THE BENEFITS OF COMPLIANCE WITH THE ENVIRONMENTAL ACQUIS FOR THE CANDIDATE COUNTRIES

PART E: NATURE PROTECTION DIRECTIVES
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PART E: NATURE PROTECTION DIRECTIVES

Part E of the Benefits Sub-study identifies and assesses qualitatively and quantitatively the main benefits expected from the implementation of the Habitats and Wild Birds Directives in the Candidate Countries.

The analysis covers a brief description of the requirements of the Habitats Directive (Section 1), an overview of current biodiversity status and major threats to biodiversity in the Candidate Countries (Section 2), qualitative assessment of benefits (Section 3) and quantitative assessment of benefits (Section 4).

The main assumption behind the analysis is that the Candidate Countries will by the date of accession (unless transition periods are granted), fully implement the requirements of the Habitats and Wild Birds Directives. Given that Special Protection Areas for birds - required to be set up by the Wild Birds Directive - will be part of the Natura 2000 network (to be established under the Habitats Directive), the benefits from the implementation of the Wild Birds Directive have not been explicitly assessed. These are contained in the analysis of the Habitats Directive.

1 INTRODUCTION

1.1 The Habitat Directive

The Habitats Directive requires the setting up of Sites of Community Importance (SCIs) under which certain natural habitat types and species of fauna and flora will be protected. The fundamental objective of the Directive is the establishment, by the year 2004, of a network of protected SCIs throughout the EU: Natura 2000. The Natura 2000 Network is designed to maintain both the distribution and abundance of threatened species and of terrestrial and marine habitats. A SCI is defined by the Directive as a

‘...site which, in the biogeographical region or regions to which it belongs, contributes significantly to the maintenance or restoration at a favourable conservation status of a natural habitat type in Annex I or of a species in Annex II of the Directive and may also contribute significantly to the coherence of the Natura 2000 network...and/or contributes significantly to the maintenance of biological diversity within the biogeographic region or regions concerned’.
The Habitats Directive contains four Annexes. Annexes I and II list EU sites and species of Community Importance:

- **Annex I** lists sites hosting natural habitat types of community interest whose conservation requires the designation of special areas of conservation, e.g. estuaries, vegetated sea cliffs of the Mediterranean coasts, alpine rivers and the herbaceous vegetation along their banks, natural and semi-natural grassland formations and forests of temperate Europe.

- **Annex II** lists sites, animal and plant species of community interest whose conservation requires the designation of special areas of conservation.

- **Annex III** provides the criteria for selecting sites eligible for identification as sites of community importance and designation as special areas of conservation. Stage 1 requires an assessment at national level of the relative importance of sites for each natural habitat type in Annex I and each species in Annex II.

- **Annex IV** provides a list of animal and plant species of community interest in need of strict protection.

- **Annex V** provides a list of animal and plant species of community interest whose taking in the wild and exploitation may be subject to management measures.

- **Annex VI** lists the prohibited methods and means of capture and killing and modes of transport for mammals and fishes.

Amendments to Annexes I and II of the Habitats Directive are expected in the near future in order to include species and habitats of importance to the Candidate Countries and to an enlarged Union. Some of the Candidate Countries are currently putting forward preliminary proposals for species and habitats to be included in the Annexes. However, all Candidate Countries are expected to do so by the date of accession. After approval by the Commission of the amended Annexes, Candidate Countries will have to designate within six years ‘Special Areas of Conservation’ (SACs) to be included into Natura 2000 network.
2 NATURE PROTECTION AND BIODIVERSITY THREATS IN THE CANDIDATE COUNTRIES: AN OVERVIEW

This section will present main biodiversity features and threats to biodiversity in the Candidate Countries. Where information easily available, country examples are given.

2.1 Current status of biodiversity

The natural environment in the candidate countries combines contrasting features such as very polluted hot-spots inherited from the communist past and relatively large areas of natural and semi-natural ecosystems (mainly forests) that host a remarkable biodiversity of species, many of them endemic. Main indicators used to assess the current state of nature protection and biodiversity in the candidate countries include:

- Size of protected areas (expressed as % of country surface area and number)
- Estimates of the expected growth in protected areas (where data available)
- Species status: total number, endemic and threatened species and species density

These indicators, which should be taken only as a rough indication of the nature protection and biodiversity status in the Candidate Countries, are summarized in Tables E.1 and E.2. The surface area covered by protected areas (as % of total country area) is graphically presented in Fig. E.1. Data presented has been obtained from two sources: 1) IUCN database on protected areas 2) data provided by the Candidate Country experts. The IUCN categories\(^1\) referred to in Table E.1 are presented in below (Box 1). Internationally protected areas such as Biodiversity Reserves, World Heritage Sites and Ramsar Convention Wetlands were added to the IUCN categories.

**Box 1 IUCN Protected Areas: I-V Management Categories**

<table>
<thead>
<tr>
<th>Protected Areas: Characteristics and Access</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category I: <em>Strict Nature Reserves</em>: scientific research and educational use</td>
</tr>
<tr>
<td>Category II: <em>National Parks</em>: ecosystem protection, recreation and study</td>
</tr>
<tr>
<td>Category III: <em>Natural Monuments</em>: conservation of a specific/unique natural features</td>
</tr>
<tr>
<td>Category IV: <em>Managed Nature Reserves/Wildlife Sanctuaries</em>: conservation of a particular animal or plant species</td>
</tr>
<tr>
<td>Category V: <em>Protected Landscapes and Seascape</em>: landscape/seascape protection and recreation use. May include cultural landscapes</td>
</tr>
</tbody>
</table>

*Source: IUCN (2000)*

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\(^1\) The IUCN classification, as presented in Box 1, includes three more categories: *Resource Reserves, Anthropological Reserves, and Managed Resource Areas*. Under these management categories, economic activities (i.e. resource extraction) carried out in a sustainable manner are allowed (IUCN, 1998).
A brief overview of biodiversity and nature conservation status in the Candidate Countries is provided below:

**Bulgaria:** Though a relatively small country, Bulgaria is often classified as one of the richest countries in Europe from the point of view of biodiversity. 37% of its territory is covered by forest. About 5% of all species of flora are endemic. The network of (declared) protected areas covers almost 5% of the country and includes: 3 national parks, 9 natural parks, 90 reserves, 17 biosphere reserves (more than in any other Candidate Country) and about 22 Important Bird Areas. Most of these protected areas are clustered in the Rhodope and Balkan Mountains.

