

Pan-European Survey and Database of Environmental Assessment Factors

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ABSTRACT

In order to design TESS, it was necessary to determine how and what information is utilized across Europe when decisions affecting the environment are made at present, and which systems now in place appear to be working in terms of environmental protection and conservation. We used a Pan-European survey to determine not only which systems are currently in place but also what further information is needed by national and local governments as well as stakeholders. Results from this survey, together with published information from previous projects, the European Union and the United Nations, were collated into a database for further analysis. Here we describe both the Pan-European survey methodology and also the database.

INTRODUCTION

The purpose of the TESS project was to develop innovative methodologies for scaling down, from the EU or national level to the regional and local level, the analysis of policy impacts on multifunctional land uses and economic activity, with special emphasis on new Member States as well as on Accession and Candidate Countries. It was to include a participatory approach and to take into account stakeholder perspectives. These improved methodologies should enhance the scope of Strategic Environmental Assessment (SEA) and Environmental Impact Assessments (EIA). It is expected that this will augment the analysis of possible policy impacts (in particular those related to rural development and to Cohesion Policy and Pre-Accession Aid) on sustainable development by the different Commission services.

In order to help develop these methodologies, we needed to determine what was in place now concerning how information for planning, policy and environmental decision making is fed from the national level down to the local government level and to stakeholders (and how it is fed back up through the system). A pilot survey was used to test questions in the countries represented by the Project Partners, with surveys of both national and local governments, as well as land management stakeholders (see Chapters 2 and 3). The results of this pilot survey were used to develop a standard survey of how environmental assessment functions at national and local levels

(including stakeholders) across all EU member states (plus 4 potential members), and to seek associations with indicators of biodiversity and related environmental quality across these states that may indicate best practise. This pan-European survey led to a database of factors relevant to SEA and EIA. Here we describe the methods used for the pan-European survey and the database created from it. This database was then used in Chapter 7 to investigate the pattern of these governance factors across Europe, and in Chapter 8 to analyse the relationship of policies on land uses and economic activity to trends in ecosystem services and biodiversity in cultivated areas as well as in protected areas.

The Pan-European Survey

In Chapter 2, it was noted that as well as formal assessments (SEA and EIA), formal environmental decision by government at various levels includes Biodiversity Action Plans (BAPs, NBSAPs) under Article 6 of the Convention on Biological Diversity and planning for payments under the Common Agricultural Policy (CAP). Land Use Planning (LUP) for all developments is also a formal process, whether or not EIA or SEA are also involved.

Questions from the pilot survey on national governance of all these formal decision processes (Chapter 2) became part of Pan-European survey. So too did questions from the local municipality and stakeholder pilot survey (Chapter 3), on decision-making and related information requirements of local administrations, as well as on attitudes of local authorities towards managers of land and species and the extent of their participation in the formal decision processes. The pilot survey defined six main categories of stakeholder, apart from local government, who make decisions affecting the use of land and species. These categories are (i) farmers and horticulturalists (including gardeners) with their short-rotation crops, (ii) foresters and managers of other trees with their longer rotation, (iii) managers of inland fisheries and angling for aquatic species, (iv) those managing hunting areas, (v) nature and wildlife watching reserve managers and (vi) managers of access land for many other activities, including gathering wild fungi and plant products, keeping and exercising recreational animals, rambling, boating, climbing, camping etc. There were indications in the pilot survey that these six groups of stakeholders were taking many more informal decisions than the formal (and informal) decisions made by local authorities. This was explored systematically across countries in this survey, with questionnaires again refined carefully from the pilot surveys in partner countries.

The following sections of this chapter describe the methodology applied in the Pan-European survey. It also describes indicators derived from the governance processes that were combined, with data from the Governance and Ecosystem Management for Conservation of Biodiversity project (GEMCONBIO, Manos & Papathansiou 2008) and indicators on environmental impact (e.g. the Streamlined European Biodiversity Indicators, EEA 2010), to analyse of which of these indicators are related to biodiversity outcomes throughout the EU member states and Accession and Candidate Countries.

Survey Methodology

Thirty-one Country Coordinators (CoCo's), from the 27 EU states plus Norway, Switzerland, Turkey and Ukraine, were recruited to act as focal points for the surveys in their countries. They were drawn from TESS partners in Belgium, Estonia, Hungary, Greece, Poland, Portugal, Romania, Turkey and the United Kingdom, while for the remaining countries members or associates of ESUSG kindly agreed to act as CoCo's. They worked under the direction of a central team based in the UK. Illness and other personal factors affecting Co-ordinators meant that eventually usable returns for national and local levels were received from 25 EU and 3 non-EU countries. Due to the short time period within which the survey was carried out, it was not

feasible to find replacement CoCo's for three states; however data at national level were obtained for two of them.

Survey levels and types of question

The survey was based on three questionnaires, (i) for National Level governments; (ii) for government at the lowest administrative level (LAU2) and (iii) for the individual managers of land and species (stakeholders). In each case, CoCo's were required to approach appropriate officers or other individuals and ask them to provide the information for the questionnaires.

At national level, questions were on decision-making for SEA and EIA, which are conducted to conform with the relevant EU Directives or parallel legislation, for Biodiversity Action Plans and Strategies (BAP's, NBSAP's) which are carried out to fulfil obligations agreed by Parties to the Convention on Biological Diversity, allocation of resources from the budget of the EC Common Agricultural Policy (CAP) and for other decisions made for Land Use Planning (LUP) that operates within a legislative framework set by government at national level. The questions concerned the department responsible for the decisions of each type, the tier of government at which assessments were made and decisions taken, the guidance provided for administrators and the sources of other information used in decision-making, the data collected in the process of decision-making and the roles of parties involved in this and any monitoring of decision outcomes, and the reporting on numbers and outcomes of decisions. When considering SEA, governments were asked to show, using categories in Table 1 of Chapter 4, which information sources were used for data on species, habitats, natural hazards and socio-economic issues.

At local level, questions concerned responsibilities for SEA, EIA, Land Use Planning and any other decisions being made by local authorities; these responsibilities were for protection, management or restoration of biodiversity and ecosystem services on land managed by the authority or others in the administrative areas. Details were required on numbers of decisions, on the areas of land affected and on priorities for environment, economics and other social factors when making decisions. Data were also requested on administered population and area, and proportions of land cultivated for farming or forestry. Other questions concerned the extent of consultation about decision-making with higher government, non-government organisations and individual managers of land and species. There were also questions on costs and benefits of wild species as perceived by local people, and on benefits for biodiversity from activities that involved use of land and species, in order to provide indicators of attitudes to natural biodiversity, and to those using these wild resources, amongst the local authority representatives. Local authorities were also asked about categories of ecosystem services for which they required information, whether it was available and if so in what format.

Individual stakeholders managing land and species were asked about numbers of decisions and areas concerned. Questions to the farmers, foresters, and managers of fisheries, hunting areas and nature reserves also covered the types of environmental issues that they needed to address most frequently. Stakeholders and local authorities were asked to list freely "On which environmental topics would information be welcome in the area?" and to select source categories (in Table 1 of Chapter 4) for information currently used in decision making on the issues listed.

Most of the questions in the survey had been piloted in the original 8 case studies described in Chapters 2-4. This permitted a reduction in the number of final questions, eliminating those that were too hard to answer usefully or that gave answers that were too invariable to be useful in comparative analyses. Questions were refined to minimise the scope for ambiguous answers. However not all difficulties were avoided and with hindsight it would have been desirable to complete one questionnaire in full in each country before they were finalised.

The questionnaires were applied by CoCo's in slightly different ways at the different levels, with some variation between countries. CoCo's typically used personal knowledge to identify individuals responsible for the different decision areas at national level (SEA, EIA, BAP/NBSAP, CAP, LUP) and then approached these individuals by e-mail, telephone or in person for help in completing the appropriate sections; a few coordinators were able to complete the forms mostly from personal knowledge. Due to the way in which government departments and agencies operate, there were few if any cases where one focal point within government was aware of all the responsible officials of interest to the survey.

The questionnaires for local administrations were translated by CoCo's into national languages to ensure full understanding of the questions. Although questions had been reduced at both national and local level from the pilot survey, reduction was maximised at local level to aid completion with minimal explanation (and hence scope for unwitting bias) required from the CoCo's. Local questionnaires were provided to administrations for review, accompanied by a standard introductory letter, either by e-mail or post. They were then completed remotely, by telephone or in a very few cases by personal visit.

Sampling Issues

The variation in cultural history and governance processes across Europe provides a rich field for analysis of associations between social institutions and impacts on the environment. However, robust analyses need statistically representative information and finding a basis for this presented a serious intellectual challenge.

