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Protected Area Management Effectiveness Assessments in Europe

A review of application, methods and results

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Table of Contents

List of Figures

List of Tables

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Executive Summary

The European Study on protected area management effectiveness (PAME) evaluation was conducted between May 2009 and March 2010. Its main purpose was to provide an overview of existing PAME evaluation in European countries, notably with respect to extent of application, methodologies and assessment results. The survey was led by the Universities of Greifswald and Queensland in partnership with the UNEP World Conservation Monitoring Centre, EUROPARC Federation and the German Federal Agency for Nature Conservation (BfN), the latter of which also provided financial support. The study had three principal objectives; our finding in relation to each are outlined below.

Objective I: Generate a comprehensive and systematic overview of existing studies, evaluation methods and key indicators used in Europe.

The European Study found that the overwhelming majority of countries in Europe have assessed at least some of their protected areas within the last decade: about one third can be expected to achieve the CBD PoWPA target for management effectiveness by area (assessing PAME of 30% of terrestrial sites by 2010). Our database recorded a total of 1846 single-site assessments, of which 227 are repeat assessments. In addition, a number of countries had conducted system-level assessments or evaluated habitat types. We recorded very few assessments for marine protected areas. Only a handful of countries have institutionalized management effectiveness evaluation by scheduling regular re-assessments, and making sure results are firmly integrated into governance and management processes.

Forty different assessment methodologies have been applied in Europe; 31 of which are not used elsewhere. Evaluations have been led by a variety of entities: overseeing agencies, NGOs/policy advisors, protected area management bodies, certifiers, donors or research teams. The purpose of evaluation and the way results feed back into management are closely related to the type of leading agency. Intensity and frequency of assessments vary widely, as do the type of generated data and access to it.

Most frequently used indicators in Europe are those looking at management plans, park gazettal and tenure security, involvement of communities and stakeholders, communication programs and adequacy of funding and staffing. In comparison with international methodologies, European evaluators tend to look more closely at the ecological significance of sites, visitor management issues and specific activities in the field of resource use and management; comparatively less attention is paid to the general capacity of individual sites to cope with threats (adequacy of enforcement, human resource policies, training and infrastructure).

Objective II: Synthesize results of European management effectiveness evaluations with respect to overall management effectiveness, strengths and weaknesses, threats and recommendations.

Our statistical analysis of assessment results is based on the methodology and database developed by the University of Queensland in the course of a global study on management effectiveness. Original data was available for 1023 site-level assessments, mostly from Central and East European countries. In addition, all available assessment reports were analysed and synthesized.

With an average of .56 (on a zero-to-one scale, where one equates with fully effective management), overall management effectiveness of 734 evaluated sites scored slightly higher than the international average (.53) from the global study. Indicators related to “planning” (e.g. park gazettal, appropriateness of design, marking and security/fencing of boundaries) and “outcomes”(e.g. conservation of values – condition) score relatively high, while many indicators measuring “inputs” (funding, staff, infrastructure) and “processes” (notably program of community benefit, visitor management, and monitoring & evaluation) scored lower, indicating a less satisfactory performance for these management aspects. These statistical results are largely consistent with evidence from report reviews.

Among the *most prevalent* threats mentioned in European studies are, in decreasing order, recreational activities (22 times), pollution (20), dams and water management (19), logging and wood harvesting (19), hunting/killing of animals (18), and farming/grazing (18). Among these, recreational activities are also reported to be among the *most serious* threats by a majority of studies (13 times), followed by logging / wood harvesting and hunting/killing of animals (both 9 times). Also here, the reviewed literature reflects this overall picture.

Among the major recommendations proposed by report authors to improve management effectiveness are: better institutional collaboration, the integration of PAs into wider landscape planning, better involvement of communities, resolution of land rights, increases in input (staff and funding), better communication of PA benefits and improved drafting and implementation of management plans.

Objective III: Generate recommendations for best practice in European management effectiveness evaluation.

In comparison with other UN regions, our results indicate that Europe is doing relatively well in terms of assessing management effectiveness. The rapid growth of assessments is encouraging, and we observed that the relevance and added value of these studies are increasingly being recognized. There is, however, room for improvement:

- Our results indicate that about one quarter of European countries have not yet undertaken any systematic PAME study, although this is a commitment under the CBD Programme of Work on Protected Areas. It certainly seems desirable to support initiatives setting up evaluation systems in these countries.
- PAME evaluation has been institutionalized in only a few countries. Adaptive management, however, relies on periodic re-assessments and incorporation of evaluation results into management and governance system. We thus recommend building on the existing experiences and promoting integration of evaluation and decision-making processes – something which is slowly happening across Europe.
- Europe has many small protected areas. Cost-effectiveness of evaluation could be increased through a prioritization of evaluated sites and by exploring synergies between different reporting requirements (e.g. Natura 2000, treasury reporting and local self-assessments, or by conducting regional-scale assessments).
- Transparency of management effectiveness evaluation in Europe is often impeded by a combination of restrictive disclosure policies and data incompatibility between different evaluation methodologies. International streamlining and reporting of data could increase both accountability and credibility of protected area agencies. This is particularly important given the actual and potential existence of transboundary protected areas in Europe.
- The fragmentation of habitats in Europe calls for new, integrated concepts for PAME evaluation which go beyond single-site assessments by collecting and collating relevant data at various scales, even across national boundaries.
- Finally, mutual learning is a vital component of any evaluation system and should be fostered wherever possible, e.g. by allowing for exchange of experiences between staff, both within and between hierarchical levels. In this context, it is also recommended to conduct further European comparative studies and to encourage cooperative work across agencies and countries.

Abbreviations

BfN	Bundesamt für Naturschutz (German Federal Agency for Nature Conservation)
CBD	UN Convention on Biological Diversity
CMP	Conservation Measures Partnership
DG ENV	Directorate General for the Environment (European Commission)
EMAS	Eco-Management and Audit Scheme (EU)
EPA	Environmental Protection Agency
EU-27	European Union with 27 Member States (since 2007)
GEF	Global Environmental Facility
GIS	Geographical Information System
HDI	Human Development Index
HR	Human Resources
IBA	Important Bird Area (BirdLife International)
ISO	International Organization for Standardization
IUCN	International Union for the Conservation of Nature
IUCN-WCPA	IUCN World Commission on Protected Areas
NGO	Non-Governmental Organisation
PA	Protected Area
PAME	Protected Area Management Effectiveness
PoWPA	CBD Programme of Work on Protected Areas
SAC	Special Area of Conservation (former SCI) (EU Habitats Directive)
SCI	Site of Community Importance (becomes SAC) (EU Habitats Directive)
SPA	Special Protection Area (EU Birds Directive)
UNEP	United Nations Environment Programme
UNEP-WCMC	UNEP World Conservation Monitoring Centre
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNESCO-MAB	UNESCO Man and Biosphere Programme
WDPA	World Database on Protected Areas (hosted by UNEP-WCMC)
WWF	World Wide Fund for Nature (formerly World Wildlife Fund)

Abbreviations of methodologies are provided in Chapter 3.3.1. Abbreviations used in references are explained in the bibliography section.

Chapter 1 Introduction

Protected areas span the globe. Almost all countries have set aside at least a part of their territory for the purpose of nature conservation. More than 130,000 sites have been reported to the World Database of Protected Areas (WDPA) by 2010, and this number is still increasing.

Yet, as protected areas increase in number and area, so do concerns about whether protected areas are able to maintain values and fulfil objectives. Recognizing that designation does not guarantee effective management, the international conservation community put the assessment of protected area management effectiveness (PAME) high on its agenda. In 2004, signatories to the Programme of Work on Protected Areas (PoWPA) of the UN Convention on Biological Diversity (CBD) agreed to assess PAME of 30% of their terrestrial protected areas by 2010, and by 2012 for marine sites.

While the IUCN World Commission on Protected Areas (IUCN-WCPA) developed a theoretical framework for PAME evaluation (cf. Chapter 2.1), it was WWF which took the lead on the development and application of international assessment methodologies. Many countries and organizations, particularly in Central America and Europe, also developed and implemented their own tailor-made evaluation systems. In order to synthesize the diverse experiences and keep track of countries' individual progress towards the 2010 target, the University of Queensland, IUCN-WCPA and the UNEP World Conservation Monitoring Centre (UNEP-WCMC)[1] carried out a Global Study on Management Effectiveness. By 2010, the team has collected information on almost 9,000 assessments in 128 countries.

This European study is allied to these broader studies and seeks to fill two gaps. First, the experiences of participants at a 2008 European workshop on PAME evaluation had noted that the Global Study's coverage of the European subregion was unsatisfactory. Second, protected area governance on the European continent has characteristic features which justified a separate analysis of methodologies, threats and success factors.

The European survey was led by the University of Greifswald (Germany) and the University of Queensland with support from UNEP-WCMC, EUROPARC Federation and the German Agency for the Conservation of Nature (BfN). Funding was generously provided through BfN with resources from the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety. Data collection and analysis took place between May 2009 and February 2010, with a supplementary mid-term workshop[2] providing a forum for the discussion and verification of preliminary results.

Contents of this report are structured as follows. Chapter 2 provides a condensed background on PAME evaluation and protected area governance in Europe. Chapter 3 reports on the extent and structure of PAME evaluation in European countries, and compares approaches and methodologies. Available results of evaluation exercises (raw data and reports) are analysed and discussed in Chapter 4, paying special attention to management strengths and weaknesses, as well as major threats. We close with an outlook on best practice in protected area management and its evaluation in Europe.

[1] With support from WWF, The Nature Conservancy and the 2010 Biodiversity Indicators Partnership

[2] Workshop "Protected Area Management Effectiveness Assessments in Europe", Nov 1-5, 2009, International Academy for Nature Conservation, Isle of Vilm, Germany.

Chapter 2 Background

2.1 Understanding management effectiveness evaluation

Management effectiveness evaluation has become a more prominent feature of protected area management over the past decade (Hockings 2003, Hockings *et al.* 2006, Leverington *et al.* 2008). Evaluations have been undertaken using a wide variety of methodologies; most of them based around the IUCN-WCPA Protected Area Management Effectiveness Framework (Hockings *et al.* 2006), which provides an overall structure and guidance on the purpose of management effectiveness evaluation, the selection and measurement of indicators and the analysis and use of the data.

Good management needs to be rooted in a thorough understanding of the individual conditions related to a protected area, be carefully planned and implemented and include regular monitoring, leading to changes in management as required. The IUCN Framework is based on the management cycle below, which identifies six important elements in this process that should, ideally, be assessed if effectiveness of management is to be fully understood.

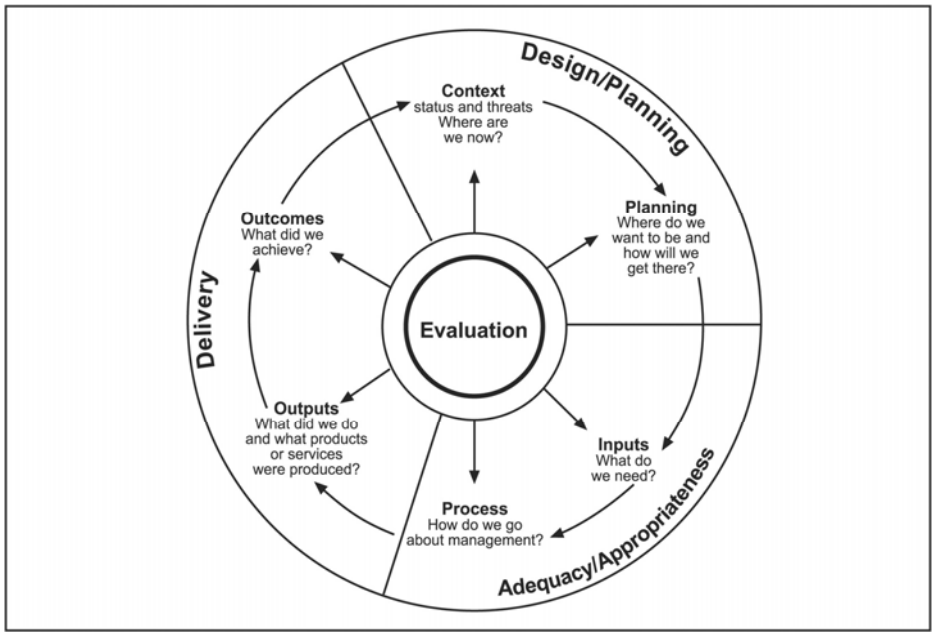


Figure 1: The protected area management cycle (Hockings et al. 2006)

Management begins with understanding the **context** of the protected area, including its values, the threats that it faces and opportunities available, its stakeholders, and the management and political environment; progresses through **planning**: establishing vision, goals, objectives and strategies to conserve values and reduce threats; allocates **inputs** (resources) of staff, money and equipment to work towards the objectives; implements management actions according to accepted **processes**; and eventually produces **outputs** (goods and services, which should usually be outlined in management plans and work plans) that result in impacts or **outcomes**, hopefully achieving defined goals and objectives. These six elements reflect three "themes" of management: design (context and planning),

appropriateness/adequacy (inputs and processes) and delivery (outputs and outcomes). Throughout this report, we use the six framework elements (Table 1) as an organising structure for the analysis of findings.

Table 1: The IUCN-WCPA Management Effectiveness Evaluation Framework (Hockings et al. 2006)

Elements	**Context** Where are we now?	**Planning** Where do we want to be?	**Inputs** What do we need	**Process** How do we go about it?	**Outputs** What were the results?	**Outcomes** What did we achieve?
Criteria	Significance Threats Vulnerability National policy Engagement of partners	PA legislation and policy PA system design Reserve design Management planning	Resourcing of agency Resourcing of site	Suitability of management processes	Results of management actions Services and products	Impacts: Effects of management in relation to objectives
Focus of evaluation	Status	Appropriateness	Economy	Efficiency	Effectiveness	Effectiveness Appropriateness

Evaluation results of each of these elements and the indicators within them can be examined and interpreted on their own. However, in order to more fully understand potential linkages between aspects of management performance at a site or system, results should also be interpreted in relation to each other. For example, if a particular objective is not being achieved, does the problem lie in the planning related to this aspect of management, the level of resources devoted to the issue or in the way that management is being carried out? Examining performance across the six elements of management effectiveness evaluation can help in identifying how management should be adapted and then in tracking change in outcomes resulting from this adaptation.

The Convention on Biological Diversity (CBD) established a **Programme of Work on Protected Areas** (PoWPA) in 2004 to guide activities undertaken by countries in implementing Article 8 of the Convention relating to *in-situ* conservation of biodiversity. The Programme aims, by 2010 (for terrestrial ecosystems) and 2012 (for marine), to establish "comprehensive, effectively managed and ecologically-representative national systems of protected areas" to help conserve biodiversity[3]. It identifies four elements, 16 goals and 92 activities for the Parties. Programme Element 4 on Standards, Assessment and Monitoring contains a goal (Goal 4.2) that is specifically related to management effectiveness evaluation.

[3] The PoWPA is being reviewed in 2010 and expectations are that management effectiveness will remain a relevant component for directing protected area policy and management in the future.

Goal 4.2: To evaluate and improve the effectiveness of protected areas management

Target: By 2010, frameworks for monitoring, evaluating and reporting protected areas management effectiveness at sites, national and regional systems, and transboundary protected area levels adopted and implemented by Parties.

Suggested activities of the Parties

4.2.1 Develop and adopt, by 2006, appropriate methods, standards, criteria and indicators for evaluating the effectiveness of protected area management and governance, and set up a related database, taking into account the IUCN-WCPA Framework for evaluating management effectiveness, and other relevant methodologies, which should be adapted to local conditions.

4.2.2 Implement management effectiveness evaluations of at least 30 percent of each Party's protected areas by 2010 and of national protected area systems and, as appropriate, ecological networks.

4.2.3 Include information resulting from evaluation of protected areas management effectiveness in national reports under the Convention on Biological Diversity.

4.2.4 Implement key recommendations arising from site- and system-level management effectiveness evaluations, as an integral part of adaptive management strategies.

2.2 Protected area governance in Europe

Evaluation has to be understood as an element of governance. Any assessment of protected area management effectiveness is embedded in, and shaped by, the structure of the national protected area systems it is meant to evaluate. This section provides a brief overview of European protected area systems, illustrating the diversity of arrangements in which evaluations take place, to help interpret the survey results.

Europe has many boundaries. Several definitions exist of what geographical region corresponds to "Europe", notably differing with respect to where its borders to Asia are located. For the purpose of this survey, we follow the Global Study on Management Effectiveness in choosing the *UN Region* "Europe" as our area of interest. However, Turkey and the Caucasian countries have been included reflecting their important role in European conservation. The Russian Federation, the world's largest country, covers almost the entire North of Eurasia. Although most of its territory is situated east of the Ural Mountains – usually considered Europe's natural Eastern boundary – the whole of Russia belongs to the UN Region "Europe" and was therefore included in our analysis. Implications for potential bias are discussed in Chapter 4.

2.2.1 Protected area context and coverage

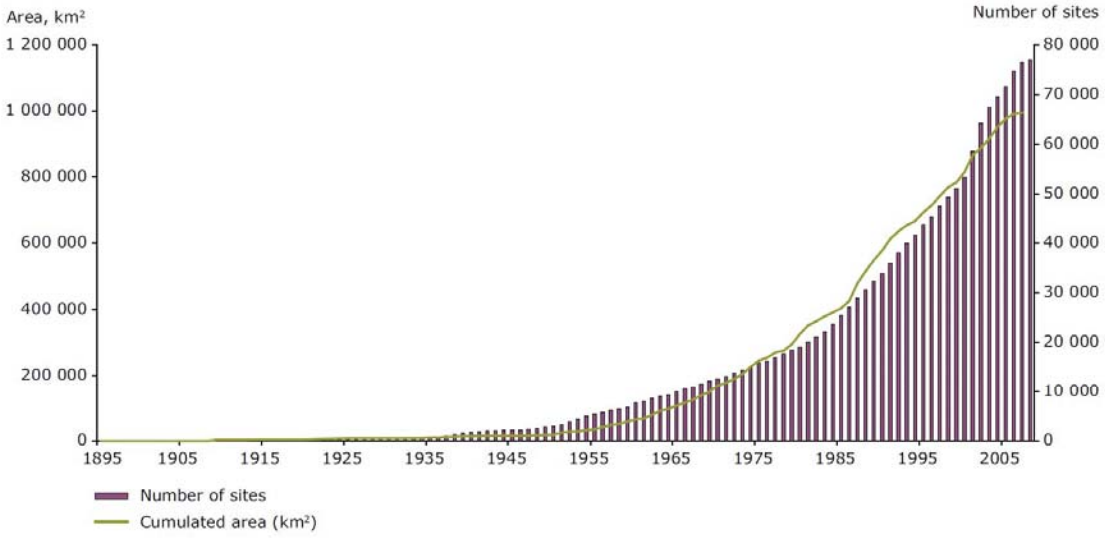
Apart from its northernmost areas, Europe is one of the most densely populated regions on the planet. For millennia, its landscapes have been shaped by anthropogenic influences, notably sedentary and increasingly intensive agricultural activities.

As a result, "undisturbed" ecosystems such as primeval forests or wilderness areas cover only a tiny proportion of the continent's surface. European ecosystems tend to be highly fragmented. A recent survey of natural areas[4] in 27 EU member states identified only

[4] Terrestrial ecosystems, based on EEA's CORINE Land Cover 2000 map (see Gaston 2008 for details)

11 patches with a surface larger than 10,000 km², as opposed to 171,000 patches with an area smaller than 1km² (Gaston *et al.* 2008).

Much of Europe's biodiversity has evolved in interdependence with human-shaped landscapes; its protection often depends on some form of active habitat management. As Gaston *et al*. (2008) put it, "rather than being foremost a matter of wildlands, conservation in much of Europe is based on the continuation of traditional land-management practices, such as grazing, hay making, burning, coppicing, and hunting" (p. 111).



Note: How to read the graph: in 2007, the total number of sites for 39 European countries in the Common Database on Designated Areas (CDDA) was 76 876, with a combined surface of 994 550 km².

Country coverage: Albania, Austria, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Monaco, Montenegro, the Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Overestimations may exist due to multiple designations for a single site but the overestimation may be offset by underestimation of the inventory because some national data sets are not complete.

Source: CDDA (Common Database on Designated Areas) version 7, 2007.

Figure 2: Growth of nationally designated protected areas in 39 European countries (EEA 2009b)

Coverage and characteristics of protected area systems in European countries reflect this overall picture. Strict protection is exercised only on a very small share of the overall surface. A GIS analysis of the 2008 World Database of Protected Areas (Table 2) indicates that, excluding Russia, about 3.3% of Europe's terrestrial surface lies within the IUCN Categories I-IV[5] (World: 5.7%), and even this number is possibly overestimated (IUCN and UNEP 2008). Many countries strongly dominated by agricultural landscapes report much smaller areas set aside for strict protection, such as Belgium (0.2%), Czech Republic (1.9%), France (1.2%), Italy (1.9%), Ireland (0.9%), Luxembourg (0.4%), Poland (1.0%) and the UK (0.8%). Table 2 also shows that with the exception of a few countries, protection of marine ecosystems generally lacks far behind the protection of terrestrial biomes (by designated area).

[5] For more details on IUCN Protected Area categories, see Dudley (2008a): note that the categories I to IV reflect different approaches to conservation rather than a hierarchy of 'better' to 'less effective' for conservation.

Table 2: Protected area coverage of European countries by category and type (IUCN and UNEP 2008)[6][7]

COUNTRY	Total terrestrial area (km²)	% IUCN I-IV (terrestrial)	% IUCN I-VI + unknown (terrestrial)	Total territorial sea area (km²) (12nm limit)	% IUCN I-IV (marine)	% IUCN I-VI + unknown (marine)
Albania	28,746.42	7.54	9.94	6,040.04	0.98	1.63
Andorra	471.87	-	6.89			
Armenia	29,685.41	7.97	7.97			
Austria	83,912.26	6.36	23.66			
Azerbaijan	86,912.26	6.13	7.21	15,412.82	2.87	2.92
Belarus	207,228.08	7.02	7.08			
Belgium	30,683.06	0.19	3.03	1,426.02	-	-
Bosnia & Herz.	51,225.16	0.33	0.49	12.76	-	-
Bulgaria	110,862.39	2.83	9.03	6,581.71	0.31	3.00
Croatia	56,855.27	1.55	8.54	31,404.38	1.03	1.84
Cyprus	9,063.03	8.94	11.20	13,633.75	0.30	0.33
Czech Rep.	77,916.90	1.95	15.47			
Denmark	45,313.01	3.12	5.12	41,701.47	3.50	3.72
Estonia	45,417.10	4.78	19.89	24,659.27	1.49	26.10
Finland	337,667.87	3.22	9.05	51,664.22	3.87	4.97
France	549,104.33	1.16	15.13	72,912.11	1.75	3.44
Georgia	69,972.01	3.61	3.61	6,271.56	0.45	0.45
Germany	357,584.17	3.52	41.16	23,287.70	33.76	36.50
Greece	133,008.99	1.78	3.85	114,031.80	2.05	2.45
Hungary	93,142.45	2.00	5.23			
Iceland	102,289.80	2.66	9.65	71,884.99	0.31	0.42
Ireland	70,123.99	0.94	0.94	39,159.10	0.14	0.14
Italy	301,333.86	1.91	8.32	155,070.32	1.63	3.08
Latvia	64,502.16	13.18	15.42	10,468.14	1.54	1.54
Lithuania	64,696.30	3.13	4.88	2,226.28	1.19	2.08
Luxembourg	2,603.08	0.38	16.30			
Macedonia	25,443.14	4.72	4.72			
Malta	324.86	10.19	10.98	3,997.53	0.24	0.57
Moldova	33,963.76	0.71	1.37			
Montenegro	13,847.44	12.20	13.38	2,316.92	-	0.85
Netherlands	35,205.30	12.35	12.35	13,844.89	21.08	21.08
Norway	325,609.94	4.75	6.15	144,202.93	0.43	0.50
Poland	311,923.25	1.01	22.12	10,652.84	0.19	4.31
Portugal	92,139.98	1.44	6.64	65,272.32	1.07	1.56
Romania	237,452.42	4.50	7.89	5,848.23	22.13	33.56
Russian Fed.	16,888,937.00	6.48	9.01	1,347,423.79	8.88	8.91
Serbia	88,509.11	1.64	2.72			
Slovakia	48,941.22	6.21	18.97			
Slovenia	20,308.55	4.16	6.55	320.70	-	0.51
Spain	507,011.05	3.30	8.57	118,864.06	1.03	3.41
Sweden	449,353.22	8.77	10.19	81,575.03	2.40	5.12
Switzerland	41,355.27	7.07	23.42			
Turkey	782,236.14	0.85	1.85	79,756.95	2.07	2.49
Ukraine	598,827.88	2.96	3.49	42,950.78	4.84	4.84
UK	246,307.53	0.80	20.33	168,295.00	0.27	3.71
	23,757,494.23	**5.55**	**9.47**	**2,773,170.42**	**5.47**	**6.38**

[6] Note that these figures are the latest available from the WDPA but may not reflect the current areas recognised by the countries.

