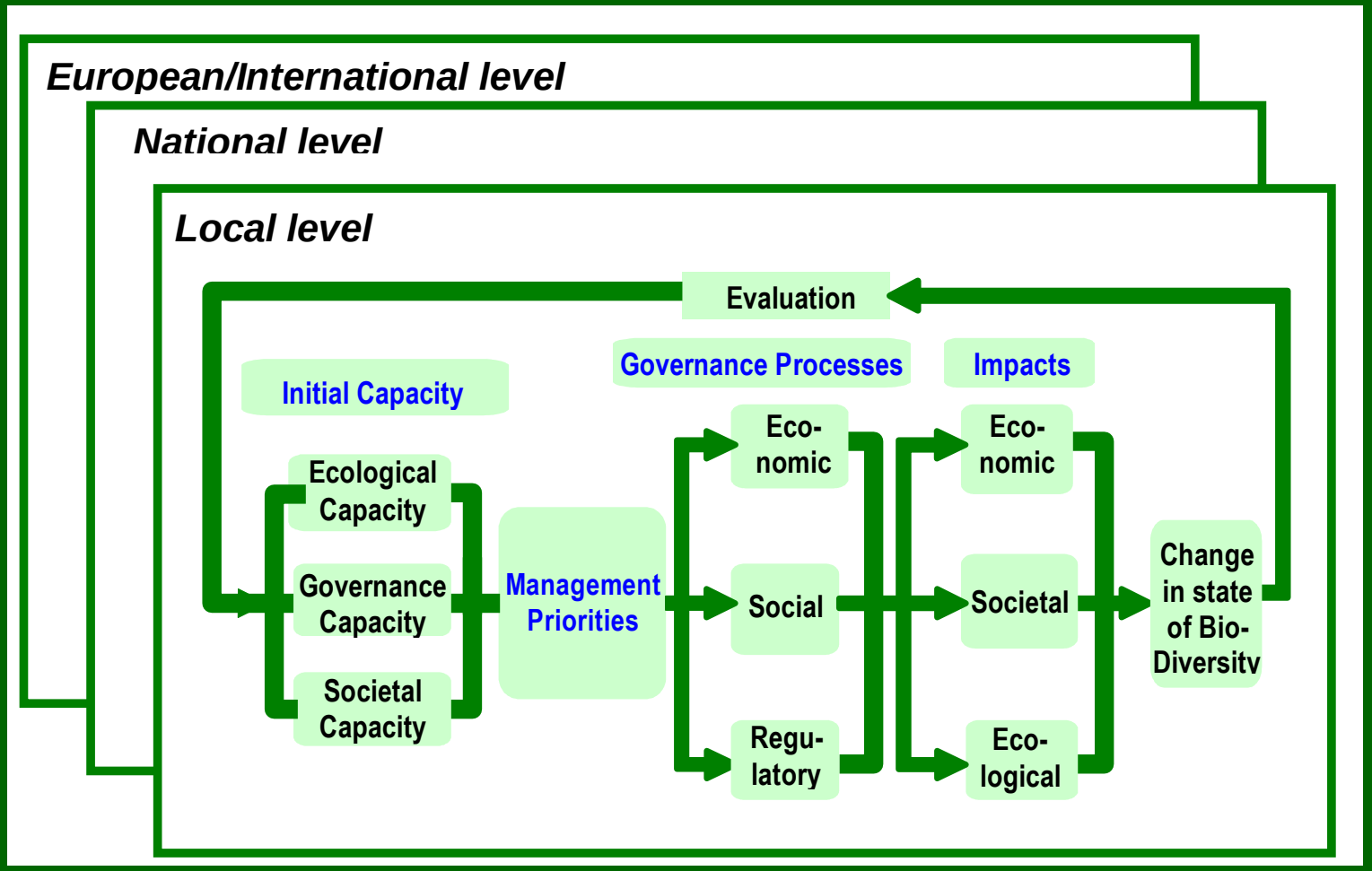
Conceptual scheme



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Origins of data

- GEMCONBIO (2 variables on resource use).
- United Nations (3 variables on population)
- World Bank (11 variables on economics and governance)
- European Environment Agency (21 variables on Natura 2000, biodiversity, and land uses)
- Pan-European TESS Survey (28 Variables on policies, governance and management).

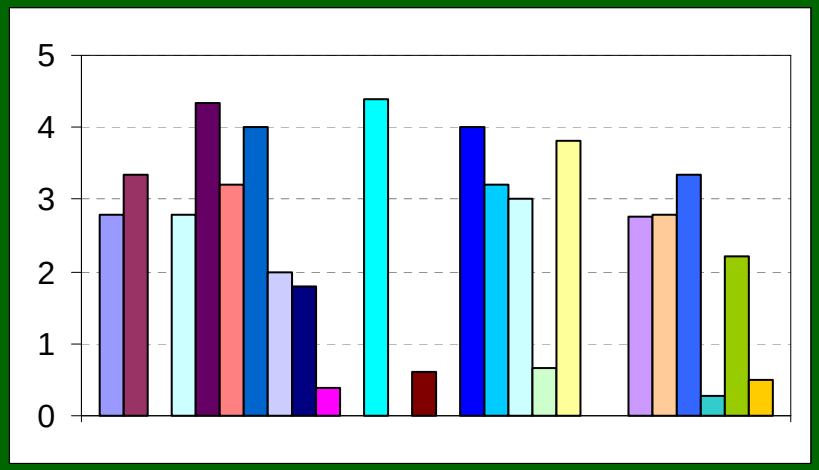
Pilot survey

- Pilot survey (2009) in 9 partner countries.
- Design of questionnaires at national, regional and local levels (EIA/SEA, Land Use Planning, Agri-Environment schemes, Biodiversity Action Plans, environmental information).
- Preliminary characterization of environmental policy regulations and processes.
- Evaluation of data from questionnaires (redundancies, inconsistencies and variability)