**Cyprus:** Cyprus hosts (a) two Mediterranean SPAs on the southern coast which are important habitats for migratory birds (b) a marine reserve, important nesting site for the Green and Loggerhead turtles.

**Czech Republic:** The Czech nature protection strategy established a comprehensive system of protected areas mainly national parks covering 10,274 km².

**Estonia:** Estonia’s protected areas cover approximately 629,000 ha, approximately 12% of the country surface area. Forests and semi-natural areas cover around 55% of the country. 10 protected species in Estonia are also included in the IUCN Red Book; few of them are extremely rare e.g. Pearl mussel and European mink.

**Hungary:** In Hungary, there are several protected areas, covering about 5,188 km² and representing nearly 6% of the country’s area the largest part of which is forested areas. There are also several designed Ramsar sites (Hortobay, wetlands on the Tisza, Kis-Balaton).

**Latvia:** 44% of Latvian territory is forested. There are four marine sites of international importance. Important Bird Areas and two Ramsar sites exist along the coast, which are important sites for migratory birds. Latvia hosts significant populations of globally threatened species.

**Lithuania:** Natural and semi-natural vegetation cover about one third of the surface area. There are 79 protected areas that occupy 646,000 ha and represent 10% of the surface area.

**Malta:** The most significant biodiversity assets of the Maltese islands are the 25 bird species and habitats for migratory birds. In 1993, 26 marine areas and 16 coastal areas were recommended as Nature Reserves. Currently Malta has no marine protected areas.

**Poland:** Poland has 106 protected areas that cover 9.6% of its territory. Forests account for most of the protected areas and represent 28% of total country area. 12% of the plant species and 36% of animal species are endemic According to the WWF, Poland has about 100 wetland Important Bird Areas (IBAs) that host some of the largest populations of some
wetland birds such as the White Stork. Several globally, and European threatened bird species are dependent on the wetlands of Poland for their survival.

**Romania:** Romania has a high and unique level of biodiversity and intact ecological systems. 47% of the country surface area is covered by natural and semi-natural ecosystems. The Danube Delta, the largest delta in Europe, is a special ecological system (Ramsar site and world natural heritage) with vast reed beds and approximately 1,150 species of plants. The Carpathians Mountains have a high density of large carnivores and extensive forests. 40% of the European wolf population and 60% of the brown bear populations are found in Romania. Romania has a National Network of Protected Areas, which included 586 items and which covers about 4.8% of Romania’s territory.

**Slovenia:** Slovenia is a country with a rich biological diversity. About 53% its territory is covered with forest, ranking the country among the most forested in Europe. Slovenia has few protected areas and only one national park, covering 8 of the national territory According to the draft natural conservation strategy, Slovenia aims to expand its protected areas to 20% of its territory.

**Slovakia:** With the area of 1,991,463 ha, Slovakia is one of the most forested countries in the candidate countries (40.6% of the area). Amongst national protected areas, of special importance are five national parks, covering 199,724 (4%) and sixteen protected areas in the countryside covering 660,493 ha (13.4% of the Slovak territory).

**Turkey:** Turkey has a considerable biodiversity of species and habitats. Important ecosystems are the old and mixed forests in the Eastern and Western Black Sea area and Mediterranean forests. Protected areas cover 1,071 thousand hectares or about 1.4% of the country’s surface (though according to the WWF in Turkey, protected areas cover less than 1%). Turkey has a rich flora: approximately 9,500 species, of which 35% are endemic.
### Table E.1: Protected Areas in the Candidate Countries: Present and Future Areas

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Area (km²)</td>
<td>% of country</td>
<td>Area (km²)</td>
<td>% of country</td>
<td>No.</td>
<td>Area (km²)</td>
</tr>
<tr>
<td>BULGARIA</td>
<td>110,990</td>
<td>7%</td>
<td>4,910</td>
<td>4.4%</td>
<td>49</td>
<td>690</td>
</tr>
<tr>
<td>CYPRUS</td>
<td>9,251.00</td>
<td>:</td>
<td>780</td>
<td>8.4%</td>
<td>10</td>
<td>:</td>
</tr>
<tr>
<td>CZECH REPUBLIC</td>
<td>78,870</td>
<td>:</td>
<td>12,230</td>
<td>15.8%</td>
<td>44</td>
<td>4,370</td>
</tr>
<tr>
<td>ESTONIA</td>
<td>45,227</td>
<td>:</td>
<td>5,070</td>
<td>11%</td>
<td>53</td>
<td>2,160</td>
</tr>
<tr>
<td>HUNGARY</td>
<td>93,030</td>
<td>:</td>
<td>6,290</td>
<td>7%</td>
<td>54</td>
<td>2,790</td>
</tr>
<tr>
<td>LATVIA</td>
<td>64,589</td>
<td>4.262.87</td>
<td>7,750</td>
<td>12.5%</td>
<td>45</td>
<td>430</td>
</tr>
<tr>
<td>LITHUANIA</td>
<td>65,300</td>
<td>3.092</td>
<td>6,460</td>
<td>10.0%</td>
<td>79</td>
<td>500</td>
</tr>
<tr>
<td>MALTA</td>
<td>315</td>
<td>0.063</td>
<td>3.11</td>
<td>1.0%</td>
<td>7</td>
<td>:</td>
</tr>
<tr>
<td>POLAND</td>
<td>312,680</td>
<td>:</td>
<td>29,110</td>
<td>16.0%</td>
<td>106</td>
<td>2,590</td>
</tr>
<tr>
<td>ROMANIA</td>
<td>238,391</td>
<td>:</td>
<td>10,740</td>
<td>4.7%</td>
<td>39</td>
<td>12,610</td>
</tr>
<tr>
<td>SLOVAKIA</td>
<td>49,040</td>
<td>:</td>
<td>10,460</td>
<td>21.8%</td>
<td>41</td>
<td>2,290</td>
</tr>
<tr>
<td>SLOVENIA</td>
<td>20,273</td>
<td>1.535</td>
<td>1,150</td>
<td>5.7%</td>
<td>14</td>
<td>10</td>
</tr>
<tr>
<td>TURKEY</td>
<td>779,880</td>
<td>:</td>
<td>10,710</td>
<td>1.4%</td>
<td>49</td>
<td>760</td>
</tr>
<tr>
<td>TOTAL</td>
<td>186,7836</td>
<td>22,793</td>
<td>105,663</td>
<td>5.7%</td>
<td>590</td>
<td>29,200</td>
</tr>
</tbody>
</table>