[7] These categories are generally according to the 1994 IUCN guidelines (World Conservation Union (IUCN) 1994): some categories may change according to the 2008 guidelines (Dudley 2008b)

In contrast, many European governments seem to favour designations which tolerate or even encourage anthropogenic influence. Throughout Europe, regional parks, nature parks, landscape parks, protected landscape areas, biosphere reserves and – in some countries – even national parks are established to promote the natural and cultural identity of larger territories where biodiversity protection is integrated into sustainable land use concepts. Regional Nature Parks account for about 12% of French territory (FPNRF 2007). National Parks in Scotland, England and Wales cover 7.2%, 9.3% and 19.9% of their respective terrestrial surface (ANPA 2009). Not least for its extensive networks of nature parks and biosphere reserves, Germany heads the table of European countries with 41.2% of its territory being under some form of – often "weak" – protection, followed by Austria (23.7%) and Switzerland (23.5%).

2.2.2 Protected area governance at national levels

The natural and cultural diversity of Europe's protected areas is only surpassed by the variety of approaches to governing and managing them. With more than 40 sovereign states on the continent and a tendency to delegate responsibilities for nature conservation to lower administrative units (notably in Western Europe), shedding light on conservation planning, responsibilities and budgeting of protected areas is a relevant, albeit nearly impossible, undertaking. The authors could not identify a single attempt to synthesize major characteristics of protected area governance in all European countries[8].

While an in-depth review was beyond the scope of this study, some general patterns have been observed:

- Several countries, notably in Western Europe, have vested most **legislative and budgetary responsibilities** for nature conservation at **sub-national levels** (e.g. Bosnia & Herzegovina's *subdivisions*, Belgian *regions*, German *Länder*, Spanish *comunidades autónomas*, UK's *countries*). Protected area governance systems can vary considerably among sub-national entities, making coherent evaluation a challenging endeavour. Many Central and Eastern European countries still seem to be shaped by the legacy of centralist rule, with the national level setting the legislative frame for sub-national entities.
- Several European countries provide a legal basis for **protected area categories** which are proposed, set up and managed by **local authorities** in partnership with other stakeholders. Management tends to be locally accountable, while the contribution of national-level organizations is limited to framework legislation, coordination and capacity building (e.g. Dutch *National Parks*, French and Italian *Regional Nature Parks*, West German *Nature Parks*, Polish *landscape parks*, all Swiss Parks, UK's *Areas of Outstanding National Beauty*).
- **Protected area management bodies**, i.e. administrative entities which are responsible for direct management of a single site, exist in most European governance systems. Their establishment is usually restricted to specific protected area designations of a certain size or importance (such as national parks, nature parks, biosphere reserves or landscape protection areas). Smaller areas (e.g. natural monuments, nature reserves, Natura 2000 sites) tend to be managed by regional entities responsible for a large number of sites. A few countries (Albania, Estonia, Hungary, Latvia, Sweden) have abandoned protected

[8] The most comprehensive attempt has been carried out by Bromley (1997) who reviews nature conservation policy in the – at that time – 15 member states of the European Community.

area management bodies altogether, vesting direct management responsibilities for all protected areas at the regional level.

- Nature conservation in a number of Western European countries has been strongly shaped by **non-government organisations** (e.g. Belgium's *Natagora* and *Natuurpunt*, Dutch *Natuurmonumenten*, Switzerland's *ProNatura*, local wildlife trusts in the UK) – many of which own the areas they manage – or by partially privatized **government enterprises** (e.g. Finnish *Metsähallitus*, Dutch *Staatsbosbeheer*). In Central and Eastern Europe, NGO-run protected areas are still the exception rather than the rule.
- **Private land ownership** in protected areas is a prevalent phenomenon throughout Europe, notably in "less strictly" protected sites that allow for varying degrees of sustainable land use (e.g. agriculture and forestry). In these places, management of the competent authorities is largely through providing guidance, interpreting legislation, promoting the regional identity and/or assisting in fundraising for conservation activities. Strictly protected areas tend to be designated on land owned by governments or conservation NGOs (e.g. most National Parks and their core zones).

2.2.3 Natura 2000 in European Union member countries

Twenty-seven European countries – roughly two thirds of the countries in this study, accounting for approximately half of the European territory – are member states of the European Union. As such, they have to comply with the EU's legal framework for nature conservation, notably *Natura 2000*.

Natura 2000 is a pan-European network of protected sites, based on the European Union's Birds Directive (European Council 1979) and Habitats Directive (European Council 1992). It strives to reach and maintain what is defined as a "favourable conservation status" for over 200 habitat types and 1000 species, so that their long-term future will be secured. A 2007 WWF analysis comparing Natura 2000 and CBD PoWPA states that the objectives of both programmes are largely the same, acknowledging that the former exhibits a stricter focus on habitats and species and that in both cases, "[…] implementation remains as the key challenge" (WWF 2007:i).

Natura 2000 provides legally binding tools which require member states to designate and protect Special Protection Areas (SPAs, Birds Directive) and Sites of Community Interest / Special Protection Areas (SCIs/SACs[9], Habitats Directive). Since its inception, the Natura 2000 network has grown steadily to include, by 2009, a total of 5,174 SPAs and 21,633 SCIs, covering 10.8% and 13.3% of its member states' terrestrial surface (although overlaps are substantial). In addition, about 67,000 and 93,000 km² of member states' territorial waters have been declared as SPAs and SCIs, respectively (DG ENV 2009). *Natura 2000* sites tend to be smaller than conventional protected areas within a country. The average SPA covers about 102.6 km², and the average SCI about 30.6 km², although sites in a number of countries tend to be even smaller[10]. Overlap between existing Natura 2000 sites and other protected areas

[9] SCIs are sites whose protection has been agreed between the European Commission and the Member States. As soon as SCIs have been designated by national law, they become SACs.

[10] For example, average SCIs in Malta (1.8km²), Luxemburg (8.3km²), Czech Republic (8.5km²), Belgium (11.7km²) and Germany (11.8km²) (DG ENV 2009)

varies substantially between countries – from nearly 0% to almost 100%[11]. Figure 3 shows the spatial coverage of *Natura 2000* sites across the EU-27.

The sheer number of *Natura 2000* sites poses particular challenges to the evaluation of their management effectiveness. In order to track progress towards common targets, the European Commission has established a scheme for continuous assessment, monitoring and reporting of conservation status and measures (Article 17), presented in more detail in Section 3.4.

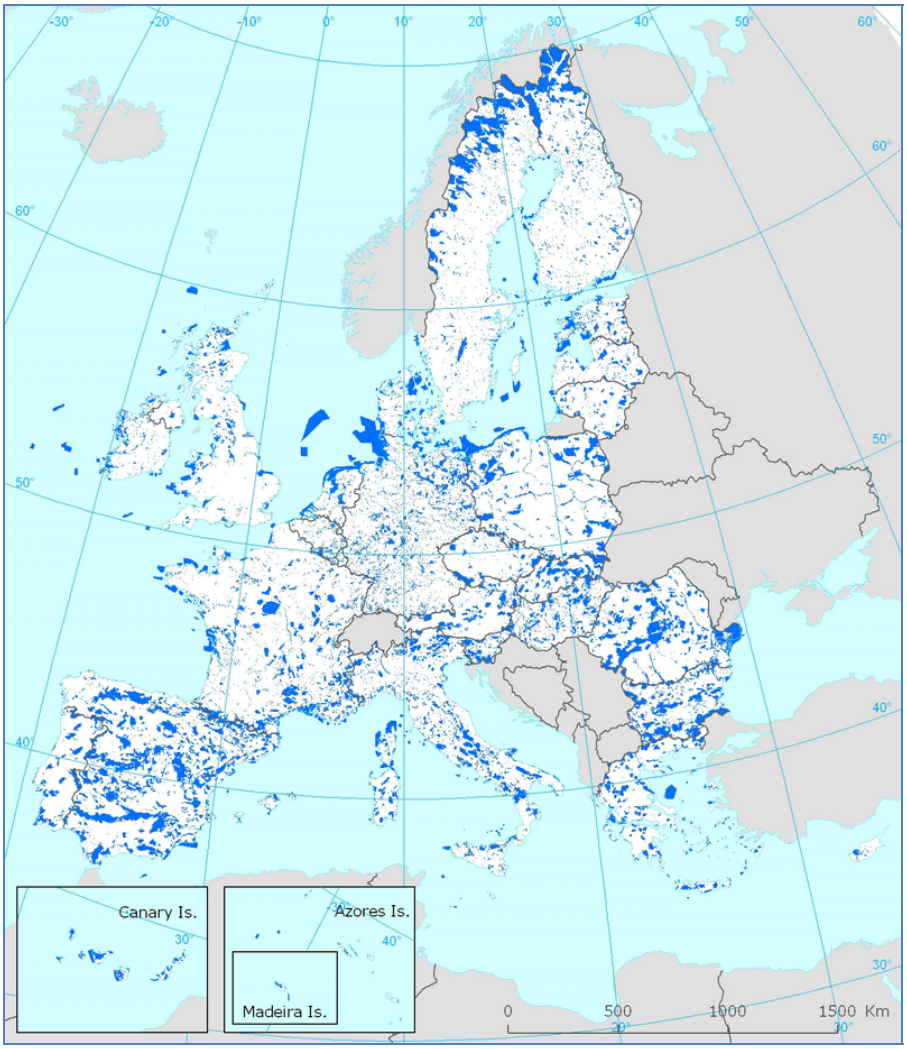


Figure 3: Map of Natura 2000 sites within EU 27 (ETC/BC 2008)

[11] "For several new EU countries, such as Latvia, Estonia and Malta, there is a very large overlap between Natura 2000 sites and national designations, as accession countries were required to integrate EU legislation into their national system. In countries such as Belgium, France, Greece, Hungary, Italy, Portugal, Romania, Slovenia and Spain, more than 60% of the surface now designated as Natura 2000 is not covered by a national instrument [...]. This is partly explained by the fact that some countries, such as France, have chosen contractual means rather than legal instruments to implement Natura 2000 at national level" (EEA 2010:7)

Chapter 3 Management effectiveness evaluation in Europe

The objectives of this study were two-fold:

- To understand where and how management effectiveness evaluation is carried out in European countries and
- To analyse assessment *results* in terms of common strengths, weaknesses and threats of European protected areas.

This chapter reports on extent, institutionalization and characteristics of existing systems. Chapter 4 then takes a closer look at the analysis of assessment *results*, based on available data and a review of relevant published and grey literature.

3.1 Data collection

Prior to the European study, a range of information on European PAME evaluation systems had already been collected in the context of the Global Study, by WWF, and during a European workshop on PAME evaluation (Stolton 2008). The European Study supplemented these sources with a systematic country-based data chasing process to make sure most European systems had been identified. This report thus incorporates data (assessment data, published and grey literature) obtained both before and after the launch of this project.

Official information requests were sent by the German Agency for Nature Conservation (BfN) to all European ministries responsible for nature conservation and by EUROPARC Federation to all of its members. In addition, the data chasing team established direct contact with government agencies, consultancies and NGOs on a country-by-country basis, taking Ministries of the Environment, CBD National Focal Points or National UNESCO-MAB Committees as preferred entry points. We also followed up with a number of individual national and international contacts, identified through personal networks and literature research. As a yardstick, we attempted to identify at least one expert who seemed resourceful and well-informed about PAME evaluation in his or her country.

Given the diversity of existing strategies and tools for monitoring and accounting in European protected area governance systems, it soon proved difficult to draw the line between what PAME evaluation is and what it is not. Although there are no hard-and-fast rules on what to include, we used the following rules of thumb when chasing data:

- We only considered evaluations that covered more than one element of the IUCN-WCPA framework. For example, our analysis excluded systems looking at ecological status and trends ("outcomes") of single sites only. Most notably, we did not explore the ways EU member states translate Natura 2000 reporting requirements into national policy (instead, an overview of Natura 2000 reporting is given in Chapter 3.4).
- We only considered evaluations which applied (or were designed for applying) the same methodology (procedure, topics and/or indicators) in several protected areas. This excluded, for example, qualitative and relatively ad hoc re-evaluations of management plans, park charters etc.

Where possible, the collected data was double-checked with country delegates attending international conferences and workshops[12]. However, information could not be triangulated in all cases. We therefore acknowledge that our approach might have missed some studies or methodologies, but are reasonably confident that we have identified most relevant evaluation work.

3.2 Extent of evaluation and institutionalization

Survey results paint a multifaceted picture of management effectiveness evaluation in European countries. We recorded national assessment systems, donor-induced evaluations and prioritizations, certification systems and scientific research surveys, each with different objectives, approaches and coverage.

Looking at individual **countries**, it is encouraging to note that the majority of European nations have had some experiences in evaluating the management of their protected areas. Roughly half have implemented assessments at the national or, as in Spain and the UK, at the sub-national level (Figure 4). Several Northern and Western European countries have developed their own evaluation systems; these tend to be institutionalized in the sense that they require regular re-assessments and are often tailor-made for different types or categories of protected areas (see also Table 6). In Central and Eastern European countries, national-level assessments are usually based on the RAPPAM methodology, often as a component of WWF's regional programmes (Dinaric Arc and Danube-Carpathian regions). Most RAPPAM studies do not state whether and when the protected area system will be evaluated again. Finally, a number of countries are in the process of developing new assessment systems, some of them being currently tested in pilot sites.

Self-assessment in Berchtesgaden National Park using the Site Consolidation Scorecard (Photo: B. Pfleger)

In addition to national-level assessments, a large number of protected areas have been evaluated with **international systems** that focus on individual sites. Among these, the globally used Management Effectiveness Tracking Tool is most widespread in Europe, particularly towards the East of the continent, its application being a requirement for funding by WWF, GEF and the World Bank. International designations such as UNESCO World Heritage Sites and UNESCO Biosphere Reserves require periodic reporting. Europe also features several regional certification systems – the European Diploma for Protected Areas, PAN Parks, the European Charter for Sustainable Tourism and EUROPARC's Transboundary Parks Programme – which involve regular re-assessments of designated sites. Two global research surveys on biosphere reserve management (GoBi Survey and Stockholm Survey) add to the picture. Finally, an important dataset has been generated by Birdlife International in the course of its monitoring of Important Bird Areas (IBAs).

[12] EUROPARC Conference 2009 (Strömstad, Sweden, Sep 9-13, 2009), this project's Mid-Term Workshop (Vilm, Germany, Nov 1-4, 2009) and a workshop on CBD PoWPA implementation in CEE countries (Vilm, Germany, Nov 27 – Dec 1, 2009)

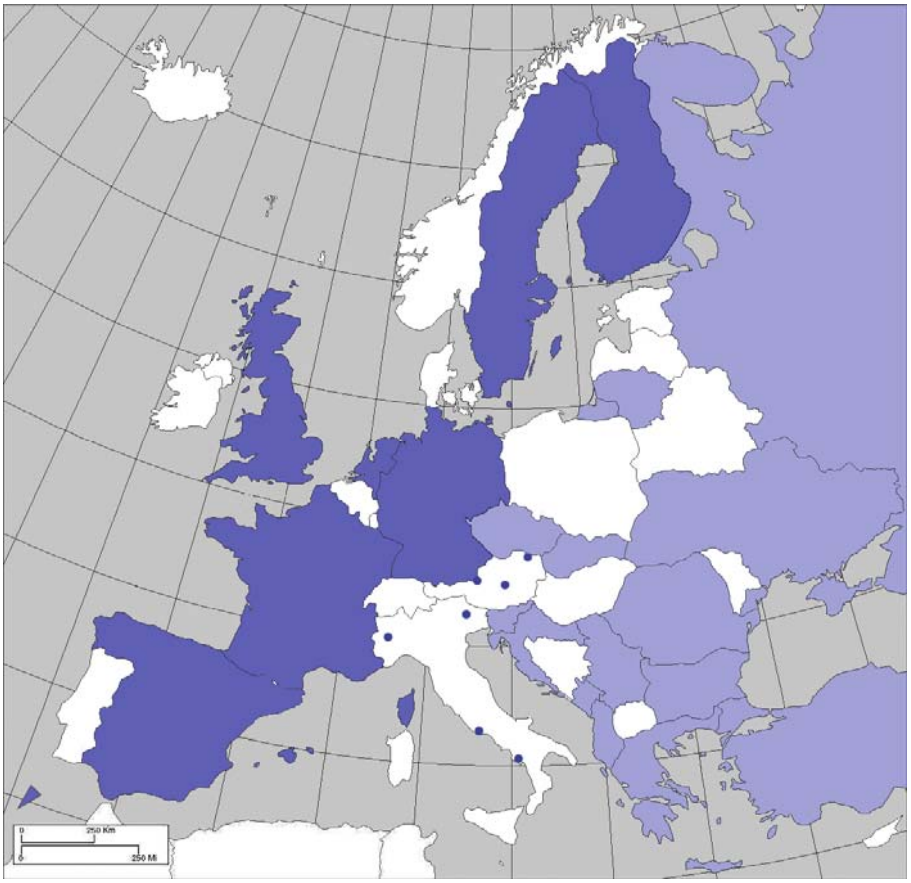


Figure 4: National / sub-national systems for PAME evaluation in European countries (terrestrial)
- dark blue: at least one institutionalized system (re-assessment scheduled)
- light blue: at least one comprehensive assessment, including RAPPAM studies
- blue dots: isolated pilot studies for national/sub-national systems

Considering both national and international approaches, we recorded a total of 1846 management effectiveness assessments for individual protected areas in European countries. Of these, 227 are repeat assessments, where the same methodology has been applied in the same protected area multiple times. It is important to note that this figure includes only identified studies which provided access to the names of individual assessed protected areas[13]. As mentioned above, we acknowledge that this information is incomplete and it is hoped that further data will be obtained over time.

[13] Most notably, this total excludes national-level assessments we identified in Finland (SoP Finland), the Netherlands (Staatbosbeheer Audit), France (French RNP), Spain (MEE Tenerife), Sweden (MEE Swedish Counties), but also Periodic Reporting on UNESCO World Heritage Sites and UNESCO Biosphere Reserves.

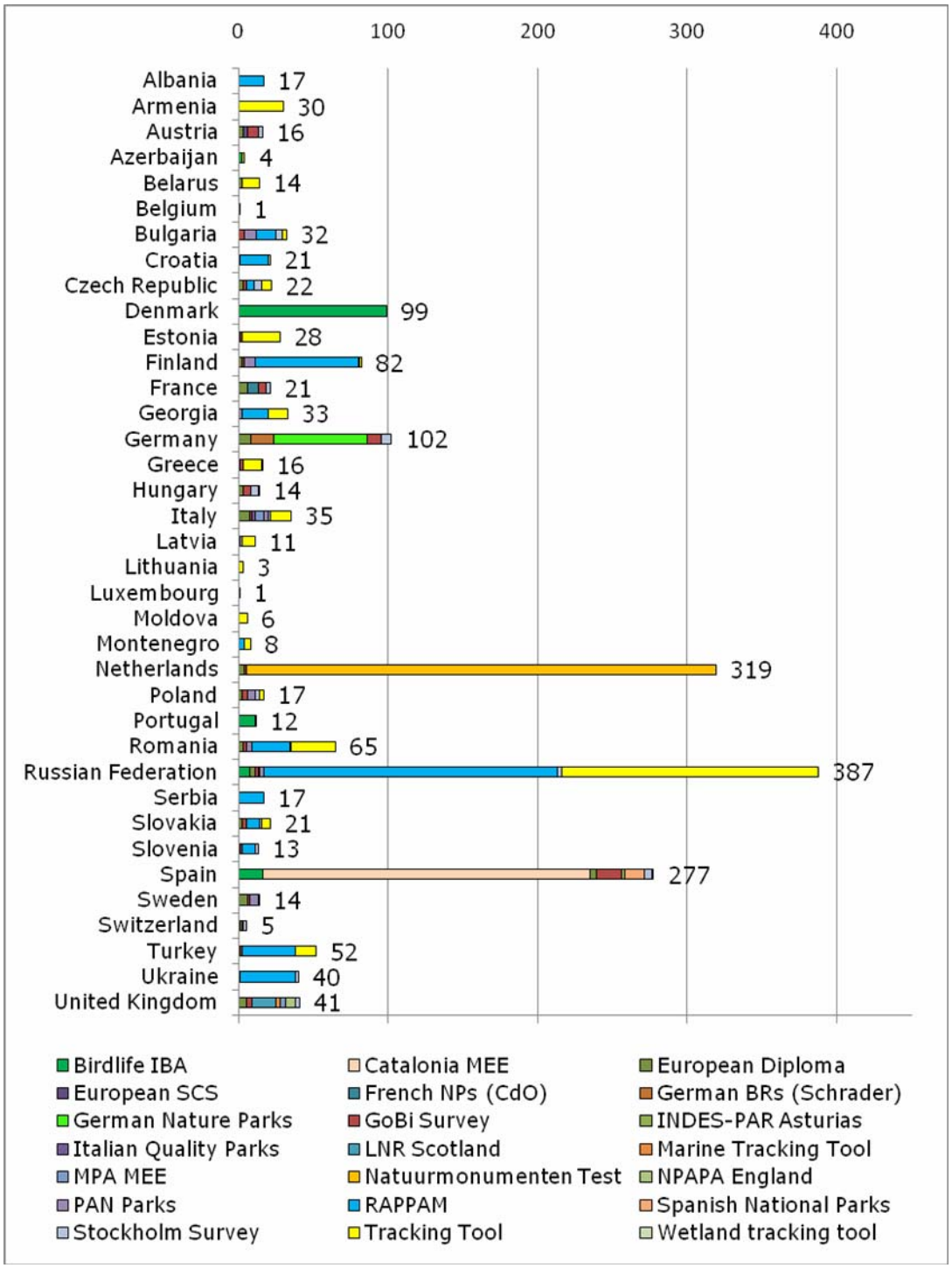


Figure 5: Number of PAME assessments (site level) recorded for protected areas in Europe[14]

As illustrated in

Figure 5, a few countries are very strongly represented in our current dataset. These include several European countries – Finland, Germany, Netherlands and Spain (Catalonia) – which have undertaken specific PAME studies with large numbers of protected areas. IBA

[14] Note that Birdlife has conducted many more assessments in Europe, but not all qualify as PAME evaluations according to our criteria for this study (ie they must assess at least 6 of the headline indicators listed in Appendix One).

monitoring of Birdlife International has had a strong emphasis in Denmark. Most Eastern European countries have undertaken assessments largely using either RAPPAM or the Tracking Tool.

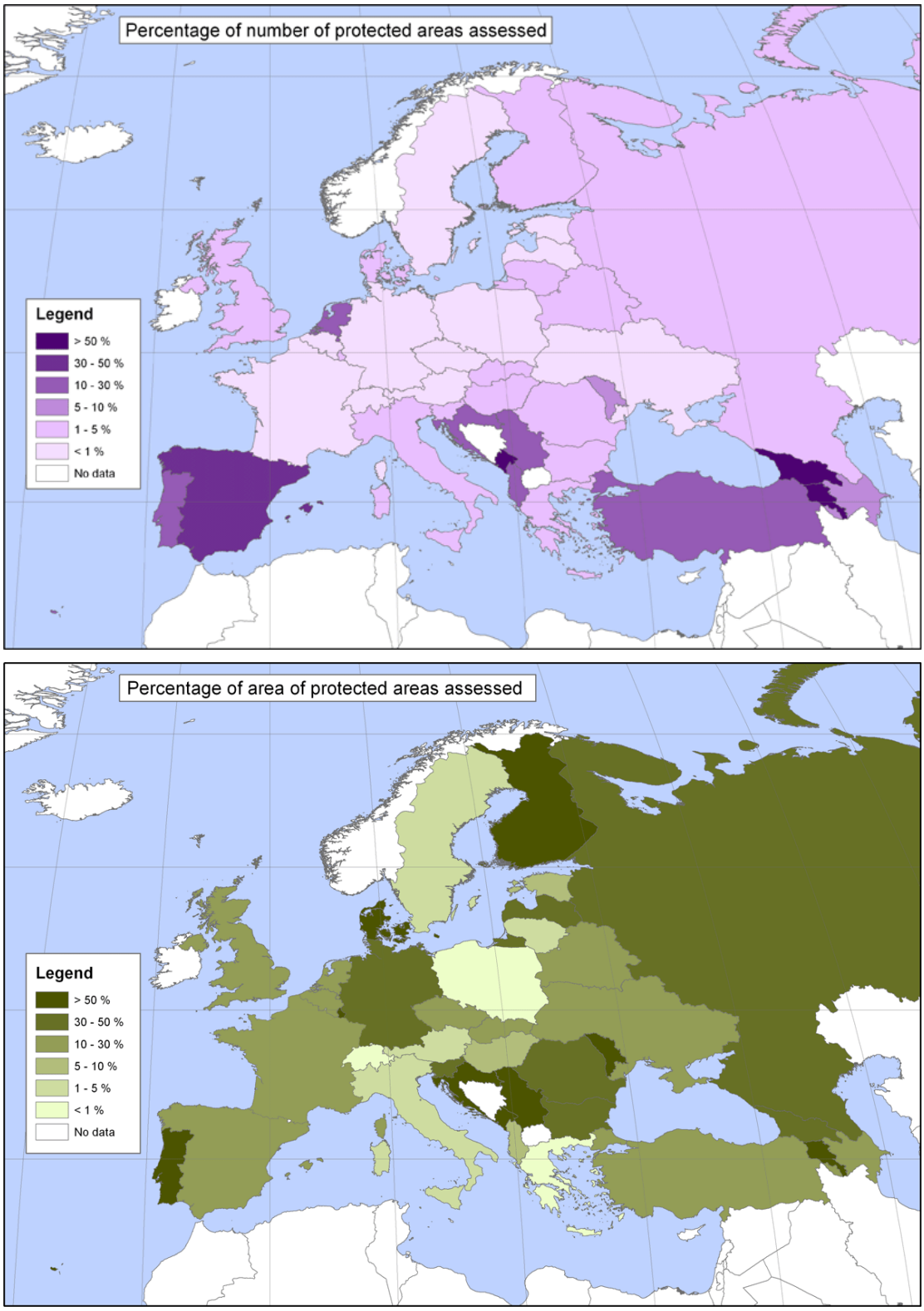


Figure 6: Percentage of protected areas assessed in European countries by number (top) and area (bottom) (Source: Management effectiveness database for evaluated sites, WDPA for total sites).