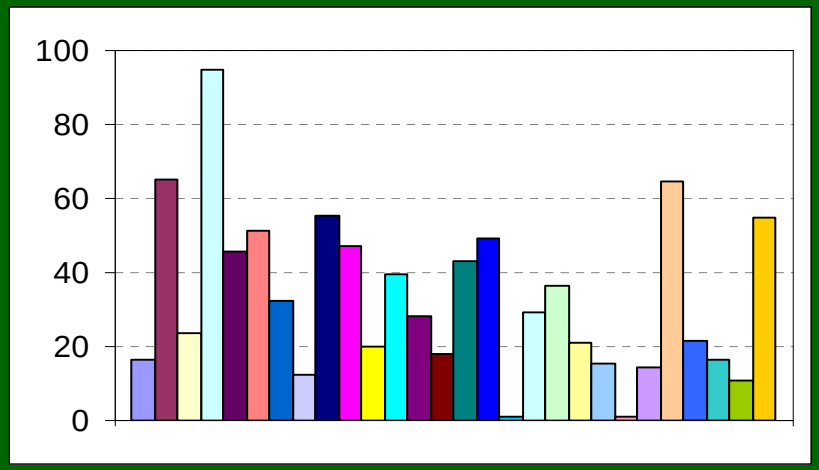
Pan-European survey

- Survey (2010) in EU27 + Norway, Switzerland, Turkey and Ukraine.
- Design of questionnaires targeted at national and local administrations and stakeholders.
- Stratified random selection of sampling units (five LAU2 per country)
- Database collation and analysis of data.
- Extraction of variables and building of data matrix for subsequent analysis.

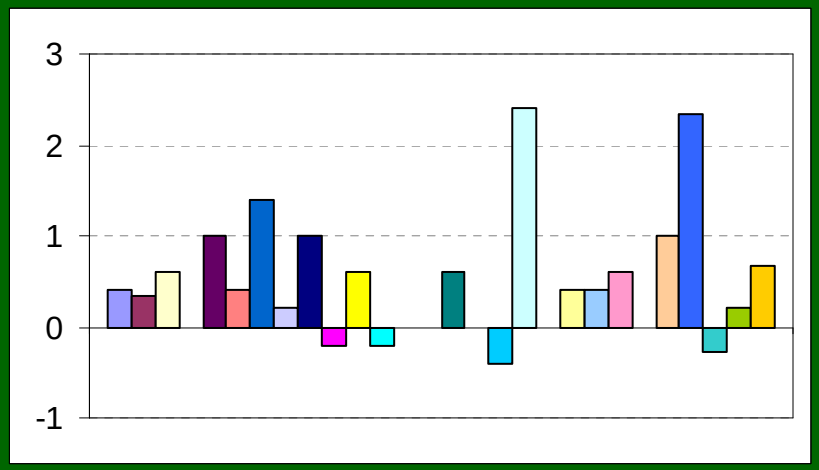
Survey variables



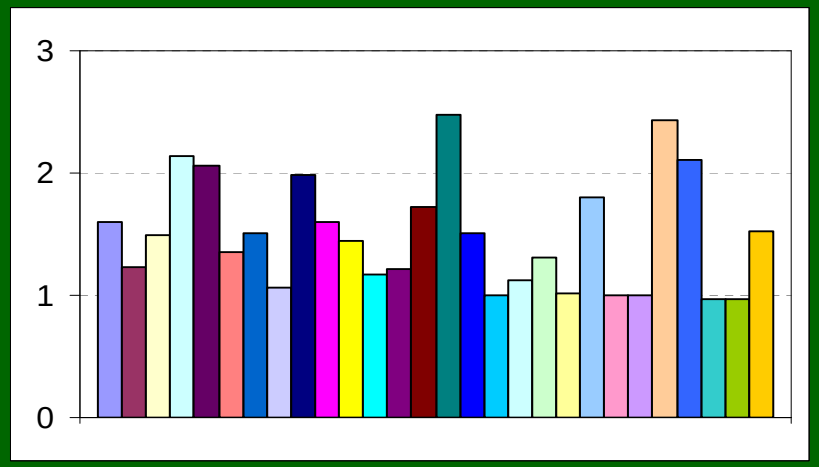
Local Digital Enablement (*Capacity*)



Environmental Consideration (*Priority*)



NGO Influence (*Process*)



Local positivity to nature (*Impact*)

Indicators of biodiversity change

- Direct information on European biodiversity change is scarce except for a few intensively studied groups (e.g. birds).
- The ability of indirect indicators to reflect temporal trends in European biodiversity is limited.
- The SEBI 2010 (EEA) provides the most consistent data set to assess biodiversity change at the Pan-European Scale.
- Land cover changes (CORINE; 2000-2006) are expected to drive trends in biodiversity.