### Table E.2: Species of Mammals, Birds and Higher Plants in the Candidate Countries (1997)

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>MAMMALS</th>
<th>SPECIES</th>
<th>HIGHER PLANTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total known</td>
<td>Endemic</td>
<td>% Total</td>
</tr>
<tr>
<td>BULGARIA</td>
<td>81</td>
<td>10</td>
<td>12.3%</td>
</tr>
<tr>
<td>CZECH REPUBLIC</td>
<td>:</td>
<td>:</td>
<td>N/A</td>
</tr>
<tr>
<td>ESTONIA</td>
<td>65</td>
<td>0</td>
<td>N/A</td>
</tr>
<tr>
<td>HUNGARY</td>
<td>72</td>
<td>0</td>
<td>N/A</td>
</tr>
<tr>
<td>LATVIA</td>
<td>83</td>
<td>0</td>
<td>N/A</td>
</tr>
<tr>
<td>LITHUANIA</td>
<td>68</td>
<td>0</td>
<td>N/A</td>
</tr>
<tr>
<td>MALTA</td>
<td>:</td>
<td>:</td>
<td>N/A</td>
</tr>
<tr>
<td>POLAND</td>
<td>84</td>
<td>0</td>
<td>N/A</td>
</tr>
<tr>
<td>ROMANIA</td>
<td>84</td>
<td>0</td>
<td>N/A</td>
</tr>
<tr>
<td>SLOVAKIA</td>
<td>:</td>
<td>:</td>
<td>N/A</td>
</tr>
<tr>
<td>SLOVENIA</td>
<td>69</td>
<td>0</td>
<td>N/A</td>
</tr>
<tr>
<td>TURKEY</td>
<td>116</td>
<td>1</td>
<td>0.9%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>722</td>
<td>11</td>
<td>1.5%</td>
</tr>
</tbody>
</table>

Some of the major threats to biodiversity in the Candidate Countries are presented below. These have been differentiated in direct and indirect threats. Examples include:

a) Direct threats:

- Habitat loss and fragmentation due to urbanization, infrastructure development and extraction of natural resources:
  - Water drainage affects aquatic ecosystems in Bulgaria and the Verkne River Valley in Lithuania;
  - Peat extraction threatens aquatic ecosystems in Bulgaria and the Sulinkiai Peatland in Lithuania;
  - Dams are a threat to biodiversity in Turkey and the neighbouring countries (i.e. dams on the Tigris). In Poland, the upper and lower wetland areas of the Vistula Valley - recognized as an important European ecological corridor – have been significantly altered by dam construction;
  - Flood defence poses pressure on Poland’s wetland habitats;
  - Uncontrolled developments are a significant threat to biodiversity in Turkey. Poorly planned developments have already lead to the loss of 1,300,000 ha. of wetlands, 87% of the peatlands, 88% of the old forests of Northeast Anatolia,
79% of sand dunes in Istanbul area and 75% of sweet gum forests (WWF – Turkey, 2000).

- Mining resulted in a very poor water quality of the Vistula River, a major ornithological sanctuary and European ecological corridor with over 180 breeding birds.
- Intensive logging threatens the Birzai Forest in Lithuania and the Carpathian forests in Romania;
- Loss of groundwater in Romania as a result of hydro technical works resulted in total or partial drying out of 20,000 hectares of forest.

➤ Transport:
- Coal transport is a serious threat to the Vistula River. Moreover, the East-West Waterway project aimed at channelling 864 km of the Vistula River will destroy and fragment river bank habitats, threaten old river beds, pristine sandy islands etc.

➤ Over-exploitation of ecosystems and species:
- Hunting and collection threatens species of snakes, lizards, marine mammals and coral banks in Malta and endangered species in Bulgaria;
- Overgrazing in Romania reduces soil resources which contributes to severe erosion and ecosystem degradation;

➤ Industrial agriculture:
- The development of monocultures of forests and crops in Poland replaces small ponds, semi-flooded areas that contain rare wetland species. Wet meadows such as those located on the Warta and Bug – some of the largest rivers in Poland - are slowly disappearing.
- Loss of wetlands along the Danube River in Romania due to wetlands being converted to agricultural areas.

➤ Invasion by introduced species (i.e. Malta and Bulgaria);

➤ Insufficient level of protection due to important biodiverse areas not being included in protection systems and due to lack of management of currently established protected areas
- This is a threat for plant species with restricted distribution i.e. plants growing on coastal cliffs in Malta;
- In Poland, lack of management expertise and practice is a major threat to wetlands i.e. Luknajno Lake and Karas Lake (Ramsar sites) and national parks i.e. the Biebrza National Park.

b) Indirect threats:

➤ Pollution:
- Acid rain threatens forests in Latvia and Romania;
- Discharges of untreated wastewater to coastal areas (e.g. Latvia);
- Illegal waste dumping (e.g. Malta);
- Eutrophication exerts a negative pressure on Poland’s Ramsar sites; the Swidwie Lake is exposed to slow eutrophication;
  - Excessive use of pesticides in Malta and Romania (particularly in Danube Delta) poses a severe threat especially to fish, bird and marine mammal species.

➢ Tourism:
  - Increase access and interest in Poland’s landscape (especially from the Western tourists) threatens wetland areas i.e. the Great Mazurian Lake District. Tourism also brings noise nuisance and lake pollution as a result of poor sanitary facilities at tourist centres.
  - Uncontrolled tourism in Malta and Latvia;
  - Uncontrolled tourism and camping, burning of juniper and uncontrolled access of off-road motor vehicles threaten Bulgarian and Romanian mountainous ecosystems.

