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Managing and Monitoring of the Natura 2000 Network

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EDITORIAL

Natura 2000 - cornerstone of EU biodiversity policy

Over the years, growing concern about environmental issues, including threats to biodiversity and the loss of green space, has sparked political, social and practical responses in Europe and the rest of the world. The creation of European initiatives, such as the Birds Directive in 1979 and Habitats Directive in 1992, reflect the transnational dimension of natural processes and species migrations. The Natura 2000 network of sites, designated through the Habitats and Birds Directives, is a core element of the EU's green infrastructure.

Natura 2000 has a key role to play in meeting the 2020 target of halting and reversing biodiversity loss in the EU. Now that the network has largely been established, the focus is on effective management of the sites. This Thematic Issue examines the key challenges and complexities of management and restoration of biodiversity within the Natura 2000 network.

Covering over 18% of the landmass of the EU, and an increasing part of the marine environment, Natura 2000 encompasses both public and privately owned and managed land and water. During its formation, governmental and non-governmental organisations (NGOs), scientists, policymakers, politicians, practitioners and (to varying degrees) the public, input to the process. However, as Europe moves further into the implementation phase for Natura 2000 sites, the need for a functioning network, which positively fosters integrated management and involvement of diverse stakeholders, in particular the site owners, users and managers, could not be more important.

There are significant opportunities to involve diverse groups, including NGOs, and ways to engage local people in management of nature and protection of their natural resources. At the same time, there is a need to develop meaningful messages to convey the fundamental importance of interdependencies between man and nature. This is particularly true of current discussions to define the meaning of the concept and reality of 'wilderness' to support the management of protected areas, as explored in the article, '**What does 'wilderness' mean? A European definition is needed for protected areas**'.

The article '**First EU wide economic valuation of Natura 2000 networks**' discusses a new perspective on the socio-economic benefits of investing in the Natura 2000 network. A preliminary figure of €223 billion

is a minimum estimate value of the many 'ecosystem services', such as carbon sequestration, water quality and food provision, that Natura 2000 sites provide for society. But the article stresses the need to agree a common methodology for calculating economic value and suggests how this could be taken forward. Yet, attaching economic value to nature and the services it provides can be difficult and technically challenging as a concept, as well as highly emotive. Whereas conservationists rightly emphasise the intrinsic value of nature, they can neglect the socio-economic element of Natura 2000 sites, although it is often a vital priority for local stakeholders.

There is a need for greater community engagement, coupled with clear and unambiguous communications in the management of Natura 2000 sites, as discussed in '**Improved local management needed for the Natura 2000 network**'. The case study on a Belgian national park, '**Hoge Kempen: from coal mining landscape to oasis of biodiversity**', reveals how a community project has dramatically increased awareness of biodiversity and brought significant financial rewards to the region. A better understanding between landowners and conservationists could be achieved if the socio-economic benefits of Natura 2000 areas were communicated – and this argument is explored in '**Improved communication about Natura 2000 may help resolve landowner conflicts**'.

In addition, the need for inclusive and, wherever possible, consensus governance in Natura 2000 sites cannot be over-stressed. This is particularly true of much of sustainable tourism - such as the Latvian ecotourism described in '**Ecotourism: protecting the nature of Natura 2000 in Latvia**' and the Latvian case study, '**Slitere National Park: developing a tourism strategy in a Natura 2000 site**'.

Species and habitat management remain at the heart of the Natura 2000 network; yet to be meaningful and effective, site management cannot be isolated from its political, economic and social contexts. Integrated site management, which utilises adaptive management approaches, is increasingly being seen as necessary to increase the resilience of biodiversity on, around and between designated protected areas.

The understanding of how adaptive management techniques can help to address or mitigate the impacts of climate change is also increasing and this is examined in the case study, **‘Eurosites – Adaptive Management of Natura 2000 sites’**.

Such subjects require further work to inform political and social choices and to create holistic solutions where the costs of protecting nature can increasingly be seen as an essential investment, vital for society and necessary for biodiversity. Thus the article, **‘Protected areas act as stepping stones for nature in the face of climate change’** considers whether conservation strategies should be re-examined to address the lack of adequate species representation in existing Italian reserves, including Natura 2000 sites, as protected areas are shown to play an important role in helping species expand

their range under a changing climate. Monitoring of Natura 2000 sites is explored in the final article, **‘New Belgian approach to favourable conservation status for habitats and species of European interest’**.

EUROPARC and Eurosites, together with their extensive coverage of protected areas and combined experience of site management in 36 countries, work to ensure that practical experience is harnessed and shared between practitioners and with policymakers. Much of the knowledge needed to strengthen the implementation of Natura 2000 is available through the networks and this collective knowledge is required for the new challenges faced by Europe’s protected areas.