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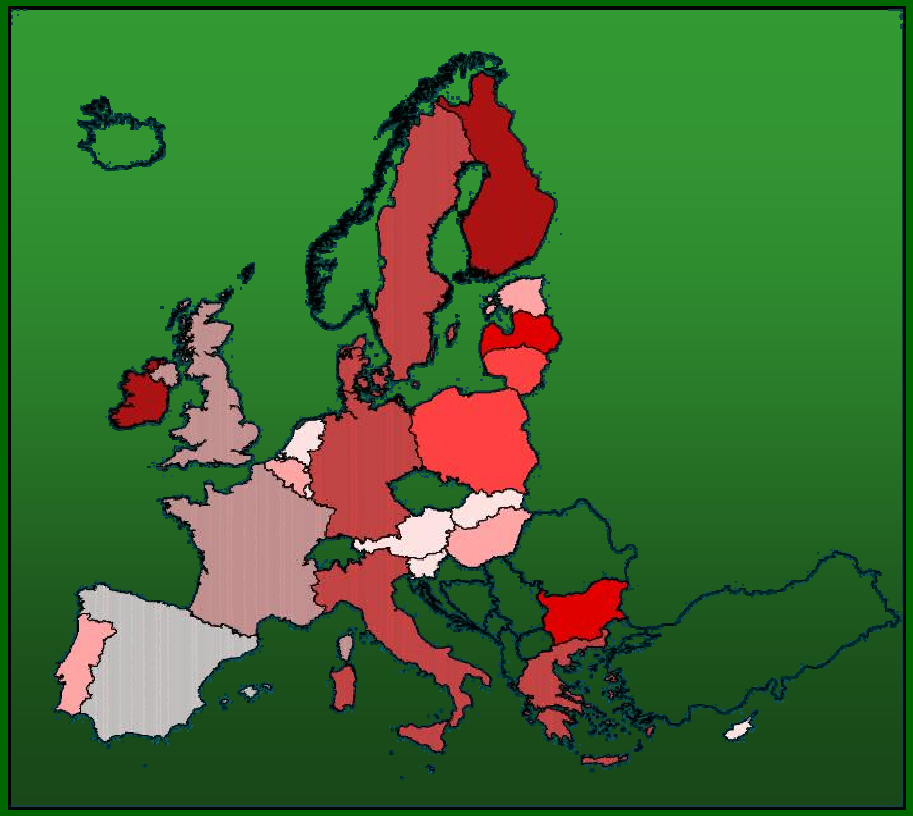
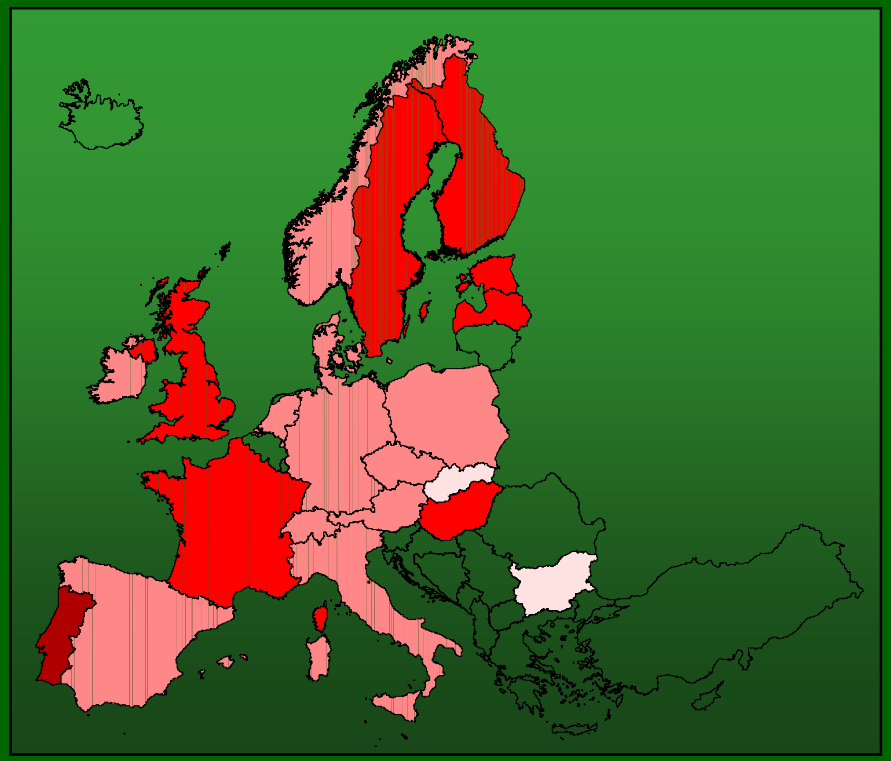
Biodiversity variables

% Species with favourable conservation status (13.8 – 62.5%)





Bird trend index (-7.9 – 6.4)

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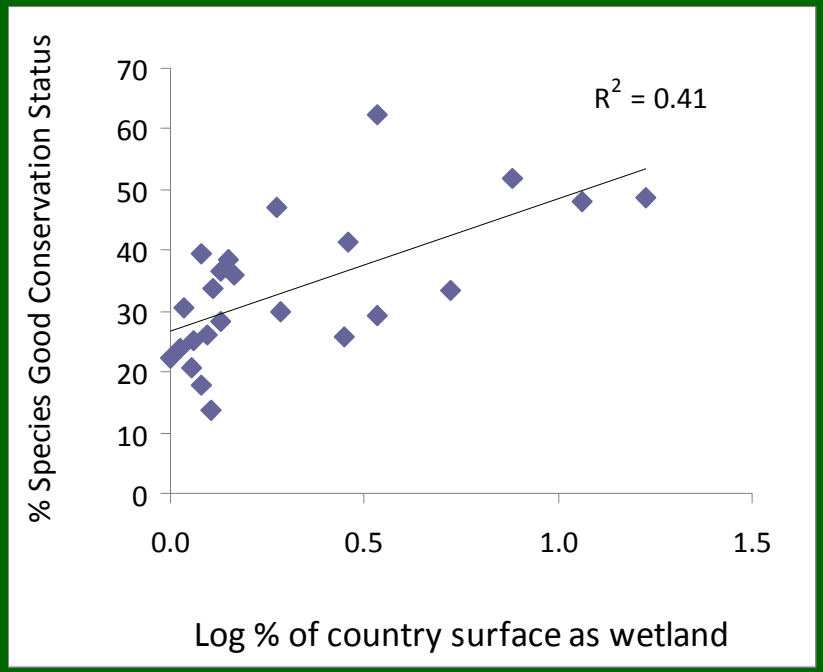
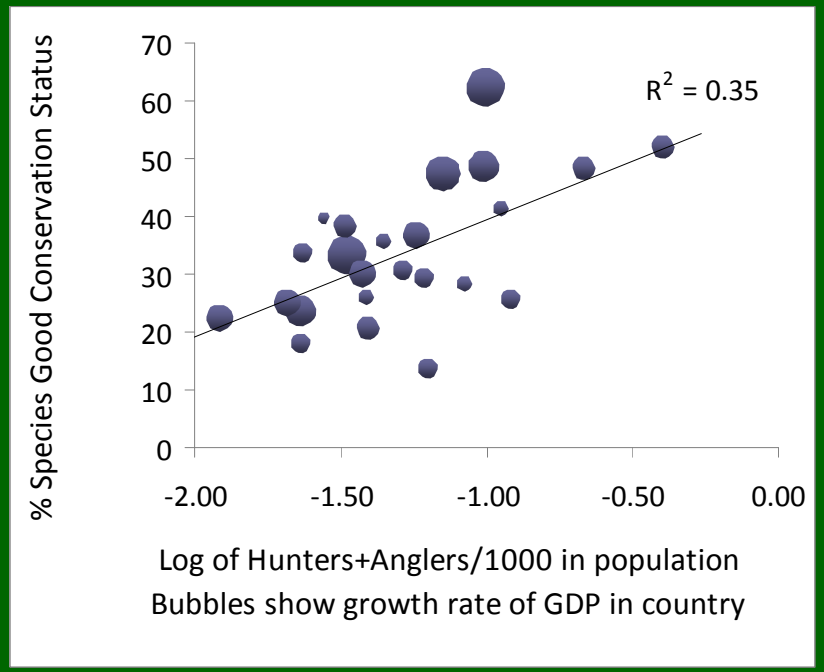
Species Conservation Status