➢ Trade:
  - Rare and endangered species of plant bulbs from Turkey and Romania (Snowball bulbs) are sold on the market.

➢ Conflicting use interests:
  - Privatisation of forest areas in Hungary, Slovenia and Romania.
  - Lack of implementation and enforcement of nature protection legislation
    - Institutions responsible for biodiversity conservation lack financial and organizational resources to do the job (e.g. Romania and Turkey).
  - Low public awareness (e.g. Estonia in Romania).

This section will also be used as a framework against which the qualitative and quantitative benefits presented below will be assessed.

The baseline scenario against which the analysis is carried out is that further erosion and loss of ecosystem and species biodiversity is likely to occur in the Candidate Countries if the Habitats and Wild Birds Directive will not be appropriately implemented.
3 QUALITATIVE ASSESSMENT OF THE BENEFITS

This section provides an overview of the qualitative benefits expected to result from the implementation of the nature protection directives in the Candidate Countries.

The presentation of the benefits is linked where possible to the biodiversity threats presented above and which are likely to be reduced/eliminated if the directives are adequately implemented. This chapter is complemented by Chapter 4 (Quantitative Assessment).

3.1 Approach and Assumptions

As the protected sites under the Wild Birds Directive will be included into the Natura 2000 Network, the assessment will focus on the Habitats Directive. The major assumption behind the analysis is that the candidate countries will implement the nature protection by the date of accession. Article 6 of the Habitats Directive requires the Member States to:

• ‘…establish the necessary conservation measures involving, if need be, appropriate management plans specifically designed for the sites or integrated into other development plans, and appropriate statutory, administrative or contractual measures which correspond to the ecological requirements of the natural habitat types in Annex I and the species in Annex II present on the sites’ (paragraph 1).

• ‘…take appropriate steps to avoid, in the special areas of conservation, the deterioration of natural habitats and the habitats of species as well as disturbance of the species for which the areas have been designated, in so far as such disturbance could be significant in relation to the objectives of this directive’.

The list of habitats and species contained in the Annexes of the Habitats Directive does not yet include contributions from the Candidate Countries; however, the species and habitats to be added are expected to be substantial.

3.2 Benefits: qualitative assessment

Under the provision of Article 3 of the directive, the Member States have to establish a coherent network of protected areas, Natura 2000. The Member States are required to ‘improve the ecological coherence of Natura 2000 by maintaining, and where appropriate developing, features of the landscape which are of major importance for wild fauna and flora’. It therefore seems reasonable to assume that the protection of designated SACs identified by the candidate countries under the directive will help protect, in particular, the ecologically sensitive or specifically biodiverse sites. It is important to note at this stage that most endangered species are already subject to protection under several national laws, but that implementation of these laws is sometimes poor. The implementation of the nature protection directives in the Candidate Countries is likely to result in the extension and better
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The protection of important species/habitats. Hence, the potential for benefits from the directive is high.

**Threats and Benefits:**

The Habitats Directive addresses directly some of the biodiversity threats identified in Section 2. For example, Articles 12 and 13 of the directive prohibit the deliberate capturing and killing of animal species as well as of picking, collecting, cutting, uprooting or destruction of plant species listed in Annex IV (a) and (b). Examples of important sites to be protected in the Candidate Countries and examples of biodiversity threats expected to be reduced/eliminated following implementation include:

- **Bulgaria:** Some widely represented bird species are not protected at all, and there is no prohibition of bird hunting. The wolf (*Canis lupus*), currently unprotected, will benefit from protection. Expected threats to be avoided as result of implementation are the unsustainable exploitation of terrestrial habitats, poorly planned developments that threaten especially forests and loss of aquatic ecosystems due to water drainage.

- Protection of marine ecosystems will be enhanced in **Cyprus**. The risks from oil pollution will be reduced, aquaculture will be better managed, and urban and tourism developments will have to take into account nature protection considerations;

- **Czech Republic:** more environmentally sustainable agricultural practices (i.e. lower use of pesticides and fertilizers).

- **Estonia:** main benefits can be derived from preventing bog peat harvesting which is a threat especially for the mammal species listed in the Estonian Red Data Book, from reduced drainage of forests and mires, from the prevention of poorly planned transport infrastructure (e.g. road networks). Better-managed tourism and recreation are other likely benefits.

- **In Hungary,** implementation will provide protection to species typical to the central Hungarian Plain and, in particular those that depend upon traditionally managed grasslands and woodlands. Avoided biodiversity threats include excessive hunting, expansion of agriculture and unsustainable forestry activities.

- **In Latvia,** the main benefits could be derived from managing over-extraction of forest resources, protecting newly privately owned forests, prevent hunting, progress towards more sustainable tourism and recreation, measures promoting less intensive farming and the management of the expansion of human settlements and the agricultural areas.

- **In Lithuania,** benefits could arise from reduced exposure of protected areas to agriculture, managed growth of built-up areas and reduced over-exploitation of forest resources. In addition, implementing measures looking at reduce pressure on protected areas from transport, fishery, tourism and recreation will bring benefits. Important conservation areas such as the Curonian Spit and Lagoon, as well as the wetland regions in the south of the country will be protected.
The key benefits for Malta’s biodiversity will be the prevention of bird shooting and trapping and reduced pressure from tourism.

In Poland, benefits will arise from measures to tackle waters and soil pollution, improve forest management, and progress towards more sustainable infrastructure development planning, sustainable exploitation of resources etc.. Biodiversity will gain from measures against illegal species capture and trade, vandalism, and pesticides use in agriculture. The Białowieska Forest is the main world-refuge for the European bison and its prey (deer, elk, roe-deer); all these populations are in decline. Although the forest is formally declared, under the national law as protected, integrated conservation measures under the directive will contribute to the real preservation of these species.

Implementation in Romania will deliver adequate protection of the Danube Delta. It will also provide protection for sites in the Carpathian Mountains threatened by pollution and land use changes. Other benefits could be derived from less pressure on forest from local and trans-frontier pollution, and from more sustainable forestry.

In Slovenia, the rich biota of the Karst region, currently under threat from human activities, should be protected and the planned highway infrastructure to the coast might be revised to protected designated zones and the continuity of the ecological corridors.