Such challenges, including the need for increasingly sustainable development, understanding the economics of conservation, climate change mitigation, halting biodiversity loss and restoration of ecosystems, require new models and governance examples.

To achieve the innovation required, it is best nurtured and encouraged when protected area networks have the opportunity to come together, share experiences and interact to build knowledge amongst peers, within the scientific world and policymaking arena.

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Theme(s): Biodiversity, Land use

What does 'wilderness' mean? The challenge of defining an emerging concept in Europe

How do we define 'wilderness'? This is an eagerly debated question emerging from wilderness protection in European biodiversity policy. Conservation researchers are discussing the meaning of wilderness in reality and as a concept, to support the management of protected areas in Europe.

"... 'wilderness' was considered a good label for places with natural features, few human traces, little infrastructure and few people, and which provide a sense of 'solitude'."

Few truly untouched areas of nature remain in Europe. The European Parliament Resolution on Wilderness in Europe¹ of 2009 emphasised wilderness's significance to our heritage and highlighted its economic, cultural and environmental benefits for society. It called for the Natura 2000 network to offer greater protection of Europe's remaining wild areas and asked the European Commission to provide a definition of 'wilderness' that encompasses its ecosystem services and conservation value. A clear, policy-relevant definition of what 'wilderness' entails can help ensure that protection objectives are met.

Defining 'wilderness' is not as simple as may first appear. A recent analysis explains that the difficulty arises because it is a 'relative' concept, which can vary from person to person and is hard to define precisely and scientifically. As habitats cross national and continental boundaries, there is also a need to coordinate policy beyond Europe itself.

Various policy definitions have been proposed around the world, which can act as a starting point for a European definition. For example, the US's Wilderness Act stipulates a minimum size for wild areas, without human habitation or noticeable human influence, but such areas would be hard to find in Europe. One of the IUCN's two definitions of a wild area, 'Category 1b', allows some slight modification, with 'little' human habitation and suggests it should be managed to preserve natural conditions.

A separate study² contributes to the development of a 'wilderness' definition. Researchers conducted a wilderness opinion poll among visitors to a national park in Germany. For the visitors, 'wilderness' was considered a good label for places with natural features, few human traces, little infrastructure and few people, and which provide a sense of 'solitude'. The results also confirmed that perceptions vary, with younger and more educated respondents placing more emphasis on the absence of human intervention.

In response to Parliament's request for increased wilderness protection, the Commission has contracted Eurosite, Pan Parks and Alterra to help develop guidelines for wilderness management in Natura 2000, and the EU's recently announced 2020 strategy to reverse biodiversity loss calls for more protection of wilderness in forested areas.

Source: Jones-Walters, L., Čivić, K. (2010) Wilderness and biodiversity. *Journal for Nature Conservation*. 18(4): 338-339. DOI: 10.1016/j.jnc.2010.06.004

¹ See: www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//TEXT+TA+P6-TA-2009-0034+0+DOC+XML+V0//EN
² Lupp, G., Höchtl, F., Wende, W. (2011) "Wilderness" – A designation for Central European landscapes? *Land Use Policy*. 28(3): 594-603. DOI: 10.1016/j.landusepol.2010.11.008.

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Theme(s): Biodiversity, Environmental economics

First EU-wide economic valuation of Natura 2000 network

A new study has produced the first indicative estimate of the overall economic benefits provided by the Natura 2000 network. It suggests that the value could be currently between €200 and €300 billion per year, or 2% to 3% of the EU's Gross Domestic Product.

“...the economic assessment of values should be seen as complementary information to insights on the richness and rarity of biodiversity and its intrinsic value in Europe, which, after all, are the reason for designating sites as Natura 2000.”

Source: ten Brink P., Badura T., Bassi S., *et al.* (2011). *Estimating the Overall Economic Value of the Benefits provided by the Natura 2000 Network*. Final Report to the European Commission, DG Environment on Contract ENV.B.2/SER/2008/0038. Institute for European Environmental Policy / GHK / Ecologic, Brussels 2011. See: http://ec.europa.eu/environment/nature/natura2000/financing/index_en.htm

Alongside biodiversity benefits, Natura 2000 provides a range of ecosystem services that benefit society and the economy - examples include climate change mitigation and adaptation, improvement of water quality, food provision, job creation and livelihood, health and social cohesion. It is vital to communicate these benefits to ensure continuing support for Natura 2000 from relevant stakeholders; a well-communicated economic valuation could provide an easy-to-understand method of understanding the value of Natura 2000.