- **High percentage cover by wetlands**
- **High growth rate of GDP**
- **High density of hunters and anglers**

<u>Ecological Impact</u>: High proportion of species with favourable conservation status (Art. 17 evaluation)

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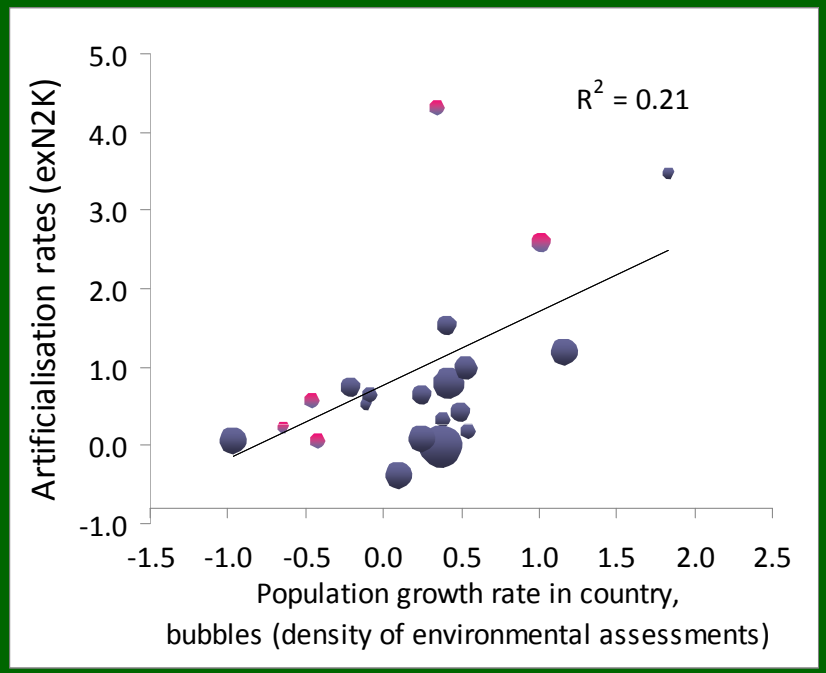
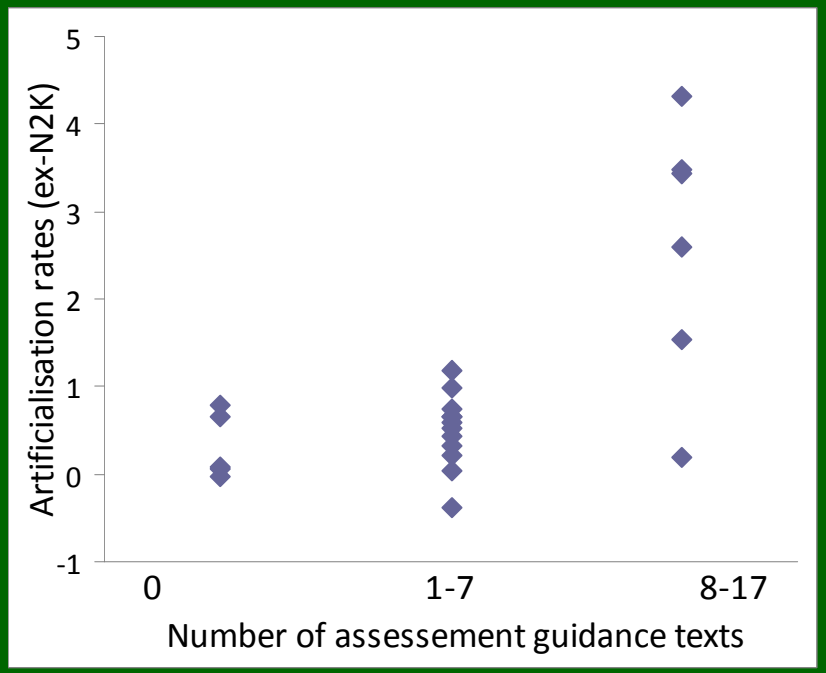
Rates of artificialization