In most of the countries surveyed, environmental policy is administered at national level. In these cases at national level, only one ministry or agency was needed to answer specific questions. This was not the case where environmental policy is strongly devolved (e.g. Germany, Spain, UK), in which cases representative but not necessarily comprehensive answers were obtained.

For the local surveys it was decided at the outset that in each country the aim would be to obtain five completed questionnaires, irrespective of the country's population size, from the lowest level of public administration involving elections, while ensuring that these administrations came from different regions. This would produce c.150 responses to each question, widely spread across Europe and the individual countries. Although TESS, as a decision support system, is relevant to all geographic areas it was considered desirable to target rural areas in order to address the various land management activities mentioned above. Finally areas surveyed would need to have a minimum population size in order for there to be a reasonable prospect of representative activities and attitudes. For example an area consisting wholly of mountain peaks could have almost no resident population and host only a ski facility, and thus have no ability to give the detailed survey responses expected from typical rural areas in each country.

Although it would have been easier for CoCo's to make their own selection of administrations on a representative basis, it was decided that, to avoid bias and secure statistical rigour, lists of the lowest level administrations in each country should be sampled with a stratified, randomised approach. The starting point for this exercise was the classification of regional and local authorities in Europe maintained by Eurostat, the Commission's statistical service. In this classification the most recent terminology for the lowest level is LAU2, with LAU1 being the tier above. The most common terminology for these lowest level units is "municipality", though historically they have been known as communes, gemeente or parishes and have their origins in the medieval period. Lists of LAU2s were obtained from the Eurostat web site (Eurostat 2009) arranged in geographically separated regions for each country and 5 regional lists were randomly selected to give stratification based on landscape and/or culture in nationally recognised regions. For each selected region, a list of 5 LAU2s was produced by random sampling, using the first five

that had a population of at least 200 (to achieve a representative administration) and a population density of <150 inhabitants per square kilometre (defined as rural in ESPON 2009, which makes clear that there is no standard definition of rurality for EU policy or statistical purposes). Difficulties in sampling are summarised in Table 1. Eurostats felt unable to release density information, due to the basis on which it been obtained. This therefore had to be gathered, at considerable cost in project time, by searching Wikipedia and national web-sites for the population and area information. Another problem with this sampling method was that not all LAU2 units corresponded with administrative units with some form of governance. Some were merely electoral wards within larger authorities, again with minimal ability to furnish detailed survey data.

Table 1. Difficulties overcome in the LAU2 sampling

- Lists for all countries not available from Eurostat
 - http://ec.europa.eu/eurostat/ramon/nuts/lau_en.html
 - Missing: Turkey, Switzerland
 - Solution: Wikipedia most up-to-date list
- Area and/or population of LAU2 not available from Eurostat
 - Solution: Wikipedia (some other online sources)
- Area and/or population of LAU2 not available from Wikipedia
 - In particular: Malta, Turkey, UK
 - Solution: Country Coordinator procured data from national statistics office in country
- Restructuring of LAU2 and other administration levels
 - In particular: Denmark
 - Solution: New list published on Wikipedia

CoCo's were instructed to ask for participation from the first LAU2 on each list. If that administration was unwilling, the next on the list was approached. If there was no willing partner amongst the five random LAU2's, re-sampling was used to get additional random LAU2's. Another problem arose for a small number of countries (e.g. Czech Republic, Germany) where LAU2s were not involved in EIA, SEA or LUP processes at all. In these cases the CoCo's also interviewed the LAU1 administration one level above the randomly selected LAU2 in order to obtain information specific to these topics.

It was possible to sample consistently in areas with population densities below 150/km², apart from the very high density communities on Malta and Greek islands (Figure 1), but there was a huge range of population size among the LAU2 administrations in different countries, ranging from around 10 to 67,000 (Figure 2). Generally, there seems to have been a tendency to abolish very small authorities or to encourage them to combine with neighbouring authorities for the delivery of services and professional support. As the small administrations are closest to people, there is a very real tension between democracy and efficiency, the consequences of which are far from clear.

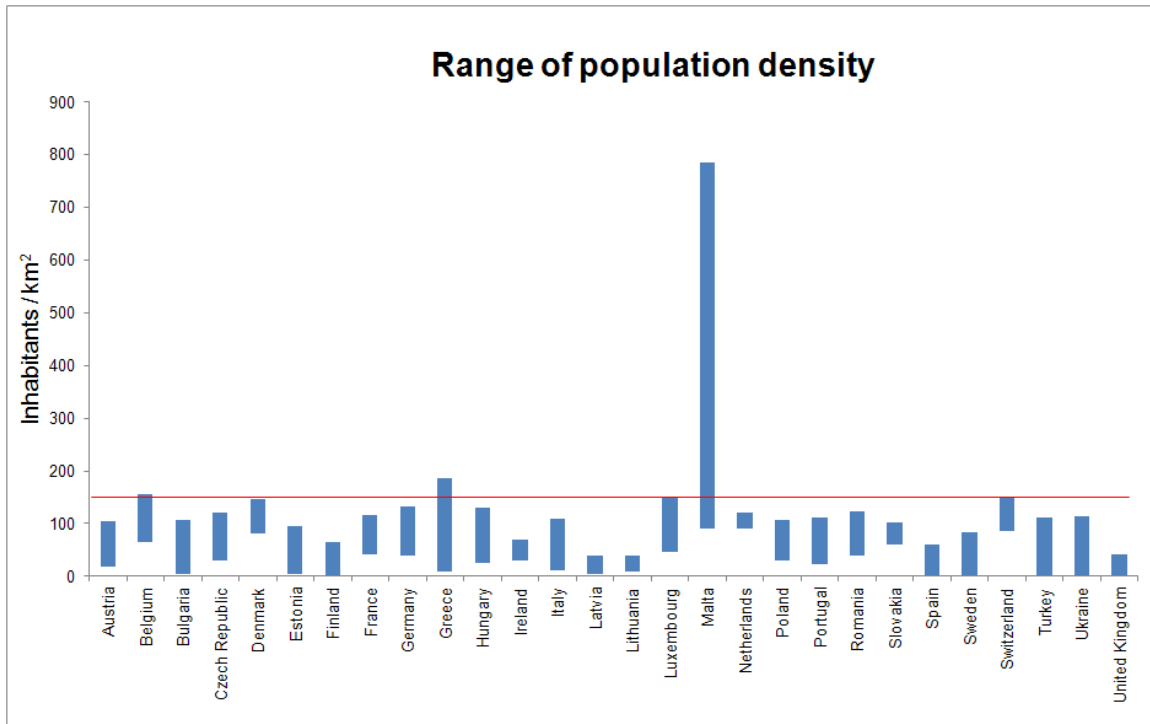


Figure 1. The range of human population densities in surveyed local administrations (LAU2).

Sampling of individual managers of land and species depended on recommendation by the administration of one of the LAU2s. This was likely to bias the sample in favour of the more knowledgeable and responsible individual stakeholders, but should not have greatly affected the number of annual decisions per area of land managed. Analysis of decision intensity was based also on number of managers estimated for each LAU2, using the average area of each management unit and the area of land estimated from the proportion in each LAU, of farmland for farmers, forest for forest managers and both these plus semi-natural habitat for hunters. It was assumed that an average LAU2 would not contain more than one fishing management area or nature reserve. These analyses used only countries with responses from both administrations and individual managers.