In an attempt to track progress of European countries to the CBD PoWPA target for management effectiveness assessments (evaluating 30% of terrestrial PAs by 2010) we compared the number of evaluated sites per country to the number of protected areas listed in the WDPA[15]. As the resulting Figure 6 indicates, a small number of countries seem to have achieved the 2010 target by number, but at least 15 countries have achieved the target by area. This observation, however, needs several qualifications:

- As explained above, we could only consider evaluations which disclosed the names of individual assessed protected areas. A few systems we are aware of have not been included in these maps (see footnote 13).
- "Number percentages" are strongly influenced by the actual number of protected areas reported to the WDPA by country governments, ranging from fewer than 10 (Montenegro) to more than 13,000 (Germany). This reflects a more general picture: many countries have designated large numbers of very small protected areas, while existing PAME assessments tend to focus on fewer larger protected areas (e.g. national parks, nature parks, biosphere reserves).
- Some assessments have a regional focus and are not representative for a whole country. For example, data for Spain is strongly influenced by one single study from Catalonia.

Even taking into account these limitations, our data paints an essentially positive picture: within less than a decade the overwhelming majority of countries have assessed at least some of their protected areas. This rapid growth throughout Europe is encouraging, as the relevance and added value of evaluation is increasingly recognized.

However, most European countries are likely to miss the 30% target set for 2010 for terrestrial PAs. Moreover, it seems unlikely that the 30% target set for 2012 for marine PAs will be met, as we found very few assessments for marine protected areas in Europe.

3.3 Comparison of evaluation systems

3.3.1 Overview of approaches and methodologies

About 40 different approaches to PAME evaluation have been or are being applied in European countries (
Table 3). Methodologies range from local self-assessments to evaluations of national protected area systems to international research efforts, differing widely with respect to involved actors, purpose, targeted PA categories, degree of institutionalization, assessment intensity and extent of application.

[15] Original data for these graphs are based on site-level PAME assessments recorded by the PAME database. Protected area duplicates (several assessments in one site) and academic studies (cf. Table 4) were removed from the sample. The "percentage of number" map is based on the remaining sample (1373 sites).

Surface areas of protected sites was calculated based on a) protected area surface reported in the assessment data (if available), b) protected area surface reported to the WDPA (where the site could be identified) and c) total surface of assessed sites (where available). The final dataset of 1004 sites was used to create the "percentage of area" map.

Table 3: Assessment methodologies applied in Europe (see supplementary methodology report for details)

Methodology name	**Abbreviation**	**Application**
Rapid Assessment and Prioritization of Protected Area Management (Ervin 2003b)	RAPPAM	Global
Management Effectiv. Tracking Tool (Stolton *et al.* 2007)	Tracking Tool	Global
Marine Tracking Tool (Staub and Hatziolos 2004)	Marine Tracking Tool	Global
Governance of Biodiversity Survey Greifswald (e.g. Schliep *et al.* 2008)	GoBi Survey	Global
Stockholm Biosphere Reserves Survey (Schultz *et al.* in review)	Stockholm Survey	Global
UNESCO-MAB Periodic Review (UNESCO-MAB 2002)	UNESCO-MAB Review	Global
Integrative Protected Area Management Analysis *(www.ipam.info)*	IPAM Toolbox	Global
How is your MPA doing? (Pomeroy *et al.* 2004)	MPA MEE	Global
Important Bird Area Monitoring *(www.birdlife.org)*	Birdlife IBA	Global
European Diploma of Protected Areas (Council of Europe 2009)	European Diploma	European
UNESCO World Heritage Periodic Review *(whc.unesco.org/en/periodicreporting)*	UNESCO WHS	European[16]
Protected Area Network Parks (PAN Parks 2008)	PAN Parks	European
EUROPARC Transboundary Parks Certification *(www.europarc.org/what-we-do/transboundary-parks)*	EUROPARC Transb.	European
EUROPARC European Charter for Sustainable Tourism *(www.european-charter.org)*	EUROPARC ECST	European
Carpathian Management Tracking Tool *(cpamemt.ueuo.com)*	CPAMETT	European
European Site Consolidation Scorecard (Pfleger 2007a)	European SCS	Austria
Management Effectiveness Evaluation Finland (also adapted for Lithuania) (Gilligan *et al.* 2005)	MEE Finland	Finland, Lithuania
State of the Park Assessment Finland (Heinonen 2007)	SOP Finland	Finland
Evaluation of French Regional Nature Parks (FPNR 2001)	French RNP	France
Contrat d'Objectifs (French National Parks) *(pers. comm.)*	French NP (CdO)	France
Nature Park Quality Campaign, Germany (Köster *et al.* 2006)	German Nature Parks	Germany
Quality Criteria and Standards of German National Parks (EUROPARC Germany 2008)	German National Parks	Germany
Evaluation of German BRs (German MAB Committee 2007)	German BRs (EABR)	Germany
Evaluation of German BRs (Schrader 2006)	German BRs (Schrader)	Germany
National Park Authority Performance Assessment, England (e.g. Butterworth 2008)	NPAPA England	UK, England
Evaluation of Local Nature Reserves, Scotland (Land Use Consultants 2006)	LNR Scotland	UK, Scotland
Performance and management effectiveness of national nature reserves, Scotland (Stolton *et al.* 2009)	NNR MEE Scotland	UK, Scotland
'Raising Standard' on National Nature Reserves in Scotland *(pers. comm.)*	NNR Raising Standard	UK, Scotland
Countryside management system (National Nature Reserves, Wales) *(pers. comm.)*	NNR Wales	UK, Wales

[16] For the first round of review, a European questionnaire was developed. A global system has been developed for the second round.

Quality Park Project Italy (Naviglio and Talamo 2009)	Italian Quality Parks	Italy
Monitoring and Evaluation of Protected Areas, Italy (Soffietti 2008)	MEVAP Italy	Italy
Natuurmonumenten Quality Test (Natuurmonumenten 2007)	Natuurmonumenten Test	Netherlands
Staatsbosbeheer Internal Audit *(pers. comm.)*	Staatsbosbeheer Audit	Netherlands
Alterra National Parks Evaluation (Pleijte *et al.* 2008)	Dutch National Parks	Netherlands
Situation of National Park Network (OAPN 2007)	Spanish National Parks	Spain
Catalonia Management Effectiveness Evaluation (Mallarach and Varga 2004)	Catalonia MEE	Spain
Management Effectiveness Evaluation Tenerife (García 2008)	Tenerife MEE	Spain
EUROPARC Spain Database (EUROPARC España 2008)	EUROPARC Spain DB	Spain
INDES-PAR (Asturias) (INDUROT 2009)	INDES-PAR Asturias	Spain
Evaluation of Swedish County Administrative Boards (Naturvårdsverket 2005)	MEE Swedish Counties	Sweden
SkötselDOS (Protection GIS System) *(pers. comm.)*	SkötselDOS	Sweden

In the following discussion, we group these methodologies according to a number of most relevant characteristics. For more specific information, the interested reader is invited to consult the methodology summaries in the PAME module of the WDPA[17].

3.3.2 Towards a typology of evaluation strategies

All observed evaluation systems share the ultimate goal of improving the management effectiveness of protected areas. However, they differ with respect to the strategy they choose to get there. In order to provide an overview of what is actually happening, we created and characterized clusters of methodologies which share common characteristics: stated purpose, leading agency, participating sites, target audience and use of results.

Having tested several strategies, we found it most expedient (resulting in the smallest overlaps between clusters) to group methods according to the type of leading agency, i.e. the organization which defines the minimum requirements for evaluation. Leading agencies are usually most committed to – and interested in the results of – the evaluation process. Their position in the PA governance system influences the main purpose of evaluation, the selection of evaluated sites, and the way results feed back into management.
Table 4 presents the results of the clustering exercise. While the broad pattern seems valid, boundaries between clusters are not always clear-cut and some methodologies (notably the Tracking Tool) have been used by different types of leading agencies for different purposes.

[17] WDPA Management Effectiveness Module: Methodologies (http://www.wdpa.org/me/tools.aspx)

Table 4: Leading agencies, purpose of evaluation and use of results

Who defines minimum evaluation requirements?	**What is the main purpose of evaluation? How are results used?**	**Examples of Systems** ** used in various contexts*
Overseeing authority *(agency with authority over evaluated protected areas)*	To assure that management by local entities is effective and efficient, that central policies and guidelines are well-designed, and/or that funding is appropriately allocated. *Results are often used to articulate formal agreements (action plans, improvement plans) between overseeing and local entities which are the basis for subsequent follow-ups. Participation tends to be mandatory.*	French NP (CdO) MEE Finland MEE Swedish Counties Natuurmonumenten Test NNR Scotland NNR Wales NPAPA England SkötselDOS SOP Finland Staatsbosbeheer Audit
NGO / Policy advisor *(without authority over evaluated protected areas)*	To assist in identifying strengths and weaknesses in existing PA systems, to guide in prioritization of resources and activities and/or to create awareness and build support for improved PA management. *Results are often summarized in reports and disseminated to policy makers and the public. Participation can be mandatory or voluntary.*	Birdlife IBA Catalonia MEE CPAMETT Dutch National Parks German BRs (EABR) EUROPARC Spain DB German National Parks LNR Scotland RAPPAM Spanish National Parks Tracking Tool*
Protected area management body *(site level)*	Self-assessment for adaptive management. *Results tend to be closely integrated into the PA management cycle. Application is usually voluntary.*	European SCS French RNP How is your MPA doing? IPAM Toolbox Italian Quality Parks Tenerife MEE
Donor agency	To verify whether projects have generated improvements in the recipient parks and to identify critical areas for improvement. *Participation is usually mandatory for recipients of funding.*	Marine Tracking Tool Tracking Tool*
Certification body	To award or maintain label or status. *Certification processes not only create external incentives to do better, but also help to identify areas for potential improvement. Participation is usually voluntary*	EUROPARC ECST EUROPARC Transb. European Diploma German Nature Parks PAN Parks UNESCO-MAB Review UNESCO-WH
Researcher / research team	To identify broad patterns and interdependencies between different aspects of PA management *Results are usually published in scientific literature (journals, books, theses). Participation tends to be voluntary.*	German BRs (Schrader) GoBi Survey INDES-PAR Asturias Stockholm Survey Tracking Tool*

In most methodologies, individual protected areas are the main unit of analysis, notably where the targeted protected areas categories have their own management bodies. Among the few exceptions are the MEE Swedish Counties and the Tenerife MEE (administrative units responsible for several sites) and the Natuurmonumenten Test (small sites without own

managing body). More advanced systems such as SoP Finland and the Swedish SkötselDOS collect, collate and synthesize data for multiple scales of analysis.

About half of the methodologies explicitly target only one category of protected areas (see Table 5), usually according to national or international designations (e.g. national parks, (regional) nature parks, biosphere reserves) or ownership (case of the Netherlands) rather than IUCN categories. The other methodologies focus on several PA categories at a time (e.g. system-level analyses), are not explicit with respect to targeted categories, or have been designed for a type of protected areas which is not necessarily correlated to IUCN categories (e.g. transboundary parks, IBAs).

Table 5: Protected area categories targeted by different methodologies

IUCN Categories I-IV	**IUCN Categories V-VI and Biosphere Reserves**	**Unspecific / Multiple**
Dutch National Parks	French RNP	Birdlife IBA
French NPs (CdO)*	German BRs (EABR)	Catalonia MEE
German National Parks	German BRs (Schrader)	CPAMETT
Natuurmonumenten Test	German Nature Parks	EUROPARC ECST
NNR Scotland	GoBi Survey	EUROPARC Spain DB
NNR Wales	INDES-PAR Asturias	EUROPARC Transb.
PAN Parks	LNR Scotland	European Diploma
Spanish National Parks	NPAPA England	European SCS
Staatsbosbeheer Audit	Stockholm Survey	How is your MPA doing?
	UNESCO-MAB Review	IPAM Toolbox
		Marine Tracking Tool
		MEE Finland
		MEE Swedish Counties
		RAPPAM
		SkötselDOS
* *Most French National Parks have both core zones (Category II) and buffer zones (Category V).*		SOP Finland
		Tenerife MEE
		Tracking Tool

3.3.3 Intensity and costs of assessment methodologies

When faced with the design or selection of an assessment methodology, most policy makers ask the legitimate question whether and under which circumstances evaluation will be worth the effort. Consequently, there is a high demand for information on the financial and human resources needed for implementing a particular methodology.

Unfortunately, useful information on the cost of particular evaluation systems remains scarce. Although a few studies have published data on overall cost and staff time of actual implementation[18], none distinguishes between overhead and per-site costs, differentiates between the costs of methodology development, first and repeat assessments, or relates expenses to national price indexes or protected area size. Few systems indicate how costs are distributed between evaluating agencies and the local level (e.g. staff costs). Many methodologies seem or claim to be highly flexible with respect to implementation effort, making predictions even more difficult. Furthermore, evaluation activities are so diverse (e.g. ecological monitoring, internal workshops, stakeholder workshops, peer review, expert review, field visits) that valid cost comparisons across methodologies are virtually impossible.

[18] See also Stolton (2008) for a series of questionnaires which include information on costs

Pending more detailed cost estimates, we distinguish here between methodologies which, for each site and repetition cycle, require the field-visit of an evaluation *team* ("high" intensity), methodologies for which the filling of a questionnaire (e.g. by a protected area manager) can be sufficient ("low" intensity), and the remainder of methodologies ("medium" intensity), which involve workshops or other moderate levels of input to the assessment process. In addition, we classified methodologies according to their planned or implemented cycle of repetition. Although preliminary, this categorization can provide a first rough idea of required implementation effort.

Table 6: Frequency and intensity of assessments (minimum effort per site and evaluation cycle)

	High intensity *visit of evaluation team or other intensive input*	**Medium intensity** *workshop or other moderate level of input to assessment*	**Low intensity** *questionnaire can be sufficient*
One-off *Re-evaluations not scheduled*	Catalonia MEE	German BRs (Schrader) How is Your MPA doing? LNR Scotland RAPPAM	GoBi Survey Stockholm Survey
Project (Start / Middle / End)			Tracking Tool Marine Tracking Tool
Multiannual (planned) *Re-evaluations scheduled, but not implemented*	German BRs (EABR) German National Parks NPAPA England EUROPARC Transb. INDES-PAR Asturias	Dutch National Parks European SCS German Nature Parks MEE Swedish Counties Spanish National Parks	UNESCO MAB Review World Heritage Review
Multiannual (effective) *Re-evaluations implemented (some)*	PAN Parks	Birdlife IBA EUROPARC ECST European Diploma MEE Finland Natuurmonumenten Test NNR Wales SOP Finland Staatsbosbeheer Audit	
Annual / continuous (planned)		French RNP	CPAMETT IPAM Toolbox
Annual / continuous (effective)		French NP (CdO) Italian Quality Parks SkötselDOS Tenerife MEE	EUROPARC Spain DB NNR Scotland

A cross-comparison with allows a few tentative observations:

- One-off evaluations are usually carried out by research institutions or NGOs / policy advisors. A reliance on external funding for evaluation exercises could be a reason that these organizations do not commit to mandatory re-assessments.
- Multiannual evaluations seem to be the preferred choice of certifiers and overseeing authorities. These are the only evaluations methodologies which can also exhibit "high" resource intensity.
- Annual / continuous evaluations tend to be either self-assessments by PA management bodies or involve more sophisticated (IT-based) tools for data collection (e.g. CPAMETT, SkötselDOS, EUROPARC Spain DB).

3.3.4 Data quality and access

Most evaluation methodologies have been created to suit specific needs of one or more target audiences (Table 4), geographical regions (
Table 3) and/or protected area categories (Table 5). The type and structure of the collected data is primarily shaped by these needs.

It is thus challenging to compare assessment results across methods and countries, as we attempt to do in Chapter 4. To some extent, the diversity of indicators can be overcome by mapping these to a common reporting format (see Appendix 1). However, not all methods generate site-based information in a format suitable for further analysis (quantifiable scorecard). In addition, disclosure of information is sometimes impeded by organizations' internal policies (Table 7).

Table 7: Quality of, and access to site-level data from European assessment systems (bold = methods results fed into our statistical analysis).

Site-level data	*Site scorecard exists*	*Site scorecard could be generated automatically from available data*	*Site scorecard would require additional human data handling (no site-level data or qualitative data only)*
Disclosure comparatively easy	**Birdlife IBA** EUROPARC ECST EUROPARC Transb. German BRs (Schrader) **GoBi Survey** **RAPPAM** **Stockholm Survey** **Tracking Tool** *Small number of cases/indicators* CPAMETT Dutch National Parks EUROPARC Spain DB European SCS How is your MPA doing? INDES-PAR Asturias Marine Tracking Tool NNR Scotland	Catalonia MEE MEE Finland Spanish National Parks	European Diploma French NP (CoP) German BRs (EABR) SOP Finland Tenerife MEE
Disclosure comparatively difficult / not possible	German National Parks German Nature Parks LNR Scotland NPAPA England PAN Parks	IPAM Toolbox NNR Wales SkötselDOS	French RNP Italian Quality Parks MEE Swedish Counties Natuurmonumenten Test Staatsbosbeheer Audit UNESCO-MAB Review

Given the number of assessments that have been, are being, and will be carried out within Europe, and given the increasing European and international demand for cross-country information on management effectiveness (CBD, EU Natura 2000 Network, EUROPARC), substantial resources could be saved if organizations worked on increased streamlining of data and committed to more transparency and data sharing. Implications will be discussed in the concluding chapter.

3.3.5 Key indicators: What exactly is being assessed?

The choice of indicators reflects the importance that evaluators attach to various aspects of protected area management. We compared indicators to understand which issues seem to be most relevant to European evaluators.

With more than 40 methodologies in Europe, there are thousands of indicators. To allow meaningful analysis, we mapped all indicators to the 45 headline indicators developed and used in the Global Study (see Appendix 1). Only methodologies with site-level scorecards could be considered (cf. Table 7), with the final sample contrasting 13 "purely" European systems with 24 methodologies that have been applied on other continents (15) or both in Europe and elsewhere (9).

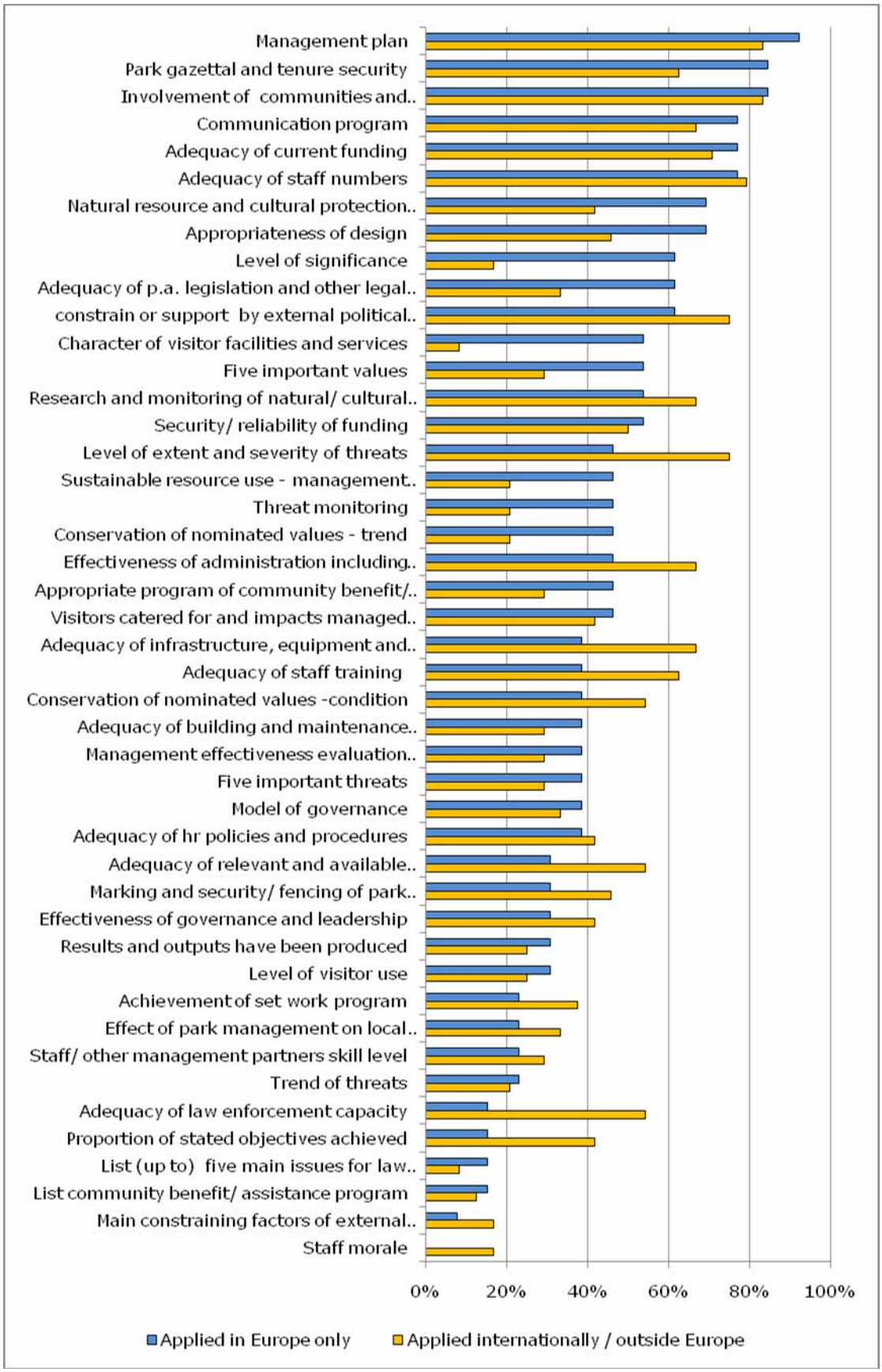


Figure 7 ranks the indicator categories according to their use in Europe. Almost all systems include questions related to the basic goal setting instrument for protected area: management

plans (e.g. existence, vision, objectives, priorities and implementation). Equally common are indicators assessing park gazettal and tenure security, involvement of communities and stakeholders (e.g. degree of participation, conflict resolution), and communication activities (e.g. public relations, education, publications, awareness, workshops, peer exchange). Finally, most methodologies consider "input" variables (adequacy of both current funding and staff numbers).

When comparing European with non-European and international assessment systems, a distinct pattern emerged. Methodologies developed and applied only in Europe (Western Europe) placed more emphasis on 1) the ecological significance of a site, 2) visitor management issues and 3) specific activities in the field of resource use and management. Methodologies developed and applied on an international level and/or outside Europe tend to look more intensively at the capacity of individual sites to cope with threats (adequacy of enforcement, HR policies, training/skills, infrastructure). This pattern became more pronounced when the comparison was made between methodologies designed and applied only in countries with a high HDI (human development index) and all remaining methodologies[19] (Table 8).

Finally, in order to determine whether different indicator categories are used for different protected area categories, we also compared indicator occurrence of four methodologies evaluating protected areas categories I to IV with six methodologies looking at protected area categories V and VI and Biosphere Reserves. Given the small sample[20], differences were less marked, but still visible. Systems looking at categories I to IV had a stronger focus on level of significance, important values and research and monitoring. Assessments of protected landscapes and biosphere reserves looked more at the effect of park management on local communities, constraint or support by external political and civil environment, threat monitoring, and the adequacy of building and maintenance systems.

[19] In addition to (West) European national systems, the category "high-HDI countries" included assessments in the US and Australia. On the other hand, cross-national European systems (e.g. CPAMETT, PAN Parks, European Diploma) were put into the "international / low-HDI" category.