The study tests several methods of evaluating economic value. Using a site-based method, it analysed existing data on the value of Natura 2000 sites taken from 21 studies. By calculating an average value per hectare, it scaled up the value to an EU-level whilst adjusting for GDP of different countries (which influences the value placed on the sites). This produced an economic value in the range of €220 to €310 billion per year. However, this is a preliminary estimate, based mainly on cases from 12 EU Member States, with a particular reliance on studies from the UK and the Netherlands. To improve the robustness of this estimate, the report suggests that a minimum of 200 comparable studies across different regions is needed.

The researchers also applied an ecosystem service analysis, which identified preliminary values for a set of seven ecosystem services. Some of these, such as carbon storage and tourism, had relatively robust estimates. For example, it is estimated that the total carbon stock value of all Natura 2000 habitats lies between €607 and €1,130 billion (as at 2010), depending on which carbon price is used in the estimation. In addition, tourism motivated by Natura 2000 sites would provide €9 and €20 billion per year.

To value other ecosystem services, such as natural hazard mitigation, water provision and pollination, the study made use of illustrative case examples complemented by experimental methods. For example, the value of mitigating natural hazards can be based on estimates of ‘avoided costs’ – these are the costs that could otherwise arise through incidents such as flooding damage. The value of water purification relates to avoided need for water pre-treatment by technological means. Given the site-specific nature of benefits for these services, significantly more case evidence is needed before EU-wide values can be truly estimated.

Based on the analysis, the study highlights the usefulness of a ‘roadmap’ for the future valuation of Natura 2000. This would include improved use of Geographic Information Systems (GIS) and mapping, which would particularly help assess the value of carbon storage, water supply and flood control. The study also recommended that more valuations are conducted and, at the same time, developing ‘value production functions’, to facilitate future analysis of the economic values of Natura, to make research cost-effective. The study also underlined that the economic assessment of values should be seen as complementary information to insights on the richness and rarity of biodiversity and its intrinsic value in Europe, which, after all, are the reason for designating sites as Natura 2000.

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Theme(s): Biodiversity, Environmental information services, Sustainable development and policy assessment

Improved local management needed for the Natura 2000 network

The protection of some environmentally valuable Natura 2000 sites is poorly supported at the local level, according to a study from Poland. An analysis of Polish sites in the protected area network has suggested that there is resistance among local communities to the network, but that this may be because they have been misinformed about its purpose and benefits.

“...properly formulated sustainable development strategies for Natura 2000 sites should benefit communities by enhancing economic growth through, for example, agri-tourism.”

The aim of the Natura 2000 network is to protect Europe’s most important ecological sites. Protected and managed by Member States, Natura 2000 sites minimise biodiversity loss and environmental deterioration. In Poland, a fifth of the country’s land area falls under the network, but many Polish people, including farmers, landowners and those working in the tourist industry, view Natura 2000 as a burden, complaining that it hinders economic growth in rural areas. Regulations affecting development activities in Natura 2000 sites have led to conflict and communities have argued that a lack of financial support to protect their local sites can cause local economies to suffer.

The study analysed social and economic development in 341 local communities in the ‘Green Lungs of Poland’ region in the north-east of the country. It aimed to gain greater understanding about the influence of Natura 2000 on rural communities and inform management of the network in Poland and other European countries.

The results show that a lack of adequate information about the network appeared to be widespread in Poland, particularly among small business owners who were poorly supported in dealing with the rules and regulations. The study found that those responsible for managing the sites often did not disseminate sufficient information about the network and its potential benefits. Furthermore, they did not publish detailed development plans and cooperation with local people and businesses was not effective.

The study suggests that properly formulated sustainable development strategies for Natura 2000 sites should benefit communities by enhancing economic growth through, for example, agri-tourism. However, it warns that development of a region’s tourist industry has to be balanced by development in other economic activities in order to secure a sustainable economic future.

Community engagement and funds devoted specifically to the protection of Natura 2000 sites are necessary, the study concludes. The study suggests that a new EU-level funding mechanism for managing protected areas should be introduced to provide support for integrated environmental protection and socioeconomic development, and recommends increased sources of finance for communities and farmers within the network. The latter could include the prioritised action frameworks currently being developed by Member States, where integrated funding mechanisms would generate greater leverage for dedicated nature conservation funds.

Source: Bołtromiuk, A. (2011). The European Ecological Network Natura 2000 as a new factor of the sustainable development of Poland’s rural areas. *Optimum Studia Ekonomiczne*. 5(53):72-83.

Natura 2000 Case Study

Hoge Kempen: from coal mining landscape to oasis of biodiversity

Once an industrialised landscape, the Hoge Kempen National Park in north-east Belgium has not only increased awareness of biodiversity in the local community, but brought financial rewards to the region. The park's sustainable tourism and creation of 400 new jobs are the result of an initial investment of €120 million in the project, which received some funding from the European Regional Development Fund and Innovations and Environment Regions of Europe (Interreg).