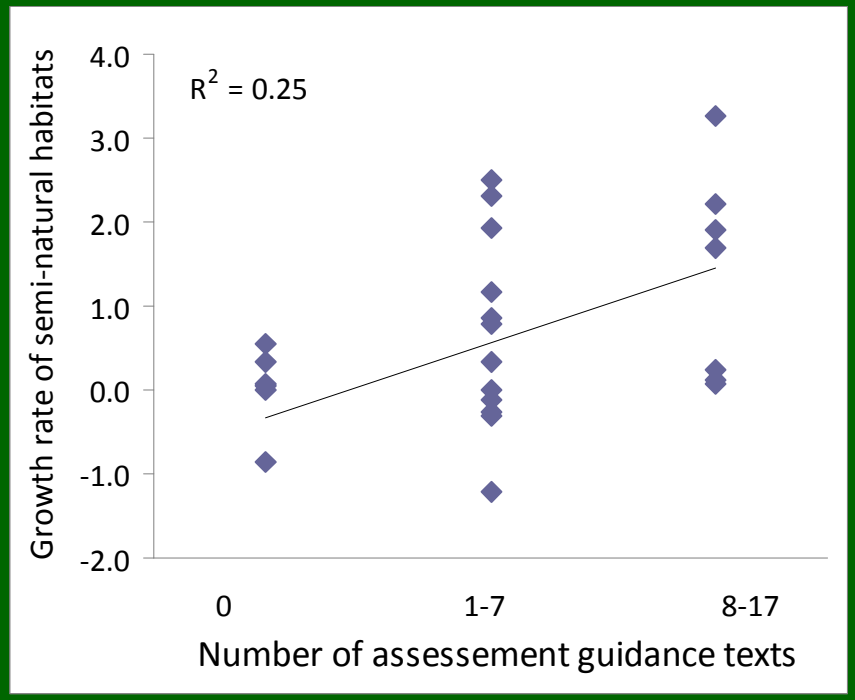


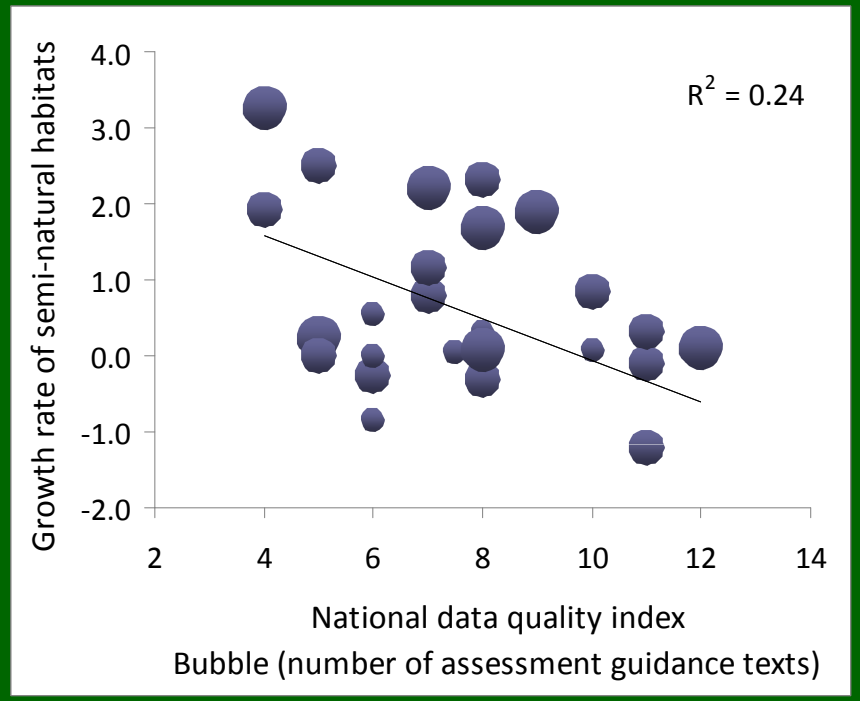


- **High population growth rate**
- **High number of assessment guidance texts**
- **Low density of statutory environmental assessments**

<u>Ecological Impact</u>: High rate of artificialisation outside Natura 2000

Semi-natural habitats

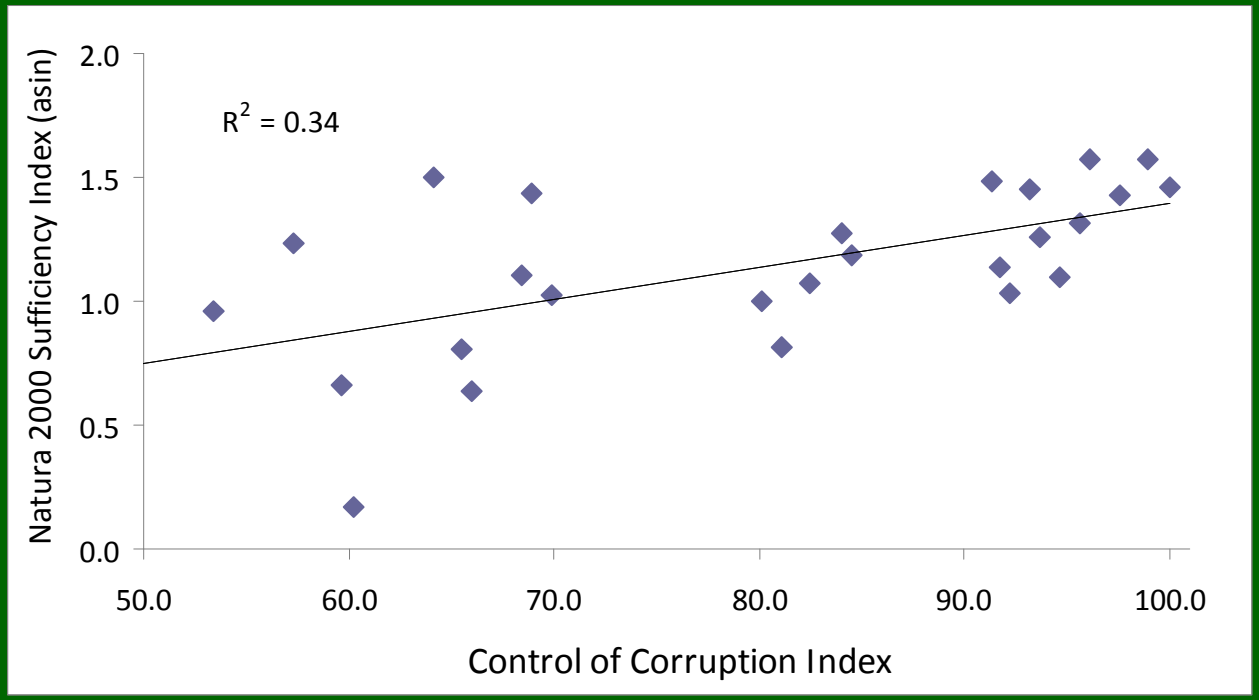




- **High number of assessment guidance texts**
- **Low national data quality index**