[20] All other methodologies either did not target a specific protected area category (cf. Table 5) or did not provide site-level scorecards (cf. Table 7)

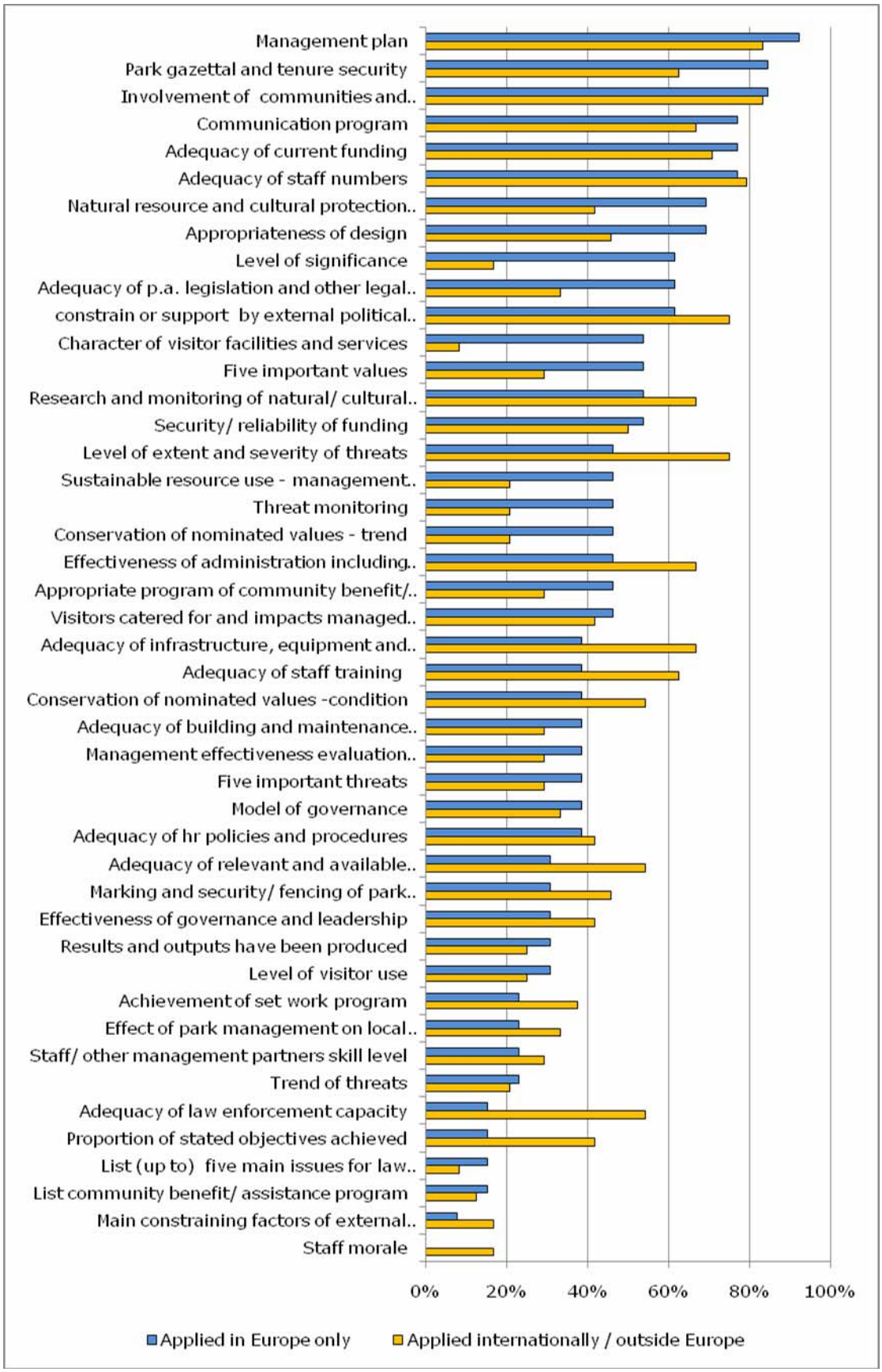


Figure 7: Categories of indicators and percentage of assessment systems which apply them.

Table 8: Indicator categories whose relative incidence differs most strongly (Top 10) between systems designed and applied in high-HDI countries vs. systems applied primarily in other countries or on an international level. (Bold: Indicator categories whose relative incidence also differs strongly (within Top 10) between European vs. non-European and international systems)

(Western) Europe, US and Australia	Other methods
Five important threats	**Adequacy of staff training**
Five important values	**Marking and security / fencing of park borders**
Level of significance	Research and monitoring of nat. / cult. Mgmt
Character of visitor facilities and services	**Adequacy of infrastruct., equipment, facilities**
Level of visitor use	**Adequacy of law enforcement capacity**
Visitors catered for / impacts managed appropr.	**Adequacy of HR policies and procedures**
Natural resource and cultural protection activities	Staff / other mgmt partners skill level
Sustainable resource use – mgmt and audit	**Level of extent and severity of threats**
Threat monitoring	**Staff morale**
Results and outputs have been produced	Management plan

Figure 8 shows the relative occurrence of IUCN-WCPA framework elements in scorecard indicators used by different assessment methodologies. Although the mere *number* of indicators does not allow direct conclusions about their relative *importance*, it provides another visual account of the diversity of assessment approaches used in Europe.

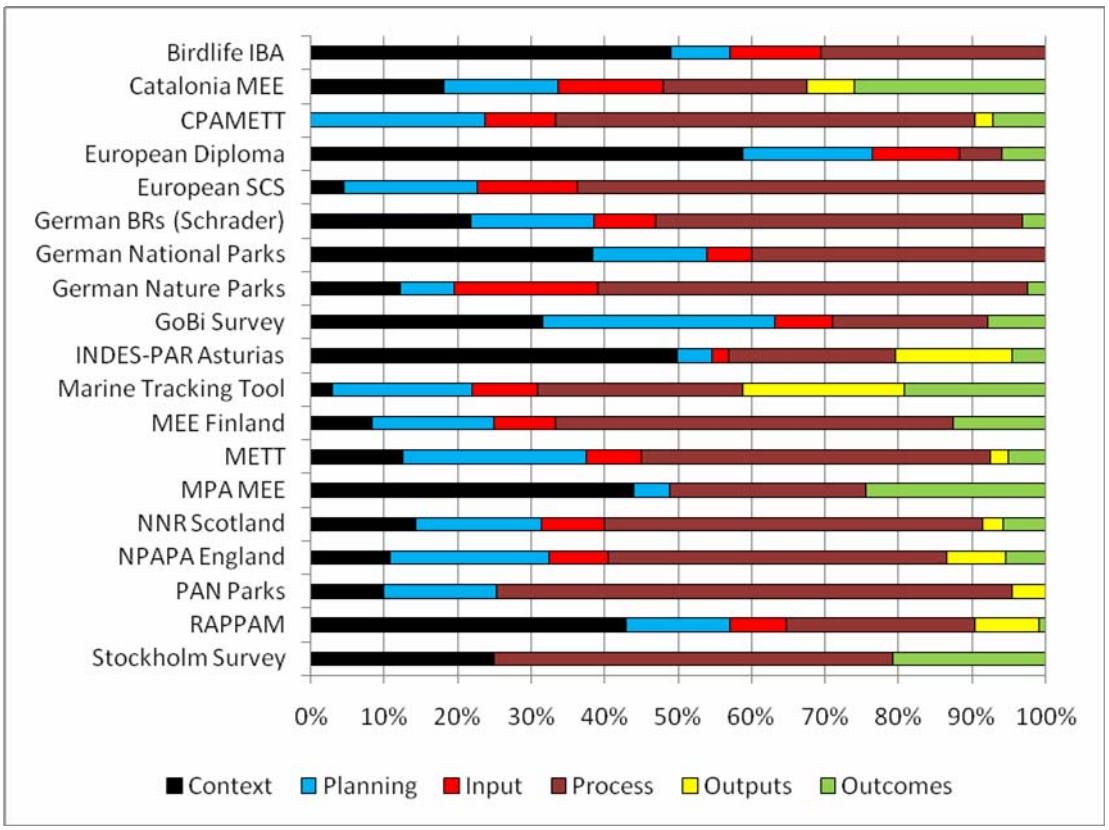


Figure 8: Occurrence of IUCN-WCPA framework elements in different methodologies (number of indicators for each framework element divided by total number of indicators).

3.4 The European Level: Natura 2000 Reporting

As mentioned in Chapter 2.2.3, all 27 EU member states adhere to Natura 2000 legislation and have committed to maintain or achieve "favourable conservation status" for all habitats and species of Community interest. In order to track progress towards this target, Article 17 of the Habitats Directive stipulates that member states have to continually assess, monitor and report conservation status of critical habitats and species (European Council 1992).

The main focus of Natura 2000 Reporting is on ecological monitoring, with the reporting process being understood as a "crucial building block for an overall biodiversity trend assessment" (DG ENV 2005:2). While the second reporting period (2001-2006) was limited to "best available data" on conservation status, more sophisticated monitoring system are expected to be in place for the third period (2007-2012). Assessment of conservation status takes into account the entire national territory and so does not only focus on established Natura 2000 sites alone[21].

With its prevalent focus on biodiversity status ("outcomes" in the IUCN-WCPA framework), its scope going beyond legally protected areas (and thus data usually not being available for the protected area level), Natura 2000 Reporting was not included in our data analysis. However, in some countries, like Scotland (Site Condition Monitoring), England (Common Standards Monitoring) and Finland (Natura site condition evaluation) the Natura 2000 sites are or will be assessed. Though this is done on a larger scale, the process does monitor effectiveness against site objectives, and several aspects indicate that synergies are possible and desirable:

The Natura 2000 Barometer monitors coverage of SPAs and SPIs in Europe (DG ENV 2009)

- With respect to site-level information, the General Reporting Format for the 2001-2006 period includes a small number of mandatory site-level indicators (existence of management plans, management bodies, other planning instruments, non-planning instruments). Reporting on other aspects of management effectiveness (conservation measures and their impact, measures to avoid deterioration of habitats, financing, monitoring, education) is possible, but optional and/or only reported for the national level.
- A main purpose of Article 17 monitoring, assessment and reporting is "assessing the effectiveness of management measures in Natura 2000 sites" and to "provide background/guidance for setting priorities in conservation policy" (DG ENV 2005:2). A main focus of the third reporting period is therefore on "the assessment of effectiveness of measures taken under this directive" (DG ENV 2005:3). At the time of writing, the European Commission had not taken a final decision on how exactly the third reporting period will look like.

[21] "To assess and evaluate the conservation status of habitats and species within the Natura 2000 network is not sufficient, especially when considering that the occurrences of most habitats and Annex II species are only partly covered by the network, and Annex IV and V species might not be covered at all." (DG ENV 2005:8)

- Since many protected areas in Europe contain Natura 2000 sites, Natura 2000 monitoring and assessment information could be used for management effectiveness assessment of such larger sites. If Natura 2000 reporting also identified protected area boundaries then this reporting could be easily adapted to CBD reporting and other projects tracking progress of protected areas.

Preliminary insights into the dimensions of current debate on Natura 2000 reporting are provided in Box 1. As they indicate, emphasis of the third report will continue to be on ecological monitoring, and individual sites are not likely to become the main unit of analysis.

Box 1: Measuring the effectiveness of the SAC component of the Natura 2000 Network

Dave Chambers, UK Joint Nature Conservation Committee

With the Natura 2000 network approaching completion, the EU Commission is now asking the following questions in order to assess the positive impact of the network on the overall conservation status of a species/habitat:

1. How important is the network for specific species/habitats?
2. Are the measures taken within the network sufficient to maintain and restore species/habitats and/or to reduce the impact of pressures/threats?

An expert group has been convened to try to work out how these questions could be answered and reported on in the third Article 17 report (period 2007-2012). The group agreed that the following parameters should be included in the reports to be compiled by each member state for each species/habitat occurring in their territory (note that the reporting parameters below only apply to SACs and not SPA).

Conservation status parameters. When assessing the conservation status of habitats, four parameters are considered. These are: range, area, structure and function (referred to as habitat condition) and future prospects. For species, the parameters are: range, population, habitat (extent and condition) and future prospects. Each of these parameters is assessed as being in one of the following conditions: Favourable, unfavourable-inadequate, unfavourable-bad, or unknown. The European Commission and Member States have agreed standards for these assessments. In addition to assessing the individual parameters referred to above, Member States are required to make an overall assessment of the conservation status of each of the habitats and species. This overall assessment is determined by reference to the conclusions for the individual parameters, and, in general, reflects the least favourable of the individual parameter conclusions.

The proportion of the total resource of habitats and species in the Natura 2000 network (proposed new addition for the third report). This is a relatively easily measurable statistic that gives a rough indication of the importance of the network for specific species/habitats (i.e. an answer to question 1 above). For example 16% of blanket bog in the UK by area occurs within the SAC network.

Information on threats/pressures. This is a standard list fully compatible to the list used by IUCN and adopted by the IUCN-WCPA Management Effectiveness framework. It is often compiled from "expert opinion", though it obviously preferable to have scientific evidence to support these judgements. Further guidance from the EU may be necessary.

Information on management measures (proposed new addition for the third report). A standard list of these will be compiled for the whole of the EU. Each of these measures will be related to one or more of the listed threats/pressures (where applicable), and whether the measure is aimed at maintenance or restoration of the feature.

An assessment of the effectiveness of the management measure (proposed new addition for the third report**).** This has not yet been specified in detail but might include an assessment of the likelihood that the measure may reduce or remove the threat and help to achieve favourable

conservation status. Note that there is some debate about whether or not the management measures assessment should be done separately for the SAC Network as compared with the whole extent of the species/habitat with the member state territory. If separate assessments were to be made for management measures within the Natura network this would require a high quality of evidence, and in many cases would have to rely on "expert judgement".

Trend for the habitat/species for range/area/population. This is an overall assessment i.e. does not specify whether this applies to inside or outside of the SAC network.

Trend for the habitat/species within the network (proposed new addition for the third report). This has been added to give a simple measure of the positive effect of the protected area network. This does require either comprehensive monitoring or a properly designed sampling programme to generate the data to enable meaningful comparisons to be made.

Many member states will struggle to provide good evidence to support the above reporting requirements and there may be a need to prioritise data collection and reporting. One possibility is to concentrate on the features reported as being in unfavourable status in the second Article 17 reporting round. In addition the "inside/outside" trend information and the proportion of the resource within the SAC network can all be used to assist prioritisation, even where these factors are assessed using "expert opinion". For example, it is probably less worthwhile investing in management effectiveness evaluation for features that have a low proportion of their population within the SAC network.

At the time of writing, many further issues need to be resolved in addition to the points noted above. These include:

- What level of evidence is required to support a link between a management measure and an outcome?
- Will the above information assist in adaptive management?
- How much "free text" detail needs to be reported to the EU?
- What is the timescale for assessing the effectiveness of management measures?
- Where more detailed PAME studies have been done for individual Natura 2000 sites, how can these results be incorporated into this relatively simplistic framework?
- Can the EU or perhaps each Member State assimilate all of the above information for all of its species/habitats to come to some valid conclusions about the overall effectiveness of the SAC network?
- What should we do about Special Protection Areas established for important bird populations?

Chapter 4 Management performance of Europe's protected areas

The previous chapter discussed where and how protected area management effectiveness is being assessed and indicated the diversity of methodologies and indicators applied across Europe. Though this diversity has advantages, it means that it is difficult to look across the different studies to determine common patterns and issues for management in the region. Until now, it has been necessary to track down and read a large number of individual reports, many of which are difficult to obtain, or to organise workshops. The need to undertake broader-scale analysis has been increasing in recent years, with information particularly required by international funding and policy organisations. In this chapter, we analyse available assessment results in order to identify patterns and trends that may provide preliminary answers to three interrelated questions:

- What are the major strengths and weaknesses of management in a region or across a particular resource type or designation (e.g. World Heritage properties)?
- What major threats at protected area and system level need attention?
- Which priority aspects of management require additional support?

It should be noted that this is not an attempt to report comprehensively on the state of protected area management in Europe overall: it is a distillation of information from those data and reports which agencies were willing to share, complemented by limited discussions with protected area managers.

4.1 Data sources and analysis

Our analysis of assessment results is based on three different types of data sources:

- A statistical analysis of raw data from evaluations (where available), which forms the core dataset on which this chapter is based
- A synthesis of assessment reports ("grey") literature) and scientific writings
- Discussions with country delegates and participants at workshops

In the following section, we describe the available data and explain how it has been analysed.

4.1.1 Statistical analysis of raw data

Data sources and quality

As discussed in section 3.1, requests were made to a range of individuals and organisations for management effectiveness information, including raw data. In spite of the protocols for data use in the project[22], sharing of such information is problematic for many agencies as there are concerns about political sensitivity and misuse or misinterpretation of results. Most of the raw data were contributed by non-government organisations and externally-funded projects rather than from agency-developed methodologies.

[22] The global study and the European study into management effectiveness both avoid using data to criticise agencies or to compare performance among protected areas or countries. We report only aggregated data, and confidentiality agreements are respected.

Raw data with adequate information for statistical analysis[23] was available for 1023 of the 1846 assessments recorded for Europe in this study (Table 9). These studies were separated into older iterations where there have been repeat studies (107) and "most recent" assessments. The two Biosphere Reserve Surveys (Stockholm and GoBi) totalling 178 assessments were not included in most of the analyses. This was because Biosphere Reserves are not strictly protected areas and the data relates partly to buffer zones which include surrounding towns and productive lands. Many of the analyses were conducted only on the remaining 738 "most recent" studies.

Table 9: Total number of assessments with site-level data. Repeat assessments in brackets after total

	RAPPAM	**Tracking Tool**	**Birdlife**	**Stockholm Survey**	**GoBi Survey**	**Total**
Albania	18					18
Armenia		30				30
Austria				4	6	10
Azerbaijan		2	2			4
Belarus		8 (3)				8
Bulgaria	13	3		4	8	28
Croatia	19			1		20
Czech Rep	5	6 (3)		2	10	23
Denmark			88 (47)			88
Estonia		25		1		26
Finland		1		2	2	5
France				5	6	11
Georgia	18	6 (1)				24
Germany				9	14	23
Greece		2		2		4
Hungary				5	10	15
Italy		14		2	2	18
Latvia		7		1	2	10
Lithuania		2				2
Moldova		6				6
Montenegro	4	4				8
Netherlands				1		1
Poland		3		4	6	13
Portugal			9			9
Romania	25	25 (2)		2	2	54
Russian Fed.	196	158 (41)	7	1	6	368
Serbia	16					16
Slovakia	9	6 (1)		3	2	20
Slovenia	9			1	4	14
Spain			16	17	10	43
Sweden		1		1		2
Switzerland			1	1	4	6
Turkey	33	11		1		45
Ukraine	37				4	41
UK				4	6	10
Total	**402**	**320**	**123**	**74**	**104**	**1023**

[23] Assessments populating less than six headline indicators (see next section) were excluded for reasons of statistical validity

Statistical analysis

Cross-analysing results obtained from different methodologies is challenging due to the use of different indicators and scoring systems. To bring all data into a common scale and language, we used the technique developed by the Global Study in MEE (Leverington *et al.* 2008, Leverington *et al.* in review) which

- converts all scores to a zero to one scale;
- allocates each indicator to one of 45 headline indicators of a "common reporting format", designed to represent the wide range of questions asked in the different methodologies. (see Appendix 1); and
- translates the results into scores from zero to one for the headline indicators as appropriate.

Translation of raw data into the common reporting format enables cross-analysis but inevitably leads to a loss of the "richness" in data, especially information obtained from more detailed studies. People interested in more detail should consult the original reports.

Further details of this technique are provided in Appendix 1.

Meaning of headline indicator and average scores

The scores are derived totals from a number of methodologies. By translating the ratings used in different methodologies to a figure between zero and one, the scores reflect a continuum from no management at all to reaching the highest standards. The lowest third of this continuum (below 0.33) means that protected area management is likely to be seriously constrained. Scores between 0.33 and 0.67 indicate that while basic management is in place, considerable improvement is still needed. As most scores fall in this category, we further split this into those between 0.33 and 0,5 (basic but with significant deficiencies) and those between 0.5 and 0.67. Generally a "sound" level of management would begin at a score of around two-thirds (0.67). Scores above this mean that the area is being managed relatively well. These cut-offs are compatible with the meanings described in the individual methodologies.

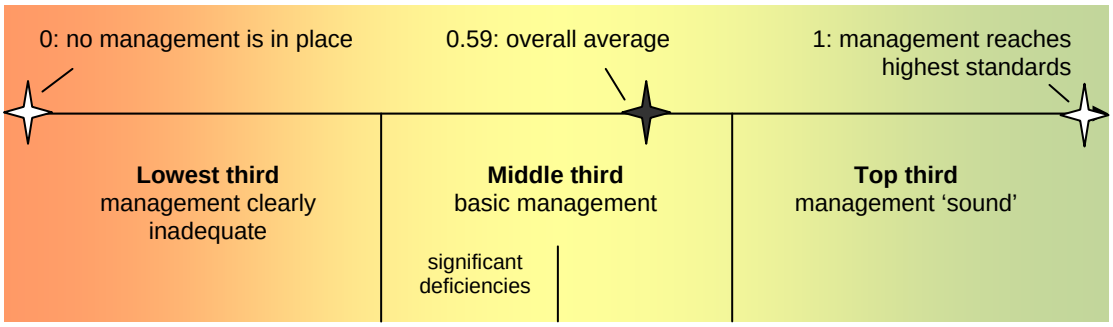


Figure 9: Meaning of average scores

4.1.2 Reviewing reports and literature

To complement and help interpret the transformed raw data, academic papers and management effectiveness reports were collated and analysed. Assessment reports are useful as they interpret raw data, put it into context, and often make specific recommendations for improving management.

Of all the methodologies, RAPPAM provided the richest and most consistent MEE reports across most countries, at both protected area and system level. Some national protected area assessments, such as those conducted in Finland and Lithuania, also produce excellent and informative reports with discussion and recommendations, and other assessments provide some information on the internet. The review of English national park authorities provides a good management overview (Solace Enterprises 2006), with further information on biodiversity conservation outcomes and issues (English National Park Authorities Association 2009).

However, reports are not produced for all MEE methodologies. Agency assessments are often reported only internally and informally, with results being immediately discussed and incorporated into management actions. Tracking Tool assessments are applied on an individual park basis and do not usually result in overview reports. In some cases quite detailed information is provided on individual protected areas, but with hundreds of these studies available, an analysis was beyond the scope of this study.

Reports we reviewed are listed below. We summarised the key points – strengths, weaknesses – in a consistent manner and then analysed them for common patterns and variations. Some provided only contextual information, but for those reports marked with an asterisk we noted each element which was specially mentioned as a strength or weakness and then counted these.

- The results of a workshop on management effectiveness in Europe held in 2008 (Stolton 2008) which included an outline of a number of management assessment processes including brief outlines of results from a RAPPAM in Georgia (Ravovska and Belokurov 2008) and the MEE study in Catalonia* (Mallarach 2008).
- Reports of RAPPAM studies in Albania* (Diku *et al.* 2008), Bulgaria* (WWF 2004), Croatia* (Porej and Rajković 2009), the Czech Republic*, (Ervin 2004b), Montenegro* (Stanišić 2009), the Russian Federation* (Tyrlyshkin *et al.* 2003), Romania* (Stanciu and Steindlegger 2006), Serbia* (Piscevic and Orlovic-Lovren 2009), Slovakia* (Ervin 2004a) and Slovenia* (Kus Veenvliet and Sovinc 2009).
- System and site-level studies commissioned by governments in Finland* (Gilligan *et al.* 2005, Heinonen 2006) and Lithuania* (Ahokumpu *et al.* 2006) and conducted by NGOs in Greece (ARCHELON *et al.* 2005).
- A summary report from a detailed assessment of five marine protected areas in Italy (Franzosini 2009).
- Reports for nature reserve systems in Scotland (Land Use Consultants 2006) and national parks in England* (Lloyd *et al.* 2005, Solace Enterprises 2006, English National Park Authorities Association 2009) and other individual park reports.
- A report looking at marine protected area effectiveness in the UK* (Gubbay 2005).
- Academic writings including a discussion about management effectiveness in marine protected areas in Greece (Togridou *et al.* 2006), England (Jackson and Gaston 2008) and more generally about Europe (Gambino *et al.* 2008, Gaston *et al.* 2008).
- A study of three protected areas in Austria and Germany using the modified Site Consolidation Scorecard methodology (Pfleger 2007b, Pfleger *et al.* 2009).

4.1.3 Reliability and validity

When considering the results presented in this report, the reader should be aware of the following constraints:

- We have considered only information that is available from studies already conducted. This data is heavily biased towards Eastern Europe, where many of the studies have been undertaken by non-government conservation organizations because the protected areas concerned were considered to be particularly vulnerable or where the protected area systems are currently being revitalised. There has been no attempt to moderate these results: they reflect the picture of the available assessments.
- Statistical analysis is conducted only on the assessments for which we have been provided with usable raw data, which total less than 50% of the known assessments and are heavily biased towards assessments conducted by NGOs in cooperation with protected area agencies and towards three (of about forty) assessment methodologies applied in Europe.
- As discussed above, most of the information in this report is derived from score-card assessments, and scoring may vary depending on the point of view and knowledge of the evaluators.
- The information content of the headline indicators varies widely: some methods ask numerous questions about one broad topic such as community involvement, which are then combined into only one headline indicator, while other methods have only asked one question relating to this topic. This also means that the original weighting systems of the methodologies are often not reflected in our analysis.
- The methodology for combining and cross-analysing data is the best available to look across the diversity of methodologies, but we recognize the imperfections, and the fact that data collected by different methodologies may not always paint the same picture of a protected area. While the combined information gives us some useful ideas about trends, strengths and weaknesses, comparison of countries or sites using this method is not recommended.
- Reports can help to put the assessment results into context by providing anecdotal evidence on protected area governance issues in individual countries. However, as these issues can vary widely between countries, they are not necessarily raised in other country reports. Cross-country comparisons can quickly become a challenging endeavour.