"The Hoge Kempen National Park, including the valuable Natura 2000 sites in and around it, proves that conservation of biodiversity can be achieved with community involvement and that it can lead to sustainable tourism and recreation."

Hidden in a corner of north-east Belgium, one of the most densely populated parts of Europe, is an oasis of biodiversity. In the 'Kempen and Maasland' region of the Limburg province lie nature reserves of pine forests, with heather fields, sand dunes and lakes. The area includes several Natura 2000 sites, designated to protect the increasingly rare heaths and grasslands that once dominated this landscape.

In 2006, through a community endeavour, these areas were absorbed into the Hoge Kempen National Park. To the 1.1 million people living within 25km of the park, this natural treasure is a priceless asset. Yet, underpinning the intrinsic value placed on these habitats and species, the Hoge Kempen National Park was unique in its approach in setting the economic and social needs of the area central to its vision and aim.

The region needed investment to sustain its communities. Led by Regional Landscape Kempen and Maasland (RLKM), working together with the Flemish Agency for Nature and Forests (ANB) and supported by politicians and local stakeholders, they decided to revitalise the economic potential of the region by investing in the natural heritage of the area. The Hoge Kempen National Park, including the valuable Natura 2000 sites in and around it, proves that conservation of biodiversity can be achieved with community involvement and that it can lead to sustainable tourism and recreation. Employment derived from the National Park – directly and indirectly – is estimated at 400 jobs. The direct annual economic benefits from the park are approximately €20 million.

Natura 2000 Case Study

Eurosite – Adaptive Management of Natura 2000 sites

This year, three leading Dutch nature conservation organisations, members of the Eurosite network, are collaborating to implement the adaptive management planning software system: CMSi (Conservation Management System International¹). This is a significant development, which will have implications for management planning across the majority of Natura 2000 sites in the Netherlands and will be of interest to nature conservation managers in other countries.

"Adaptive Management of Natura 2000 sites for climate change impacts is implicitly central to the EU's 2020 Biodiversity Strategy."

Adaptation involves taking into account the needs of people and the natural ecosystems on which they depend. At site level, the basis for adaptive management (AM) involves setting realistic nature conservation objectives to be achieved, deciding and defining the appropriate nature conservation actions that are required, prioritising risks and threats, and ensuring that monitoring is an integral step in the AM process. The latter is essential in order to assess results and outcomes as part of an ecosystem-based management approach. These steps are central to an adaptive approach and will help to create effective responses to climate change. AM also gives increased flexibility to effectively deal with other changes that affect site plans, including, for example, shifts in stakeholder composition and changes in operating budgets. AM of Natura 2000 sites for climate change impacts is implicitly central to the EU's 2020 Biodiversity Strategy.

The EU has confirmed its targets for managing climate change's effects on biodiversity, aiming to halt its loss, prevent degradation of ecosystems and restore them as far as possible, by 2020². A comprehensive EU Adaptation Strategy for climate change and resource efficiency should be in place by 2013, which is integral to the EU 2020 strategy - covering agriculture, environment and sustainable development. In addition, one of the core pillars of the EU's Blueprint to Safeguard European Waters, anticipated to be launched in November 2012, is to recognise climate change vulnerability and the need for adaptation. This is likely to have implications, especially for management of Natura 2000 wetlands, but also surrounding areas.

1. See: www.software4conservation.com/home

2. See: *Adapting to climate change: Towards a European framework for action (COM(2009) 147 final)*: www.eurosite.org/en-UK/content/adapting-climate-change-towards-european-framework-action

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Theme(s): Biodiversity, Environmental information services, Land use

Improved communication about Natura 2000 may help resolve landowner conflicts

Mutual understanding between conservation specialists and landowners would be improved if the socio-economic benefits of Natura 2000's protected area programme were better communicated, recent experiences in Estonia suggest.

"...acceptance of Natura 2000 is greater if the knowledge claims of all stakeholder groups are acknowledged as legitimate in decision-making."

The Natura 2000 network is the centrepiece of EU biodiversity policy. However, conflicts have arisen where stakeholders have not been sufficiently involved with setting up new sites. Despite quite extensive information campaigns and consultation processes in Estonia, researchers found that Natura 2000 is poorly accepted by landowners whose land has been designated for protection.

The researchers assessed how landowners were involved in the designation of two Natura 2000 sites - the Otepää and Kõnnumaa conservation areas in Estonia. Before designating the sites, the Ministry of Environment, together with its regional departments, universities and NGOs, compiled a draft list of all potential areas for protection in Estonia and conducted an information campaign to explain Natura 2000 to stakeholders, particularly landowners. The campaign included a national website, posters, leaflets, information days and some television and radio broadcasts.