In Turkey, most of the benefits will result from increased protection of the declared protected areas; less habitat destruction through forests and grasslands conversion into arable fields; controlled grazing; prevention of forest fires and illegal logging; and other development activities (e.g. hunting and gathering, road and dam building, mining).

Protecting biodiversity in the Candidate Countries will not only benefit the countries themselves but also Europe and the whole world. The Candidate Countries for example host species that are not longer found throughout Europe:

- The black stork (Ciconia), beaver (Castor fibre), peregrine falcon (Falcon peregrinus) (Latvia);
- The wolf (Canis lupus) (Latvia, Bulgaria and Romania);
- The leopard snake (Elaphe situla), and the Loggerhead turtle (Caretta) (Malta).

Steps in the implementation of the directives

Proper implementation of the directives requires the partners in the Candidate Countries to have sufficient skills and institutional capacity to do their work. This process has started especially through EU-funded and bilateral co-operation projects. Candidate countries have already started to (and will continue to) benefit from know-how transfer projects (under PHARE notably, and bilateral co-operation) in the area of nature protection. These projects...
draw on the experience of the EU Member States with the implementation of the Habitat Directive and Natura 2000:

- In Estonia, a new GIS-based biodiversity monitoring system has been developed within the framework of a Phare-supported project in 1998;
- In the Czech Republic, a training course for national experts on unified habitat mapping techniques, data storing and assessment methods adapted to the Habitat Directive was put forward as a bilateral Pre-Accession Project proposal in February 2000.
- In the Czech Republic, a PHARE-funded project on the ‘Development of Implementation, Strategies for Approximation of the Environmental Acquis was carried out in 1998 and has provided an assessment of the institutional background at national, regional and local level, a detailed approximation plan and a plan for the co-ordination of approximation activities.

Implementation of the nature protection directives is likely to lead to increased awareness of the importance of protecting biodiversity and opens up the opportunity for the adoption of a more integrated approach towards nature protection. Few examples are already available:

- Poland has a well-developed system of nature protection. Under the nature protection requirements set up by the EU, the government intends to buy private grounds currently located inside territory of the National Parks to ensure better protection of these areas. Additionally implementation of the agri-environment programmes in Poland will require farmers to use more environmentally sustainable agricultural practices that will be especially important for fields located in biodiversity valuable territories.

Malta has developed some legislation for nature protection. However, this is not adequately implemented: out of the existing 22 nature reserves only two are properly managed. Malta’s land is under high pressure from development. The implementation of the directive is likely to increased awareness of the importance of habitats and species at national level and European level. Raised awareness will have a positive impact on reducing high pressures from development.
4 QUANTITATIVE ASSESSMENT OF BENEFITS

This chapter, while focusing primarily on the extent of the benefits, notes corresponding qualitative benefits where appropriate.

4.1 Environmental benefits

Ecosystem benefits are the main benefits provided by the implementation of the nature protection acquis. Through creation of European-wide list of habitats and species of importance, the directive aims to protect species and habitats through a co-ordinated approach requiring the co-operation of countries in areas where species are migratory or habitats span across several territories. The level of benefit that implementation brings will depend to some extent on the effectiveness of this approach and the political will of the countries concerned. There is evidence of improved compliance with the directive as a result of cross-compliance measures taken by the Commission in respect of disbursement of the Structural Funds.

As mentioned in the second section, the main benefit to the candidate countries lays in the increase in protected areas, and their protection from human activity. The bigger the surface protected, the broader the benefits - if the directive requirements for conservation and protection measures are put into place. The total surface of protected areas is expected to increase in the candidate countries. While this is driven mainly by national strategies and plans, the existing and new areas will benefit from the implementation the Habitats directive. As noted in Table E.2 and Fig E.2 some of the Candidate Countries have stated their intention to increase the total area under protection by 2020. Examples of expected increase in protected area’s share of country surface area (expressed as % of country surface area) include:

- **Bulgaria**: the increase in protected area may be by 2.5 percentage points, from 5 % of Bulgaria surface area in 1997 to 7.5% by 2020;
- **Estonia**: 2.3 percentage point increase, from 16% of the country surface area in 1997 to 18.3% by 2020;
- **Lithuania**: expected increase of 8 percentage points, from 11% of country surface area in 1997 to approximately 19% by 2020;
- **Malta**: expected 10 percentage point increase, from 18% of country surface area in 1997 to about 28% by 2020 (where there is a competing demand for land)
- **Slovenia**: 26 percentage point increase, from 6% of country surface area in 1997 to 32% by 2020
It is important to bear in mind that the foreseen increase in protected areas is relative to the share of each country surface area under protection at present. As of 1997, the total surface of protected areas under national legislation varies:

- 1% of the total country surface in Malta and Turkey,
- 8.4% in Cyprus,
- 10% in Lithuania,
- 12.5% in Latvia,
- 16% in Poland and
- 21.8% in Slovakia.

A large number of these protected areas have been declared in the candidate countries after 1989. However, most do not benefit from real protection. It is not possible at this stage to assess how many of these protected areas are simply ‘paper parks’ that exist only in official texts and lacking systems of protection measures and management. The implementation of the directive will protect habitats and species under threat to be restored and to benefit from effective protection measures, hence providing a potential improvement of the current...
biodiversity status. The scale of such a long-term benefit is dependent on the current total area protected by the Candidate Countries, which overall represents 134,080 km² (including international sites such as Ramsar sites). The total area including IUCN categories I-V amounts to 105,663 km². Out of this, 10 710 km² are protected in Slovakia (21.8% of total territory), 12,230 km² in the Czech Republic (15.8% of total territory) and 29,110 km² in Poland (16% of total territory). The extent to which protected areas lack sufficient protection measures is a determinant of the scale of medium and long-term benefits.

Candidate countries are likely to seek the protection of species of Community interest, defined in Article 1 of the directive as

(i) Endangered, except those species whose natural range is marginal in that territory and which are not endangered or vulnerable in the western palearctic region; or

(ii) Vulnerable, i.e. believed likely to move into the endangered category in the near future if the causal factors continue operating; or

(iii) Rare, i.e. with small populations that are not at present endangered or vulnerable, but are at risk. The species are located within restricted geographical areas or are thinly scattered over a more extensive range;

(iv) Endemic and requiring particular attention by reason of the specific nature of their habitat and/or the potential impact of their exploitation on their habitat and/or the potential impact of their exploitation on their conservation status.