Ecological Impact: High increase of semi-natural habitats

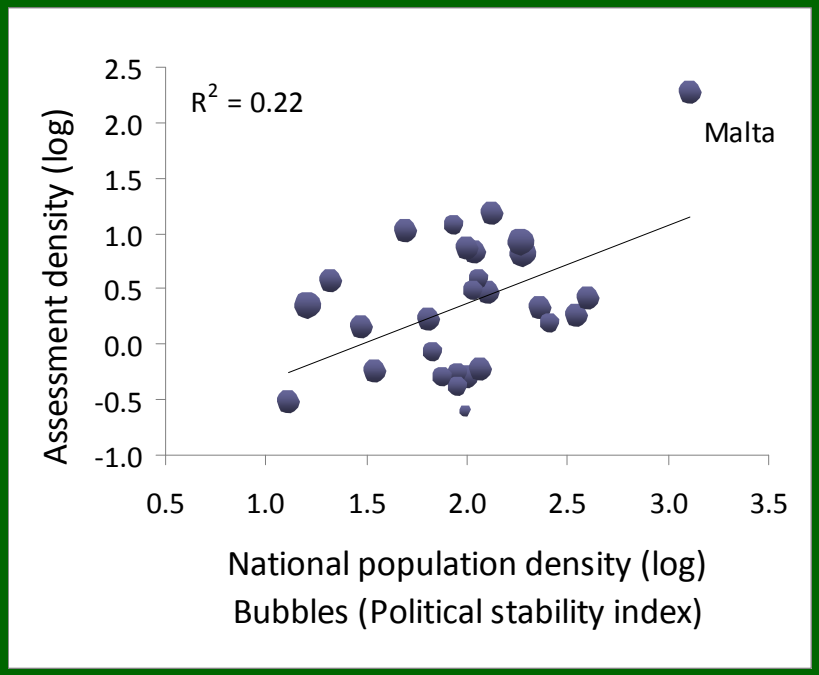
Natura 2000 Sufficiency

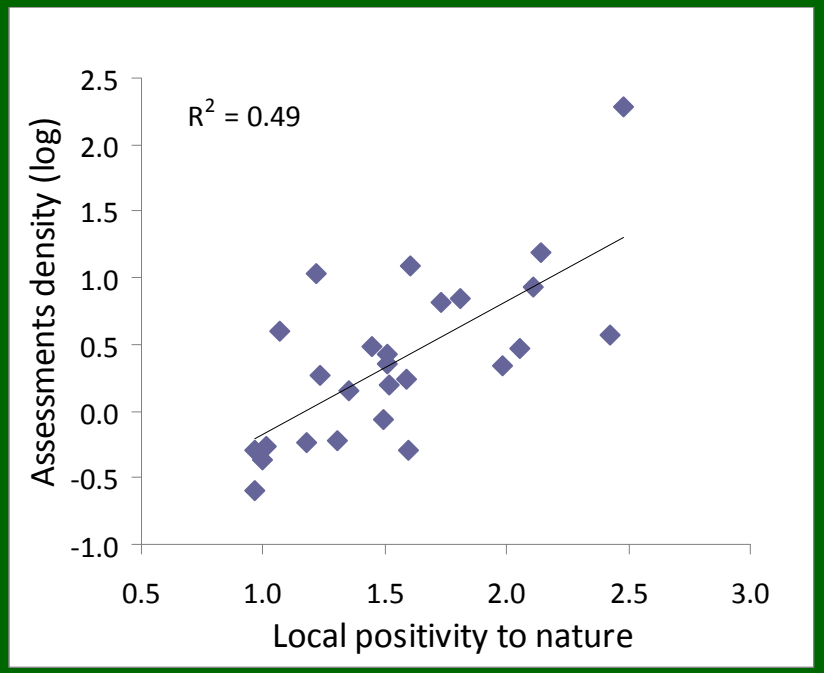


- **Efficient control of corruption**

Societal Impact: High sufficiency of Natura 2000 network

EIA and SEA





- **High population density**
- **High political stability**
- **High local positivity to nature**

Economic Impact: High density of EIA and SEA assessments

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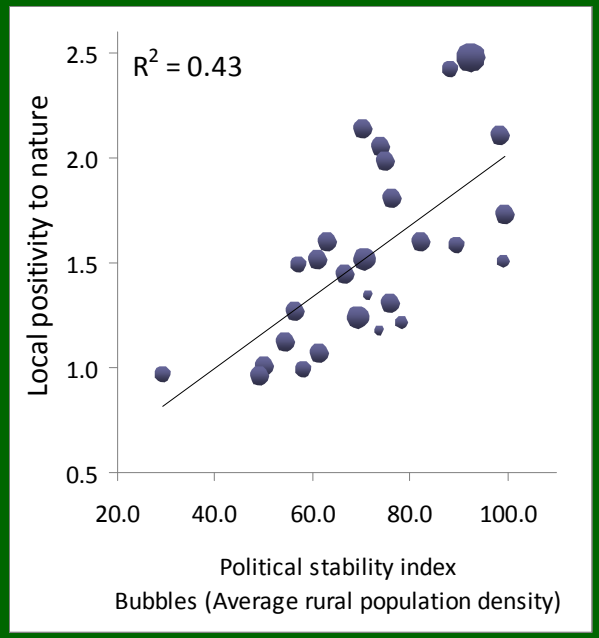
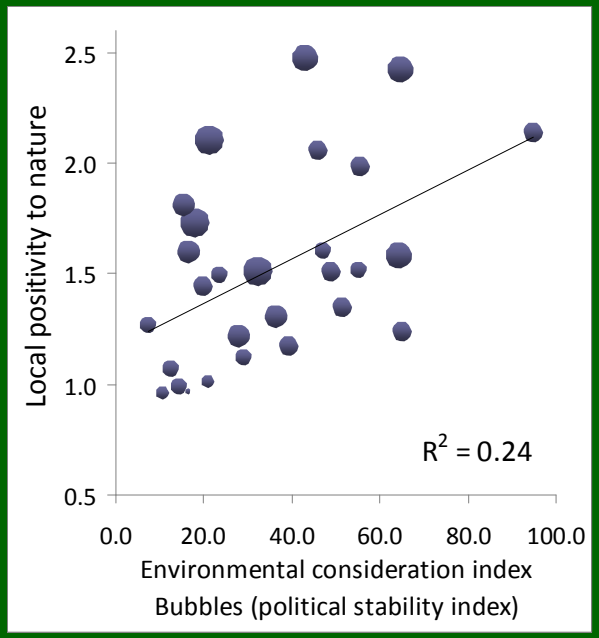
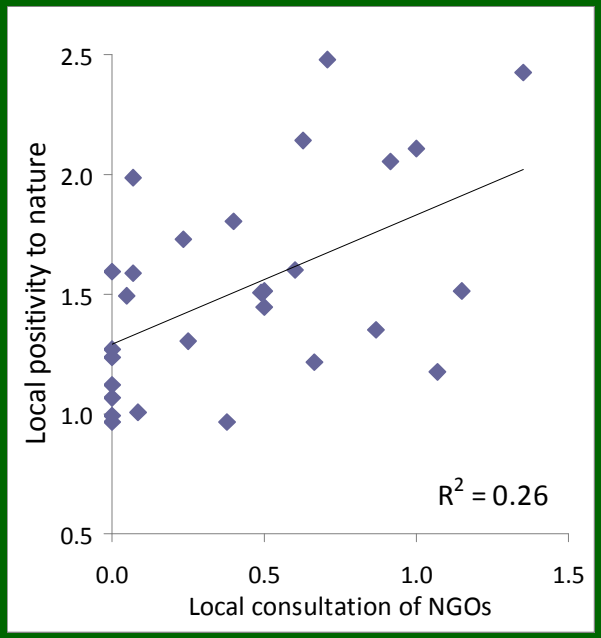
Local positivity to Nature