4.2 Overall effectiveness of assessed sites

To obtain a general baseline picture of management effectiveness, information for the "headline indicators" for management effectiveness was combined across all available data sets[24]. Over 738 "most recent" assessments in Europe[25], the mean score was .56 on a zero to one scale (see **Fehler! Ungültiger Eigenverweis auf Textmarke.**), compared to an international average of .53 (over 3184 assessments).

[24] Some of the headline indicators are qualitative in nature, and some have not been assessed sufficiently to be included in the analysis.

[25] These statistics exclude the biosphere surveys

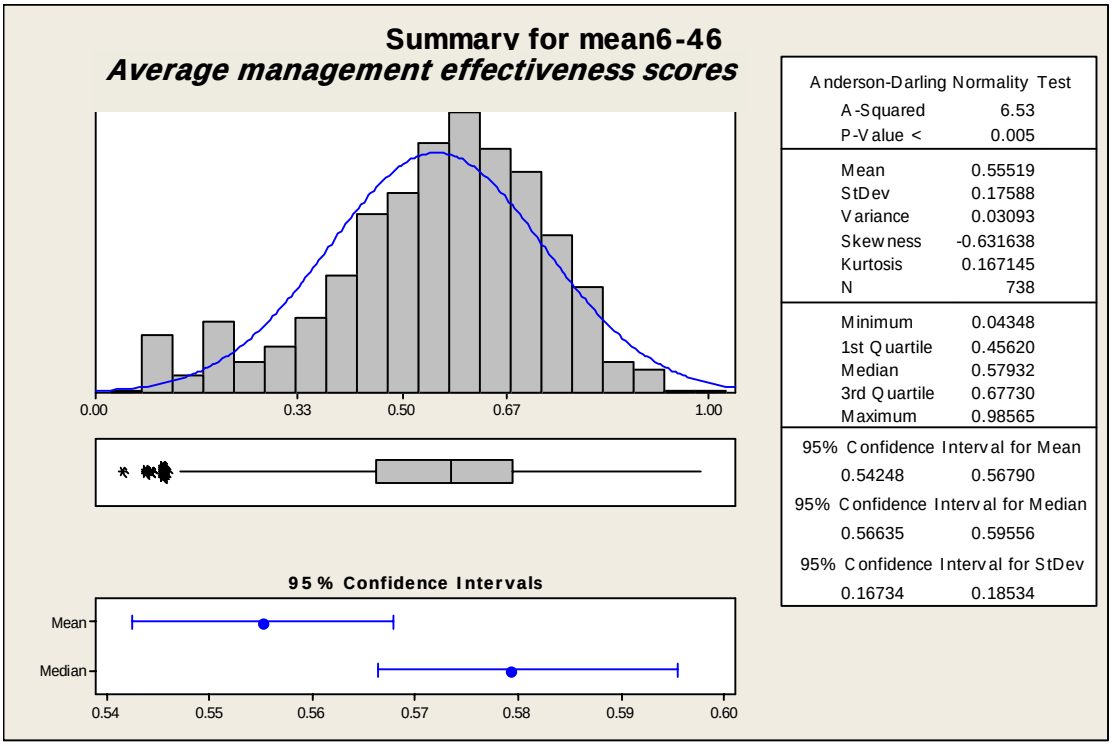


Figure 10: Average management effectiveness scores for 738 assessments

In Europe 222 assessments (nearly a third of the total) fall within the "sound" range with more than .67 average; while 82 (one in nine) can be classified as "clearly inadequate" with less than .33 (Table 10).

Table 10: Range of scores

Assigned rating	Score range	Number of assessments	Percentage of sample
Clearly inadequate	<.33	82	11%
Basic management with significant deficiencies	.33-.5	161	22%
Basic management	.5-.67	273	37%
Sound	>.67	222	30%

There is a significant difference when the scores are analysed according to the subregion in which the assessments occured Table 11: those from the Western Asian region are much lower than all other areas, as shown in (Kruskall-Wallis test, H = 94.91, DF = 4, P = 0.000).

Table 11: Mean scores according to UN subregions

UN subregion	Number of assessments	Average mean score	Median
Eastern Europe	464	0.57	0.59
Northern Europe	77	0.59	0.57
Southern Europe	95	0.63	0.66
Western Asia	101	0.38	0.37
Western Europe	1	0.57	0.57

There is also a clear difference when the scores are analysed according to the Human Development Index of each relevant country (Kruskall-Wallis test H = 27.55 DF = 1 P = 0.000): countries with a high HDI score significantly higher (Table 12).

Table 12: Mean scores according to HDI

HDI	Number of assessments	Average mean score	Median
High	235	0.61	0.61
Medium	479	0.52	0.56

When we look at the methodologies for which we have results, including the Biosphere Reserve surveys, there is also a difference between mean scores (Kruskall-Wallis test H = 68.19 DF = 4 P = 0.000), with Birdlife, GOBI and RAPPAM scoring more highly than the other methodologies. The lower scores for the Tracking Tool can be explained by the fact that this has been mostly used in Europe for assessments of protected areas receiving international funding, especially in relation to Global Environment Fund projects. The first assessments of these protected areas tend to be poor, and the scores in the Caucasian countries have been very low. The low scores for the Stockholm Biosphere Reserves may be due to methodology and scoring issues.

Table 13: Mean scores from five different methodologies

Methodology	Number of assessments	Average mean score	Median
Birdlife IBA	76	0.60	0.62
GoBi Survey	74	0.60	0.61
RAPPAM	402	0.58	0.60
Stockholm Survey	104	0.46	0.47
Tracking Tool	260	0.50	0.53

4.3 Strengths and weaknesses of management

4.3.1 Headline indicator scores

To determine patterns of strengths and weaknesses in protected area management, we looked at patterns in the headline indicator scores derived from the raw data and in MEE reports, and supplemented the information through workshops and literature review.

Figure 11 shows average scores across the 738 "most recent" assessments for each "headline indicator" in descending order[26]. Table 14 lists the scores, record numbers and standard deviations[27].

[26] None of the methodologies include indicators relevant to all the headline indicators, so the number of records for each varies. In addition, some records are blank.

[27] The Standard Deviation indicates the how widely the values in the data are dispersed: the bigger the standard deviation, the more the values vary

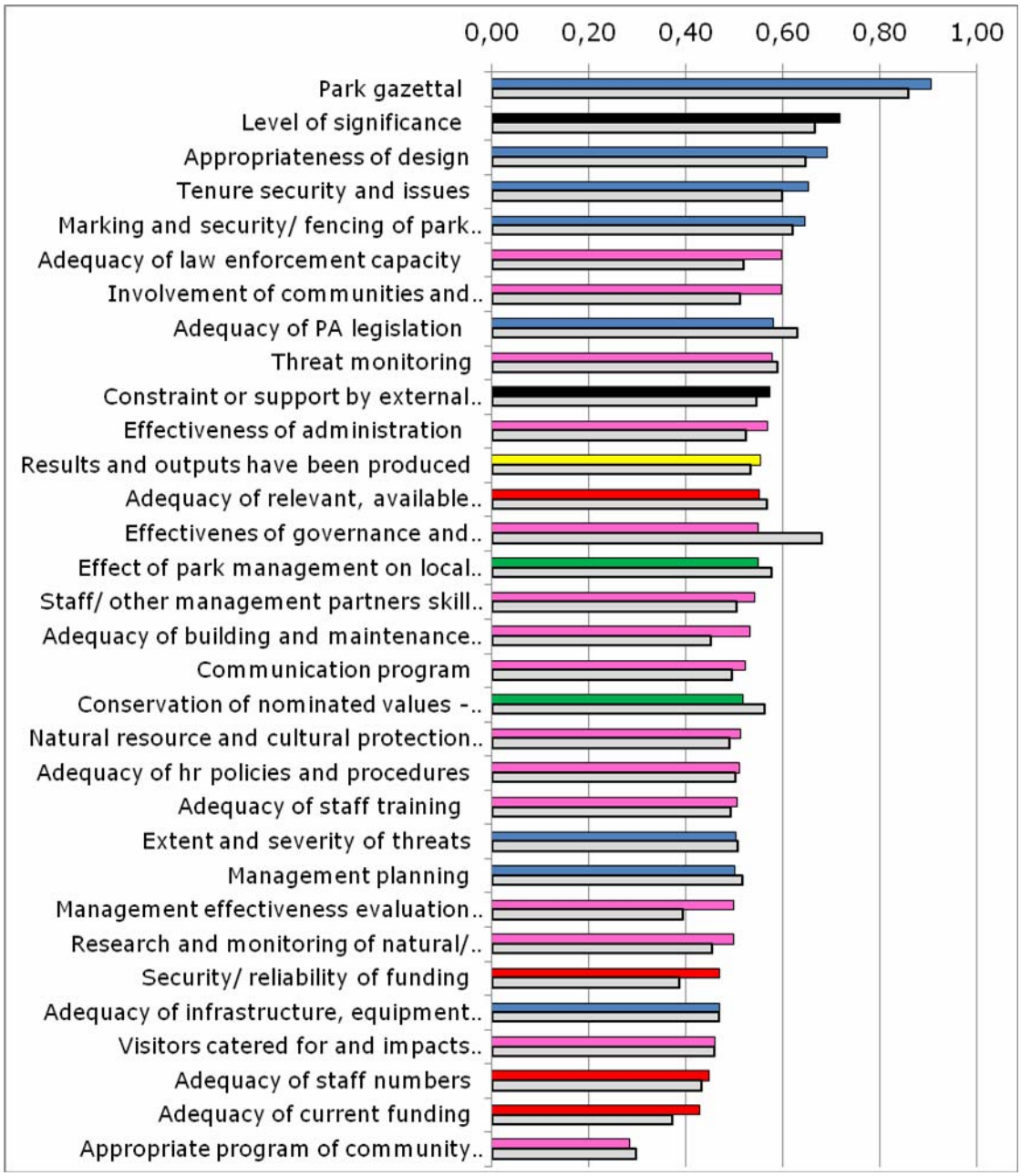


Figure 11: Average management effectiveness scores (zero to one scale) from "most recent" European studies (top line) with international averages below for comparison (black: context, blue: planning, red: input, pink: processes, yellow: output, green: outcomes).

Table 14: Scores of headline indicators in descending order (scores on a zero to one scale) using the same colour scale as above

Headline indicator	N	Mean	StDev	C	P	I	PR	OP	OC
Park gazettal	738	0.90	0.21						
Level of significance	402	0.72	0.13						
Appropriateness of design	658	0.69	0.22						
Tenure security and issues	402	0.65	0.37						
Marking and security/ fencing of park boundaries	662	0.65	0.32						

Headline indicator	N	Mean	StDev	C	P	I	PR	OP	OC
Adequacy of law enforcement capacity	661	0.60	0.28						
Involvement of communities and stakeholders	387	0.60	0.22						
Threat monitoring	182	0.58	0.24						
Adequacy of PA legislation	108	0.58	0.22						
Constraint or support (external political & civil environment)	501	0.57	0.29						
Effectiveness of administration inc financial m'ment	661	0.57	0.27						
Adequacy of relevant, available information for management	712	0.55	0.28						
Effectiveness of governance and leadership	108	0.55	0.35						
Results and outputs have been produced	181	0.55	0.28						
Effect of park management on local community	582	0.55	0.29						
Staff/ other management partners skill level	401	0.54	0.28						
Adequacy of building and maintenance systems	651	0.53	0.32						
Communication program	661	0.52	0.27						
Conservation of nominated values -condition	290	0.52	0.35						
Adequacy of staff training	455	0.51	0.28						
Adequacy of hr policies and procedures	548	0.51	0.21						
Natural resource and cultural protection activities	644	0.51	0.25						
Extent and severity of threats	76	0.50	0.29						
Management planning	738	0.50	0.30						
Management effectiveness evaluation undertaken	165	0.50	0.29						
Research and monitoring of natural/ cultural management	572	0.50	0.28						
Security/ reliability of funding	457	0.47	0.31						
Adequacy of infrastructure, equipment and facilities	653	0.47	0.26						
Visitors catered for and impacts managed appropriately	657	0.46	0.30						
Adequacy of staff numbers	661	0.45	0.29						
Adequacy of current funding	655	0.43	0.28						
Appropriate program of community benefit/ assistance	200	0.28	0.38						

The patterns of strengths and weaknesses are generally similar to the larger international data set of management effectiveness (3083 assessments) (Leverington *et al.* in review), though the European data scores higher across almost all headline indicators. Exceptions are the indicators relating to level of threat and to the effect of park management on the local community, where the European average is below the international average. These scores imply that threat levels for the assessed protected areas are serious, and that there are more negative effects on communities than the international average.

In the following section, we make some brief observations about these patterns, discussing the headline indicators grouped into the WCPA framework elements (context, planning, inputs, processes, outputs and outcomes). We first discuss stronger elements and then proceed to the weaker elements. As well as the average scores presented above, we indicate how many of the 15 reports we reviewed specifically mention the headline indicator as strong or weak.

4.3.2 Stronger elements

Planning

The "planning" element includes design and legal status of the protected area, as well as its progress in management planning. All indicators in this group scored highly except for management planning, a pattern similar to that in other parts of the world.

The highest-scoring headline indicator overall is that relating to **park gazettal**, (.90). Of 15 reports summarised for this study, eight rated the legal status of protected areas as a strength. It might also be assumed in methodologies where this indicator is not assessed or reports where it is not discussed, it is because strong gazettal status – a foundation step in park management – is taken for granted. For example in most highly developed countries a protected area will only be included in an official system once its gazettal and legal security issues have been resolved.

Protected area legislation (mean .58) was also considered to be a strength in many countries. For example, in Albania "… there is a general agreement that PA-related laws complement PA objectives and promote management effectiveness and national policies promote sustainable land management" (Diku *et al.* 2008:16). In Slovakia, laws and regulations for the protection of biodiversity were regarded as an important strength of management. However, some workshop participants expressed concerns about the relevance and strength of legislation. Though Eastern and Central European countries often have very recent legislation, in some countries legislation relating to protected areas is old and not relevant to today's issues and challenges (workshop results). Overlapping and confusing legislation, policies and responsibilities of different levels of government were common drawbacks of protected area management. In the Czech Republic, it was noted by a participant that issues were "not the legislation itself, but the multiple and conflicting interpretations by national and municipal governments and administrators" (Ervin 2004b). A possible conclusion from discussions on this topic in reports and at workshops could be that more centralised systems of protected area management are more easily able to ensure consistent legislation. Where there is a variety of protected area governance, greater attention needs to be paid to ensure consistency in integration and application of legislation.

The strength and relevance of EU legislation and policy in relation to establishment, protection and management of Natura 2000 is making a very significant contribution to biodiversity conservation in Europe (Donald *et al.* 2007, Pullin *et al.* 2009) and was regarded by workshop participants as the strongest and most influential legislation for protected areas in Europe (workshop results). Countries preparing to join the EU must work on the identification of Natura 2000 sites and be prepared to implement the Habitat and Birds Directive before, or on, joining. In spite of this, there remains some confusion about the status of Natura 2000 sites as protected areas, except where they are clearly included in protected areas under country legislation.

Also related to legal status are indicators reporting on **tenure issues** and the extent to which there are disputes over land rights. This indicator is evaluated on average as just below the 'sound' range (.65) and resolution of tenure may be taken for granted in some countries. Montenegro, for example, scored its protected areas highly in terms of establishment, legal security, tenure resolution and boundary marking (Ervin 2004a, Stanišić 2009).

However, where tenure is mentioned in reports, it is usually a problem: it is noted as of significant concern in studies in Albania, Croatia, Bulgaria, Serbia, Russia and Slovakia (Tyrlyshkin *et al.* 2003, Ervin 2004a, WWF 2004, Diku *et al.* 2008, Piscevic and Orlovic-Lovren

2009, Porej and Rajković 2009). Land use change is also mentioned as a threat in several of these countries. Tenure issues relate to conflicts over land ownership and use rights, and are particularly common in places where protected areas are newly established or where there have been changes in political arrangements, country laws and land distribution.

In such cases, though protected areas are gazetted, they may not be in land registers, there are local and regional disputes with a range of organisations, and there is a lack of compensation for local people. In some countries there are significant issues with the church, as many protected areas have been established on church land (Piscevic and Orlovic-Lovren 2009, Porej and Rajković 2009). With the end of communist regimes, the re-allocation of land within protected areas to private owners can cause confusion and brings threats of land-use changes (Ahokumpu *et al.* 2006). Areas under contention can also become targets for land speculation, exacerbating the conflict (Ervin 2004b). Boundary marking is a related issue in some of these cases (Diku *et al.* 2008). In Croatia, the problem is that protected areas are not entered into the land registry and this causes serious problems with regard to unsettles disputes about land tenure and use rights (Porej and Rajković 2009).

Clarity of national borders and learning to manage protected areas across these borders is also important. In Slovenia for example, more than half the protected areas are in border regions, illustrating the important of transboundary management cooperation (Kus Veenvliet and Sovinc 2009).

Design of protected areas rates in the 'sound' range (.69) and is regarded as a strength in most of the reports we reviewed. However, this may reflect a bias towards larger areas in the assessments. Six countries report weakness at the level of protected area system design, with mention of a lack of connectivity and coordination between authorities. In Catalonia, about 19% of sites surveyed had low levels of connectivity (Mallarach 2008). As discussed in Section 2.2.1, the small size and fragmentation of protected areas in most of Europe is a major obstacle to their effective management (Gaston *et al.* 2008, workshop results).

Management planning scored lower (average .50) than other "planning" elements and was reported as a weakness in seven countries and as a strength in only three. Workshop participants felt that even where there are management plans, they were often considered inadequate and not based on good scientific data and processes. They are not always relevant to current issues and tend to be too long and use too much jargon (workshop results).

More management plans are now being developed, but where protected area systems are newly established or rapidly expanding, it is difficult to keep up with the resource-intensive task of participatory management planning for each park (Kus Veenvliet and Sovinc 2009). Management planning for numerous Natura 2000 sites is also a resource-intensive requirement. Outside consultants can be used to speed the preparation of plans but though these plans are professional, this means that the organisation does not accumulate the knowledge and experience (Ahokumpu *et al.* 2006).

In England, management plans were in place for all national parks and were actively used in management and community partnerships. However, it was recommended that they need to be meaningful to staff and partners and to ensure they are realistic and deliverable (Solace Enterprises 2006) .

Outcomes

The most important, but also most challenging, aspect of assessing protected area management is to evaluate whether their **values are being conserved**. Much of the site-level monitoring within European Union countries is being conducted in relation to Natura 2000

sites. This is generally not reported at protected area level and so is difficult to interpret for the purposes of this project. The contribution of the Natura 2000 program to biodiversity conservation was confirmed by a quantitative study which found that bird conservation has been enhanced by the establishment of protected sites under the Birds Directive (Donald *et al.* 2007). Data in our study was based on scorecard responses, some of which were based on the results of monitoring programs and others on expert opinion, so the reliability of the data may be questioned. However, a recent study in Australia showed that managers' judgments on ecological condition and threats were consistent with the results of more detailed assessments in the majority of cases, and where managers assessments differed from the quantitatively assessed condition, managers tended to be slightly pessimistic (i.e. the measured condition was better than the manager's assessment) (Carly Cook, *pers. comm., 2010*).

Conservation of values is rated as strong in seven of the 15 reports reviewed and weak in only one, and the indicator scores a mean of .66. This indicates that protected areas are generally considered by people involved in assessments to be maintaining their values in spite of high levels of threats and insufficient resourcing. This indicator is not measured by the RAPPAM methodology; results from both Tracking Tool and Birdlife IBA surveys were both positive.

There are indications that the level of remoteness and lack of accessibility of protected areas often results in better environmental protection. In Finland, for example, protected areas in the northern part of the country scored more highly than those in the south (Gilligan *et al.* 2005), and in Albania the highest scores are attributed to remoteness (Diku *et al.* 2008).

In Lithuania the MEE report concludes that "the system provides very positive outlook for the conservation of natural and cultural heritage, as well as for sustainable rural development. Key values of the protected areas are maintained and are still at a high level" (Ahokumpu *et al.* 2006). Many tracking tool assessments in the Caucasian countries scored very poorly for this indicator and have resulted in a lower average mean across Europe. The assessments refer to human impacts and to poor management of wildlife populations.

More evidence-based results in relation to protected area condition are available for a few protected area systems. The Catalonian study found that in 52% of the assessed protected areas the key habitats and species were stable or improving, and that these outcomes were more closely related to the level of threat than to management actions (Mallarach 2008). In England 25% of the national park area has been declared as SSSIs (Sites of Special Scientific Interest, which are also Natura 2000 sites). Of these, monitoring shows that 26% (71,235 ha) are in favourable condition, 59% (162,519 ha) are currently in unfavourable but recovering condition and 16% (43,634 ha) are in unfavourable and not recovering/declining condition. These figures all improved between 2007 and 2009 – in particular there was an increase of 14% in those which were in unfavourable but recovering condition (English National Park Authorities Association 2009). One constraint with the recovery was the slow rate of improvement of wetland ecosystems. In Wales, 57% of their Natural Nature Reserves were in either favourable or recovering condition (Countryside Council for Wales 2010).

One caution in interpreting this data – as with most other ecological trend information – is that studies are based on comparisons with relatively recent data, before which many species have already been lost (Gaston *et al.* 2006). Recent analysis in England showed that there was limited ability to predict the condition of any given site by looking at any other variables. However, generally protected areas in unfavourable condition tended to be larger in area, located at higher elevations, but in areas of higher human population density and more isolated from units of the same habitat. (Jackson and Gaston 2008).

Though data is very limited, assessment of **impacts of protected area management on local communities** (.55) are also weakly positive. There is little discussion about this aspect of management in the reports. In Catalonia, 74 per cent of the protected areas had positive impact on local economies (Mallarach 2008).

4.3.3 Weaknesses, challenges and constraints

Inputs

The weakest element in this analysis is 'inputs' including indicators of resourcing – financial, staffing, equipment and infrastructure and information. The average score of all input indicators was .50.

Within this group **adequacy of information** scored higher (.55) than other indicators. In the 15 reports reviewed, information was listed as a strength by only three countries and as a weakness by five. Workshop participants agreed that communication of relevant information to management may often be a greater issue than the absence of data. In Serbia, it was noted that there were comprehensive lists of natural and cultural resources for all protected areas (Piscevic and Orlovic-Lovren 2009). In Lithuania, questions at both site and system-level indicated that information had been adequate for the "set-up" phase of the protected areas system, but was not adequate for good planning and management. In addition, a better system for recording and accessing data was needed (Ahokumpu *et al.* 2006) The point was echoed in a number of RAPPAM reports, that even where monitoring and research were conducted, park staff had trouble accessing data and information relating to management.

Adequacy of **current funding** (.43) and **reliability of funding** (.47) were rated very poorly overall and, though some areas are well-resourced, workshop participants reported that in some European countries the funding of protected areas is in crisis. Security of long-term funding was assessed as a weakness in almost all the studies we reviewed. Generally workshop participants suggested that the funding situation had improved where the EU has become involved in supporting protected area management. As in many central and eastern European countries, the report from Lithuania notes that resources "have increased substantially during the transition period, and EU-funds and projects have played important role in capacity building and equipment purchasing" (Ahokumpu *et al.* 2006).

Some protected area systems have very poor or no state funding: in these systems those protected areas supported by international funding are much better resourced. In a review of findings of Greek protected areas undertaken by a coalition of NGOs, state funding was seen to be clearly inadequate, and had led to the abandonment of critical protection activities (ARCHELON *et al.* 2005).

Financial resources and staffing were listed as obstacles to better management by all the national park authorities in England, with a concern that funding arrangement could mean that current standards will not be upheld in the future (English National Park Authorities Association 2009) and all participants in the Catalonian assessment agreed that protected areas were underfunded (Mallarach 2008).

"Process" indicators specifically related to distribution of funds are also rated as a weakness in individual assessments: for example there are recommendations that administrators should approve budgets much earlier in the year. In some reports issues relating to generation and retention of funds by local areas are mentioned. In other cases this administration is

considered to be strong – for example in Slovenia it is mentioned that all protected area funds are managed according to strict accounting standards (Kus Veenvliet and Sovinc 2009).

Staffing (.45) is a generally weak indicator. Thirteen of the 15 reports mentioned inadequate staff numbers, and none mentioned staffing as a management strength. The related process indicators of staff skill levels (.54) and training (.54) and of human resource policies (.51) also showed need for improvement. For example, in Albania, recruitment and retention of employees is considered difficult due to poor working conditions and inappropriate remuneration (Diku *et al.* 2008). In Croatia, the numbers, training and working conditions of staff were considered to be much more significant problems than funding or information (Porej and Rajković 2009). Staff numbers were also a problem in some Slovenian parks, and though the skills were adequate, there was again concern about poor working conditions (Kus Veenvliet and Sovinc 2009). Staff numbers, training and conditions were considered a weakness in Slovakia (Ervin 2004a), in Montenegro, where the main problem is lack of key technical staff (Stanišić 2009), in Serbia (Piscevic and Orlovic-Lovren 2009) and in Bulgaria, where high quality staff were "emotionally motivated" but conditions and salaries generally poor (Ervin 2004a).