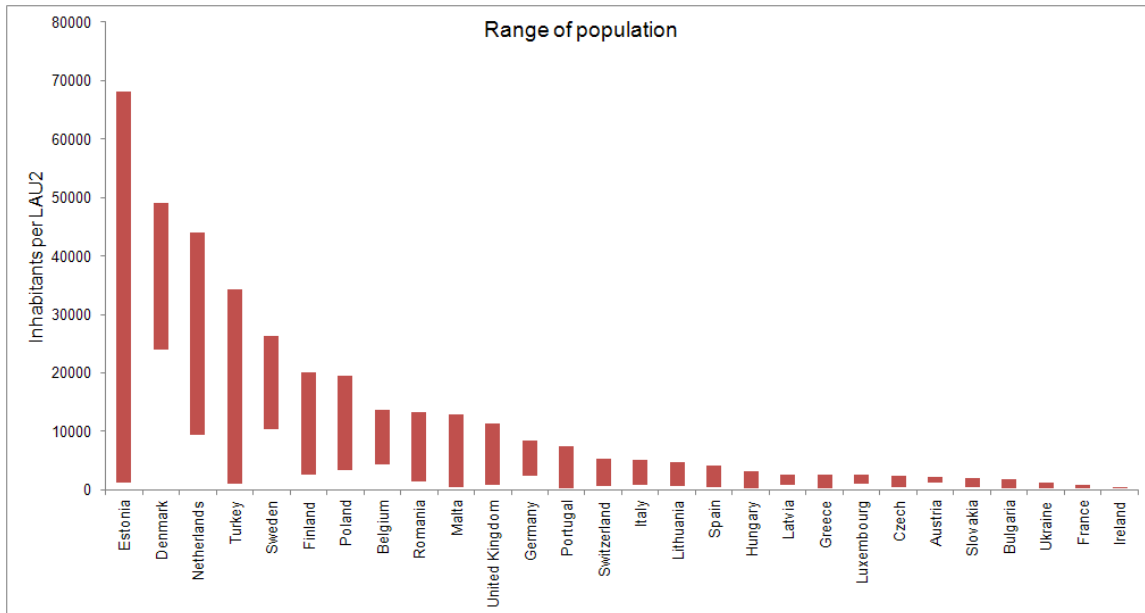


Figure 2. The range of population in local administrations (LAU2s) surveyed.

Time-frame

CoCo's, most of whom had assisted in the UNWIRE study of the preceding GEMCONBIO project, were recruited during the first half of 2009 and invited to the London TESS workshop in September 2009 to discuss draft questionnaires. Revisions then proceeded until mid-November, followed by translation and survey launch on 4 December 2009. Provisional end-dates were set at 31 January 2010, but holidays, weather and illness delayed the work appreciably. By the time of the Krakow TESS meeting in March 2010, completion at all three levels had been achieved by 14 countries, with an estimated 75% of the information available from another 12; five countries had not started the survey. By February 2011, the survey was complete in 28 countries, while 3 countries were unable to undertake the survey at local level due to illness or other indisposition of CoCo's.

The Pan-European Database

To support analyses of associations between existing conditions and environmental trends, the completed Pan-European database used for analysis contains 65 variables and 31 country cases. The 65 variables were provided by three different data collection activities. The Pan-European Survey provided 27 variables, after an elimination process for those questions that either gave similar answers across most countries or appeared to be misinterpreted in some cases. Another 28 variables were selected from data collated by the European Environment Agency (and in some cases reworked extensively) or by the United Nations. Ten variables on governance and participation were collected in the GEMCONBIO project (Manos & Papathanasiou 2008).

Analytic Framework

The derivation of indicators to include in the database for the analyses in Chapters 7 and 8 was based on the analytic framework (Figure 3) developed in the preceding GEMCONBIO project (Kenward et al. 2011).

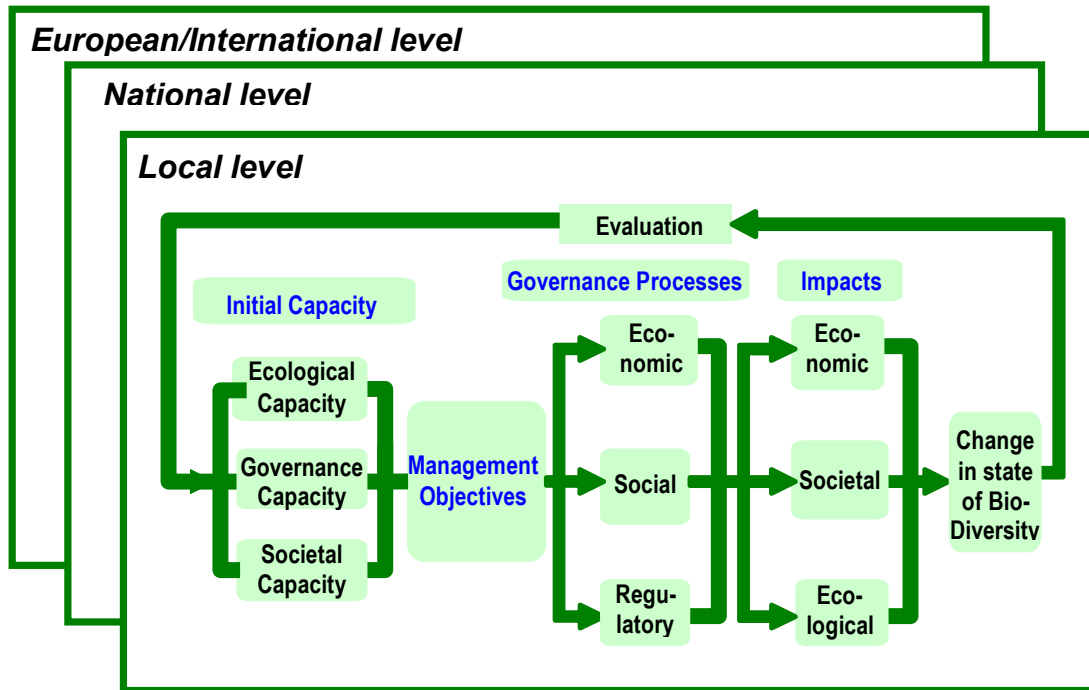


Figure 3. The analysis Framework from GEMCONBIO that is used as a basis for the governance indicators derived by the Pan-European survey.

Broadly speaking, the availability of information in various categories (indicated by its current use) and of particular institutions and are measures of Governance Capacity, together with the 6 governance indices from the World Bank. Population density and GDP measures, together with tendency of governments to embrace knowledge leadership (Kenward *et al.* 2011) are measures of Societal Capacity, while the proportions of broad CORINE ecosystem categories are measures of Ecological Capacity (Figure 3). Local governments have Management Priorities about which questions were asked directly and indirectly for example in terms of data demand for social, economic and ecological aspects of ecosystem services, with further environmental priorities indicated by the extent nationally of protected areas. Economic, Regulatory and other Social Processes are indicated, respectively and *inter alia*, by the provision of agri-environmental funding under the CAP, by the levels at which decisions are made and by presence or absence of different consultation practises as recorded in the Pan-European survey. Societal impacts are indicated in the Pan-European survey by attitudes of local administrations to wildlife costs and benefits. Ecological variables are Streamlined European Biodiversity Indicators and remote sensing data on growth of artificial and semi-natural habitats. Economic impacts were indicated by the number of hunters and anglers that the national environments were supporting.

Pan-European Survey Indicators

The details of the indicators derived directly from the Pan-European Survey are described in the following section. For four of the variables from the Pan-European Survey, variables at national level were derived from lists of ministries with environmental decision-making roles, statutory government or NGO consultees during formal assessments, and numbers of guidance publications. In these cases the values recorded for each country were transformed to a smaller number of categories as depicted in Figure 4.

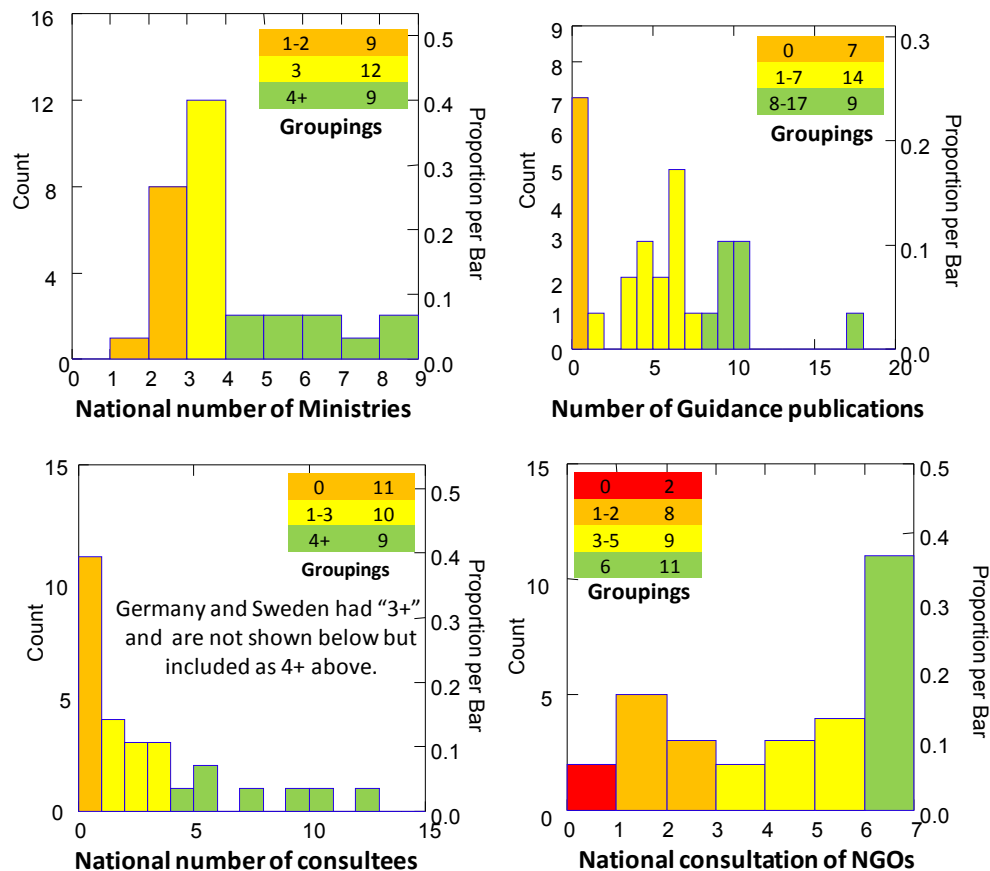


Figure 4. Colours show how responses in four national survey questions were grouped into 3 (or 4) values; on right of colour bars at top are number of responses in each group.