This was followed up by formal consultation processes, for which affected landowners received a personal invitation by post to comment on the proposals. These letters included basic information about Natura 2000. In response to consultation feedback, the boundaries of the proposed Otepää and Kõnnumaa sites were adjusted slightly when finally designated. Yet, despite these efforts, when the researchers interviewed a set of the affected landowners about Natura 2000, the majority were not aware of its specific meaning, and the overall attitude towards Natura 2000 was negative, with complaints that it was too restrictive.

The researchers looked deeper into the reasons behind these responses. Although most of the landowners were aware of the information campaign, they felt that the mass media approach was not specific enough to their own individual sites. However, they appreciated the personalised letters that they had received.

Among the landowners' main concerns were the socio-economic aspects of designation, especially potential land use restrictions subsidies and compensation payments. However, the information campaign and consultations focused mainly on ecological aspects, and the conservation authorities could not always provide clear answers to questions about socio-economic issues at the consultation meetings. The local landowners, sometimes distrusting the scientific data used to justify designation of Natura 2000 sites, also had rich knowledge of local biodiversity, which could have complemented the scientific inventories.

Based on previous studies, the researchers argue that acceptance of Natura 2000 is greater if the knowledge claims of all stakeholder groups are acknowledged as legitimate in decision-making. The scientific focus in the Otepää and Kõnnumaa consultations made it difficult for landowners to contribute their place-based knowledge. A more targeted approach to communications, and a clearer understanding of what is expected from participants in consultations, would also benefit stakeholder engagement.

Separate to this study, a new project has been set up which aims to communicate the benefits of conservation to different groups of people. Funded by the EU's LIFE, LANDLIFE¹ aims to communicate the value of land stewardship as an effective and useful practical tool for nature and biodiversity conservation to the general public, institutions, land planners and other stakeholders. Land stewardship is the practice of managing the land, water and biodiversity sustainably, for future generations. LANDLIFE aims to convey the value of land stewardship among biodiversity conservation stakeholders in Europe and to encourage its use and application.

1. See: www.landstewardship.eu

Source: Suškevičs, M., Külvik, M. (2011) The Role of Information, Knowledge, and Acceptance During Landowner Participation in the Natura 2000 Designations: The Cases of Otepää and Kõnnumaa, Estonia. In: Jones, M., Stenseke, M. (Eds) (2011) *The European Landscape Convention. Landscape Series 13*. Dordrecht: Springer Netherlands. Ch. 14. Doi: 10.1007/978-90-481-9932-7_14.

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Theme(s): Biodiversity, Environmental economics, Sustainable development and policy assessment

Ecotourism: protecting the nature of Natura 2000 in Latvia

Ecotourism in Natura 2000 sites can help protect biodiversity in a sustainable manner, but may potentially lead to damage if a site receives large numbers of visitors. New research in Latvia has provided insight into managing the impact of visitors on Natura 2000 sites, and suggests that admission fees and environmental tourist guides could help boost the value of ecotourism.

“Excessive numbers of visitors can disturb the living space of wild animals and damage plants, habitats and water quality, as well as negatively affect local communities.”

Ecotourism can be defined as responsible travel to natural areas that conserves the environment and protects the wellbeing of local people. As such, it is considered to provide excellent opportunities to protect biodiversity and support local communities. Latvia has a rich biodiversity and an established tradition of nature conservation, with 334 protected Natura 2000 sites where tourism plays a central role.

The study suggests that current and future ecotourism activities could promote sustainable conservation by encouraging public interest in nature, promoting local development and generating income from visitors to help maintain conservation projects.

However, it is important to consider the impact of an increase of tourists to these areas. The study interviewed a range of stakeholders across Latvia, including national and local government, academic institutions, the private sector, NGOs and local residents. Their responses indicated that the main cause of unsustainable ecotourism is considered to be too many tourists. Excessive numbers of visitors can disturb the living space of wild animals and damage plants, habitats and water quality, as well as negatively affect local communities.

It is necessary to plan ecotourism carefully to consider its potential impacts on nature, the study observes. This could involve collaborating with scientific researchers to estimate the effects of ecotourism and including local residents in planning. The use of green technologies, such as environmentally-friendly sewage water treatment systems, heat pumps and solar panels, could also reduce negative impacts, while attaching extra educational value to the sites.

The economic potential of ecotourism remains largely unrealised in Latvia. Many protected sites do not charge admission fees, which could provide financial benefits and limit visitors to a manageable number. It is suggested that the benefits of ecotourism could be maximised by employing more local environmental tourist guides to improve the ‘tourism experience’ and communicate information about given sites, particularly if the guides were well trained and had access to environmental data. In addition, guides may also help to make admission fees and accommodation taxes more acceptable.