In Lithuania, though staff numbers were not adequate, the external reviewers noted that staff motivation, commitment and also professionalism in many cases were very high (Ahokumpu *et al.* 2006). Some issues were recorded in English national parks, but overall staff morale was high and staff well trained and committed (Solace Enterprises 2006).

The need for better specialised staff and more specialised knowledge and training was mentioned in several countries (Tyrlyshkin *et al.* 2003, Stanciu and Steindlegger 2006, Ravovska and Belokurov 2008, Piscevic and Orlovic-Lovren 2009).

Infrastructure and equipment were also rated relatively poorly on average (.47), and the process indicator relating to maintenance also needs improvement (.53). In Slovenia, infrastructure generally was considered to be good or very good, but tourism infrastructure was inadequate (Kus Veenvliet and Sovinc 2009).

Processes

Indicators relating to the "process" of management ranged from strongly positive (adequacy of law enforcement and effectiveness of administration) to very weak (programs of community benefits). Most processes in Europe score higher than the international average.

Though **law enforcement** rated .60 on average, this data mostly related to questions about the overall ability of the protected area to protect its values from illegal activities. Where law enforcement also considered the adequacy of staff and systems, it rated more poorly, and was mentioned as a weakness of management in seven of the 15 reports (and as strength in only two). In Scotland, involvement of the police greatly assists in protected area law enforcement (Jill Matthews, *pers. comm., 2009*). Law enforcement was considered a significant weakness in Croatia (Porej and Rajković 2009).

Effectiveness of administrative systems (scoring an average of .57) was reported as strong in nine reports, and as weak in three. Generally this aspect of management is relatively strong, though distribution of finances is sometimes problematic (workshop results). Good and transparent decision-making is mentioned in a number of reports (Piscevic and Orlovic-Lovren 2009).

Governance issues including leadership, coordination and the relationship between park management and other agencies were rated in only a small sample of recent tracking tools

from Eastern Europe and the Caucasians, and averaged .55. However, these issues were often mentioned in reports as requiring improvements. In England, the analysis of National Park Authority performance suggested that more consistency in governance among the various authorities would be advantageous (Solace Enterprises 2006).

Involvement of communities scored .60 and improvement would be beneficial to overall management. In England, involvement of local communities is seen as strength, with good participation by volunteers, but the report mentioned this sector could be expanded to promote greater understanding and education among a wider audience, including those from urban areas, ethnic minorities and young people (Solace Enterprises 2006). In Scotland, experience shows that community members are not particularly interested in high levels of involvement unless there are negative issues they feel strongly about (Jill Matthews, *pers. comm., 2009*). The report from the Czech republic also mentions that attendances at meetings are often low (Ervin 2004b).

Communication also shows need for improvement (.52). It was mentioned that though information centres, brochures and signs are often well done, other aspects of communication – genuine community engagement and conflict resolution – are often very weak (workshop results). For example, in Germany, training and capacity of staff in communication and negotiation skills is often a major obstacle to improving community relations, though park interpretation and educational program are strong. Most staff come from a strongly scientific background and do not have the ability or motivation to undertake community engagement and conflict resolution (Gisela Stolpe, *pers. comm., 2009*). In Lithuania local participation at the park level is mainly based on personal contacts and good will and again the need is recognised for social research and concerted efforts to improve public perception of protected areas (Ahokumpu *et al.* 2006).

Three important aspects of **resource management** are also just in the medium range: threat monitoring (.58), natural resource and cultural protection (.51) and research and monitoring (.50). In Russia, the long tradition of scientific research in strict nature refuges is being complemented by new technology (Tyrlyshkin *et al.* 2003). In Croatia and Montenegro, research efforts into natural systems and species are positively viewed but there is inadequate research into social and economic factors (Porej and Rajković 2009, Stanišić 2009). Social research in the Czech republic was also very weak (Ervin 2004b).

Communication of research and monitoring, and their incorporation into management planning, appear to be consistent weaknesses. For example, in Serbia the main problems observed were the lack of cooperation between researchers and managers, with lack of feedback and transparency and weak initiatives from protected areas themselves for the implementation of research (Piscevic and Orlovic-Lovren 2009).

Threat monitoring was noted as a weakness in the Czech republic, meaning that "when threats occurred, they were 'a surprise', and therefore they were forced to be reactive rather than proactive in mitigating threats" (Ervin 2004b).

Existence of management effectiveness evaluation systems scored poorly overall (.50). In some part of Europe there is a lack of a "feedback culture" and a reluctance to report on bad news (Bernd Pfleger, *pers. comm., 2009*) However, this aspect of management is rapidly improving. The Programme of Work on Protected Areas has stimulated a high level of investment in assessments of some countries while other countries (such as UK, Italy, Finland and Germany) are attempting to make evaluation a core aspect of protected area business.

Management of visitors and their impacts is an important issue in protected area management in Europe, as recreational impacts and developments associated with tourism

are significant threats to biodiversity (Pullin *et al.* 2009), especially in the Alps and Black Sea bioregions and in the Mediterranean, which is the world's most important tourism destination (EEA 2009a). The visitor management headline indicator scored quite weakly (.46) and may not be adequately addressed in management plans. However, professionals felt that in many part of Europe visitors are generally well managed and provided for (workshop results). In Montenegro visitor management was considered adequate (Stanišić 2009), but in Slovakia facilities were considered inadequate and were not managed by the park agency (Ervin 2004a) and in Bulgaria were generally inadequate (WWF 2004). The PAN Parks certification scheme, focussing especially on sustainable tourism within protected areas, has been established by WWF (PAN Parks Foundation 2008) but only covers 10 protected areas at this stage and is unlikely to be applicable to the bulk of protected areas in Europe. This is because standards that are applied in terms of minimum sizes of protected areas eligible for certification in a scheme which aims to help protect wilderness areas in Europe. Issues in relation to tourism are further discussed later in this chapter.

In the five Italian marine parks surveyed, visitor information and communication scored highly, but the control and management of visitors and waste was in need of improvement (Franzosini 2009).

In other protected area systems, visitors are well catered for and there is a longer tradition of visitor facilities and interpretations. For example, in England there are some 75 million visits to National Parks every year (English National Park Authorities Association 2009) and there is no mention in reports of visitor management being a particular problem.

Appropriate program of community benefits was the weakest scoring indicator overall (.28). This indicator very weakly in the large data set from Russia and the Caucasians, so this score may not reflect a widespread characteristic of management.

Context

Constraint or support by the external community and systems scored just in the positive range (.57), reflecting a range of questions about the support of communities and external environment. However, a lack of community support is often mentioned as an issue in management effectiveness reports.

The RAPPAM study in Albania identified the lack of support and conflicts with local community as a significant concern (Diku *et al.* 2008). In Slovakia, the lack of support from communities was considered to be primarily due to the lack of involvement of communities and former landholders in the establishment and management of the protected areas (Ervin 2004a): this issue is closely related to the questions of land tenure and disputes.

In Catalonia, positive changes in the attitude of local communities were being observed in 43% of protected areas (Mallarach 2008).

Threat severity and extent: The low average score for this indicator (.50) – indicates a high level of threats to protected areas, but most of the data relating to this indicator has not yet been compiled. The report from Croatia mentions that freshwater and marine protected areas have a much higher threat level than terrestrial areas (Porej and Rajković 2009), a fact which reflects a global trend (Dudgeon *et al.* 2006). The major threats to European protected areas are discussed in the next section.

4.3.4 Strengths and Weaknesses: Conclusion

The data and reports reviewed in this chapter emphasise that protected areas in Europe are regarded as an important resource and that serious efforts are being made to strengthen their management and improve capacity, especially in the Eastern European countries where EU support is vital.

However, very few indicators are positive (i.e. within the sound range on average), and those that are mostly relate to the establishment of the protected areas, e.g. gazettal, design and legislation. Averages were substantially lowered by scores from the Caucasian countries, where a number of conservation projects are just beginning and will hopefully result in greatly improved management.

Almost all aspects of management score, on average, as having only basic management, and many show significant deficiencies. As discussed earlier, these average results may reflect the fact that data was not available for many of the countries in Europe with better resourced protected areas. However, available reports and workshop discussions indicate that many concerns are shared across Europe.

Management aspects of most concern overall include:

- the level and security of funding, which underlies many other issues
- staff numbers, training and capacity, including the capacity to engage with local communities and to deal with integrated park management
- visitor and tourism management
- tenure resolution (in some countries only)
- provision of benefits to local communities
- specific natural resource management activities
- meaningful management plans

These weaker areas of management all relate strongly to the capacity of protected areas to adequately respond to existing and emerging threats, which are discussed in the next section, Suggested responses to the current situation are reviewed in section 4.5

4.4 Threats

The available MEE evaluations (data and reports) from Europe were analysed and all information on threats in protected areas was collated into the standard classification of threats developed by IUCN and the Conservation Measures Partnership (Salafsky *et al.* 2008). This classification lists several "layers" of threats from general to specific. Forty evaluations were included in this analysis (cf. Appendix 2 for full list). Of all the methodologies used in Europe, RAPPAM incorporates the most detailed study of pressures and threats, followed by the Tracking Tool and Birdlife methodologies. As with the rest of our dataset, most of the evaluations containing information on threats are from Central and Eastern Europe with only a few evaluations covering Western European countries.

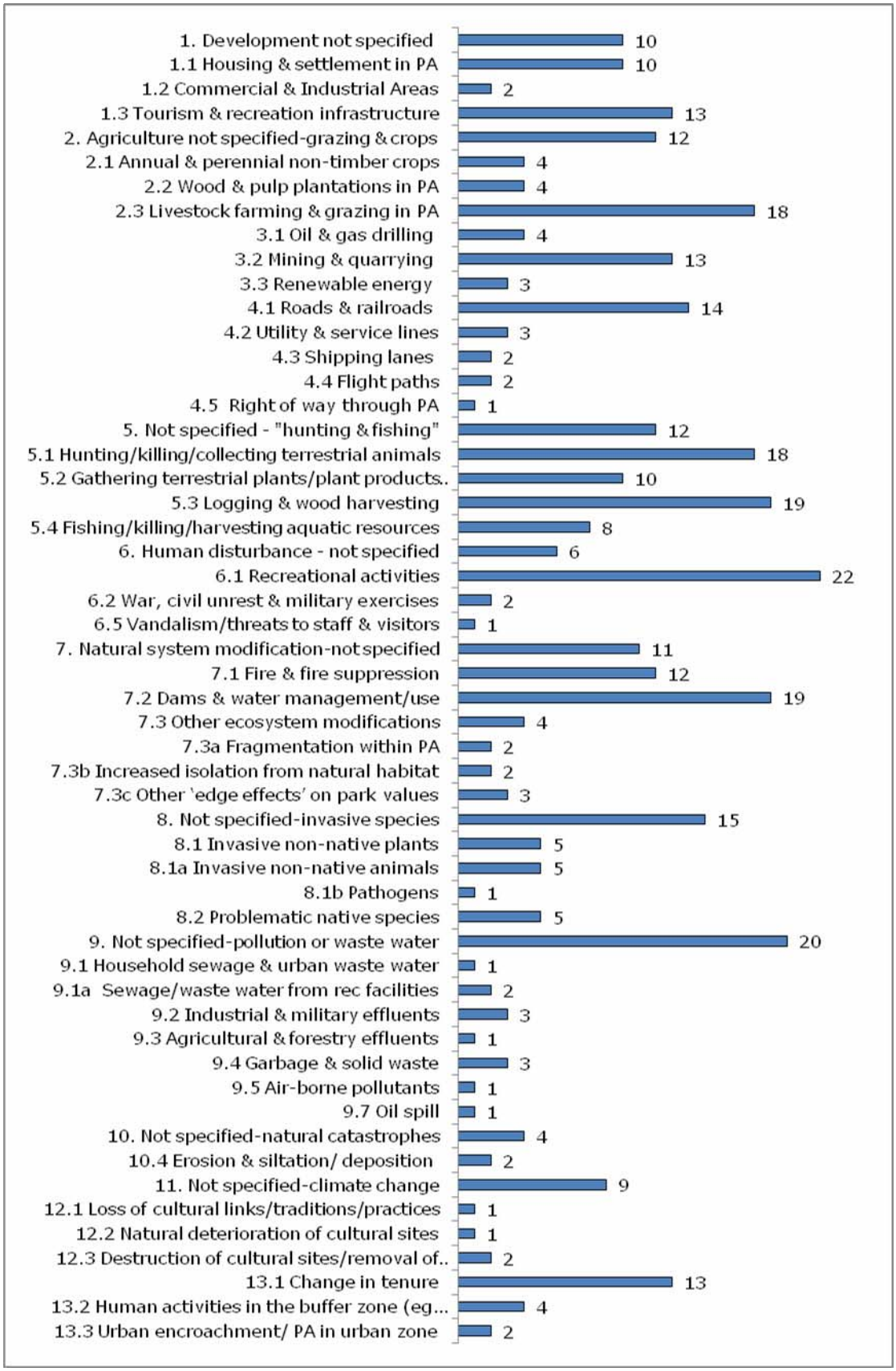


Figure 12: Threats to PAs in Europe according to PAME evaluations, arranged by IUCN-CMP terminology (IUCN and CMP 2006)

4.4.1 Most prevalent and serious threats

Threats to protected areas that were mentioned most frequently in the PAME evaluations are listed in Figure 12 and the two highest threats from each evaluation are shown in Figure 13.

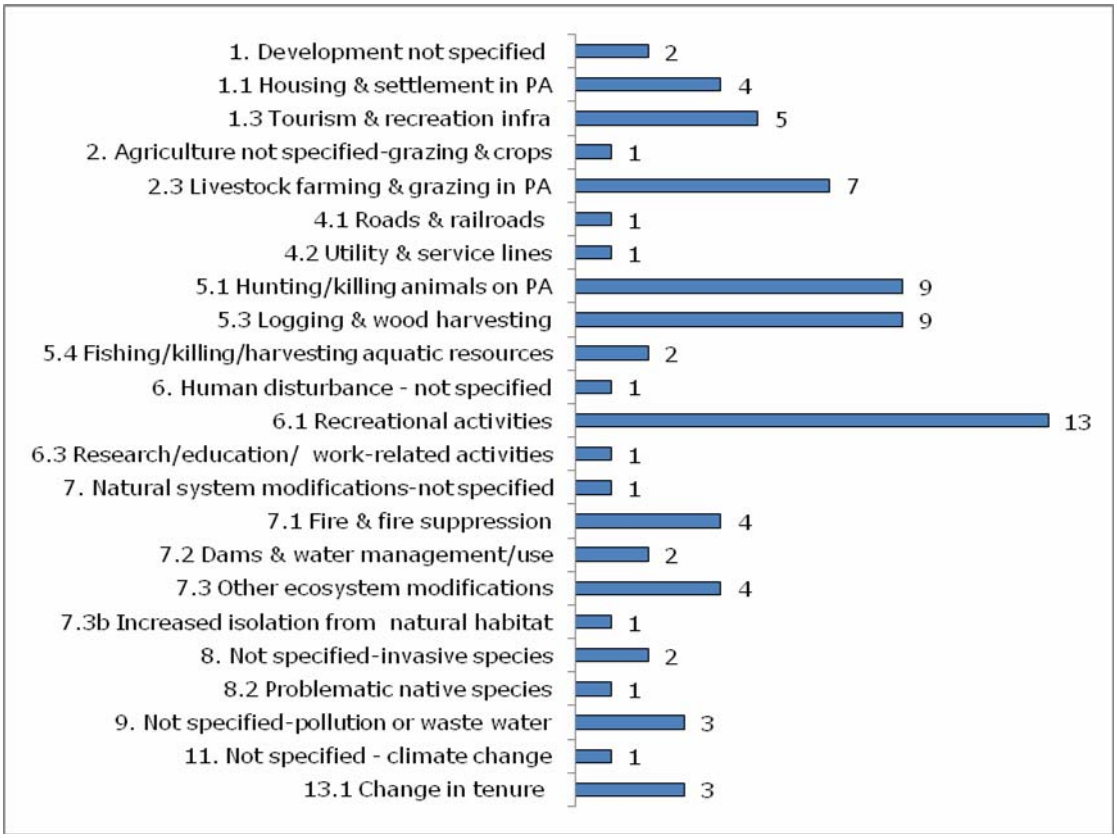


Figure 13: Most serious threats reported in each European management effectiveness evaluation (based on top two threats in each study)

While many threats were listed for the protected areas in each evaluation, those threats mentioned most frequently were: recreational activities; pollution/waste water; logging and wood harvesting; dams and water management and use; hunting, killing and collecting terrestrial animals; livestock farming and grazing; and development.

The two highest threats nominated in each evaluation showed similar results with only some minor differences as discussed below.

Recreational activities were identified as the most prevalent threat overall (55% of evaluations) and as the most serious threat in the highest number of evaluations (Figure 13).

Hiking and skiing were mentioned in many reports as posing a threat to the natural values. Other impacts outlined in the reports relating to increasing recreational use include pollution, soil erosion and vegetation destruction.

This perceived threat is in line with the trend of the expanding global recreation and tourism industry, which is growing with approximately 10% of world GDP now being spent in this market. This growth is likely to continue (Pullin *et al.* 2009). The inclusion of Eastern European countries in the European Union and the stabilization of economic conditions have opened up opportunities for tourism and recreation to these areas. In addition to being an inexpensive destination due to its relatively lower cost of living, low cost airlines have

facilitated cheaper travel to the region from Western Europe (Euromonitor International 2010). While recent transportation policies implemented in Europe aiming to reduce impacts of travel on global climate may slow growth in the long-haul sector, this may also increase domestic and intraregional travel adding to this increasing trend in travel to Eastern Europe (Pullin *et al.* 2009).

Good management of recreation requires advanced resourcing, staff training, facilities, policies, management planning and processes, to prevent issues such as waste management and track erosion having serious impacts. Protected area management in Eastern Europe does not appear to have the capacity to cope with a rapid increase in visitor numbers. The visitor management headline indicator for the evaluation of management effectiveness scored quite weakly (.49). This may also reflect why recreation is perceived as such a high threat if many countries feel they are currently unable to effectively manage recreational use and its associated impacts in protected areas.

Hunting, killing and collecting terrestrial animals is mentioned in 45% of the evaluations as being a threat and was rated as the second most serious threat to protected areas overall. Many reports mentioned both legally sanctioned hunting practices as a threat, as well as poaching. This figure is possibly higher as 30% of the studies also outlined "hunting and fishing" as being a threat but did not specify whether it was terrestrial or aquatic. Fishing, killing and harvesting aquatic resources was identified in 20% of the evaluations as a threat.

The high percentage of evaluations that identified hunting as a threat is likely to relate to the long tradition of hunting across Europe, where it has been widely practiced as a source of food and as a sporting or social activity. The significance of this issue in evaluations reflects biologists' concerns that while hunting may serve to regulate ecosystems, it can also harm them if not managed appropriately (CoE PA 2004). Notably Central and Eastern Europe countries are in an unusual situation in that their game potential is far greater than that of most of the Western countries, since hunting was relatively restricted in the communist period. Some species that have become or are becoming extinct in the rest of Europe are still abundant in Central and Eastern European countries. As a result there is concern regarding the changes made in recent years in these countries concerning the liberalization of hunting (CoE PA 2004).

Logging and wood harvesting rated high in both prevalence (identified in 48% of the evaluations as a threat) and degree of overall threat for European protected areas (rated second in equal place with hunting). The reports outlined both illegal logging and legal forestry activities that are not being managed appropriately as being a concern.

This perceived threat was reported in many evaluations as arising from inadequate staff numbers for carrying out enforcement and forestry management practices, with the view that this may not improve in the near future.

Illegal logging, as here in Montenegro's Durmitor National Park, is a threat to many European protected areas (Photo: C. Nolte)

In Russia, logging and other forestry use occurs in 97 per cent of national parks, more than two-thirds of strict nature reserves, and three-quarters of wildlife refuges (logging in national

parks is usually legal, but it is economically driven, and causes high levels of environmental degradation) (Tyrlyshkin *et al.* 2003). In Albania, pressures including logging are assumed to be reducible in the future by a better performance of the protected area administration in controlling activities within protected areas and improving communication with local communities (Diku *et al.* 2008).

Livestock farming and grazing was identified in 45% of the evaluations as being a threat. This figure is likely to be much higher as 30% of the evaluations also referred to "agriculture" or "grazing" as being a threat but did not specify the details. This category was also rated the third most serious threat to protected areas in Europe. Many of the data sets (without accompanying written reports) did not identify whether overgrazing or the loss of grazing was the concern. Because of this lack of information, the IUCN-CMP categories 8 (Invasive species not specified) and 8.2 (Problematic native species) may also relate to this section as some reports listed the threat as "vegetation succession" or "invasive species", which could also be a result of the ceasing of grazing. Therefore it was difficult to understand the exact extent of this threat category and it is likely to have been higher than shown in the results.

While intensive grazing and mowing are growing concerns in many protected areas across Eastern Europe, vegetation succession as a result of insufficient grazing was reported to be a threat in many RAPPAM reports (Slovakia, Romania, Bulgaria, Czech, Croatia, Lithuania). Over-grazing in sensitive areas has degraded these areas, while under-grazing in traditionally grazed lands has led to loss of open meadows and associated biodiversity of key species (Ervin 2004a).

As mentioned earlier, conservation in much of Europe is based on the continuation of traditional land management practices, such as grazing, hay making, burning, coppicing, and hunting (Gaston *et al.* 2008). Recent changes in agriculture (intensification or abandonment) as a result of the Common Agriculture Policy in general and the altered socioeconomic situation in Eastern Europe since 1989 have resulted in a critical reduction of the semi-natural grasslands. These grasslands harbour an extraordinarily high diversity of plants and invertebrates, including endemics, and are considered a refuge for numerous threatened open-land species. The maintenance of their biodiversity therefore depends on traditional farming techniques. Without appropriate management, these semi-natural grasslands will convert to mature forest. Surveys carried out in Western Europe confirmed this decrease in plant diversity of abandoned semi-natural grasslands (Cremene *et al.* 2005).

In the report from Slovakia, it was thought that EU policies could have significant influence on agriculture practices and incentives, which would in turn have significant impacts on protected areas (Ervin 2004a).

Invasive species were listed in 38% of the evaluations as being a threat with no mention as to whether these were plants or animals. Thirteen percent of the evaluations also specified that non-native plants were a threat and 13% listed non-native animals as a threat. While invasive species rates high in terms of prevalence across Europe, this threat did not rate as seriously as those outlined above.

It is interesting to note that Russia did not list invasive species as being a threat, but instead listed this threat as being an external factor that has a negative influence on management effectiveness (Tyrlyshkin *et al.* 2003). The Lithuanian MEE report also mentions that protected area managers did not highlight some globally important threats likely to arise, including invasive species and climate change, and recommends the examination of these threats and the need to compile national strategies, perhaps together with other Baltic countries (Ahokumpu *et al.* 2006).

Development in general was considered as being a threat in 60% of all evaluations. When broken down into IUCN-CMP second level threat categories, tourism and recreation infrastructure was reported in 33% of studies as being a threat, followed by housing and settlement (mentioned in 25% of studies) and unspecified development (occurring in 25% of the studies). Note that some evaluations listed tourism and recreation threats without specifying whether this was from "recreational activities" (IUCN-CMP threat category 6.1) or from "tourism and recreation infrastructure" (IUCN-CMP threat category 1.3). Therefore it is likely that some additional evaluations (including Serbia and Ukraine RAPPAM) may also have intended the development of recreational infrastructure as being a threat. Both legal and illegal forms of development were mentioned in the evaluations as a problem.

Czech and Georgia RAPPAM were the only two evaluations to identify development (unspecified) as being one of their two highest threats overall.

Ski resorts, holiday houses and hotels were identified in many reports as a development threat (Bulgaria, Russia, Slovakia, Czech and Albania RAPPAM), while some reports outlined settlement expansion and peripheral urban sprawl as a threat to protected areas located near cities.

"While most recreational impacts may be of minor long-term significance, some recreational developments especially those with associated infrastructure, for example, skiing developments (including the creation of ski lifts, snow cannons, large networks of roads, car parks and housing), may have severe and lasting impacts on biodiversity such as increased risks of floods and erosion, pollution, loss of vegetation, and abandonment of agricultural practices in the area" (Young *et al.* 2005:1648).

Pollution was mentioned as a threat in 50% of the evaluations, making it the second most prevalent threat overall. The main source of pollution was often not specified, but many studies refer to water pollution and industrial and military effluents as being a concern. Only Russia RAPPAM, Ukraine RAPPAM and Estonia Tracking Tool rated pollution and waste water as one of their two most serious threats overall.

