The Green Belt of Europe

From Vision to Reality

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Andrew Terry, Karin Ullrich and Uwe Riecken

IUCN
The World Conservation Union

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This publication has been made possible by funding from the German Federal Agency for Nature Conservation (BfN) with funds of the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety.

Published by:	IUCN, Gland, Switzerland and Cambridge, UK
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Citation:	Terry A., Ullrich K. and Riecken U. (2006). *The Green Belt of Europe: From Vision to Reality*. IUCN, Gland, Switzerland and Cambridge, UK.
ISBN-10:	2-8317-0945-8
ISBN-13:	978-2-8317-0945-1
Cover design by:	IUCN Publications Services Unit
Front cover photo:	Fennoscandian Green Belt. IUCN Photo Library © *Jim Thorsell*
Back cover photos:	(Clockwise from top left) *Lilium rhodopeum* an endemic of the Rhodope Mountains © Kostas Vidakis; South Eastern European Green Belt. Mountain ecosystems with *Picea abies* forests in the Central Rhodopes on the Greek-Bulgarian border © Kostas Vidakis; Hungarian Grey Cattle © Liana Geidezis; Lake Skadar between Albania and Montenegro © Martin Schneider-Jacoby
Layout by:	IUCN Publications Services Unit
Produced by:	IUCN Publications Services Unit
Printed by:	Page Bros, Norwich, UK
Available from:	IUCN Publications Services Unit 219c Huntingdon Road, Cambridge CB3 0DL United Kingdom Tel: +44 1223 277894 Fax: +44 1223 277175 E-mail: books@iucn.org www.iucn.org/publications A catalogue of IUCN publications is also available.

The text of this book is printed on Fineblade Extra 90 gsm made from low chlorine pulp

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Forewords

The European Green Belt has the vision to create the backbone of an ecological network, running from the Barents to the Black Sea that is a global symbol for transboundary cooperation in nature conservation and sustainable development. This initiative spans the historic course of the Iron Curtain in Europe and its analogous extension in Fennoscandia, serving as a reminder of the barriers that have separated Europeans in past and present times. The Green Belt has the potential to contribute to the implementation of different international agreements and legislations, e.g. the Natura 2000 and Emerald Networks, Article 10 of the EU Habitats Directive and the establishment of a Pan-European Ecological Network. Overall the Green Belt offers an exceptional tool to support Europe's natural and historical heritage that can help to draw attention to rural border areas and thus can enhance sustainable regional development in these border regions. Thus new sources of income can be opened up and increase opportunities for the socio-economic development of local communities. We hope that the Green Belt will serve to better harmonize human activities with the natural environment and will foster transboundary cooperation between people, regions and neighbouring countries. On this basis the Green Belt can enhance cooperation between the old and new EU member states, across the new EU borders or the still sensitive borders in South Eastern Europe. It offers a great chance to highlight the importance of ecological networks in truly linking people and nature.

After a first conference on the European Green Belt in 2003 it was decided to establish a working group and to ask The World Conservation Union (IUCN) to function as overall coordinator for its implementation. IUCN took this up and together with the Fertő-Hanság National Park in Hungary organized the first meeting of the working group, which took place 9–12 September 2004. This book summarises and supplements the outcomes of this conference and is intended to provide the first solid basis of background information on the European Green Belt. It deals with the political implications of the Green Belt from the international level to its practical importance on a community level and gives an overview on the situation in the different sections and regions along the Green Belt. In addition, it contains practical advice for the implementation of activities, which is illustrated by a series of case studies. The book is addressed to policy makers, stakeholders in governmental and non-governmental organizations from international to local levels and to those interested in the Green Belt. It can contribute to steering activities on a political and practical level, to drawing up concepts and can aid in the practical implementation of projects. We hope that the reader is stimulated to look further into all the different activities taking place in the Green Belt and to take an active role in the future of the initiative.