Source: Leitis, E. (2011)

The role of Ecotourism in the Reduction of Anthropogenic Load on Natura 2000 Territories throughout Latvia.

Scientific Journal of Riga Technical University. 7:79-86. Doi:10.2478/v10145-011-0031-1.

Natura 2000 Case Study

Slītere National Park: sustainable tourism in a Natura 2000 site

A former closed military zone, Slītere National Park, Latvia, is now a Natura 2000 site which contains a significant proportion of Latvian biodiversity and is an important cultural site. Its transformation owes much to the combined work of a local tourism association, the community and policymakers.

“Local communities had conflicting views of Slītere’s redesignation as a national park. Visitor management was unplanned and there was a lack of cooperation and conflict between the park administration and local municipalities.”

The EUROPARC Federation published the report *Loving them to Death*¹ in 1993, which highlighted the concerns expressed by protected area managers of the need to sustainably manage tourism. Since then, the concept of sustainable tourism in protected areas has become much more established. A recent EC LIFE+ project, POLPROP NATURA², used the park as an example of tourism development in protected areas.

Slītere National Park covers an area of 16,360 hectares (ha) on land and 10,130 ha in the sea. Local communities had conflicting views of Slītere’s redesignation as a national park. Visitor management was unplanned and there was a lack of cooperation and conflict between the park administration and local municipalities.

The park, in close co-operation with the Latvian Countryside Tourism Association, ‘Lauku Celotajs’, developed a tourism development strategy, secured with participation from local communities and policymakers. The consensual process started with an analysis of tourism resources, facilities and products, coupled with an agreed declaration of a shared vision of sustainable tourism. An audit of the current natural and cultural resources was undertaken with participatory engagement in order to research challenges and solutions. The tourism strategy and associated action plan was agreed with the stakeholders.

The characteristics of success in Latvia and in sustainable tourism projects across Europe are:

- Strong partnerships between public authorities, local business and communities, coupled with a respected and independent third party, to guide and manage the process.
- A political route to implement proposals made through the tourism strategy into local policy or national legislation.
- A clear understanding and record of the natural and cultural resources, with positive and constructive visitor management solutions.
- Clear standards and a robust, independent assessment system.

1. *Loving them to death*, available in print format only from the EUROPARC Federation: <http://www.europarc.org/library/europarc-publication>
 2. *Proposals for Environmental Policy and governance based on demonstration of environmental, social and economic benefits from tourism in the Slītere National Park – a Natura 2000 territory (2011)*: <http://www.polprop.celotajs.lv>

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 Theme(s): Biodiversity, Climate change and energy

Protected areas act as stepping stones for nature in the face of climate change

The advantages of protected areas for biodiversity in the face of climate change are highlighted by a recent UK study. The research reveals that seven butterfly and bird species are highly dependent on specific habitats and conditions found in protected areas. The findings demonstrate the important role for protected areas in helping species expand their range under a changing climate.

"...protected areas are helping species expand their range in response to climate change, and other drivers of distribution change, as they often provide the specific conditions needed for colonisation."

The benefits of protected areas for biodiversity under climate change have been questioned, as they are stationary and the movement of species is fluid. However, new EU guidelines on climate change and the protected area network Natura 2000¹ emphasise the importance of a well-managed Natura 2000 network in helping species and habitats protected by the programme, as well as society, adapt to the effects of climate change².

An estimated 84% of species have shifted their ranges northwards in Britain since the 1960s in response to warming conditions. The researchers analysed detailed surveys of seven butterfly and bird species' distribution over this time and found that 40% of newly colonised areas across the country since the 1970s have been within protected areas. A very small area of land is thus hosting a disproportionately high percentage of new colonisations for these seven species.

Further analysis of less-detailed, but sufficiently robust, records for an additional 256 invertebrate species supported these findings, showing that 98% of species have disproportionately colonised protected areas in new parts of their ranges.

These findings suggest that protected areas are helping species expand their range in response to climate change, and other drivers of distribution change, as they often provide the specific conditions needed for colonisation. Although colonising species favour protected areas in general, different species will vary in their level of dependence on protected areas. This reflects differences in their reliance on particular habitats and other conditions that are available only in protected areas.

However, existing protected area networks may differ significantly in their capacity to accommodate different species groups under climate change. In a separate Italian study³, scientists called for new protected areas in Italy to be created in an effort to guarantee long-term amphibian conservation.

Italy provides a refuge to a diverse range of amphibians, and existing protected areas here include nationally designated areas and Natura 2000 sites. There is concern, however, that the current reserve network is insufficient: some amphibian species are likely to become locally extinct in future as habitat condition may decline under the effects of climate change.