Dams and water management/use was also a very prevalent threat, being cited in 48% of the evaluations. Even though it was the third most prevalent threat (at equal rating with logging and wood harvesting), it rated relatively low in significance as compared to other more serious threats (only identified by Serbia RAPPAM and Belarus Tracking Tool as being a significant threat).

4.4.2 Other threats of interest for Europe

Several other threat categories were identified in 25% or more of the evaluations, including mining and quarrying; roads and railroads; gathering plant products (non-timber); natural systems modifications (not specified); fire and fire suppression; and change in tenure.

Climate change was identified in 23% of the evaluations as being a threat and scored low in significance for Europe, with only Ukraine RAPPAM identifying it as one of their highest threats. Protected areas in many countries, such as Lithuania, did not list climate change as a threat as they see it as being outside their control and feel these threats need to be examined and addressed nationally (Gilligan *et al.* 2005, Ahokumpu *et al.* 2006). Finland also acknowledged this, stating "Climate change is having measurable impacts on protected areas in many parts of the world and some boreal and marine habitats in Finland may be particularly under threat. We note that there is no comprehensive strategy addressing this and recommend that one be developed" (Gilligan *et al.* 2005)

Scientists have identified habitat fragmentation as one of the main current drivers of biodiversity loss, whereas climate change is expected to become increasingly important in the near future. The spread of invasive species and epidemic diseases may occur faster due to climate change (Pullin *et al.* 2009).

The lack of focus on climate change as a threat in this study may also be a reflection of the economic status of Eastern Europe, as climate change risk perception has been shown to be largely linked to economic power. In one study, non-high-income countries perceived climate change as being significantly less relevant than in high-income countries. In non-high-income countries, other threats such as illegal activities are regarded as being much more important than climate change impacts (Schliep *et al.* 2008).

Climate change is an increasingly relevant threat imposing direct and indirect pressure on protected areas and their management. This requires the collaboration across protected area boundaries, with communities and land users. Protected area managers, however, are struggling with a variety of challenges and threats besides climate change, including inter alia management deficiencies, illegal activities (e.g. poaching, illegal logging) and external stressors such as pollution and invasive species. They often have to allocate management resources according to which risk is perceived to be the most pressing one (Schliep *et al.* 2008).

4.4.3 Threats – summary and implications

Management effectiveness studies indicate that there is a high level of threats for the protected areas of Europe. There is tremendous variation in threats across Europe's diverse landscape and these threats are also changing over time (for example emerging threats include climate change, wind farms and bio fuels). Reviewed reports identified the current main threats to protected areas in Europe as recreational activities; hunting, killing and collecting terrestrial animals; agriculture (intensification and abandonment); logging and wood harvesting; pollution/waste water; dams and water management and use; and development. These results are reflected in one study which states: "The main threats that can lead to conflicts between human activities and biodiversity conservation are identified as agricultural and silvicultural intensification or abandonment, recreation and hunting activities ... These can impact in many direct or indirect ways in terms of scale and intensity on agricultural landscapes, forests, inland waters, grasslands and uplands of Europe" (Young *et al.* 2005)

The recent social and economic transformations (including joining the EU) that started early in the 1990s pose many threats to the protected areas of Eastern Europe, including increasing tourism and recreation, liberalisation of hunting, and changes in agriculture intensification and abandonment. However, these economic changes have also had some positive outcomes, including a substantial reduction in industrial emissions and a general improvement in environment quality in Central Europe. Joining the EU has also resulted in increased resources for protected areas and has engendered compliance with regulations such as Natura 2000 and the Birds and Habitat Directives. Additionally, there has been a standardization of criteria for identification and implementation of specific levels of protection; i.e. more uniform definition and more uniform level of protection for protected area categories (Oszlányi *et al.* 2004).

As with the rest of our analysis, there is a strong bias towards Eastern and Central European countries as information on major threats to protected areas needing attention is required by international funding and policy organizations. Many other countries that carried out management effectiveness did not include an assessment of threats. However, this is a very

important element as the scarce budgets have to be allocated and used wisely to guarantee maximum effectiveness. Management has to be adapted regularly to address new threats and challenges in order to put into place actions to mitigate and abate the associated impacts. As stated in the Romanian RAPPAM report "In order to find appropriate solutions to diminish/eliminate the pressures and threats it is extremely important to identify their root-causes" (Stanciu and Steindlegger 2006). The best way to resolve conflicts is to prevent them arising in the first place (Young *et al.* 2005).

4.5 Recommended improvements

Management effectiveness evaluation is only worthwhile if it leads to better management and improved outcomes for protected areas and the community. We reviewed available reports and discussed the issues with workshop participants to find out what improvements appeared to be most critical.

Not surprisingly, a wide variety of recommendations are made in the individual assessment reports. Some issues and recommendations are very specific to the individual countries, such as proposals to improve internal organisation of management agencies, while other issues apply across a region or the whole of Europe. Often the recommendations are interlinked, for example better training and processes rely on better funding, and many require action at higher government levels to ensure that protected area agencies are better supported. This reinforces the fact that the political environment at all scales – including the influence of the European Union as well as individual states - plays a very important role in effective management.

Frequently recommended improvements and actions which might lead to more effective management of European protected areas are discussed in the following sections.

4.5.1 Better institutional collaboration and a stronger influence within government

Better communication and collaboration among government organisations and public institutions, including the need for better land-use planning and ecological considerations in development, is a priority recommendation in almost all the reports reviewed. This reflects the need for protected area management to be backed up and integrated into, rather than undermined, by other government activities. This will be particularly important in supporting protected area systems which can play an important role in mitigating both the extent and the impacts of climate change and in ecosystem-based adaptation strategies.

Collaboration among different law enforcement entities in the Ticino Valley Biosphere Reserve (Photo: C. Nolte)

A related but less common recommendation was the need for better national policies and legislation related to nature conservation generally, for example in Albania (Diku *et al.* 2008).

In Lithuania, the protected area system has broad objectives and so it can only function well if other government

departments and organisations share its vision and goals. The report recommends that at the regional level, the protected area administrations should have a stronger influence in land use planning and implementation, meaning a revision of the duties of counties and municipalities (Ahokumpu *et al.* 2006).

In Croatia, major ecological issues are arising from water management projects and from vegetation succession where traditional grazing has ceased. The assessment report urges cooperation of other agencies concerned with water management and agriculture to better consider ecological implications. Solutions to issues of land tenure and fire management must also involve other agencies (Porej and Rajković 2009).

Intra-governmental cooperation is also a major recommendation in Romania (Stanciu and Steindlegger 2006), Slovakia (Ervin 2004a) and in Slovenia, where one suggestion is to form an inter-sectoral working group on protected areas (Kus Veenvliet and Sovinc 2009). Another example it that from Serbia, where recommendations for better coordination include giving relief for protected area managers from municipal fees which are a burden on scarce park resources (Piscevic and Orlovic-Lovren 2009). For Scottish local nature reserves, cooperation is specified with other agencies and groups including the health sector, private sector and the local enterprise network (Land Use Consultants 2006) and in English national parks, the individual park authorities, the government agency and other government departments and neighbouring local authorities all need to work together better (Solace Enterprises 2006).

The need for collaboration with institutions is closely related to the coordination of spatial planning and on-ground management of reserves, as discussed below.

4.5.2 Integration of protected areas into wider landscape planning

Overcoming problems of fragmentation and the small size of protected areas is a key need for conservation in Europe, and is made more urgent with the impacts of changing climate (Gaston *et al.* 2008). This theme is reflected in many of the reports. For example, though Finnish protected areas in general protect their values well, the evaluation report stresses that "Finland's protected areas need to stretch out consciously into the rest of the land and water mosaic by developing more integrated landscape plans for conservation. Particularly in the south, where individual protected areas are not large enough to sustain whole ecosystem processes, long-term success will depend upon working with surrounding land owners, probably often in voluntary agreements and with a degree of compromise, to create effective buffer zones, transition zones, corridors and networks." (Gilligan *et al.* 2005).

Integrating protected areas into wider landscape planning is recommended in many reports (Photo: C. Nolte)

Integration of protected areas into the regional socio-economic context is a major recommendation for Russia (Ervin 2003a). The report from Albania recommends that the conservation status of protected areas be reviewed and that some sites should be amalgamated or integrated into larger and broader landscape units (Diku *et al.* 2008). In Slovenia it is also recognised that conservation objectives can only be achieved with contributions from other instruments such as Natura 2000. Better integration of Natura 2000

sites into landscape plans or agency responsibility is recommended in reports from Finland and Lithuania (Gilligan *et al.* 2005, Ahokumpu *et al.* 2006).

Creating and managing transboundary protected areas is a related recommendation with great potential benefits. For example within Montenegro's spatial plan there are a number of proposals to designate new transboundary protected areas by expanding existing and proposed protected national parks and linking them to parks in Bosnia and Herzegovina, Croatia, Albania, Kosovo and Serbia (Stanišić 2009). Creation of large networks of protected areas such as this is a primary strategy to protect biodiversity in the face of climate change, and also contributes to valuable carbon stores (Hannah *et al.* 2007, Dudley *et al.* 2010).

4.5.3 Improved communication with / involvement of local communities

Good relationships with local communities are an essential but often neglected aspect of successful protected area management. As discussed earlier, many protected area managers lack skills and experience in negotiation, conflict resolution and communication with neighbours. The Finnish report recommends specific efforts to "build the arguments for protection with concerned rural local communities" (Gilligan *et al.* 2005). In Serbia, managers are urged to "use existing and find new, appropriate forms of participation of community representatives in decision-making process – such as joint councils, boards, pressure groups, teams for campaign and project implementation" (Piscevic and Orlovic-Lovren 2009).

4.5.4 Resolution of land ownership and rights

In those countries where land rights and tenure issues remain problematic, their resolution is a high priority and is closely related to the three recommendations above. For example, in The Czech Republic a priority recommendation was to "improve communication with local communities, and clarify and resolve land tenure" (Ervin 2004b). In Bulgaria cross-sectoral work to resolve these disputes is urged, along with social and economic research (WWF 2004). In Slovakia, resolution of land tenure and restitution issues is regarded as a high priority (Ervin 2004a).

4.5.5 Increased numbers and capacity of staff

The need for more staff and for better capacity is widespread in both eastern and western Europe. Improving the skill sets of staff, and developing mechanisms to provide specialist services to many smaller protected areas, is a common recommendation from MEE studies, especially where there is little centralised management and such expertise cannot easily be shared (Ahokumpu *et al.* 2006). For example, in English national parks, more staff are needed to adequately achieve biodiversity outcomes (English National Park Authorities Association 2009) and the possibility of joint staff development across national parks is suggested. More effective handovers when staff transfer or resign are also recommended (Solace Enterprises 2006).

Though Finnish protected areas are comparatively very well supported and resourced, even here staffing is regarded as "lean", especially given the increased responsibilities in both scope of duties and areas to manage (Gilligan *et al.* 2005).

In Croatia, numbers of staff are inadequate and need to be increased (Porej and Rajković 2009), while in Bulgaria and Czech Republic it is stressed that both numbers are skills should be improved (Ervin 2004b, WWF 2004).

4.5.6 Increased security and sustainability of funding

Most reports recommend better and more predictable resourcing of protected area management, and a number recommend that funds should be raised through sustainable tourism and other mechanisms independent of government funding. For example, in Bulgaria it is recommended that financial resources should be improved both by direct increase of funds and through establishing systems to help parks generate their own income. Staff training in revenue raising is urged, and better and earlier allocation of funds is also recommended (WWF 2004). Participants in the assessment in Slovakia also recommended ways to find financial support outside government budgets (Ervin 2004a). In Romania, the need to negotiate adequate funding from the EU for protected area management, including that of Natura 2000 sites, was recognised (Stanciu and Steindlegger 2006).

4.5.7 Better understanding and presentation of the benefits of protected areas

Many studies recommended that attention be paid to researching and promoting the benefits of protected areas, and specifically mentioned the need for more economic studies. For example, the need to promote their benefits to the community and all partners is noted in Scottish nature reserves (Land Use Consultants 2006) and English national parks, where communication with a wider audience, including urban people, young people and ethnic minorities is urged (Solace Enterprises 2006). In Slovenia no studies have yet been conducted to show benefits of protected areas to local communities – it is recommended that studies be undertaken and then publicised in the communities (Kus Veenvliet and Sovinc 2009).

4.5.8 Better drafting and implementation of management plans

As discussed in section 4.3.2, most assessments found management planning to be inadequate, and workshop participants also stressed the need for plans which are more meaningful and useful in a rapidly changing world. Even where plans exist, their quality and applicability needs to be improved, and the links between planning, management and evaluation made more specific.

In some countries including the UK and Finland, there has been substantial effort in recent years to link evaluation with management improvement and to ensure that major issues are addressed. For example, the assessment of English national park authorities has been used as a benchmark against which to build capacity and improve the performance of the management agencies (Solace Enterprises 2006).

Chapter 5 Conclusions and Outlook

5.1 Towards resilient protected areas in Europe

Protected areas are a vital tool in Europe's response to the challenges of the 21st century: they are a critical and cost-effective investment in the future well-being of its people as well as its wildlife. Scientists recently wrote that although attention has been paid to securing a representative system of protection, through formal protected areas and Nature 2000 sites, inadequate attention has so far been given to the management of protected areas (Gaston *et al.* 2008). The findings of this study confirm this comment, as there are widespread inadequacies in protected area management across the countries for which data was available.

Europe is facing many rapid changes in its biophysical, social, economic and political environment, including climate change, economic and political transformation (Pullin *et al.* 2009) and financial crises. Especially in Eastern Europe, protected areas are undergoing rapid expansion but have a lack of experience in dealing with emerging challenges (Gaston *et al.* 2008). Good protected area management is more important than ever, but also more challenging.

The previous chapters have shown that while protected area systems have been established and have the basic ingredients for success, their performance in almost all aspects leaves much room for improvement. We urge that governments, protected area agencies, non-government organisations, communities and scientists work together to boost protected area management, and that the recommendations of individual management effectiveness assessments (summarised in the previous chapter) are taken seriously. Sectors which benefit from protected areas such as water supply, health and tourism should also give their support. We have a narrow window of opportunity to stop biodiversity decline but the urgency of the situation needs to be translated into action. We need to recognise that strong, innovative and adaptive management of protected areas will be an essential component of Europe's climate change strategy, both as a mitigation measure and for adaptation (Dudley *et al.* 2010) and give this management the priority it deserves. Protected areas need to be given greater emphasis in national and international agendas, and we need to develop a committed, capable cadre of protected area managers equipped with the skills and resources to tackle a new range of challenges.

> "Protected areas are an essential part of the global response to climate change. They are helping address the cause of climate change by reducing greenhouse gas emissions. They are helping society cope with climate change impacts by maintaining essential services upon which people depend"
>
> "Protected areas are most effective when they have good capacity, efficient management, agreed governance structures and strong support from local and resident communities. Ideally protected areas and conservation needs should be integrated into wider landscape and seascape strategies. The best protected areas are inspirational models for maintenance and management of natural ecosystems. In many places where population or development pressures are particularly strong, protected areas are the only remaining natural ecosystems and thus play a particularly critical role in regulating the supply of ecosystem services." (Dudley *et al.* 2010)

Based on the assessment studies we have reviewed, conclusions and critical factors to improve protected area management include:

- The importance of protected areas and their conservation is often not reflected in national priorities. Overall, we recommend that governments at all levels give higher priority to protection and management of protected areas in decisions about land use and development, and that coordination of land management agencies be improved. The issue of poor interagency coordination was raised in many reports but may be most serious in Eastern Europe, where rapid development is occurring, and in the most popular tourism areas.
- Conservation of much of Europe's biodiversity depends on the continuation of traditional land management practices such as grazing, hay making and burning, which are threatened by the rapid rate of economic transformation (Gaston *et al.* 2008) Loss of these practices has been recorded in this study as a significant threat right across the continent as farming and grazing practices are often abandoned, or intensified. Protected area managers need to gain greater understanding of modified and semi-natural systems, and where appropriate work with communities to maintain, restore, adapt or mimic traditional practices. In other areas, restoration of 'the wilds' may be needed.
- Protected area management, including ecological restoration, will play an essential role in climate change mitigation and in linking fragmented areas. Park managers will need to develop new non-traditional skills including revegetation, more adaptive planning and carbon accounting to make the most of the opportunities presented by climate change.
- Experiences in management need to be better shared at both international and local level (Gaston *et al.* 2008). This study has shown the benefits of protected area managers and other interested parties working together, and a number of existing mechanisms in Europe can foster this cooperation and information exchange. The shortage of applied park management skills reported across Europe makes this sharing essential.
- Priority areas for increased staff capacity include community relations, communication and negotiation skills, and economic valuations. Protected areas have to be part of local communities and seen to be relevant to non-traditional park visitors, including ethnic communities and younger people.
- Financial support and security is always important: protected area managers need to be able to address their important tasks with adequate and reliable resources. Funding protected areas in Europe should be seen as a very cost-effective investment in the future.
- Better integration of protected areas with other natural areas and with Natura 2000 sites is important in some countries, while in others management and reporting is already well coordinated, and in some the two designations overlap to a very high degree. The small size and fragmentation of protected areas is a major ecological issue and can be partially addressed through better incorporation of protected area planning with regional plans. Transboundary declarations, planning and management are to be encouraged and supported.
- Some management agencies already use regular management effectiveness evaluation as part of an integrated strategy to drive targeted investment and improvement[28]. This approach is highly recommended, and the sharing of learning and experiences across agencies and countries can bring further benefits.

[28] See below case study "Scotland's *Raising Standards* on National Nature Reserves 2006-2011"

5.2 Towards best practice in European management effectiveness evaluation

Evaluation of protected area management effectiveness has developed from a niche to a global endeavour involving a multiplicity of countries, organizations and actors. Many available publications offer excellent recommendations on best practice in assessment design and implementation (Hockings 2003, Cracco *et al.* 2006, Hockings *et al.* 2006, Leverington *et al.* 2008, Stolton 2008) and we do not wish to repeat these. Instead, we draw on the observations and lessons learnt from this study to delineate what we and our workshop participants perceive as priorities, structured along a few simple messages.

5.2.1 Start Evaluating

Evaluation is a vital component of governance. Any group of actors with agreed objectives, whether at a local (PA), national or international level, needs to assess whether it is actually progressing towards these objectives. One encouraging observation is that the majority of European countries have at least initial experiences in management effectiveness evaluation of their protected areas, with about a dozen achieving the 2010 goal (30% assessed) by area. Also in comparison with other UN Regions, Europe, overall, is doing relatively well in terms of conduct of management effectiveness evaluations[29]. While results of our survey indicate that about one quarter of all European countries have not yet undertaken any systematic study on the management effectiveness of their protected areas, the overall level of uptake is relatively high.

Obstacles to evaluation are diverse, but many have been associated with a lack of political will. When faced with evaluation, stakeholders on different levels of protected area governance systems may fear negative consequences, notably if they are likely to be held accountable for unsatisfactory performance. Although one might assume that management bodies of protected areas try to evade such evaluations, we have also observed cases in which protected areas embarked on thorough self-assessments in order to highlight constraints to higher administrative levels. In countries where sub-national governments are responsible for protected area policy, legislation and/or funding, these may be unwilling to have their protected areas being evaluated by higher-level (e.g. national) agencies.

Reluctance can be overcome if the benefits of evaluation accrue to all (or most) of the actors involved. Increased cost-effectiveness through better informed priority setting and/or the identification of inefficient processes may be one of the most tangible and visible outcomes. However, thorough and transparent assessments can also lend credibility to all organizations involved in protected area governance, communicating to the public and donors that money is well spent, while at the same time raising awareness of the overall importance of protected areas. Conflict between actors can be reduced if evaluation is carried out along clear and measurable objectives which have been agreed among all involved stakeholders. The focus should be on continual improvement rather than judgement and the apportionment of blame. Yet, even if overall benefits are obvious, information still means power, which some actors might be unwilling to share. In some examples around the world, the short-term political "risks" of evaluation have been lessened for agencies by legislating for a requirement to conduct and report on assessments (for example in India, South Africa and for the Great Barrier Reef in Australia).

[29] Globally, the highest number of assessments have been conducted in Latin America and the Caribbean followed by Oceania (dominated by Australia), then Europe and, in order, Asia, Africa and North America.

5.2.2 Institutionalize

Evaluation is futile if results are not used to improve management. Awareness raising and public pressure can contribute to this process, but the implementation of necessary changes often rests on the capacity of evaluating organizations to exercise leverage on involved actors through flows of funding and/or hierarchical authority. To take appropriate decisions, these organizations need information which is both relevant in the context of their particular protected area governance system and regularly updated to track progress towards agreed objectives.

Our results indicate that these three attributes (capacity for implementation, tailor-made evaluation systems and mandatory repetitions) often occur where evaluation is led by a overseeing authority responsible for lower-level entities, such as a government agency evaluating regional administrations or individual sites, protected area management bodies assessing their own internal organization and processes, or even the European Union evaluating Natura 2000 implementation by its members. In these cases, the leading agency not only has a strong interest in the results and their implementation, but also the capacity to design consistent evaluation systems, the authority to make evaluations mandatory for all units of analysis, and the power and legitimacy to implement necessary changes.

Evaluation by an overseeing authority, however, is not a blueprint recommendation. As Section 2.2.2 highlighted, many European countries have protected area governance systems with responsibilities assigned to various administrative levels (e.g. nation, county, and municipality), sectors (e.g. environment, forestry) and/or other societal actors (e.g. NGOs, private landowners). International organizations such as the European Union, donors, NGOs and UN conventions and programmes can play a central role in creating or financing protected area systems and add to the complex picture of multiple accountabilities.

In these contexts, other approaches to evaluation have emerged, each with own strengths and constraints.

- In terms of country numbers, evaluations initiated by donors and NGOs, most notably by WWF and its regional programmes, constitute the bulk of studies in Europe as elsewhere on the planet. Although this approach may raise questions on how results will later be implemented and whether they will have sufficient depth to inform policy making, these assessments can be useful in raising awareness, informing national priority setting and conduct cross-country analyses. They can also play a seminal role if national agencies use these experiences for devising own evaluation systems.
- In countries where responsibilities for protected areas are vested at sub-national levels, national NGOs or other agencies can take on the role of brokers to create coherent evaluation systems for otherwise incoherent protected area governance systems (e.g. in the case of the German and Spanish National Parks).
- Voluntary certification schemes can create incentives for better management and identify critical areas for improvement. However, they are often likely to only take those sites on board which are already performing relatively well, and usually do not look beyond the individual protected area.
- Academic studies are valuable to identify causal interactions between management aspects and support cross-country comparisons. However, there is a risk that its results are not widely communicated and accessible, and that institutionalization cannot be guaranteed.

Overall, our observations suggest that one of the most valuable attributes of evaluation is repetition. Repeat assessments not only allow tracking improvements against a baseline assessment over time. It can also be expected that the results of evaluation, such as agreed action plans, are more likely to be implemented. Finally, repeat assessments can stimulate locally driven self-reflection and management improvements if protected area managers know their efforts will be acknowledged. As yet there are insufficient repeat assessments across Europe to look at trends across sites, but individual managers have used trend data at the site level to improve adaptive management. This local use of results can be further supported by developing processes that:

- involve managers reflecting on the results of the assessment at the end of the exercise and making any immediate adjustments that are apparent and possible;
- build a process of reflection and questioning of the assessment results into future planning and decision making processes (annual work planning and budgeting, priority setting and targeted management improvement programs for example); and
- develop information management systems that make the data available to managers in an easy to access form and building decision support systems that link relevant data sets together to help identify strategies and management actions that are increasing effectiveness.

5.2.3 Keep it cost-effective

Evaluation is not an end in itself. Assessment exercises should be commensurate to overall efforts (e.g. funding allocated for protected area management). Especially in early assessment cycles, "keeping it small and simple" (KISS) seems to be a good guiding principle. Chapter 3.3.3 provides a rough overview of intensity and costs of existing schemes. Given the diversity of evaluation approaches, however, this categorization is preliminary at best, and does not include local costs of implementation (e.g. staff time), which can be substantial.

Within the European context, a major difficulty lies in the high fragmentation of habitats and the ensuing large number of protected areas, many of which are very small. Running detailed effectiveness evaluations on each single site appears both an expensive and wasteful exercise. Prioritization is key, but may vary from observer to observer. Possible criteria for selection of sites are protected area size, its conservation values, threat level, overall budget and/or popularity. Another option for tackling the large number of sites is to move towards regional-scale assessments (see below).

Further potential for cost savings lies in the identification of synergies between different reporting requirements:

- Assessments of species' and habitats' conservation status for Natura 2000 Reporting involves the generation of detailed datasets which can fill the gap in ecological data ("outcomes") observed in many PAME evaluation schemes.
- Management bodies are usually obliged to continually report their activities to their superior agency or to the national treasury, e.g. through annual reports, many of which contain information beyond "inputs" and "outputs" (e.g. the French *Contrats d'Objectifs*).
- Knowledge management systems at the site level, which may include EMAS / ISO 14001 systems, generate rich information on several indicators of the IUCN-WCPA framework.
- Finally, many protected areas undergo periodic qualitative self-assessments, e.g. in the context of redrafting management plans or park charters.