The Federal Agency for Nature Conservation is proud to be part of this initiative. The Agency is funding numerous projects on the national and international level including the organization of meetings and the support of the Green Belt coordinators IUCN, EURONATUR (i.e. the European Nature Fund) and the BUND (i.e. the German Branch of

Friends of the Earth) in their work. The fact that funding and support of this initiative also comes from other countries and that many authors from different regions of the Green Belt have contributed to this publication shows that the initiative is well on its way.

As the former Iron Curtain probably had the strongest implications for Germany, dividing the country and its people, the concept of the Green Belt now traversing the country has raised a lot of attention and was noticed to have a great potential. This led to the idea to link the various initiatives that already existed in different parts of Europe and to expand them so that they would gain broader attention and strength by joining forces while taking account of the specific regional situations and requirements. With IUCN taking over the overall coordination of the initiative it has become truly international and we hope that the Green Belt can become a flagship within the global community for European transboundary cooperation.

Prof. Dr Hartmut Vogtmann
President of the German Federal Agency for Nature Conservation

For millennia humans have been erecting borders and boundaries around their lands. This has possibly been most strongly expressed in Europe. As one of the densely populated regions in the world, it is crossed by thousands of such borders from the local parish level to the external borders of the European Union. However Nature does not respect these manmade boundaries, and ecosystems and species cross from one region to the other. Effective conservation measures need to address what happens across borders.

Although the idea of transboundary cooperation has been with us for many years, it has developed rapidly in the last thirty years. In 1988 there were 59 places where two or more protected areas crossed international boundaries. In 2005 this has increased to 188 complexes involving 818 protected areas and 112 countries (Mittermeier *et al.*, 2005). IUCN, through the World Commission on Protected Areas (WCPA) and its task force on transboundary protected areas, has developed many of the concepts and approaches currently in use concerning transboundary cooperation. Nowadays the task force aims to develop a global learning network to support further cooperation between sites and communities. There are now many examples that show the benefits that transboundary cooperation can bring to the protection of a region's natural and cultural heritage.

The Iron Curtain represents one of the most iconic barriers to have existed within Europe, separating people along political and ideological lines and having a huge impact on their cultural, social and economical lives. Although this barrier, which lasted for over 40 years, has now been removed, it will always remain as a cultural reminder of how communities can become divided – and its natural values represent the only positive heritage of the Cold War. In this way the Green Belt should build on the memory of this barrier to create a symbol for transboundary cooperation.

Protected areas alone cannot protect species and ecosystems, especially in Europe which has such a long history of human land modification. These core areas need to be embedded into their surrounding landscapes. With its focus both on sustainable development and conservation, the Green Belt provides an ideal platform to foster this integration.

Based on the first working group meeting for the Green Belt, this book sets out both the theoretical and practical basis for the initiative. It gives an overview of the historical context and highlights some of the key transboundary cooperation events that have taken place within its range. Importantly it also looks to the future and lays out a plan for what the Green Belt can become in the coming years. IUCN is very proud to be acting as the Secretariat for this initiative, and we sincerely hope that it becomes a real example of what can be achieved that can be taken to other regions in the world where strong barriers still divide people.

Achim Steiner
Director General, IUCN – The World Conservation Union

Introduction

This book is intended to provide the first solid basis of background information on the European Green Belt to policy makers, stakeholders in governmental and non-governmental organizations from international to local levels and to those interested in the Green Belt. It contains outcomes of the first conference of the working group on the European Green Belt held in Fertő-Hanság National Park, Hungary, from 8–12 September 2004. However, this book has turned out much more comprehensive than just a conference proceeding. Overall it can contribute to steering activities on a political and practical level, to drawing up concepts and aid in the practical implementation of projects.

In the first section "Transboundary cooperation and the Green Belt" the political implications of the Green Belt initiative are addressed. This section highlights the potential of the initiative to contribute to international relations, the implementation of international, Pan-European and European goals, conventions, agreements and directives concerning nature conservation, as well as its practical importance on a community level.

The second section "How green is the Green Belt" gives an overview on the situation in the different sections and regions along the Green Belt. Here the regional characteristics are described focussing on the natural highlights but also on the threats. Prior and planned activities are named as well as goals for the future.