SEBI and CORINE data

Streamlining European 2010 Biodiversity Indicators (EEA 2010) is an initiative launched in 2004, in which the European Environment Agency (EEA) collaborates with DG Environment of the European Commission, the European Centre for Nature Conservation and United Nations Environment Programme to make data available on the EEA website (http://reports.eea.europa.eu/technical_report_2007_11/en) and report trends, initially with a view to the 2010 biodiversity loss target. We assessed which of the 26 indicators (<http://www.eea.europa.eu/publications/progress-towards-the-european-2010-biodiversity-target-indicator-fact-sheets>) had most comprehensive coverage across the 31 countries surveyed, and found 1 available for all countries, a further 2 available in all the 27 current EU states and 2 more (which each gave 2 variables in the database) in the EU25; none of these 5 indicators assessed biodiversity directly, but an index of farmland bird abundance was available for 22 of the 31 surveyed states.

Coordination of Information on the Environment (CORINE) is a European programme initiated in 1985 by the European Commission, aimed at gathering information relating to the environment on certain priority topics for the European Union (air, water, soil, land cover, coastal erosion, biotopes, etc.). CORINE is now the responsibility of the EEA (<http://www.eea.europa.eu/publications/COR0-landcover>). CORINE was used to derive an index of negative impacts on biodiversity, based on the rate of conversion to land uses that are

recognised to be detrimental for species and habitats, particularly those protected under Commission Directives 79/409/EEC (Birds Directive) and 92/43/EEC (Habitats Directive). Specifically, we used the rate of increase in built-up areas (CLC categories 11 and 12; level 2) to estimate urban sprawl inside and outside Natura 2000 sites, assuming a positive relationship between urban sprawl and biodiversity loss. Urban sprawl inside Natura 2000 was assumed to be a particularly serious indicator of negative impacts on European biodiversity, reflecting the limitations of environmental policies to secure the most important natural areas in Europe. We also estimated decrease in semi-natural habitats in the same way, using CLC categories 32 and 33.

Ecological impact variables merit a particular consideration in the present context, as they are intended to be direct or indirect indicators of biodiversity change at the European level. The selection of impact variables was thus considered critical to understand how policy and governance affects biodiversity in Europe, and involved:

- Screening of direct and indirect indicators of biodiversity change used at the European level (e.g. by EEA).
- Development of additional indicators of biodiversity change from raw data available at the European level.

Indicator screening was based on a thorough review of the literature, trying to find variables meeting the following requirements:

- Indicators should provide, as much as possible, direct information on temporal changes in species diversity for a wide range of organisms.
- Indirect indicators should provide information on factors that are known or presumed to be correlated with temporal trends in biodiversity (e.g., protection level, public awareness, pollutants).
- Information should be available for a large proportion of European countries covered by the Pan-European survey.
- There should be a time series of indicator data, preferably spanning the past two decades (1990-2010).
- Information should be as recent as possible, preferably covering the last decade (2000-2010).

Screening of variables suggested that direct information on biodiversity change at the Pan-European scale is scarce and based on just a very few groups of intensively studied organisms (e.g. birds). In fact, although many indirect indicators have been used to estimate temporal trends in biodiversity across Europe, it is unclear to what extent they reflect actual changes in biodiversity. Therefore, this study focused to a large extent on the Streamlining European 2010 Biodiversity Indicators (EEA 2010), developed by the European Environment Agency, which are probably the most comprehensive set of biodiversity indicators at the Pan-European scale. After screening for availability across countries in the required time-frame, the following subset of SEBI indicators (numbered in SEBI sequence) was adapted as impact variables in the present study:

- (1a) Trends in bird abundance (Common birds in Europe – Population Index).
- (3) Species of European Interest (conservation status based on Article 17 Assessment by Member States).
- (4) Ecosystem coverage (based on land cover changes assessed from CORINE Land Cover information).
- (5) Habitats of European Interest (conservation status based on Article 17 Assessment by Member States).
- (8) Coverage of protected areas (sufficiency index and % cover by Special Protected Areas and Sites of Community Importance).

- (10) Invasive alien species (number per country).
- (26) Public awareness (awareness + concern).

Other international data

Data came from databases managed by the United Nations (<http://esa.un.org/unpp/>) and the World Bank (<http://data.worldbank.org/indicator>). Estimates of country area and size of human population, should be robust, with national values for Gross Domestic Product (GDP) probably also reasonably representative. However, as definitions of urbanisation and unemployment differ between countries, the basis for estimation of these variables was certainly not uniform. Six indicators of governance quality have been estimated by the World Bank since 1996 and are widely used although discussion continues as to their validity (Kauffman *et al.* 2010).

GEMCONBIO

Statistics on the numbers of hunters and anglers in the EU were collected from national organisations representing these activities during the GEMCONBIO project (Manos & Papathansiou 2008). The majority of cases were based on license data and should therefore have been be robust. For this project, these data were also cross-checked against databases held by the partner FACE and by the European Anglers Alliance. Data for countries outside EU were collected from government or private sources by relevant Country Coordinators.

Detailed descriptions of the data

The 65 variables used in the analysis are tabulated below. There are descriptions for each in the following sections.

Variable	Type/Category	ID	Variable (source in D5.1 as "Fx", SEBI, CORINE, GEMCONBIO etc)
Capacity	Societal	1	National Knowledge Leadership (F16)
		2	National Population Density
		3	National Population Growth Rate
		4	National GDP Per Capita
		5	National Annual Growth Rate of GDP
		6	National Unemployment Rate
		7	National Proportion of Population Urbanized
		8	Local Population Size (F2)
		9	Local Population Density (F1)
	Governance	10	Voice and accountability
		11	Political Stability
		12	Government Effectiveness
		13	Regulatory Quality
		14	Rule of Law
		15	Control of Corruption
		16	National number of Ministries (F32)
		17	National number of consultees (F15)
		18	National consultation of NGOs (F17)
		19	Number of guidance publications (F29)
		20	Local digital enablement index (F33)
		21	Data accessibility Index (F30)
		22	Data quality Index (F30)
		23	Proportion of species with unknown status (SEBI-3)
		24	Proportion of habitats with unknown status (SEBI-5)
	Ecological	25	Country area
		26	National land cover by artificial surfaces (% , CORINE 1)
		27	National land cover by agricultural areas (% , CORINE 2)
		28	National land cover by forest (% , CORINE 31)
		29	National land cover by other semi-natural areas (% , CORINE 32+33)
		30	National surface covered by wetlands (% , CORINE 4)
		31	National surface covered by water bodies (% , CORINE 5)
Priority	Social	32	Local social considerations index (F34)
	Economic	33	Local economic considerations index (F34)
	Environmental	34	Local environmental considerations index (F34)
		35	Proportion of country surface in protected areas
		36	Proportion of country surface in SPA
		37	Proportion of country surface in SCI
		38	Local data demand for ecosystem biodiversity and supporting services (F14b)
	Socio-economic	39	Local data demand for ecosystem provisioning, regulating and cultural services (F14b)
Process	Social	40	Local responsibility for informal decisions (F7)
		41	Consultation intensity index (F35)
		42	NGO consultation index (F36)
		43	NGO influence index (F38)
		44	Private versus public responsibility for EIA monitoring (F19)
	Economic	45	Local disempowerment index (F6)
		46	Private versus public responsibility for paying EIA monitoring (F20)
		47	Data availability index (F14a)
	Regulatory	48	National number of assessments (T2)
		49	National assessment regulatory intensity (F18)
		50	National Agri-Environment Schemes index (F25-28)
Impact	Societal	51	Wildlife positivity index (F39)
		52	Ecosystem use/protection index (F40)
		53	Natura 2000 Sufficiency Index (SEBI-8)
		54	Public Awareness of Biodiversity (SEBI-26)
		55	Public concern over biodiversity loss
	Economic	56	Number of hunters (GEMCONBIO+)
		57	Number of anglers (GEMCONBIO+)
	Ecological	58	Urban sprawl rate inside Natura 2000 (CORINE+)
		59	Urban sprawl rate outside Natura 2000 (CORINE+)
		60	Urban sprawl for whole country (CORINE+)
		61	Semi-natural loss rate for whole country (CORINE+)
		62	Number of invasive species (SEBI-10)
		63	Farmland bird index (SEBI-1a)
		64	Species favourable conservation status index (SEBI-3)
		65	Habitats favourable conservation status index (SEBI-5)