- **High political stability**
- **High rural population density**
- **High percentage of decisions based on environmental considerations**
- **High consultation with NGOs**

<u>Societal Impact</u>: High positivity to nature at local level

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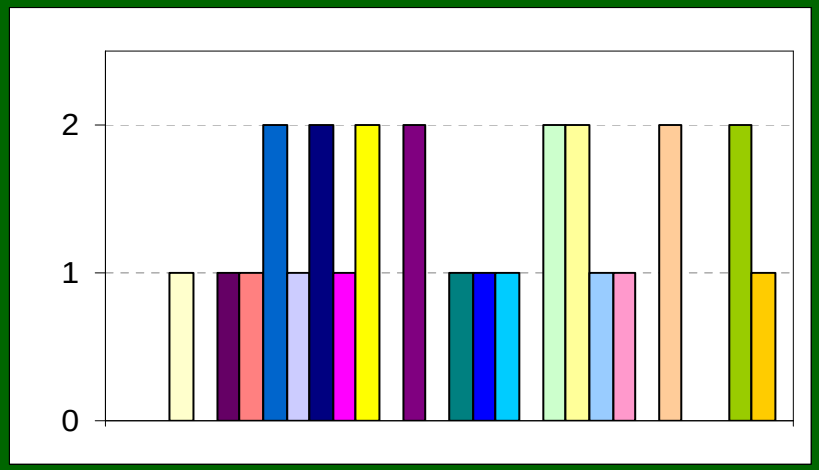
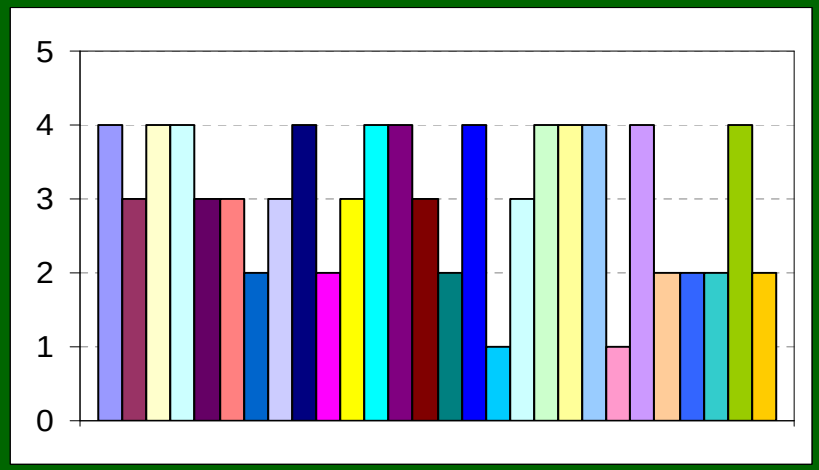
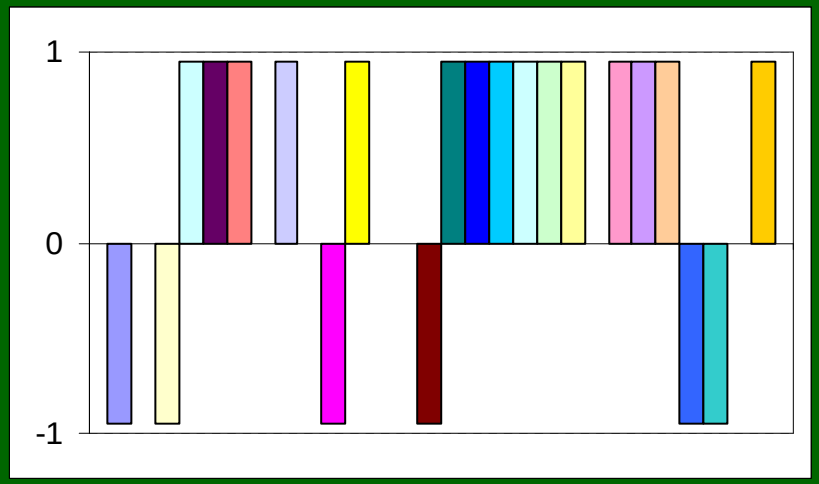
Missing relationships?