In the third section "Case studies from along the Green Belt" different areas and projects along the Green Belt are presented. These are intended to give an insight into a variety of practical situations and problems that are dealt with in different areas and types of ecosystems along the Green Belt.

The fourth and last section of the book "Turning the vision into reality" focuses on tools that need to be developed or that can help in the process of developing the Green Belt. These tools range from the development of a common map as a working basis, via economical aspects of implementation like eco-tourism and sustainable land use, to a guideline on possible sources for funding Green Belt activities. In addition an outlook on future perspectives for European and global Green Belts is given, which shows how the initiative fits into global efforts to protect biodiversity and link important natural areas.

We hope that the reader is stimulated to look further into all the different activities taking place in the Green Belt and to take an active role in the future of the initiative.

Andrew Terry, Karin Ullrich and Uwe Riecken

1. A vision for the Green Belt in Europe

Uwe Riecken,[1] Karin Ullrich[1] and Alois Lang[2]

The European Green Belt

The 'Iron Curtain', running from the Barents Sea to the Black Sea, divided Europe for almost 40 years. No activity was allowed in the 'forbidden zone' along this inhumane barrier. While landscapes all over Europe have been shaped and modified by processes of intensive agricultural (and industrial) development, many habitats lying in the vicinity of the border line remained untouched: in the countries of the former Eastern Bloc the utilization of border land was mostly prohibited, whereas on the western side remote border areas were less attractive for investors, and no major traffic infrastructure was needed.

This 'Iron Curtain' fell in 1989. What remains today of the former border line is a strip of land that runs the entire length of Europe and that remains comparatively undisturbed – a green belt. Many of the larger adjacent areas are of high conservational value. It is the aim of the 'Green Belt' initiative to integrate this entire strip of land with its key habitats and its ecological areas as part of an international network of valuable ecosystems (Fig. 1). The 'Green Belt' will contribute to safeguarding Europe's natural heritage and help fulfil Europe's commitments to halting biodiversity loss by 2010. The Green Belt will act as a symbol of unity between east and west. By enhancing sustainable regional development across boundaries it will help to consolidate peace and democracy in Europe.

Historical background

In the approximately forty years between the formation of the former Iron Curtain and its fall in 1989 severe restrictions with regard to access and land use allowed nature to develop almost undisturbed. The fact that this border area supported the conservation or development of valuable habitats and accordingly served as a retreat for many endangered species became obvious long before its fall. As early as 1970, satellite pictures showed a dark green belt of old-growth forest on the Finnish-Russian border (Haapala *et al.*, 2003). In the early 1980s nature conservationists observed many rare species within the restricted border area in Germany when looking on with binoculars from the western side (Beck and Frobel, 1981).

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Figure 1. The course of the European Green Belt

Since the fall of the Iron Curtain in 1989 rapid developments have taken place along the Green Belt. Facilitated access to the border areas has increased land-use activities. Europe's growing together requires additional infrastructure connecting the former blocs. These developments had negative impacts on the ecosystems along the Green Belt and started to result in gaps opening up within the Belt. On the other hand, in numerous regions along the former Iron Curtain, activities aimed at the conservation of the special ecological value and coherence of the border areas also started up.

In the Fennoscandian region nature conservation cooperation between Finland and the Soviet Union started in the 1970s when a scientific-technical cooperation agreement was signed (Haapala *et al.*, 2003). In the mid-1980s a joint Finnish-Russian Working Group on Nature Conservation was founded, which led to the successive establishment of a series of

twin parks in different regions along the border. At the end of the 1980s access to the border region within the Soviet Union was facilitated and the military border zones became narrower. As a result the region was increasingly exploited and the old-growth forests started to become endangered due to excessive logging. Consequently an inventory project on border-forests was carried out from 1992–1994. This showed the ecological value of this area with regard to ecosystems and species in the boreal forest zone and led to the idea of establishing a network of separate protected areas on either side of the border, forming the Green Belt of Fennoscandia, which also extends to the borders with Norway. Part of these protected areas are intended to be proposed as a World Heritage Site (Haapala *et al.*, 2003; Karivalo and Butorin, this volume). However, part of the concept of the Green Belt of Fennoscandia also includes a joint environmental policy in the border area (Hokkanen, 2004; Hokkanen *et al.,* this volume).