The researchers modelled the likely impacts of climate change on the migration patterns of amphibians in Italy. This allowed them to identify gaps in the existing network of protected areas and reveal potential levels of future extinction. Suitable habitat for amphibians is predicted to decline by 70% or more for almost all amphibian species in Italy over the next few decades. This is partly because suitable habitats are currently highly fragmented, which restricts species' mobility. For long-term conservation, amphibians will need access to other areas that are unsuitable under the current climate, but which are likely to become habitable in the future.

The Italian study argues that conservation strategies should be re-examined to address the lack of adequate species representation in existing reserves, including Natura 2000 sites, and to account for the anticipated risk of population decline.

Source: Thomas, C., Gillingham, K., Bradbury R.B., *et al* (2012). Protected areas facilitate species' range expansions. *Proceedings of the National Academy of Sciences*. 109 (2012): 14063-14068. Doi: 10.1073/pnas.1210251109

1. See: http://ec.europa.eu/environment/nature/natura2000/index_en.htm
2. See: http://ec.europa.eu/environment/nature/climatechange/pdf/N2_CC_guidelines.pdf
3. D'Amen, M., Bombi, P., Pearman, P.B., *et al* (2011). Will climate change reduce the efficacy of protected areas for amphibian conservation in Italy? *Biological Conservation*. 144(2011). 989-997. Doi:10.1016/j.biocon.2010.11.004. Contact: manuela.damen@ibaf.cnr.it

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Theme(s): Biodiversity

New Belgian approach to favourable conservation status for habitats and species of European interest

Deciding whether local conservation objectives set in Natura 2000 sites collectively meet the favourable conservation status of habitats and species at the national and regional level in EU Member States is not straightforward. Research suggests this gap can be bridged by first setting regional conservation objectives, which are then used to prioritise local conservation objectives.

"The framework has been used in the northern region of Belgium, Flanders, to develop regional conservation objectives for 46 habitats, 49 species (other than birds) and 55 species of birds."

All Member States must, according to the Habitats Directive, ensure that listed habitats and species of European interest achieve a 'favourable conservation status', by undertaking certain measures to meet conservation objectives of habitats and species. This status must be achieved at a national or regional level, but it can be difficult to establish whether the combined, local objectives meet the requirements for favourable conservation status at the regional level.

A framework to determine regional conservation objectives for habitats and species in a Member State is presented by the study. It compares current regional conservation status with the favourable conservation status (or reference state) in order to identify regional conservation objectives. These, in turn, can be used to prioritise conservation objectives at the local habitat level.

The framework has been used in the northern region of Belgium, Flanders, to develop regional conservation objectives for 46 habitats, 49 species (other than birds) and 55 species of birds. An assessment of the current regional conservation status of the entire region found that only 7% of habitats achieved a favourable conservation status. Only 15% and 55%, respectively, of species other than birds, and 51% of birds listed in Annexe 1 of the Birds Directive reached favourable conservation status.

Based on the current situation, the regional conservation objectives were decided, including substantial increases in the area of habitats (on average by 42%). In addition, active measures (increasing the range and/or an expansion of populations) to conserve 78% of the species are required.

Since 2007, Member States have been required to set up a monitoring scheme, according to Art.11 of the Habitats Directive, to evaluate and report any changes in the conservation status of habitats and species, every six years. A separate study¹ discusses the merits of including remote sensing in the evaluation of Natura 2000 habitats. It suggests that remote sensing is particularly suited to producing habitat distribution maps and detecting changes over wide areas, but at the moment, the technology is not widely used to monitor Natura 2000 sites.

Member States are currently able to determine their own monitoring methods. Remote sensing could provide conservation monitors with a powerful tool to meet the increased need for information about Natura 2000 sites, but the authors of the remote sensing study state that, ideally, monitoring approaches should to be standardised across the EU and readily available technology should be used to develop useful remote sensing products for immediate use. Furthermore, greater dialogue is needed between remote sensing developers and monitors.

Source: Louette, G., Adriaens, D., Adriaens, P. et al (2011) Bridging the gap between the Natura 2000 regional conservation status and local conservation objectives. *Journal for Nature Conservation*. 19: 224-235. Doi:10.1016/j.jnc.2011.02.001.

1. Vanden Borre, J., Paelinckx, D., Mûcher, C.A. et al. (2011) Integrating remote sensing in Natura 2000 habitat monitoring: Prospects on the way forward. *Journal for Nature Conservation*. 19: 116-125.

Sustaining the Natura 2000 network through LIFE

The LIFE programme¹ has contributed significantly to the implementation and management of the Natura 2000 network in Europe. More than 1200 projects have been funded since the launch of the programme in 1992, targeting more than 2500 Natura 2000 sites around the EU – around 5.5% of the network.