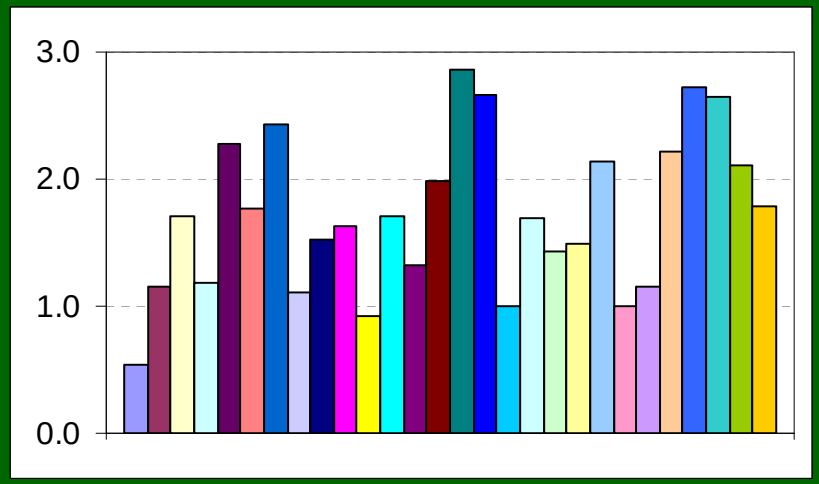
Statutory consultees index



Assessment Regulatory Intensity



Private versus Public Payment



Local consultation index

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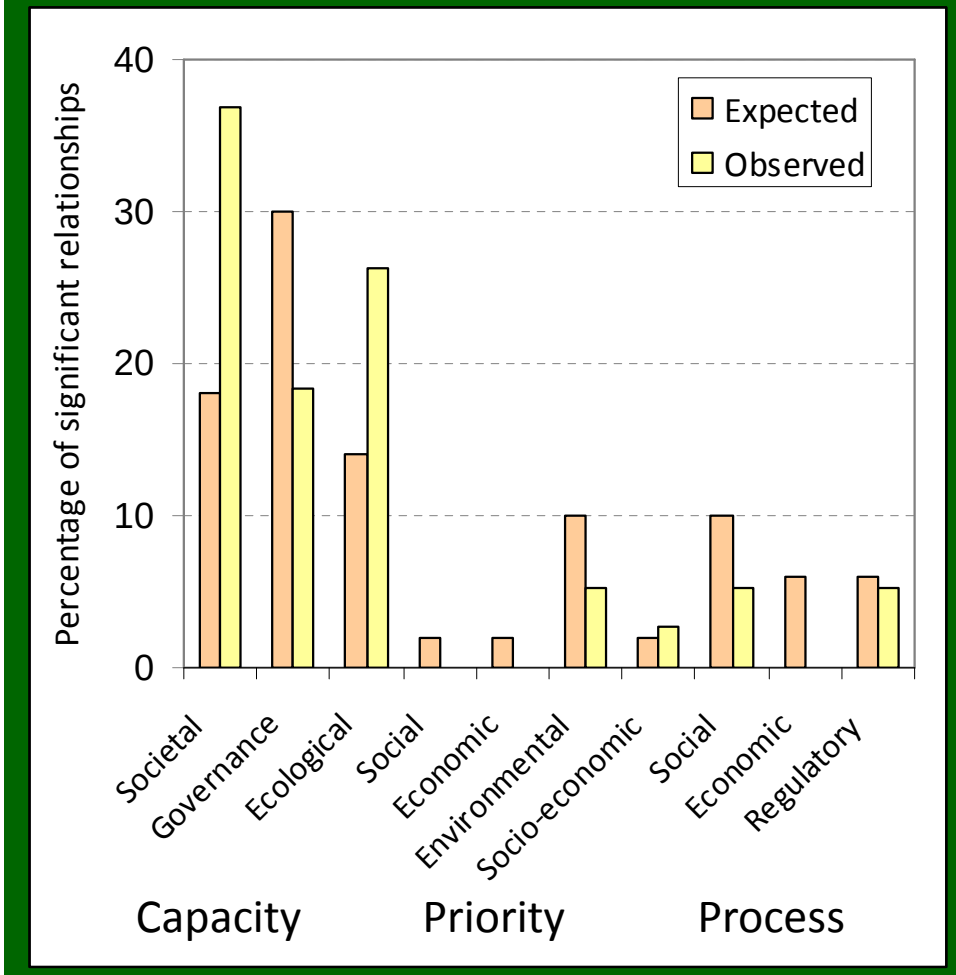
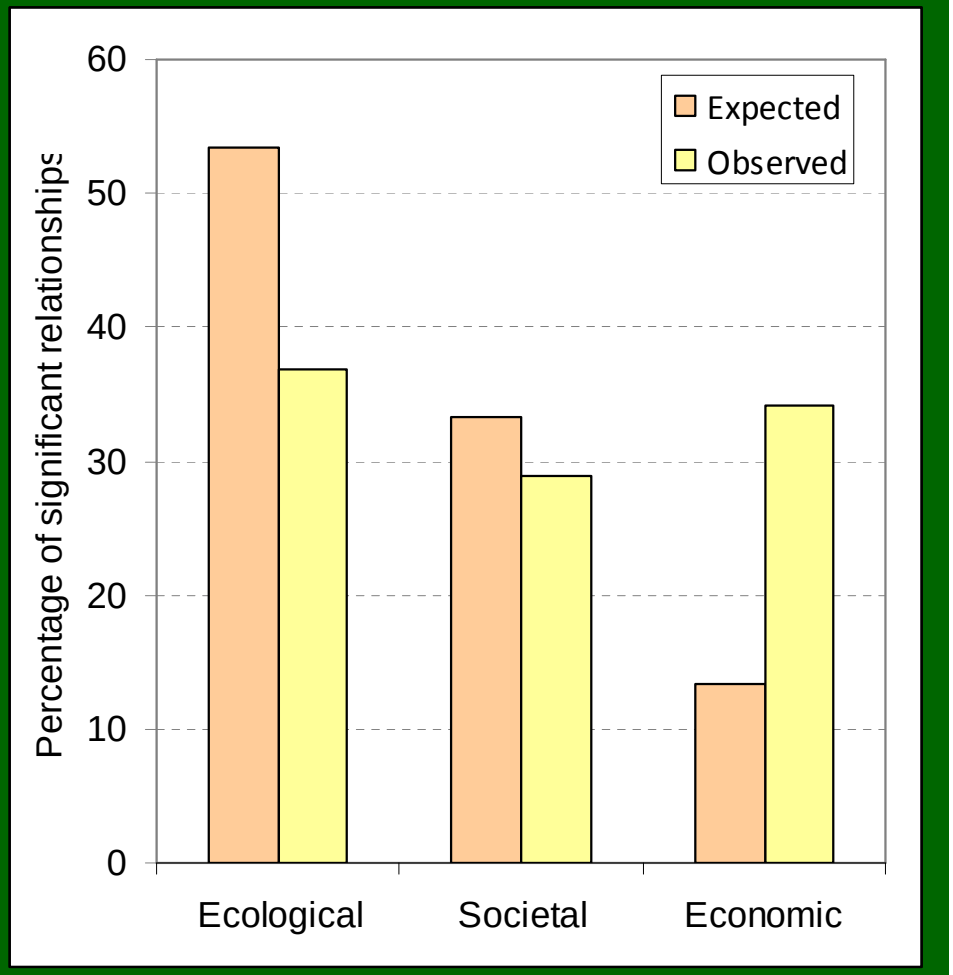
Typology of relationships

Explanatory variables



Impact variables



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Conclusions

- Structural ecological and socio-economic **CAPACITY** features seem to have lasting **IMPACTS** on biodiversity patterns and processes, and how society perceives and uses such biodiversity.
- Governance **CAPACITY**, and particularly the management **PRIORITIES** and governance **PROCESSES** appeared to have much weaker **IMPACTS**, probably because they have acted over relatively short time frames.
- Variation across countries in management **PRIORITIES** and governance **PROCESSES** may reflect responses to the **IMPACTS** perceived by the society, at least as much as they affect such **IMPACTS**.

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Thank you

for listening!

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