Since many countries do officially protect certain of these species but fail to do so in practice, one of the main ecological benefits from implementation will be the conservation of species that are currently disappearing. The benefit will be all the more significant that the number of endemic and threatened species is relatively high in the candidate countries. Overall in the candidate countries for which data was available, there were 722 endemic mammals and 3,402 endemic plants. Importantly, 105 mammals species are threatened, 76 birds species and about 2,110 plant species are endangered.

**Plants**

*Endemic plants:* The number of endemic plants is relatively high in the Candidate Countries, accounting for 14% of the total plant species. Examples include:

- Turkey: 31% of total plant species or 3,000 endemic plants
- Bulgaria: 9% of total plant species or 320 endemic plants
- Hungary: 1.8% of total species or 38 endemic plants.

For the sake of comparison, endemic plant species account for only 1.18% of total plant species in Austria, 2.9% in France and 1% in the UK.

*Threatened plants:* Also, the number of threatened plant species is very high in the candidate countries (e.g. 2,110 species), representing 8.8% of the total plant species in the whole area.
Country examples include 20% in Turkey, 3.8% in Romania and 2.7% in Bulgaria. Given that 14% of these species are endemic, the protection of these species under the Habitat Directive would potentially yield very significant benefits on the scale of the 2,110 endangered species in the whole Candidate country area.

**Animals**

**Endemic animals:** Due to the lack of data on endemic mammals, but given the presence of 10 endemic species in Bulgaria representing 12.3% of the total mammal species, it is assumed than the protection of habitats will generate important benefits in biodiversity value in such countries. Endemic bird species are also important in Turkey where they represent 33% of bird species, and Bulgaria where they represent 9% of total bird species.

**Threatened/endangered animals:** The second major benefit is the future protection of threatened and endangered species. In the candidate countries, these species represent a substantial part of the countries’ total species populations. Overall, the proportion of threatened mammal species, in particular, accounts for a significant share of the total mammal population. Examples include:

- 19% in Romania,
- 15% in Turkey,
- 14% in Slovenia
- 12% in Poland
- 7.4% in Lithuania

Slovakia for example has many endangered species (Table E.3); most of these are likely to be protected as a result of the implementation of the directive.

**Table E.3. Endangered species in Slovakia**

<table>
<thead>
<tr>
<th>Groups</th>
<th>Number of Species</th>
<th>Endangered (Total number)</th>
<th>Endangered (% of total)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mammals</td>
<td>85</td>
<td>55</td>
<td>65</td>
</tr>
<tr>
<td>Birds</td>
<td>352</td>
<td>114</td>
<td>32</td>
</tr>
<tr>
<td>Reptiles</td>
<td>20</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>Amphibians</td>
<td>20</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>Fishes</td>
<td>78</td>
<td>35</td>
<td>45</td>
</tr>
<tr>
<td>Invertebrates</td>
<td>&gt; 28 000</td>
<td>5 021</td>
<td>18</td>
</tr>
</tbody>
</table>
The benefits from the protection of mammal species will be significant as ecosystems in the Candidate Countries host mammals that are currently classified in the existing Annexes II and IV of the directive. If these species are not included in the proposed amendments to the Annexes II and IV, candidate countries will have to strongly justify this omission to the precedent set by the current Annexes. Country examples of minimum expected coverage of Annexes include:

- Malta: 13 Annex II mammals and 19 Annex IV mammals

The number of threatened birds is relatively smaller, but 3% of the total bird species found in the candidate countries is threatened. Examples include:

- Bulgaria: 5% of total bird species
- Hungary: 4.9% of total bird species
- Romania: 4.5% of total bird species
- Turkey: 3.6% of total bird species

Most of these species are expected to be protected if the nature protection directives are implemented. In addition:

- **In Malta**, about 50,000 migratory birds are birds of prey (out of 10 millions passing over the island each year); hence restrictions on hunting practices will result in increased protection of these birds of high ecological importance.
- 48 ornithological sites of EU importance in **Bulgaria**, 34 of which are part of the Corine biotope network. Currently, 34 birds indicated in the directive are not protected in Bulgaria. 6 of the hunted wild species are strictly protected by in the Habitats Directive but are not currently protected in Bulgaria. The implementation of the directives should improve protection.

### 4.2 Social Benefits

Improved amenity will be a major social benefit not only for people living in the Candidate Countries but also for visitors coming from Europe or other parts of the world. This benefit is enhanced by the fact that cross-border (‘adjoining’) areas of conservation both between EU/candidate countries and the candidate countries themselves is significant: Austria/Czech Republic (Thayatal Nature Reserve and the Podyji National Park), Austria/Hungary (Neuseidlersee Nature Reserve), Czech Republic/Germany (Sachsichse Schweiz National Park), Czech Republic /Poland (Krkonose National Park), Czech Republic /Slovakia (Protected Landscape Area White Carpathians), Italy/Slovenia (Foresta du Tarvisio nature Reserve). These benefits are not quantified in this study.

One of the social benefits is expected from a reduction in hunting practices, which would ensure a safer living environment (i.e. for the Maltese people).  

ECOTEC in association with EFTEC, IEEP, Metroeconomica, TME & Candidate Country Experts
4.3 Economic benefits

Economic exploitation of SACs, according to Article 6 (3) of the Habitats Directive, is still allowed to take place so long as activity does not negatively affect the conservation status of the habitats and species. The directive states that ‘Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives’. Certain economic activities (e.g. small scale, traditional and tourism) may benefit from the network of SACs. This will have positive effects on the local economy and would help conciliate local conflicting interests that may arise as result of protection of certain areas.