In Germany, right after the fall of the Iron Curtain on 9 December 1989, the Bund für Umwelt und Naturschutz Deutschland (BUND, German section of Friends of the Earth) organized a first meeting of nature conservationists from all over the country, which gave birth to the idea of the Green Belt. In a resolution the participants demanded the protection of the border line as a Green Belt and a backbone of an ecological network in central Europe and the establishment of large either transboundary or connected protected areas. In November 1990 the German Minister for Environment, Prof. Dr Klaus Töpfer, stated that special efforts were needed in the former border area to conserve as many natural and near-natural sites as possible as a Green Belt. This has since been followed by many political declarations in favour of the conservation and development of the Green Belt within Germany. In practical terms from 1992 onwards several large-scale nature conservation projects funded by the Federal Agency for Nature Conservation (BfN) were started along the Green Belt, e.g. the Schaalsee-Landscape, the Lenzener Elbtalaue and the Drömling. In addition, a survey of the entire German Green Belt was done in 2001 as part of a "testing and development project" run by the Bund Naturschutz in Bayern e.V. (the Bavarian branch of the BUND) and funded by BfN. This habitat inventory documented the importance of the Green Belt for species and habitat protection within Germany (Schlumprecht *et al.*, 2002; Bund Naturschutz in Bayern e.V., 2003; Schlumprecht *et al.*, 2006; Geidezis and Kreutz, this volume). However, it also showed that the Green Belt has already been destroyed in some places and urgently required additional measures of protection to secure its long-term existence and function as backbone of an ecological network. In 2005, the German part of the Green Belt was declared to be part of the national natural heritage by the German government.

In South-Eastern Europe strictly protected borders existed not only between the former Eastern Bloc countries and their neighbours but also all around the former Yugoslavia and Albania. As in the other regions of the Green Belt these borders largely preserved nature from human activities (Schneider-Jacoby *et al.*, this volume). Following the collapse of communism throughout Europe, the European Nature Heritage Fund (EURONATUR) began building support among governmental and non-governmental organizations in the countries of the region, with the aim of protecting transboundary areas of high ecological

value. One of the most important focal areas is the Drava-Mura-Lifeline, which stretches from Austria, via Slovenia, Hungary and Croatia to Serbia and is intended to become a transboundary Biosphere Reserve (Schneider-Jacoby and Reeder, 1999; Reeder *et al.,* this volume). Further to the south-east many valuable ecosystems are concentrated along the borders and other projects have been started, e.g. in the Lake Skadar and the Bojana Buna delta area between Albania and Montenegro and in the Lake Prespa-Ohrid region on the border of FYR Macedonia, Albania and Greece (Schneider-Jacoby *et al.,* Chaper 12, this volume; Schneider-Jacoby *et al.*, Chapter 7, this volume). The success of the latter inspired the idea of establishing an ecological network of protected sites on the Balkan Peninsula under the name "Balkan Green Belt" (Fremuth, 2000). In 2004 a strategic plan was elaborated for the IUCN South-Eastern European Programme in which a more comprehensive map of important border areas is included and the establishment of transboundary cooperation in protected areas is named as a central goal (IUCN, 2004).

The vision, origin and scope

Based on all the information generated in the different parts of the Green Belt (much of which is reviewed in this book) and the history of cooperation across the different borders, it became clear that a similar situation existed throughout the route of the former Iron Curtain. This suggested that this border system could provide the basis or backbone of a European ecological network with large core areas and connecting areas that stretches along the entire length of the continent and that should be preserved and developed further. Therefore the vision was born to establish a Green Belt from the Barents Sea to the Black Sea including the Balkan Green Belt and the border between Italy, Austria and Slovenia, taking into account that the latter section had not been separated by as strong a barrier as other parts. It was clear from the beginning that as this ecological network would travel through an immensely diverse set of countries, the structure and implementation of the Green Belt would differ in the various regions depending on the specific natural, historical, political and social preconditions.