Capacity variables: Societal

ID	Source	Name	Rationale	Description
1	F16	National Knowledge Leadership	Consultation upwards for EIA plus SEA	This variable came from responses to the national level questionnaire. Specifically from responses to Q 4* and 9. As regards SEA (Q4) if they did not report referring to institutions at the European level they were scored 0, if they did they were scored 2. In terms of EIA (Q9), they were scored 1 if there was written guidance and 1 if they were expected to ask higher level for guidance in specific circumstances. The codes from the EIA responses were summed and added to the value for the SEA. The highest score possible was 4, the lowest 0.
2	UN	National Population Density	UN data for 2010	http://esa.un.org/unpp/
3	UN	National Population Growth Rate	UN data for 2005-2010	http://esa.un.org/unpp/
4	World Bank	National GDP per capita	World Bank data for 2005	http://data.worldbank.org/indicator/NY.GDP.PCAP.KD
5	World Bank	National Annual Growth Rate of GDP	World Bank data for 1997-2007	http://data.worldbank.org/indicator/NY.GDP.PCAP.KD.ZG
6	World Bank	National Rate of Unemployment	World Bank data for 2006	http://data.worldbank.org/indicator/SL.UEM.TOTL.ZS
7	World Bank	National Proportion of Population Urbanized	World Bank data for 2005	Urban population as defined by national statistical offices, calculated using World Bank population estimates and urban ratios from the United Nations World Urbanization Prospects http://data.worldbank.org/indicator/SP.URB.TOTL.IN.ZS
8	F2	Local Population Size	Population in local (LAU2) administration	This variable is the average population in the 25 randomly selected LAU2s.
9	F1	Local Population Density	Rural LAU2 population density	This variable is the average population density per km ² in the 25 randomly selected LAU2s.

*

- 4 Does the Department responsible for SEA refer to institutions at the European level (eg. European Commission) for guidance (other than in infraction cases)?

Yes

No

If yes, how many times per year?

Number

- 9 Are the authorities responsible for approval of projects requiring formal EIA or EIA-like assessment:

Yes

No

a) sent general written guidance

b) expected to ask higher (eg. National ministry or agency) level for guidance in specific circumstances?

c) if (b) occurs, about how many times a year? Number

Capacity variables: Governance

ID	Source	Name	Rationale	Description
10	World Bank	Voice and accountability	All are given as percentile scores	Kaufmann-Kraay-Mastruzzi (KKM) Worldwide Governance Indicators have been computed by World Bank since 1996 as six key dimensions of governance. A convenient source is http://en.wikipedia.org/wiki/Worldwide_Governance_Indicators
11		Political Stability		
12		Government Effectiveness		
13		Regulatory Quality		
14		Rule of Law		
15		Control of Corruption		
16	F32	National number of Ministries	ministries making environmental decisions	This variable is the number of ministries listed on the "Government responsibilities" page of the national level questionnaire.
17	F15	National number of consultees	Number of official consultees for EIA	This variable was taken from the information returned on the "Government responsibilities" page where the respondents were asked to give the names of the designated mandatory consultees under Art 6.1 of EIA Directive and Art 6.3 of SEA Directive that are to be consulted by those who carry out the appropriate environmental assessment. In this case we restricted the responses to reflect the LEGAL standpoint, not what might happen in some cases.
18	F17	National consultation of NGOs	Number of other consultees	This variable was compiled from responses to Q11* in the National level questionnaire. It was simply a count of the number of NGOs that frequently comment on proposals where EIAs are required.
19	F29	Number of Guidance publications	Number of guidance publications	This variable was compiled from responses to Q16(a & b)** on the national questionnaire, where respondents were asked to give examples of publications of formal and practical guidance conservation for authorities making decisions on cases requiring SEAs/EIAs/LUP.
20	F33	Local digital enablement index	Data occasional, systematic, GPS-based	This variable comes from the responses to 3a & b*** in the local questionnaire. A local LAU2 scored two points if they used and could name a GIS and one point if they used a GIS but could not name it in 3a. This was added to responses in 3b where they scored 3 if they took part in a scientific study of species or habitats, regardless of other responses for this question, 2 if they kept records from systematic survey or 1 if they kept occasional records. The maximum any LAU2 could score was 5. For each country we took an average of the responses from the LAU2s surveyed.
21	F30	Data accessibility Index	Data accessibility	This variable was compiled from responses to Q19a-d ^{iv} in the national questionnaire. Respondents were scored as: 2 each for a "yes", 1 for a "some" and zero for "no" to Q19a, and b, while for Q19c & d, they were scored 2 for a "no", 1 for a "some" and 0 for a "yes". These responses were summed, with a maximum available of 8.
22	F30	Data Quality Index	Data quality sum of positives	This variable was compiled from responses to Q19e-j ^{iv} in the national questionnaire. Respondents were scored as: 2 each for a "yes", 1 for a "some" and zero for "no". These responses were summed, with a maximum available of 12.
23	SEBI-3	Proportion of species with unknown status	% of species having unknown status.	Percentage of species (Habitats Directive) assessed by member states as having Unknown status. Species in each country are assessed per biogeographical region. Marine species not included. (http://www.eea.europa.eu/data-and-maps/data/article-17-database-habitats-directive-92-43-ee)
24	SEBI-5	Proportion of habitats with unknown status	% of habitats having unknown status.	Percentage of habitats (Habitats Directive) assessed by member states as having Unknown status. Habitats in each country are assessed per biogeographical region. (http://www.eea.europa.eu/data-and-maps/data/article-17-database-habitats-directive-92-43-ee)

*

- 11 If certain biodiversity or environmental NGOs frequently comment on proposals where EIAs are required, please list them as far as you are able to do so and indicate if they are national, regional or local. (N.B. a single NGO can be at more than one level.)

Use X to show if the NGOs are:

	National	Regional	Local

**

- 16 Has your national government or any authority below its level issued

Yes

No

a) formal guidance on species, habitats or nature conservation to authorities who have to make decisions on cases requiring either SEA's/EIA's or under the LUP system ?

☐
☐

If 'yes' please give title example (with English translation) and reference :

b) practical guidance on species, habitats or nature conservation to authorities, developers, the public, NGO's etc who need to prepare SEA's/EIA's or LUP applications or comment on them?

Yes

No

☐
☐

If 'yes' please give title example (with English translation) and reference :

Please give comments if necessary

3 Information sources for making environmental decisions

- a Is a Geographic Information System used to help make decisions on environmental issues for the administrative area?

yes

no

☐

If YES, what is the name and/or web-site of the system?

- b Are paper or electronic records of wild species and habitats kept by the administration for the area?

yes

no

☐

If YES, are these records (please mark all that apply):

Unsystematic

☐

Regular survey

☐

please give examples

Survey / monitoring as part of scientific study

☐

Other

iv

- 19 Is the species and/or habitat information required for EIA, SEA, LUP or conservation planning and management:

Yes

Some

No

a) accessible to anyone concerned?

☐

b) accessible via the internet?

☐

c) fragmented (i.e. are there multiple sources) ?

☐

d) only available after payment of charges?

☐

e) reasonably up-to-date?

☐

f) available at a local scale?

☐

g) of sufficient accuracy?

☐

Does it include:

Yes

Some

No

h) habitat maps?

☐

i) species populations distributions?

☐

j) in relation to (h &/or i) is there any density and trend information?

☐

If "some" please give an explanation.