Integrating and systematizing these different sources of information – as, for instance, the Swedish EPA is currently attempting with its *SkötselDOS* system – can avoid the duplication of efforts and thus save costs.

5.2.4 Make it transparent

Biodiversity and ecosystem services are public goods. The ultimate provider of public funding for protected areas is usually the tax payer, whether through donor projects, national treasuries or budgetary allocations at municipal levels. Not least with most European countries being signatories to the Aarhus Convention[30], the public has a right to know whether its money is being well spent. It does not seem overly ambitious to argue that depersonalized information on protected area performance should be available to the public, unless disclosure is directly detrimental to the goals of conservation[31].

The reality in Europe looks different. As Chapter 3.3.4 illustrates, many of the identified evaluation systems do not allow for the disclosure of their data, or access is difficult. Some voluntary systems, such as CPAMETT, German Nature Parks or PAN Parks are based on a mutual agreement that site-level data won't be released to the public in order to not deter participants from making truthful statements or from participating at all. Others, such as the England NPAPA, refer to individual protected areas for data disclosure, which increases costs and effort of data collection. Agreeing on more liberal data sharing procedures prior to evaluation might help to overcome these constraints.

Data disclosure goes hand in hand with data streamlining. If results are not comparable across evaluation systems and not presented in a processible format[32], only limited insights can be delivered with respect to which countries, protected area systems or sites are performing better than others and why. About half of European evaluation systems do not generate site-level scorecards, and for many of them, the existing datasets would not even allow for quantitative analysis.

Streamlining data for international reporting and comparison can make sense if the generated information is actually useful and supportive for decision-making and lobbying at the European and international level. Several calls have been made to identify a suitable set of indicators and corresponding reporting protocols (Leverington *et al.* 2008, Stolton 2008, EUROPARC unpublished), and first steps have been taken, such as the development of a possible minimum indicator set and a "management effectiveness index" based on the IUCN-WCPA framework and existing methodologies (Leverington *et al.* 2008). Our indicator analysis (cf. Section 3.3.5) has also shown that some aspects of management effectiveness (management plan, gazettal and tenure, participation, communication, funding and staffing) are assessed by almost all European methodologies; reporting them to higher levels would require only minor efforts. The Natura 2000 General Reporting Format provides an example of what information European policy makers consider most relevant for their work. However, for the time being, there is no agreement on what management effectiveness datasets are valuable at the international level, making streamlining a largely theoretical exercise.

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[30] UNECE Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters

[31] For instance, by disclosing the location of endangered species to potential poachers (Bertzky and Stoll-Kleemann 2009).

[32] E.g. in the form of a machine-readable site-level scorecard, such as the Common Reporting Format introduced in Appendix 1

It is hoped that the collation of information both at European level and internationally can continue in the future, and that an update of this report can be produced at a later date. [33]

5.2.5 Improve data quality

Human judgment is a central component of evaluation, and its importance rises if data is lacking, of limited quality or highly complex. With protected area managers and their staff usually providing the bulk of information, various sources of bias can be inherent to the evaluation process. Yet, it is not necessarily predictable in which direction results can be skewed. Depending on the objective of the evaluator, both good and bad site performance can lead to an increase in budgetary allocation.

While it is impossible to entirely close information gaps between evaluators and their subjects, a few provisions can help to eliminate major sources of bias. Diversifying sources of information, e.g. through stakeholder workshops or streamlining of various reporting mechanisms (see above), can help identify major disparities. The same is true for a diversification of interpretation, e.g. through the involvement of external experts, research organizations or managers of other protected areas in interpreting information and rating performance. Both strategies are being used by existing systems, although they come at a cost (see also Chapter 3.3.3) and need to be balanced with expected benefits.

5.2.6 Move beyond site-level assessments

Much of the existing literature on PAME evaluation draws a distinction between site and system level assessments, the former usually referring to the evaluation of individual protected areas, and the latter to national protected area systems. Most PAME evaluation systems use the individual site as their unit of analysis, although a few evaluation systems (e.g. RAPPAM, Finland SoP and Finland/Lithuania MEE) also focus on the national (system) level (Leverington *et al.* 2008).

In the European context, special attention needs to be paid to the various sub-national levels. As explained in Chapter 2.2.2, sub-national entities play a central role in most protected area governance systems within Europe. Several countries[34] have delegated their entire PA legislation to this level, and many others allow for certain PA categories to be designated and managed by regional or municipal governments. In most countries, regional branches of government agencies or NGOs are responsible for overseeing the management of smaller sites (e.g. Nature Reserves, Natura 2000 sites, Nature Monuments, National Trust Reserves). A few forerunners even abandoned protected area management bodies altogether, vesting all direct management responsibilities at sub-national levels.

If PAME evaluations are to be institutionalized, embedded into, and relevant for decisions in national protected area governance systems, it could be valuable to move beyond the site-level and explore how and to which extent sub-national entities can play a more prominent role as a future unit of analysis. This is even more valid given the large number of small sites within Europe and the prohibitive costs of assessing each of them in detail.

A few examples, such as RAPPAM and the Swedish and Finnish assessments, already involve some collection of data at multiple levels, including regions. This is also true, to some extent,

[33] PAME information and data can continue to be submitted through the WDPA at www.wdpa.org

[34] Belgium, Bosnia & Herzegovina, Germany, Spain and the UK

for assessment systems reported from Spain and the UK. Probably the most "integrated" vision, however, is inherent in the Natura 2000 Reporting scheme, which assesses the condition of species and habitats both within and outside sites that belong to the Natura 2000 network. Integration of Natura 2000 reporting with PAME is a key issue from management effectiveness in European Union countries. There is an obligation to report on many of the issues relevant to the IUCN-WCPA framework at least at Natura 2000 network level, partly even at site level (with the update of Standard Data Form) – somehow a way should be found to use the information better.

"Integrated" assessments not only have to look beyond the edge of protected areas, but also beyond national boundaries. Europe's relatively large number of countries translates into a high density of national frontiers, which can harbour important biodiversity values. Local cooperation across boundaries is encouraged by organizations such as the European Union[35] and UNESCO-MAB (Transboundary Biosphere Reserves). EUROPARC has established the Transboundary Parks initiative, which evaluates connectivity and cooperation in several fields of work. It is restricted to EUROPARC members, and has so far been applied in only eight trans-boundary arrangements (17 protected areas in total). However, it represents an experience other countries can build on to evaluate and foster cooperation across boundaries.

5.2.7 See it as a learning process

Human beings often learn through trial and error. The development of PAME evaluation systems reflects this. Most existing methodologies have been designed and redesigned over years; some are fully institutionalized, others remain in the pilot stage, others again are just being developed from scratch. In this process, some indicators and processes prove valuable and cost-effective, some are dropped, and others are added. Ideally there should remain some compatibility between versions, but adaptation and revision are valuable steps in an ongoing learning process.

PAME evaluation can also foster institutional learning both across and within hierarchical levels. Many systems involve face-to-face conversations between actors whose opportunities for learning are difficult to capture in quantifiable indicators. For instance, the MEE Swedish counties actively ask county management boards to which extent central guidelines and governing documents are valuable tools for county-level work and how they can be improved. We also found evaluation systems which encourage mutual learning between protected area staff. The English NPAPA, for example, requires national park managers to be part of each evaluation team. The German Nature Parks Quality Initiative features "quality scouts" from one Nature Park travelling to other parks to assessing their performance.

Finally, learning should also take place between the developers of evaluation systems. The last years have seen several opportunities for European developers of PAME evaluation systems to meet, discuss, and learn from each other. Workshops hosted by the International Academy of Nature Conservation Isle of Vilm and EUROPARC Federation have helped to get an increasingly detailed picture of what is happening in terms of PAME evaluation in Europe. In this study, we have tried to bring together these experiences and to identify common challenges and steps forward. If this report motivates a few dedicated actors to promote and improve the evaluation of protected area management effectiveness within their country, it has already achieved one of its objectives.

[35] E.g. in the context of INTERREG projects, which can also include biodiversity conservation goals.

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Appendix

Appendix 1: Data analysis

This section has been extracted and adapted from the Global Study report (Leverington et al. 2008)

Using a common reporting format

To enable cross-analysis of data from methodologies using a variety of different indicators, a "**common reporting format"** has been developed. This is a "bottom-up" compilation of "headline indicators", which was derived from reviewing over 2000 questions and indicators from more than 40 different protected area management effectiveness evaluation (MEE) methodologies. The aim was to include as many as possible of the topics covered by the different methodologies in a logical list.

The common reporting format is intended to:

- represent most indicators found in any MEE methodology;
- provide a platform for cross-analysis of results from MEE studies using different methodologies, while maintaining as much information as possible;
- be flexible, with the potential to add more "headline indicators" in the future.

It should be noted that the common reporting format is **not** intended to represent a required set of information (see the minimum data set below), nor to be a questionnaire to be filled out by park managers or agencies. It is merely a list of topics included in the range of evaluation methodologies, used so that analyses can be undertaken.

A simple "translation tool" mechanism for converting data from diverse methodologies and scoring systems into the common reporting format and into the minimum data set was developed by the Global Study. Indicators in the principal methodologies have been allocated to appropriate "headline indicators", and this has enabled cross-analysis of all data available to date. This tool can, if desired, be built into spreadsheets or databases generated by individual studies, so that only information rolled up into the common reporting format needs to be forwarded to coordinating agencies. Other reporting and analysis can continue through individual methodologies in the usual manner.

In order to combine and analyse information from studies using different methodologies, the first step is to "match" indicators from each methodology with the "headline indicators" listed in the common reporting format. Once the indicators are matched with the common reporting format headline indicators, scores from different systems can also be "translated". Where there is more than one indicator matching to a headline indicator, the scores are divided by the number of applicable questions in order to derive a score for the headline indicator. However, in some cases one indicator is clearly more important than another. For this reason, each indicator is allocated a weight from zero to one in terms of its contribution to a headline indicator. For example, in the Tracking Tool there are five questions matching the heading indicator "management plan". The question "is there a management plan and is it being implemented" is a key question here and is therefore weighted more heavily than the other, supplementary questions.

In most cases, the allocation of weightings was very simple due to the low numbers of indicators relating to the common reporting format in each methodology. In more

complicated cases, allocating the weightings has been undertaken through a very simplified version of an Analytical Hierarchy Process, with collaborative decision-making (Saaty 1995).

Converting to a common scale

The next challenge in cross-analysis is posed by the fact that a range of different rating and scoring systems are used in MEE methodologies. However, most are variations on the theme of defining the ideal situation for each indicator and measuring the progress towards achieving that ideal. Thus the lowest score represents no progress, negligible progress or a very poor situation, and the highest represents the ideal (or in some methodologies the achievable) situation. This best practice or optimum situation may be defined broadly for the country or in the system methodology, or may be defined for individual protected areas during the evaluation process. It was decided that the most valid way to prepare the data for cross-analysis is to map all ratings onto a zero to one scale, where zero represents the lowest measurement and one the optimum situation. This approach has minimised the loss of information and enables averages to be calculated.

Transforming and analysing raw data

After the raw data was transformed into the common reporting format "headline indicators" and data from all studies combined, the resulting figures were analysed to obtain averages and standard deviations for total overall management effectiveness and for each headline indicator. This data was sorted according to whether the study was the first or most recent using a particular methodology in a protected area, so the averages presented in this report do not contain repeated studies. None of the methodologies ask questions relevant to all the "headline indicators", so the number of records varies for each indicator. Where the number of records is very small or from only one localized study, the results are interpreted with additional caution or excluded from analysis.

Overall averages are comprised of whichever "headline indicators" are available from the information at hand, and therefore vary widely in their composition depending on the methodology used. To confirm whether the arithmetic averages would be significantly biased according to the fields used to calculate it, a comparison was made between the "least square means" (which take into account which indicators are missing) and the overall arithmetic averages. The results showed clearly that there was very little difference between the two methods of calculation and it was concluded that the simple approach of calculating the average of available indicators appears to be sound (Allan Lisle, *pers. comm., 2008*).

Table 15: Common reporting format and headline indicators

Element	Headline indicators
Context	Level of significance
	Five important values*
	Level of extent and severity of threats
	Trend of threats
	Five important threats
	Constraint or support by external political and civil environment
Planning	Park gazettal
	Tenure security and issues
	Appropriateness of design
	Marking and security/ fencing of park boundaries
	Adequacy of p.a. legislation and other legal controls
	Management planning
Input	Adequacy of current funding
	Security/ reliability of funding
	Adequacy of infrastructure, equipment and facilities
	Adequacy of staff numbers
	Adequacy of relevant, available information for management
Process	Staff morale
	Effectiveness of governance and leadership
	Model of governance
	Effectiveness of administration including financial management
	Management effectiveness evaluation undertaken
	Adequacy of building and maintenance systems
	Staff/ other management partners skill level
	Adequacy of staff training
	Adequacy of hr policies and procedures
	Character of visitor facilities and services*
	Visitors catered for and impacts managed appropriately
	Level of visitor use*
	Threat monitoring
	Natural resource and cultural protection activities
	Sustainable resource use - management and audit
	Research and monitoring of natural/ cultural management
	Communication program
	Involvement of communities and stakeholders
	Appropriate program of community benefit/ assistance
	List community benefit/ assistance program*
	Adequacy of law enforcement capacity
	List (up to) five main issues for law enforcement*
Output	Achievement of set work program
	Results and outputs have been produced
Outcome	Proportion of stated objectives achieved
	Conservation of nominated values -condition
	Conservation of nominated values - trend
	Effect of park management on local community

* *Qualitative information (can be collated but has not been statistically analysed in this project)*

Appendix 2: List of reports and data included in the threat calculations

The following PAME evaluation reports contained information on threats and are therefore included in this report:

RAPPAM Reports: Albania 2008, Bulgaria 2004, Catalonia 2006, Croatia 2009, Czech Republic 2004, Finland 2005, Georgia 2003, Lithuania 2006, Montenegro 2009, Romania 2006, Russian Federation 2003, Serbia 2009, Slovakia 2004, Slovenia 2009, Ukraine unknown

Birdlife Data: Armenia, Azerbaijan, Bulgaria, Denmark, Portugal, Russian Federation (East & West), Spain, Sweden, Switzerland, Turkey

Tracking Tool Data: Armenia, Azerbaijan, Belarus, Czech Republic, Estonia, Finland, Georgia, Italy, Latvia, Lithuania, Poland, Romania, Russian Federation, Slovakia, Turkey

Case Studies

Scotland's *Raising Standards* on National Nature Reserves 2006-2011

Jill Matthews, Scottish Natural Heritage

(c) David Miller

The first National Nature Reserve (NNR) in Scotland was declared in 1951. This was the first time land managed for nature conservation was given legal protection and for many years NNRs were the cornerstone of conservation policy in the country. By the end of the 20th century, there were more than 70 National Nature Reserves in Scotland, but there were also hundreds of other conservation areas protected by other laws. Scottish Natural Heritage (SNH), the government body responsible for nature conservation, reviewed the various types of protected area and concluded NNRs should play a slightly different role in the 21st century to that originally conceived in a very different world the previous century. In the intervening fifty years, new laws and regulations, especially those enacting European Directives, gave much stronger protection to wildlife sites. SNH decided therefore that NNRs should become showcase sites, putting Scotland's best wildlife sites on display for everyone to appreciate. The new NNR policy defined this new purpose as "raising national awareness and pride in Scotland's natural heritage". Only sites capable of delivering this policy remain as NNRs; SNH has removed NNR status from sites that cannot deliver this policy although these sites continue to be protected by other legislation.

SNH knew the wildlife on NNRs was well managed, but also knew that many NNRs were ill-equipped for their new role because they had only very basic visitor facilities. SNH also knew that not many people in Scotland were aware of NNRs because they had not been widely promoted. SNH therefore embarked on a programme to "raise standards" on NNRs and then started a campaign to promote NNRs.

The NNR Programme "Raising Standards"

The NNR Programme "Raising Standards" is a five year programme. The baseline year was 2005 and the programme runs from 2006-2011.

There are two targets in the programme

- Every NNR in Scotland has to reach a set of minimum standards by March 2011
- A sub-set of 16 "spotlight" NNRs also have to reach a set of advanced standards by March 2011. The 16 spotlight NNRs were chosen as those with the greatest potential to "raise national awareness" and used by SNH as a way to prioritise investment.

Progress is recorded using a traffic lights system – green (the standard is met), amber (work is underway but not complete), red (the standard is not met). Every six months staff have to report progress and SNH compiles a report for Scotland's suite of NNRs.

The 18 minimum standards are grouped into three sets

- Well managed - 5 standards (management of the natural and cultural heritage)
- Easy to find and welcoming – 6 standards (management for people)
- Safe, clean and well maintained – 7 standards (property management)

The 15 advanced standards for the spotlight NNRs are all on management for people and grouped into

- Visitor management – 8 standards
- Providing a range of experiences for visitors – 3 standards
- Providing learning opportunities – 2 standards
- Involving the local community and volunteers – 2 standards

Each standard has a description. There is also guidance on how to score each standard as green, amber or red; this guidance was produced mid-way through the programme although ideally it should have been available at the start of the programme.

SNH monitors progress and directs investment at raising standards, both on individual NNRs and across the suite. For example SNH has invested in upgrading a visitor centre on a spotlight NNR, and invested in producing visitor management plans and new high-quality paths and signs on many NNRs.

By the end of year 3, the progress report showed that

- 70% of the minimum standards had been achieved on all NNRs; the baseline was 45%
- 72% of the advanced standards on spotlight NNRs; the baseline was 14%.

It is unlikely that both targets will be 100% met by the end of year 5, but won't be far off. Overall the programme has been very successful in raising standards across the suite of NNRs. The programme has also been a useful way for SNH to focus investment and resources in a very varied suite of reserves.

Evaluating management effectiveness of Italian Marine Protected Areas

Carlo Franzosini, WWF Italy

In 2005, WWF Italy and Federparchi (Italian Federation of Parks and Nature Reserves) began a project to evaluate the effectiveness of marine protected areas (MPAs), on behalf of and funded by the Ministry of Environment. The project involved 5 MPAs: Miramare (northern Adriatic), Torre Guaceto (southern Adriatic), Cyclops' Islands (Sicily), Tor Paterno (Tyrrenian sea) and the Peninsula of Sinis (Sardinia).

The first step of the project was the Italian translation of the IUCN's "*How Is Your MPA doing?*" guidebook. The second step adapted the three types of indicators (biophysical, socio-economic and governance) described in the guidebook to the Italian context. The current local situation is characterized by increased human pressure and tourism, as well as a high level of welfare of the population living close to the MPAs. A Scientific Committee was set up to carry out this task, formed by six independent referees.

Field trials were then begun. For each of the five MPAs participating in the initiative, objectives, targets and indicators were defined according to their priorities and management needs. Data collection and drafting of the report was undertaken jointly with the directors of each area and their local collaborators, with the support of tutors from Miramare MPA. The data and results are published in the Italian report, which includes the translation of IUCN's original guidebook.

Torre Guaceto Marine Protected Area

Results

The results measured in the five MPAs describe the capacity to fulfil obligation in the fields of use of the maritime public domain, environmental conservation, communication / information, management of resources, and local development.

Facilities for visitors, communication and information systems (i.e. visitor centers, educational workshops, displays, mooring fields, nature trails, exhibition material, website, etc) are the most developed: 75% of potential activities usually used in the MPAs surveyed have been implemented and are fully operational. On the other hand, most of MPAs note a low level of monitoring, control and management of tourist flows (eg disposal of waste on beaches and at sea).

With regard to environment conservation, the five MPAs have a suitable range of tools and expertise: they have 72.5% of the available facilities, such as a cartographic GIS, biological monitoring programs in the core and buffer areas and studies of the biological communities. They are compliant with the European environmental certification standards “EMAS”.

Finally, encouraging sustainable local productions rates fairly well (66.7%), while resource management is poor (30%), as do the presence of programs aiming at the development of alternative energy sources, at the adoption of waste separation schemes along the coast and at sea, the management of garbage, and activities that should be certainly encouraged through specific action plans.

Implementation of RAPPAM methodology in Albania

Genti Kromidha, Institute for Nature Conservation in Albania (INCA)

In order to implement the RAPPAM methodology for assessing the protected area system in Albania, the Ministry of Environment, Forests and Water Administration (MEFWA) established a working group consisting of representatives from the Department of Protected Areas management at the MEFWA, INCA and the WWF Protected Areas for a Living Planet Project. The working group was determined the scope of the assessment, selected protected areas to participate in the assessment process, collected and assessed existing data on protected areas, organized the workshop and administered the questionnaire, analysed results and prepared recommendations for next steps.

The most thorough and effective approach to implementing this methodology is to hold an interactive workshop in which protected area managers, policy makers and other stakeholders participate fully in evaluating the protected areas, analyzing the results and identifying subsequent next steps and priorities. We invited to the workshop directors of the selected protected areas, and representative of NGOs and other specialized bodies working in the field of nature conservation to ensure that results were accurate and triangulated. There were 28 participants in the RAPPAM workshop representing 18 protected areas and some other NGOs and specialized bodies.

In order to facilitate discussions participants were divided into three groups according to the size and main ecosystem of the protected area. Group 1 consisted of mainly newly established protected areas, which are large areas with a variety of ecosystems and land use categories. Group 2 consisted of relatively small protected areas (mostly national parks) covering mainly forest areas. Group 3 consisted of protected areas where the main ecosystem was related to water (lagoons, wetlands, lakes).

It was important that during the workshop results of the questionnaire were shown to participant in graphs; this also triggered a long discussion among participants arguing about their answers and in some cases also deciding to change their answer to better respond to reality.

It is our belief that the results of the assessment on outputs accomplished by PA staff are somewhat biased. Although it was made clear that the results of this questionnaire would not be used to judge or evaluate the individual work of any PA mangers, we felt that in this section there was a general attitude to smooth the answers. In our judgment, however, the results shown on the graph demonstrate the real trend of output accomplishment even if the figures are raised by about 30%.

The assessment of biological and socio economic importance of PA seemed to be a difficult task for PA managers. They had neither the appropriate skills and capacities (specific qualifications on biology or economics) nor important reference studies on these issues. All PA managers know that their PA has a biological importance and they also do understand that these areas have a socio-economic importance especially for local communities. In general, the biological importance is considered slightly higher than the socio-economic importance, and this can be explained by the educational and institutional background of PA managers.

EMAS and ISO 14001 in Protected Area Management

Christoph Nolte, Lucia Naviglio

ISO 14001 and the European Eco-Management and Audit Scheme (EMAS) are certification schemes for environmental management systems (EMS) which organisations can apply on a voluntary basis to monitor and reduce their environmental impacts.

The international ISO 14001 series[36] defines environmental management standards and minimum criteria an organization has to fulfil in order to be certified. EMAS adheres to the same objectives as ISO 14001, but requires a commitment to continual improvement of environmental performance, and involves a much stricter formal accreditation process, whose quality is guaranteed through a legal basis and obligatory independent auditing (DG ENV 2008). Certified organizations can make use of the EMAS logo on brochures, letterheads etc, but not their products.

ISO 14001 and EMAS are operational tools that require each organization to identify procedures and indicators to monitor their management effectiveness and efficiency. Although originally created for the management of large polluting industries, they can be – and have been – applied to the management bodies of protected areas (Table 16).

Table 16: Examples of application of EMAS/ISO 14001 in protected areas (not exhaustive)

Country	Protected Area(s)	Remarks
Italy	25 protected areas have been certified ISO 14001 (17 sites) and/or EMAS (16 sites)	Quality Park Project Guidelines (Naviglio 2001). http://qualitypark.casaccia.enea.it/eng/
Spain	9 protected areas certified ISO 14001, 3 of them also EMAS	No further details on implementation given (EUROPARC-España 2008)
Finland	ISO 14001 certified 35 national parks, 19 strict nature reserves, 12 wilderness areas, 7 national hiking areas, 5000 other protected areas	Liisa Nicula *pers.comm*
France	Marais du Vigueirat (Natura 2000 site)	Pilot implementation in the framework of the project LIFE PROMESSE (CPIE RPA *et al.* 2008). http://en.life-promesse.org

Whether or not EMAS and ISO 14001 can be considered an evaluation of PAME depends on the way the tool is implemented. Ideally, an application should adopt a territorial approach, including both the analysis of the respective PA management body's own impacts on the environment (e.g. use of energy, water, waste, management of buildings, etc.) as well as all indirect impacts caused by other actors and sectors within the scope of influence of the PA administration (e.g. agriculture, industry, tourism, transport, administration, etc.). In an Italian survey, most implementing parks are reported to monitor conservation targets and include management effectiveness indicators (Naviglio and Talamo 2009).

Unfortunately, mere EMS accreditation does not permit conclusions on how the tool is being implemented. Given that EMS implementation builds on voluntary, local initiative, PA management bodies might focus on site-specific indicators they are able to measure in a cost-effectively manner, thus collecting data which may be highly relevant for local management,

[36] ISO 14001 and the quality management standards series ISO 9000 have been merged to become ISO 19011. The latter is currently being extended to also include corporate responsibility standards (then ISO 26000).

but leaving little room for cross-site comparison (e.g. for priority setting) at national or even international levels. When properly implemented, however, EMAS and ISO 14001 can be very valuable tools to inform local adaptive management.