This vision aims to create a flagship for European conservation, highlighting the importance of linking our natural areas, but at the same time it is a direct contribution to the political commitments made by European countries to halt biodiversity loss by 2010: the Green Belt can form an important part of a European Ecological Network and therefore assist in implementing the goals of the EU Habitats Directive (Natura 2000 network of protected areas), the initiatives of the Council of Europe such as the Bern Convention (Emerald Network) and the Pan European Biological and Landscape Diversity Strategy (Pan European Ecological Network, PEEN). As the Green Belt crosses many different natural geographic regions on its way from the very North of Europe to the South East and connects different types of habitats it may also enable many species and habitats to react to the consequences of climate change.

The vision of the Green Belt has a strong historical as well as political and social dimension. The Green Belt follows some of the most important barriers to affect European

history in this century. These barriers include the Iron Curtain which in some regions was felt more strongly than in others, but also the borders between the old and new EU, and the European Union and the broader Europe. Furthermore the Green Belt travels along still-sensitive borders in South Eastern Europe. Therefore this ecological network should remain a visible European historic monument for the future, to remind our children and future generations of various barriers and borders that separated the peoples of Europe – and of the ability to overcome them.

In addition the Green Belt has a socio-economic dimension. From the latter half of the twentieth century onwards, Europe has witnessed an exodus of people from remote rural settings like many border regions to cities and urban areas. In many cases, these regions are very important for the continent's natural and cultural heritage. However, they have suffered from shrinking populations and eroding economies. By developing an initiative that can draw attention to rural border areas, e.g. by taking advantage of the natural and historical heritage the Green Belt offers, it is hoped that the initiative can enhance sustainable regional development by harmonizing human activities with the natural environment (Kelemen-Finan; Riecken; both in this volume). New sources of income such as those based on eco-tourism can be opened up and increase opportunities for the socio-economic development of local communities (Engels and Gerling; Lang and Fersch; Kirchberger and Kárpáti; all this volume).

The meaning of the Green Belt will be understood in different ways by various stakeholders depending on the region it passes through. Instead of being a uniform band it will lead to special implications in each region. However, in general the Green Belt will form a network – connecting parks and protected areas with their surrounding landscapes. It will foster sustainable development initiatives and bring together people in regions adjoining the former iron curtain.

Putting the initiative into motion

The first step within the European Green Belt initiative was an international workshop held in Bonn on the occasion of the BfN's 10th anniversary in July 2003. Representatives from most countries along the western part of the Green Belt (Finland/Russia to Slovenia) and the guest of honour Mikhail Gorbachev showed the political willingness to enhance transboundary cooperation along the Green Belt. It was also decided to implement an international working group (Engels *et al.*, 2004). During the IUCN/WCPA World Parks Congress in Durban an *ad-hoc* meeting of representatives from different countries along the Green Belt was held. The participants agreed that IUCN should work as an overall coordinator for the implementation of the European Green Belt and that the first meeting of the international working group should be organized in 2004 in Hungary.

From 8–12 September 2004, the first working group meeting on the European Green Belt was held in the Fertő-Hanság National Park. The organizers IUCN, BfN and the Fertő-Hanság National Park hosted over 70 participants from 17 countries and representatives

from EU, Council of Europe and UNESCO. The main goal of the conference was to launch the Green Belt as a working initiative and to initiate activities in coordination and in projects.

One result was an overview of the status, threats and nature conservation activities along the European Green Belt. It was obvious that the structure of the Green Belt differs depending on the region through which it passes. In some areas the Belt will be a continuous strip of land, either constituting part of existing protected areas, or being declared protected. In others it is envisaged that the Belt may be formed by linking transboundary protected areas and by protecting other key transboundary habitats. As the main output of this conference a first draft of a programme of work has been adopted and regional coordinators were appointed.