Capacity variables: Ecological

ID	Source	Name	Rationale	Description
25	World Bank	Country area		http://data.worldbank.org/indicator/AG.SRF.TOTL.K2
26	CORINE	National land cover by artificial surfaces (%)	Standard habitats from remote-sensed data 1990-2000-2006	Computed in a GIS from Corine Land Cover maps available at http://www.eea.europa.eu/data-and-maps . CLC Category 1 (Level 1)
27	CORINE	National land cover by agricultural areas (%)		Computed in a GIS from Corine Land Cover maps available at http://www.eea.europa.eu/data-and-maps . CLC Category 2 (Level 1)
28	CORINE	National land cover by forest (%)		Computed in a GIS from Corine Land Cover maps available at http://www.eea.europa.eu/data-and-maps . CLC Category 31 (Level 2)
29	CORINE	National land cover by semi-natural areas (%)		Computed in a GIS from Corine Land Cover maps available at http://www.eea.europa.eu/data-and-maps . CLC Category 32+33 (Level 2)
30	CORINE	National land cover by wetlands (%)		Computed in a GIS from Corine Land Cover maps available at http://www.eea.europa.eu/data-and-maps . CLC Category 4 (Level 1)
31	CORINE	National land cover by water bodies (%)		Computed in a GIS from Corine Land Cover maps available at http://www.eea.europa.eu/data-and-maps . CLC Category 5 (Level 1)

Priority variables

ID	Source	Name	Rationale	Description
32	F34	Local social considerations index	Social considerations	These variables come from the responses to Q10*. in the local questionnaire. The local authorities were asked to estimate the proportion of their time was spent assessing either: the social, the economic, or the environmental aspects when making statutory decisions on land use (SEA, EAI, LUP). They were asked to do this individually for all sizes of decisions – in actuality most of the respondents made the same response for all sized areas but the averages across all sizes of decisions were used if there was a response across the size ranges. Within a country the average response of the LAU2s was used.
33	F34	Local economic considerations index	Economic considerations	
34	F34	Local environmental considerations index	Environmental considerations	
35	UN	Proportion of country surface in protected areas	Interest in habitat protection	UN data for 2008, obtained from http://data.worldbank.org/indicator/ER.LND.PTLD.TR.ZS
36	EC	Proportion of country surface in SPA		% of Total National Area within Terrestrial SPA http://ec.europa.eu/environment/nature/natura2000/barometer/docs/SPA_EU27.pdf
37	EC	Proportion of country surface in SCI		% of Total National Area within Terrestrial SCI http://ec.europa.eu/environment/nature/natura2000/barometer/docs/SPA_EU27.pdf
38	F14b	Local data demand for ecosystem biodiversity and supporting services	Sum for supporting + biodiversity	This variable comes from the responses to Q3d. 1-3** and Q3d.10 – 12 in the local questionnaire. Authorities were given a score of one for each data type that was needed, with a maximum here of 6 if all types of biodiversity and supporting services data were needed, regardless of whether or not it was available. Within a country the average response of the LAU2s was used.
39	F14b	Local data demand for ecosystem provisioning, regulating and cultural services	Sum for provisioning + regulating + cultural	This variable comes from the responses to Q3d. 4-9** and Q3d.13 – 15 in the local questionnaire. Authorities were given a score of one for each data type that was needed, with a maximum here of 9 if all types of biodiversity and supporting services data were needed, regardless of whether or not it was available. Within a country the average response of the LAU2s was used.

*

n	Approximately how many of these assessments or planning decisions involving this administration annually are:	<1 ha	1-50 ha	50-500 ha	whole area
o	In making these decisions, what % of administration time is spent on considering:				
	the environment				

**

d In detail, what information is needed to make environmental decisions in the administrative area?

		Please put X if data are needed.	How much of the data required are you able to access? Please use X to indicate your answer.				Please put X if data are in electronic format.	Put X if data are updated at least every 5 years.
			All	Most	Some	None		
1	Biodiversity	Protected species						
2	information	Harmful species (as in 2q-r on previous sheet) or invasive species						
3		Habitat maps (eg. protected, designated or otherwise important)						
4	Ecosystem	Economically exploited wild species (mammals/birds/fish/plant food/medicine/materials/fungi)						
5	Services:	Cultivated food, livestock or forest crops						
6	Provisioning	Biofuels						
7	Ecosystem	Flood risk / protection						
8	Services:	Fire risk / protection						
9	Regulating	Risk of disease from wildlife (to people or domestic animals/plants)						
10	Ecosystem	Water quality, availability and pollution						
11	Services:	Air quality (and pollution)						
12	Supporting	Soil quality, fertility & erosion risk						
13	Ecosystem	Amenity areas (parks, paths, verges)						
15	Services:	Eco-tourism capacity and impacts						
15	Cultural	Environmental recreation and access for residents (including impacts)						

Process variables: social

ID	Source	Name	Rationale	Description
40	F7	Local responsibility for informal decisions	Responsibility_informal_decisions	This variable comes from the responses to Q1a-g*. in the local questionnaire, yeses were coded as 1 and these were summed, with a maximum score of 13 if there was responsibility for all listed matters on private land as well as land owned by the local authority. Within a country the average response of the LAU2s was used.
41	F35	Consultation intensity index	Composite_consulting intensity	This variable comes from responses to Q1i-m. & Q1q.* in the local questionnaire. Responses in Q1i-m. were quantified as: Mandatory or Always as 5, Usually as 4, Often as 3, Occasionally as 2 and Never as 1. Responses to Q1q were ranked as follows: If only one organisation was listed as being consulted then the response was ranked as 1, if more than two were listed but there was variation in the number of times they were consulted per year then the response was ranked 2, if more than 1 organisation was given and they were consulted equally the response was ranked 3. The average of the responses to Q1i-m was calculated and multiplied by the rank for the responses to Q1q. Within a country the average response of the LAU2s was used.
42	F36	NGO consultation index	Ratio of NGO to government consultation	This variable was calculated from the responses to Q1q* in the local questionnaire. The number of NGO organisations and the number of government agencies listed were counted, with a ratio calculated of NGO/Government – the higher the value the more consultation with NGOs. Within a country the average response of the LAU2s was used.
43	F38	NGO influence index	Difference of NGO dialogue and influence	This variable was calculated from the responses to Q1j & k* in the local questionnaire. Responses were quantified as: Mandatory or Always as 5, Usually as 4, Often as 3, Occasionally as 2 and Never as 1. A For each country we took an average of the responses from the LAU2 surveyed for each question. The average of the score for influence was subtracted from the average of the score for dialogue. Positive values represent more dialogue than influence; negative values represent more influence than dialogue.
44	F19	Private versus public responsibility for EIA monitoring	Private, public, civic index responsibility for EIA monitoring	This variable is taken from responses to Q8e** in the national level questionnaire. An index was calculated for who undertook monitoring of a proposal post development, based on the relative responsibility of the government, developers and NGOs (e.g. +3= developer only, +2= developer +consultant, +1= developer +government, 0=developer+government + NGO, -1=government only, -2=government+ NGO, -3 = NGO only).

*

1 Responsibilities for nature conservation and management (please use X to indicate the answer)

	yes	no		yes	no
a Does the administration (or those working for it) have responsibilities for managing any rural land, wetlands or open water?	☐	☐		☐	☐
b Does this include: amenity areas (e.g. parks, public gardens, play areas, paths, road verges) owned by the administration?	☐	☐	on land owned by other people ?	☐	☐
c protecting wild species and habitats (e.g. old trees, ponds) on land owned by the administration?	☐	☐		☐	☐
d conserving wild species and habitats (e.g. by creating reserves) on land owned by the administration?	☐	☐		☐	☐
e managing pest/invasive species to protect other wild or domestic species/habitats on land owned by the administration?	☐	☐		☐	☐
f limiting wild species to protect social interests (e.g. road safety, domestic nuisance, recreation, well-being) on owned land?	☐	☐		☐	☐
g restoring native wild species/habitats (e.g. creating new habitats or reintroducing wild plants) on owned land?	☐	☐		☐	☐
h When making decisions for this management, what is the range of areas (ha) covered by EACH decision?	to hectares				
Responsibility for statutory decisions concerning or affecting land use (including EIA and SEA)					
i Are there consultations with private individuals, enterprises etc. (other than developer) when considering any statutory land use planning decisions (SEA, EIA or others) in the administrative area?	mandatory ☐	always ☐	usually ☐	often ☐	occasionally ☐
j Is there dialogue with conservation NGOs when considering these decisions ?	☐	☐	☐	☐	☐
k Do these NGOs exert a strong influence on the decisions?	☐	☐	☐	☐	☐
l Is there dialogue with government conservation agencies when considering these decisions?	☐	☐	☐	☐	☐
m Is higher government or its agencies the main influence on the decisions?	☐	☐	☐	☐	☐
	<1 ha	1-50 ha	50-500 ha	whole area	
n Approximately how many of these assessments or planning decisions involving this administration annually are:	☐	☐	☐	☐	☐
o In making these decisions, what % of administration time is spent on considering: economics (jobs & costs)	☐	☐	☐	☐	☐
social issues	☐	☐	☐	☐	☐
the environment	☐	☐	☐	☐	☐
p Approximately how many of all these decisions are:	SEA ☐	EIA ☐	LUP ☐		
q What government organisations/agencies or other interests are regularly consulted with when the administration makes environmental decisions? Please list these below indicate how often they are consulted annually and their category.	times /year	Govern-ment	National	NGO Regional	Local
	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐

**

8 a) In cases of significant damage to the environment from a proposal is mitigation, through creation of conservation benefit elsewhere, such as habitat creation, required at the outset?	Mandatory ☐	Encouraged ☐			
b) If significant damage to the environment is likely, are alternative development approaches required to be submitted?	Mandatory ☐	Encouraged ☐			
c) Is there subsequent monitoring of the environmental impact of the development?	Yes ☐	Sometimes ☐	No ☐		
d) If there is any monitoring, please indicate who pays for it?	Developer ☐	Government /Agency ☐	NGO ☐	Other Consultants ☐	Other ☐
Please put X in all that apply.	Please give comments if necessary				
e) If there is any monitoring, please indicate who does it?	Developer ☐	Government /Agency ☐	NGO ☐	Other Consultants ☐	Other ☐
Please put X in all that apply.	Please give comments if necessary				

Process variables: economic and regulatory

ID	Source	Name	Rationale	Description
45	F6	Local empowerment index	Sum of LAU2 responsibility scores for assessments	This variable is from responses to the national questionnaire in Q1, Q6, Q14 on the level where decisions on assessments are made for (SEA, EIA, LUP) and LAU2 answers to Q1p*. Responses were coded: 2 where national indicated that LAU2 (municipalities) are responsible and LAU2s indicate decisions or LAU2s record much decision-making consistently; 1 where national didn't indicate LAU2 responsibility but consultation, or a few decisions were recorded by some LAU2s; 0 where national did not indicate LAU2 responsibility and no LAU2 decisions were recorded. The responses for all 3 questions were summed and the total divided by the number of responses times 2. The higher the proportion, the more power the local government had over decisions.
46	F20	Private versus public responsibility for paying EIA monitoring	Private, public payment index	This variable is taken from responses to Q8d** in the national level questionnaire. An index of relative responsibility of developer and government for payment (e.g. +1=developer alone, 0=developer+government, -1=government alone) was calculated.
47	F14a	Data availability index	ratio_of_data_needed_that_were_available_to_that_unavailable	This variable was calculated from responses to Q3d.1-15*** in the local level questionnaire. For those data that were reported as "needed" by the local authorities we summed up the number that respondents indicated they could access "all" or "most" of this data (considered available) and also summed up the number where they reported only "some" or "none" of the data could be accessed (unavailable). We divided the number available by the number unavailable for each LAU2 surveyed. Within a country the average response of the LAU2s was used.
48	T2	National number of assessments	SEA_EIA_MATRIX_STATISTIC	This variable comes from information gathered in the national questionnaire. If both the number of SEAs and EIAs are known, we took an average; if only one was known we used that figure. NB we extrapolated from LAU2s surveyed in Italy and Poland.
49	F18	National assessment regulatory intensity	sum of codes: alternatives, mitigation, monitoring	This variable is taken from responses to Q8a,b & c** in the national level questionnaire. Responses to these three questions regarding mitigation, alternative approaches and monitoring were categorised into voluntary – no mandatory responses – coded as 0, Sometimes mandatory – only one mandatory response to these questions – coded as 1, Sometimes Mostly mandatory – two of the three responses were mandatory or yes in the instance of monitoring undertaken, Mandatory – all of the responses were mandatory or yes.
50	F25-28	National Agri-environment Schemes index	Sum AES: designation, map, baseline, monitoring	This variable is taken from responses to Q23, 27, 25a & d ^{iv} in the national level questionnaire. Values were coded from Q23: 0 if funds only available on Natura 2000 lands, 1 if available there and other designated land, 2 if available everywhere provided certain conditions are met. Values were coded from Q27 as: No map required = 0, map but not allowed to be digital = 1, map and can be digital = 2. Values were coded from Q25a as: no requirement for prior information = 1, requirement for prior information = 2. Values were coded for Q25d as: No monitoring of compliance with agri-environment option implementation = 0, monitoring of compliance only but not environmental outcomes = 1, monitoring of both compliance and environmental outcomes = 2. Codes for each country were summed to give a value out of a possible 8.

★

Strategic Environment Assessment roles and processes

- 1 a) Please name the level(s) i.e. national, sub-national (Regional or other level only one step removed from national) or lower level, at which plans and programmes requiring SEA assessments are approved:
b) If formal approval of the SEA assessment is required (i.e. separately from the relevant plan or programme), please give name of the level:

National	Sub-national	Intermediate level	First tier of government

- 6 (a) Please name for your country the level(s) i.e. national, sub-national (Regional or other level only one step removed from national) or lower level at which developers submit projects requiring formal EIA or EIA-like assessments for approval:
b) If that government level submits these assessments to another level (i.e. separately from the project itself), please name the level:

National	Sub-national	Intermediate level	First tier of government

Land Use Planning

- 14 Please name the level i.e. national, sub-national (Regional or other level only one step removed from national) or lower level, to which development projects needing approval under LUP are submitted:

National	Sub-national/Regional	Intermediate level	First tier of government

★★

- 8 a) In cases of significant damage to the environment from a proposal is mitigation, through creation of conservation benefit elsewhere, such as habitat creation, required at the outset?
b) If significant damage to the environment is likely, are alternative development approaches required to be submitted?
c) Is there subsequent monitoring of the environmental impact of the development?
d) If there is any monitoring, please indicate who pays for it?

Mandatory	Encouraged				
☐	☐				
Mandatory	Encouraged				
☐	☐				
Yes	Sometimes	No			
☐	☐	☐			
Developer	Government /Agency	NGO	Other Consultants	Other	Please give comments if necessary
☐	☐	☐	☐	☐	
Developer	Government /Agency	NGO	Other Consultants	Other	Please give comments if necessary
☐	☐	☐	☐	☐	

Please put X in all that apply.

e) If there is any monitoring, please indicate who does it?

Please put X in all that apply.

d In detail, what information is needed to make environmental decisions in the administrative area?

		Please put X if data are needed.	How much of the data required are you able to access? Please use X to indicate your answer.				Please put X if data are in electronic format.	Put X if data are updated at least every 5 years.
			All	Most	Some	None		
1 Biodiversity information	Protected species							
2	Harmful species (as in 2q-r on previous sheet) or invasive species							
3	Habitat maps (eg. protected, designated or otherwise important)							
4 Ecosystem Services:	Economically exploited wild species (mammals/birds/fish/plant food/medicine/materials/fungi)							
5 Provisioning	Cultivated food, livestock or forest crops							
6	Biofuels							
7 Ecosystem Services:	Flood risk / protection							
8	Fire risk / protection							
9 Regulating	Risk of disease from wildlife (to people or domestic animals/plants)							
10 Ecosystem Services:	Water quality, availability and pollution							
11	Air quality (and pollution)							
12 Supporting	Soil quality, fertility & erosion risk							
13 Ecosystem Services:	Amenity areas (parks, paths, verges)							
15	Eco-tourism capacity and impacts							
15 Cultural	Environmental recreation and access for residents (including impacts)							

iv

- 23 Do you have payments for agri-environmental schemes?

- If 'yes' are they: a) For 'Natura 2000' or Emerald Network sites only?
b) for 'Natura 2000', Emerald Network and other special habitats only?
c) available everywhere provided conditions are observed?

Yes	No
☐	☐
☐	☐
☐	☐

(The Emerald Network is the Bern Convention pan-European project that has become Natura2000 in the EU)

First tier of

- 27 Do governmental payments to farmers require a map from the farmer?

- If 'yes', can this be in electronic format?

Yes	No
☐	☐

- 25 a) Do governmental payments to farmers for agri-environment schemes require prior input of information on species and/or habitats?

Yes	No	other consultants	local	data from local
government/ agencies	NGOs	/ or advisors /	internet /	publications/ knowledge/ stakeholders
☐	☐	☐	☐	☐
☐	☐	☐	☐	☐

- b) If "yes", please use X to show sources of species data for government
c) If "yes", please use X to show sources of habitat data for government

- d) In all these schemes, is there subsequent monitoring (i) of compliance?