Recreation and tourism benefits

At present, important economic benefits related to protected areas are missed by the candidate countries mainly due to lack of proper conservation measures and management of these areas. As shown by examples from the Member States, Natura 2000 will preserve the natural attractiveness of the region and so attract more tourists and provide local revenues. Tourism, as long as practiced in sustainability limits, will give an economic spin-off to local economies by creating small-scale opportunities for recreation (bathing, country-skiing, eco-tourism with guided tours), traditional tourism (e.g. local handicraft), linked employment and hence, revenue generation. Examples from the Member States include:

- In the South East region of the UK, the New Forest SAC, part of the Natura 2000 Network, is a complex matrix of habitats, rare and fragmented (including three ‘priority’ habitats) and supported by a pastoral economy and tourism through high recreational usage (approx. 17 million recreational visits a year). Tourism is the larger employer of local people and generates £100 million per annum but the local negative impacts from recreation on the habitats of the protected area (habitat loss, erosion) are tackled by the LIFE Nature Project by involving local population and raising awareness throughout the area, including the tourism actors. The objective of the project is to secure the objectives of the Natura 2000 network are met.

- In the UK, the Isle of Purbeck contains several Natura 2000 sites with rare species, with 4.3 million visitors per year, tourism accounting for 14% of the county’s annual income. The local authorities have set up a strategy involving local populations to reduce the impact of traffic on the ecosystems.

At present, under the harsh current economic conditions, the level of tourism (at least domestic tourism) has decreased significantly over the last ten years in some parts of the CEE region. This phenomenon affects for example the Danube Delta in Romania where tourism has decreased from 59,000 Romanian visitors and 80,000 foreign visitors in 1980 to 13,000 and 5,500 in 1997 respectively. In Turkey it is expected that tourism activities will diversify and expand because of the richness of the ecosystems.
Table E.4 below gives examples of tourism levels (in terms of number of visitors) to some of the protected sites in the Candidate Countries. Annual visitor flows vary across country and type of protected area.

**Table E.4: Total Number of Visitors in some Candidate Country Nature Areas**

<table>
<thead>
<tr>
<th>Country</th>
<th>Site</th>
<th>Year</th>
<th>Total Number of Visitors per year (in thousands)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CZ</td>
<td>Sumava National Park (68,520 ha)</td>
<td>1999</td>
<td>1,780</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1998</td>
<td>1,850</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1992</td>
<td>860</td>
</tr>
<tr>
<td>EE</td>
<td>Lahemaa National Park (72,910 ha)</td>
<td>1999</td>
<td>82,771 (6,184 registered)</td>
</tr>
<tr>
<td>LV</td>
<td>Teicu nature reserve</td>
<td>Yearly average</td>
<td>1-15</td>
</tr>
<tr>
<td>LI</td>
<td>All national parks</td>
<td>Not specified</td>
<td>2,000</td>
</tr>
<tr>
<td></td>
<td>All regional parks</td>
<td>Not specified</td>
<td>3,000</td>
</tr>
<tr>
<td></td>
<td>All nature reserves</td>
<td>Not specified</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>All protected areas</td>
<td></td>
<td>5,005</td>
</tr>
</tbody>
</table>

Source: partners in the Candidate Countries.

It could be observed that the difference between registered and unregistered visitors in Estonia is striking. Unregistered visitors can indeed threaten the sustainability of the site if they do respect protection rules (i.e. not follow the marked paths, pick up protected plants, camp in non-designated areas, set forest fires). The implementation of key protection measures under the directive should result in more sustainable tourism.

Sustainable and sustained tourism to the sites of the Natura 2000 can provide a job opportunities and revenues (e.g. from entrance fees). However tourism may pose threats to protected areas if the flows of visitors are not regulated. Making sure that tourism will not offsets the benefits gained overall from the implementation, will be a challenge for the national and local governments in the candidate countries.

The benefits from nature protection to local and national economies may act as strong incentives for the candidate countries, many of which struggle with high unemployment levels and tight government budgets. But however attractive the benefits from the tourism industry may look, promoting tourism for the sake of economic gains should not be the main purpose of nature protection. The main role of the protected areas should be the conservation of biodiversity.

**Direct Employment benefits**

The directive requires the establishment of appropriate management plans for protected areas that fall under the scope of the Habitats Directive. Management plans will include activities
such as monitoring, reporting and assessment of the conservation status of habitats and species protected within the Natura 2000 Network, as well as research and scientific work to back up the State’s co-ordination task, as well as daily administrative tasks. Taking into account that the number of protected areas is likely to increase in the near future, activities related to nature protection above are likely to generate a limited level of employment. However, this will be a significant benefit for the candidate countries, taking into account the high unemployment rates they are faced with at present.

In some of the candidate countries, protected areas already sustain certain levels of employment on site and in the managing authorities and it is expected that these levels will remain during the implementation phase, with a potential for growth. Country examples of jobs linked to the management, administration, maintenance of protected areas include:

- 795 people are employed by Lithuanian National Parks network
- 150 people are employed by the Estonian National Parks network.

Employment figures vary across countries where some large parks employ more people than the total national park network and some employ a limited number of persons:

- Sumava National Park in the Czech Republic employs 375 people
- Teicu Nature Reserve in Latvia employs 10 staff.

At present, employment levels and opportunities linked to the implementation of the directive at the level of state authorities seem limited:

- In Slovakia implementation still requires the employment of 500 experts. Positive impacts are expected in the form of a strengthening of administrative capacity and ultimately law implementation and enforcement.
- In the Czech Republic, implementation will require employment of 145 new staff in state institutions, including 20 scientific experts per year over the 2001-2003 period and 31 employees at the Czech Environmental Inspection.

### 4.4 Wider economic benefits

Wider economic benefit expected to result indirectly from nature protection include a range of services provided by forests, wetlands and other ecosystems such as water filtration; the prevention of floods and erosion; and provision of carbon sinks. This benefit will be notably significant in countries where forests account for a large share of the territory: Lithuania (33%), Czech Republic (34%), Bulgaria (36%), Latvia (48%), Estonia (52%) and Slovenia (58%).