A Programme of Work (PoW)

It was critical that, given the diversity of partners, regions and conditions within the Green Belt, there be a single unifying set of goals that could guide activities in the coming years within a coherent plan. Therefore based on the discussions of the meeting in Hungary, a Programme of Work was prepared. After the meeting this Programme of Work was circulated to the participants and other stakeholders for consultation and then finalized. The completed document is included in this volume and can be downloaded from the Green Belt website. It sets out the institutional structure, coordinating mechanisms and future tasks for the initiative between 2005 and 2010.

Institutional set-up of the initiative

IUCN manages the secretariat for the Green Belt through its Regional Office for Europe. One of the first actions of the initiative was to establish a Coordinator who could lead its development in the coming years. Alois Lang has now taken up this role through a position supported by the German Centre for International Migration and Development (CIM) and IUCN.

To enhance the management of the Green Belt and to respect the more specific conditions found in different regions, the network is anchored in three sections:

- The Fennoscandian Green Belt – Norway, Finland and Russia;
- The Central European Green Belt – Estonia, Lithuania, Latvia, Poland, Germany, Czech Republic, Slovakia, Austria, Hungary, Slovenia, Croatia and Italy;
- The South Eastern European Green Belt – Serbia and Montenegro, Bulgaria, Romania, Macedonia, Albania, Greece and Turkey.

Between Russia and Germany the Green Belt consists of parts of the Baltic coast. This section is rather different from the remaining areas of the former Iron Curtain, because there was no fenced border and the real border lies within the Baltic Sea (12 miles away from the coast). However, especially in Estonia and the former GDR, access to coastal areas was more or less restricted for civilians. This is why these coasts remained relatively undisturbed

and therefore resemble the terrestrial border areas – consequently the Green Belt also runs through the Baltic Sea.

In each of these sections, the PoW called for a regional coordinator to oversee the development of activities and to work with both the Secretariat and local stakeholders. For the Central European Green Belt the Project Office Green Belt of the BUND (German Section of Friends of the Earth) and for the South-Eastern European Green Belt EURONATUR have been established as regional coordinators. The regional coordinator for Fennoscandia will soon be announced.

For each country along the Green Belt national focal points have been identified. These persons or organizations are the official representatives for the international working group. They will work as national coordinators, collecting all the relevant information on activities on the national parts of the Green Belt. Through this hierarchical structure it is hoped that the initiative can add value to the different levels of European nature conservation and policy development. With the secretariat maintaining an overview of the whole range, it is able to liaise with the large European institutions such as the EU and the Council of Europe. The regional coordinators mostly have a better understanding of what occurs at the bilateral and tri-lateral level. At the national level, focal points have the highest competence for cooperating with local stakeholders – especially when they are experienced in local project implementation. In this way, results and needs from the local level can be communicated throughout the Green Belt.

Future tasks – Implementation of goals and tasks in the PoW

The Programme of Work is designed around the Convention on Biological Diversity Programme of Work for Protected Areas and broadly matches with its targets. Therefore the document contains three Programme elements and seven goals. In this paper only the elements are listed:

Element 1: Direct actions for the establishment of the European Green Belt
Element 2: Institutional structure and stakeholder participation
Element 3: Enabling activities

Within each goal, the Programme identifies targets and activities that are suggested to be undertaken by the stakeholders involved in the initiative and the secretariat. The Programme of Work will be annually assessed and compared to the activities taking place within the Green Belt. It also includes a time schedule for meetings of the international working group (every two years) and of the regional management units (every year).

Based on this set-up the Programme of Work is intended and expected to serve as a guideline for the implementation and future development of the Green Belt.

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Section 1. Transboundary cooperation and the Green Belt

Introduction

Cooperation across borders, either through the designation of transboundary protected areas or through the sharing of common management objectives, has been an important aspect of conservation efforts for many years. In recent years we have witnessed an explosion in the number of initiatives and projects that aim to protect nature across regional and national boundaries. The often stated truism that nature knows no boundaries is especially pertinent in a continent such as Europe which is densely packed with political borders that also often follow natural features such as mountain ranges or river systems. The Green Belt itself incorporates borders between 22 countries and many more regions and federal structures. Supporting the coordination of species and habitat protection across these borders is a major objective of the initiative.