Yes	No	(ii) of environmental outcomes?	Yes	No
☐	☐	☐	☐	☐

Impact variables: societal and economic

ID	Source	Name	Rationale	Description
51	F39	Wildlife positivity index	ratio of benefits to costs from biodiversity	This variable attempts to describe the attitudes of local authorities to the people that manage land and species. It is taken from responses to Q2.k-o and Q2. q-t*. Responses for Q2.k-o were coded as from 5 = "Highly" valued to 1 for "Not at all" valued. Responses for Q2.k-o were coded as from 5 = "A lot" of cost to 1 for costing "Not at all". A ratio was calculated of the benefits to the costs and within a country the average response of the LAU2s was used.
52	F40	Ecosystem use/protection index	Cons land ratio others conservation benefits from activities	This variable attempts to describe the attitudes of local authorities to the people that manage land and species. It is taken from responses to Q2.a-j**. Responses were coded as 1 = never, 2 = occasionally, 3 = often, 4 = usually and 5 = always. The sum of these for consumptive stakeholders (collectors of snails, fungi etc., fishing and hunting) and landuse stakeholders (farming and forestry) was divided by the value for other stakeholders (bird feeders, walkers etc., horse riders, wildlife excursion participants and gardeners) to give a ratio of conservation benefits between the two types of stakeholders. Higher values indicated that consumptive and landuse stakeholders were considered by the local authorities to undertake conservation work than other stakeholders. Within a country the average response of the LAU2s was used.
53	SEBI-8	Natura 2000 Sufficiency Index	Implementati on efficacy	State of progress by Member States in reaching sufficiency for the Habitat Directive Annex I habitats and Annex II species http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&plugin=1&language=en&pcode=tsien160
54	SEBI-26	Public Awareness of Biodiversity	Public awareness	From Gallup Organization (2007). Flash Eurobarometer Series #219. Attitudes of Europeans towards the issue of biodiversity (http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&plugin=1&language=en&pcode=tsien170): Percentage of population knowing the meaning of the term biodiversity (% I've heard of it and I know what it means + % I've heard of it but I do not know what it means)
55	Gallup	Public concern over biodiversity loss		From same survey as (53): Percentage of population answering that loss of biodiversity in their country was a very serious + a fairly serious problem
56	GEM-CON-BIO	Number of hunters	Typically, counts of licences	Data on EU27 in GEMCONBIO were collected from national NGOs, checked against databases held by federations at European level (FACE, EAA) and completed by country coordinators for the four countries outside the EU.
57	GEM-CON-BIO	Number of anglers		

Are local households considered generally to value wild species for:

		Highly			Not at all
k	Food or other materials	☐	☐	☐	☐
l	Wildlife-related recreation as listed above	☐	☐	☐	☐
m	Tourism	☐	☐	☐	☐
n	Aesthetics and other intrinsic value	☐	☐	☐	☐
o	Environmental security such as flood protection	☐	☐	☐	☐
p	Other benefits	☐	☐	☐	☐

Please give examples

To what extent are households in the administrative area considered to suffer costs, in time or money, from wild species or habitats?

		A lot			Not at all
q	Damage from pest species to household food or property	☐	☐	☐	☐
r	Damage from pests, predators or weeds to livestock, crops or woodland	☐	☐	☐	☐
s	Increasing the risk of fire	☐	☐	☐	☐
s	Increasing the risk of flooding	☐	☐	☐	☐
t	Transmission of disease to humans or livestock	☐	☐	☐	☐
u	Other issues	☐	☐	☐	☐

Please give examples

2 Ecosystem Services: benefits and costs of wild resources :

For residents in this administrative area (not tourists) what approximate % of the households engage locally or anywhere in each of the following:

		please use X to indicate the answer					If 20+%, please estimate to the nearest 10%		Are these groups considered to engage in work to protect, maintain or restore wild species and/or habitats?				
		<1%	2-5%	5-10%	11-20%	20+%			always	usually	often	occasionally	never
a	Feed birds or other wildlife?												
b	Collect wild snails, fungi, fruits, flowers or other plant materials?												
c	Do outdoor pursuits eg. walking/skiing/climbing/boating/camping/off-road cycling?												
d	Go horse-riding?												
e	Make excursions in order to watch wildlife?												
f	Cultivate a garden or lawn?												
g	Go fishing?												
h	Go hunting with gun, dog or other animal?												
i	Engage in farming?												
j	Engage in forestry?												

Impact variables: ecological

ID	Source	Name	Rationale	Description
58	CORINE	Urban sprawl rate inside Natura 2000	'Standard habitats from remote-sensed data 1990-2000-2006	Computed in a GIS from Corine Land Cover maps available at http://www.eea.europa.eu/data-and-maps . CLC Category 2 (Level 1)
59	CORINE	Urban sprawl rate outside Natura 2000		
60	CORINE	Urban sprawl rate for whole country		
61	CORINE	Semi-natural loss rate for whole country		Computed in a GIS from Corine Land Cover maps available at http://www.eea.europa.eu/data-and-maps . CLC Category 32+33 (Level 3)
62	SEBI-10	Number of invasive species	Invasives indicate lack of care	Number, in each country, of the listed 'worst' terrestrial and freshwater invasive alien species threatening biodiversity in Europe. Only index available for all survey countries.
63	SEBI-1a	Farmland bird index	Composite population trend indicator	Slope of linear trend of Farmland bird index vs. Year (countries with > 3 years; Dates 2000-2007) from Eurostats: (http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&plugin=1&language=en&pcode=tsien170)
64	SEBI-3	Species favourable conservation status index	% of species having favourable status.	Percentage of species (Habitats Directive) assessed by member states as having Favourable status. Species in each country are assessed per biogeographical region. Marine species not included. Computation of % Favourable excludes species with unknown status (http://www.eea.europa.eu/data-and-maps/data/article-17-database-habitats-directive-92-43-eeec)
65	SEBI-5	Habitats favourable conservation status index	% of habitats having favourable status.	Percentage of habitats (Habitats Directive) assessed by member states as having Favourable status. Habitats in each country are assessed per biogeographical region. Computation of % Favourable excludes habitats with unknown status (http://www.eea.europa.eu/data-and-maps/data/article-17-database-habitats-directive-92-43-eeec)

CONCLUSIONS

Using surveys piloted in Chapters 2 and 3, surveys of national administrations, local administrations and individual stakeholders were used to construct a database of 65 variables across 30 European countries, to enable analyses of patterns of governance across Europe in Capacity, Priority and Process variables used in environmental decision-making at all levels in Chapter 7, and of relationships between these variables and ecological or socio-economic impacts in Chapter 8.

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REFERENCES

- EEA (2010). Streamlined European 2010 Biodiversity Indicators. Copenhagen: European Environment Agency. Retrieved June 22, 2012, from <http://www.eea.europa.eu/publications/progress-towards-the-european-2010-biodiversity-target-indicator-fact-sheets>
- ESPON (2009). *First Interim Report of ESPON Typology Compilation, ESPON 2013*. Retrieved June 22, 2012, from <http://www.espon.eu/export/sites/default/Documents/Projects/ScientificPlatform/TypologyCompilation/fir-090615.pdf>
- Eurostat (2009). Eurostat Regional Yearbook 2009. Luxembourg: Publications office of the European Union. Retrieved June 22, 2012, from http://epp.eurostat.ec.europa.eu/portal/page/portal/region_cities/regional_statistics/nuts_classification
- Kenward, R.E., Whittingham, M.J., Arampatzis, S., Manos, B., Hahn, T., Terry, A., Simoncini, R., Alcorn, J., Bastian, O., Donlan, M., Elowe, K., Franzén, F., Karacsyonyi, Z., Larsson, M., Manou, D., Navodaru, I., Papadopoulou, O., Papathanasiou, J., von Raggamby, A., Sharp, R., Söderqvist, T., Soutukorva, Å., Vavrova, L., Aebischer, N. J., Leader-Williams, N., & Rutz, C. (2011). Identifying governance strategies that support biodiversity, ecosystem services and resource sustainability. *Proceedings of the National Academy of Sciences*, 108, 5308–5312.

Kaufmann, D.I, Kraay, A. & Mastruzzi, M. (2010). Response to: What Do the Worldwide Governance Indicators Measure. *European Journal of Development Research*, 22, 55-58.

Manos, B. & Papathanasiou, J. (2008). GEMCONBIO: Governance and Ecosystem Management for Conservation of Biodiversity. Thessaloniki, Greece: Aristotle University of Thessaloniki.

KEY TERMS

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