Forests are both key habitats and economic resources in candidate countries. Currently, forestry in some of the Candidate Countries is largely unsustainable (extensive and uncontrolled logging) and uncompensated by replantation, which has dropped significantly after 1989 (i.e. Romania). If this pattern continues, the forest resources will be depleted in the
near future. Forest lost will be a major economic loss. Implementing the Habitats and Wild Birds Directive may stimulate the development and implementation of sustainable forestry strategies. Between 1995-2000 the evolution of the forest growing stock varied across the Candidate Countries. It remained constant for example in the Czech Republic (at 261 m3/ha), Hungary (174 m3/ha), Poland (213 m3/ha) and Slovenia (283 m3/ha), it increased by 2-3% in Slovakia, Lithuania, Turkey and Estonia. The growing stock decreased in Bulgaria and Latvia by 2%. This trend is mirrored by growth in wooded area, which increased by a similar scale or remained constant while the intensity of felling followed the same downward path (-18% in Latvia, -6% in Lithuania, -4% in Slovakia, -3% in Poland and Hungary while felling intensity remained constant in other candidate countries. It is likely that implementing the directive will support the current trend and improve the sustainability of forestry further.

The training requirement for staff and national experts in the field of nature protection monitoring techniques and management has led to several co-operation projects to ensure nature protection specific ‘know-how transfer’ takes place. Increased scientific and management skills can be seen as a wider economic benefit as it increase the scientific capacity of national staff and can lead to economic benefits in the future for the country (skills can be transferred further to other countries). Wider social benefits in the form of institutional strengthening that can in the future lead to economic benefits (though better implementation).

Overall the benefits presented above are summarised in Table E.5.
Table E.5: Areas of Potential Benefits from the implementation of the Habitats Directive

<table>
<thead>
<tr>
<th>ENVIRONMENTAL (Ecosystems, species, land use)</th>
<th>ECONOMIC (Employment, tourism)</th>
<th>SOCIO-CULTURAL (Health, recreation, amenity)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Enhanced protection of protected areas</td>
<td>• Generation of revenues from tourism (i.e. access charges)</td>
<td>• Employment (job creation)</td>
</tr>
<tr>
<td>• Sustainable harvesting of timber and non-timber products</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Restricted fishing &amp; hunting</td>
<td>• Growing opportunities for eco-tourism</td>
<td>• Recreation</td>
</tr>
<tr>
<td>• Gene harvesting</td>
<td>• Additional EU-funding (Life Programme for management, etc…)</td>
<td>• Amenity value</td>
</tr>
<tr>
<td>• Controlled grazing</td>
<td>• Stimulation of local economic development</td>
<td>• Increased public environmental awareness</td>
</tr>
<tr>
<td>• Wildlife habitats for native &amp; migratory species</td>
<td></td>
<td>• Public participation in decision-making²</td>
</tr>
<tr>
<td>• Improvement of environmental data and database</td>
<td></td>
<td>• Education and research promotion</td>
</tr>
<tr>
<td>• Sustainable agriculture</td>
<td></td>
<td>• Networking</td>
</tr>
<tr>
<td>• Protection of migratory birds across borders</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Maintenance of ecosystems functions (rivers, mountains)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Gain in Biodiversity value</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2 Under the Habitats Directive, the public must be consulted in case a development plan is likely to have a significant impact upon a Special Area of Conservation (SAC) or in case the re-introduction of native species is decided. The Directive also requires MS to promote education and general information on species protection and conservation.
5 CONCLUSIONS

The extent to which these benefits will take place depends on the inclusion of species and habitats proposed by the Candidate Countries in the Directive’s Annexes I, II and IV (a) and (b). Therefore it is difficult at this stage to assess further the quantitative benefits related to the species to benefit from protection under the Habitats Directive. Some countries have already asked for the addition of certain species to the Annexes of the Habitats and Wild Birds Directive. For example Lithuania has requested the addition to the Annex I of the Wild Birds Directive of the several species considered rare or in danger of extinction in Lithuania and the Baltic Sea region: Steller’s eider (*Polysticta stelleri*), the Dunlin (*Calidris alpina Schinzii*) and the Little gull (*Larus minutus*).

Requests for the exemption of certain species from the Annexes of the nature protection directives have been also submitted by certain Candidate Countries. Lithuania for example has asked for exemption of wolves (*Canis lupus*) and beavers (*Castor fiber*) from the Annex II (species of Community interest) and IV (strictly protected species) of the Habitats Directive. If this request is accepted by the European Commission, wolves and beavers will continue to be hunted in Lithuania (while under protection in the EU countries). Estonia is also likely to request exemption of certain species (not clear which species will make the subject of these request).

The above-mentioned benefits – increase in surface area and species protected – should not be seen solely as a unilateral gain. Protecting biodiversity in the candidate countries will bring biodiversity benefits at European and global scales. Hence the results are presented at the whole Candidate country region scale, supported by some country-specific examples.

It is important to bear in mind that the implementation of the Habitats Directive may imply some negative impacts on nature protection in the candidate countries. These potential caveats include:

- Article 4 (2), Paragraph 2 of the Habitats Directive allows for more flexibility in the designation of protected area in the circumstances where habitats protected exceeds more than 5% of the country surface area. As shown in Table E1, most of the protected areas in the Candidate Countries are already exceeding 5% of the country surface area; as a result of implementing the directive, strict nature conservation policies in some Candidate Countries may be actually ‘loosened’;

- The conditions aimed at ensuring a coherent European ecological network are not clear;

- Biodiversity conservation can be restricted in case of development projects of overriding public interest; this may prove problematic in the candidate countries where economic development is a first class priority.
The potential benefits from implementing the Habitat and Wild Birds Directive in the candidate countries are significant, providing the full implementation of the directive, and the coherence of the Natura 2000 Network to be established. As demonstrated in Sections 1 and 2, the main benefits are the environmental benefits in terms of ecosystem and species protection, or ‘biodiversity benefits’ altogether. Social and economic benefits are less significant and will greatly depend on the level of implementation once the Network is established.

The biodiversity benefits are mainly those resulting from the effective protection of endangered species and fragile ecosystems. To the EU as a whole, this implies high benefits, given the richness of biodiversity in the candidate countries, both in terms of highly valuable habitats (forests, mountains, wetlands) and mammals, birds and plants.

Over a long-term time period, and at institutional level, the implementation of the directive will provide great opportunities for know-how transfer (habitat and species inventory, monitoring of the sites, management) and institutional strengthening which are key elements for an effective nature protection policy. At a political level, the use of stakeholder consultations, public reporting, and a more integrated approach to regional development including sustainable agriculture, sustainable tourism and land-use will in the future lead significant benefits to both the environment and the populations.