In Section 1 we introduce the topic of transboundary cooperation for nature conservation and how it relates to the Green Belt. We include examples from the experiences of protected areas that lie on either side of major political borders and show some of the activities that were necessary to foster cooperation. There are many potential barriers to cooperation across borders from political, institutional and societal sources. These can start at the fundamental level of language and cultural differences between those involved and extend to the legal basis for protected area and land management systems in the respective countries. These differences are nowhere better illustrated than in the Green Belt which spanned the former political border between strong state control in the East and the different governance models practised in the West. This section contains two examples of cases where cooperation has overcome such differences. First Robert Brunner uses the history of cooperation between the Thayatal National Park (Austria) and Podyjí National Park (Czech Republic) to show that even with a very different legal basis, protected areas can cooperate successfully. Second Alois Lang and Attila Fersch offer an insight into the natural and cultural history of the Lake Neusiedl/Fertő region between Austria and Hungary and show how cooperation over the use and management of the lake resource has strengthened over time even through major political changes.

This rich cultural and political history is also a vitally important component of the Green Belt and forms part of the cultural heritage of the region. In Europe we cannot necessarily make a sharp distinction between the conservation of natural and cultural heritage and the Green Belt has been established to support both. In his chapter, Giorgio Andrian discusses what it will mean to work with cultural heritage within the Green Belt and identifies some directions to follow. This is certainly a major future focus for the initiative.

2. Transboundary cooperation – a European challenge

Robert Brunner[3]

The need for transboundary cooperation

Historical and political background

Some 80 years ago Europe had a few large multinational empires: multicultural and multiracial. After World War One, empires were split into dozens of small states. Even if there was a common history, relations were not always the best. World War Two did a lot more to fix boundaries and their burdens. After this time, changes occurred fast. Between 1989 and 1990 the border barriers, which had been so impervious, fell. To grow together became the new political credo. The stumbling blocks however were not only the border barriers themselves. Inter-state connections under the Iron Curtain were limited to a few existing roads. This was now all supposed to change. Even at the expense of valuable biotopes between the former border barriers.

The unlimited freedom inside the European Union, where economic development often counts more than environment, has been set new boundaries. The break up of Yugoslavia into many new states and the collapse of the Soviet Union erected new barriers. At the same time, the outer borders of the EU were consolidated and tightened. Not only for people, but often also for nature.

Social and economic challenges and opportunities

Borders are both a threat and an opportunity. A threat because of restrictions, controls, and limits. An opportunity because of exchange, crossroads and trade. Border people are used to both limitations and contacts and transboundary protected areas act as more than just reserves. They reproduce the responsibility for the environment across borders, and therefore they combine common interest and different outlooks on the same object.

The fall of old systems and the expansion of the European Union are connected to the pursuit of economic development and the adjustment of standards of living. This can be at the expense of our environment when our view is obstructed by borders. However, the opportunity for transboundary nature protection has never been greater than today as in many places borders are losing their meaning.

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[3] Nationalpark Thayatal, Nationalparkhaus, Hardegg, A-2082, Austria

Recent developments

In the last 15 to 20 years, transboundary cooperation has become a trend and with good reason. EUROPARC, IUCN, WWF and many other organizations have worked towards raising nature protection from a national to a transboundary level. And yet already 70 years ago, the first European protected area linking two States was established between Poland and Slovakia.

However, not all organizations have realized that the effective protection of ecosystems and species can only be successful once state borders have lost their importance. Protected areas are still being established near borders, without any thought of coordinating measures with the neighbouring country to ensure an effective protection. The fall of the former almost insurmountable border in the middle of Europe certainly facilitates cooperation. Nevertheless it takes initiatives such as the European Green Belt to highlight how much these long unused areas need our protection today.