“Many of the LIFE programme’s projects have contributed to the implementation of the Natura 2000 network.”

LIFE has provided support worth more than €1100 million for managing and restoring habitats and species in Natura 2000 sites. The objectives of the current LIFE programme nature conservation strand, LIFE+ Nature and Biodiversity, are to contribute to:

- The implementation of European Union policy and legislation on nature and biodiversity, in particular, the Birds² and Habitats³ Directives, and implementation of the Natura 2000 network, including coastal and marine habitats and species.
- The consolidation of the knowledge base for the development, assessment, monitoring and evaluation of Community nature and biodiversity policy and legislation.

A defining characteristic of LIFE projects has been to demonstrate actions for managing Natura 2000 sites⁴, its habitats and species, and test best practices and their transferability to other comparable sites. One good example, the Futurescapes⁵ project involves many partners, in 34 Natura 2000 sites across the UK. The project was set up to encourage landscape-scale conservation and management initiatives.

Projects are also developing innovative tools for managing the Natura 2000 network. The Spanish project LANDLIFE is promoting ‘land stewardship’ among landowners, land trusts and other biodiversity conservation stakeholders at a European level, to encourage the proper use of natural, cultural and landscape resources and values.

Partnership among Natura 2000 sites stakeholders – farmers, landowners and managers – was integral to the success of many projects, including the RIVIER D’AIN project, which drew up an action plan for a Natura 2000 site in eastern France. The project also proposed an extension of the site by more 1100 hectares to ensure its sustainability.

Undertaking targeted action on pilot areas is another key feature of the LIFE programme. In Ireland, for example, the BurrenLIFE project selected pilot farms representative of the wide biodiversity of the Burren Natura 2000 sites ahead of tailoring individual plans for their management. These plans were reviewed regularly and the farmers were kept informed of developments.

Meanwhile, the restoration, management and monitoring of endangered habitats in Natura 2000 sites continues to underline the success of the programme. The MIREs project, which set management goals for mire habitats at four sites in Latvia, typifies the kind of regeneration that LIFE has and is continuing to bring about. As a result of the management activities, priority habitats included on the Annex I of the Habitats Directive – active raised bogs and bog woodland – have substantially improved its conservation status and the typical raised bog species have started to re-establish themselves in the degraded areas.



1. See: <http://ec.europa.eu/life>
2. See: http://ec.europa.eu/environment/nature/legislation/birdsdirective/index_en.htm
3. See: http://ec.europa.eu/environment/nature/legislation/habitatsdirective/index_en.htm
4. See: <http://ec.europa.eu/environment/nature/natura2000/management/gp/index.html>
5. See: http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=4028

A selection of articles on the Management and Monitoring of Natura 2000 sites from Science for Environment Policy's News Alert.

Habitat mapping method could help restore biodiversity (29 June 2012)

A new method for mapping long-term changes in habitat over large areas and in fine detail has been developed, which could help inform conservation plans to restore biodiversity to previous states. In a UK case study, researchers have used it to demonstrate the dramatic effects of intensive agriculture and afforestation on rural habitats since the 1930s

New holistic method for assessing Natura 2000 landscapes (13 October 2011)

High quality landscape assessments of areas protected under the Natura 2000 network are critical for effective long-term management plans. In a recent study, scientists have presented a integrated assessment of a Natura 2000 site in Sicily, Italy, which not only considers preservation of environmental features, as required by Natura 2000, but also human features, such as places of historical interest or industrial activity.

Implementing Natura 2000: Dutch and Italian experiences (25 November 2010)

A study of how the Natura 2000 network was implemented in the Netherlands and in Italy has been conducted. From this analysis, recommendations have been made to help other EU Member States implement and manage the network, which include providing local authorities with better information on and understanding of Natura 2000 and how to balance ecological, social and economic needs.

Mapping the ecological impact of dams near Natura 2000 sites (9 September 2010)

A recent study has developed a mapping system to show the impact on habitats and species caused by construction projects, such as dams, near Natura 2000 conservation areas. Using a Greek case study, the system was able to identify risks from a dam construction project to species including otters, toads and tortoises.

Improving cost-effectiveness of Natura 2000 conservation (29 July 2010)

An analysis of conservation management strategies in the EU identifies a number of options for increasing the cost-effectiveness of conservation within the Natura 2000 network of protected areas. More time and money should be given to implementing conservation measures than planning them and governments should guarantee conservation funding over longer terms, say the researchers.

To view any of these articles in full, please visit: http://ec.europa.eu/environment/integration/research/newsalert/index_en.htm, and search according to article publication date.

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