It is for these reasons that transboundary cooperation between protected areas is vital and urgent in the Europe of the 25. After all, over the last decades, we have learned to think in networks. This is why we can no longer limit ourselves to isolated protected areas. Networks, corridors, stepping-stones: these are the concepts that must become effective across borders.

It is also vital to include those States which are still outside the European Union. It is not only about protected areas and environmental standards. Many valuable habitats lie beyond the European Union. The European responsibility, our responsibility for them is undividable. So that there will never be a need for another iron curtain to protect valuable ecosystems for future generations.

Development of transboundary cooperation in Europe

Transboundary cooperation has become very popular in the last decade. Even if the first transboundary protected area was established in 1932, it took some decades to raise more interest. The fall of the Iron Curtain and a growing European Union helped a lot in this particular field. Some conferences and meetings were held to discuss this issue and to bring it forward. EUROPARC, IUCN and others published material or supported initiatives.

Parks for Life – Action for Protected Areas in Europe, a concept and Action Plan for the development of European protected areas, was the stepping-stone for the first European investigation/analysis on cooperation between protected areas. This study drawn up in 1996/97 in cooperation with EUROPARC and IUCN may seem outdated now with respect to certain data but it has been the starting point for a number of other reports in Europe since then.

In the last 10 years, IUCN has often been involved in issues of transboundary cooperation. Beside the already mentioned study on transboundary cooperation in Europe, IUCN financed research on transboundary protected area activities worldwide. With Parks

for Peace, IUCN supported initiatives, in particular, in Africa and partly in South America to secure and establish protected areas close to borders. Europe however remained largely unnoticed. The Peace Park initiatives in the Balkans unfortunately raised a lot less interest. In 2004, IUCN opened an office in South Eastern Europe with the specific focus of transboundary cooperation and it is already acting as a hub for information and activities in the region. The last World Parks Congress in 2003 in Durban, South Africa, broadly addressed transboundary cooperation. But there also Europe remained behind the scene. And yet with its many States and therefore also many borders, Europe is predestined to transboundary cooperation. It is only because in Europe borders are much easier to cross that the tasks of the area managers and the claims to the states have not been fulfilled yet. Transboundary management in protected areas brings almost daily new challenges. As a sub-group of the Transboundary Protected Areas Task Force of the IUCN a theme group was set up which will concentrate on improving transboundary cooperation in Europe in the next two years.

The major international institutions have also started to become more active in working with transboundary cooperation. UNESCO's World Heritage programme has focussed more on transboundary cooperation lately as shown by the joint and successful application from the Austrian and Hungarian Neusiedler See. Furthermore the Man and Biosphere programme is now looking to transboundary biosphere reserves. Also recently experts from the Council of Europe discussed the pros and cons of a joint application for the European Diploma. Thus we may see in the near future a great leap in the opportunities for transboundary protected areas.

Transboundary protected areas – do they really exist?

Years ago, during the first Peace Parks Conference 1997 in Cape Town, organized by IUCN, a revolutionary model was discussed: transboundary protected areas acting as a no man's land between borders, without barriers or restrictions. Could this model provide an ecological utopia to political problems? In fact, protected areas along borders still are – and probably will remain for decades – national protected areas, which touch each other at borders, have a lot in common and develop joint measures. This approach was discussed in 2004 at an international meeting in Sardinia and even the European Theme Group on Transboundary Cooperation of the WCPA had to tackle the definition issue: of course there are examples of international protected areas, in the Antarctic or in South America, where conflicts at borders were solved by creating a protected area as a demilitarized zone.

However most protected areas, even transboundary ones, are administered according to the relevant national legislation. Only very rarely are protected areas regulated simultaneously on both sides of the border. Transboundary cooperation must ensure that objectives and measures are set jointly. The Thayatal National Park at the Austro-Czech border has developed a model for this. The key to the success of management in the Thayatal is the level of cooperation and not the definition or legal formulations. Since the National Park administration started its work in the Thayatal, it endeavoured to devise the necessary

management concepts in coordination with the Czech side. This not only required an official agreement but also long discussions between experts from both administrations. It resulted in a contract fixing the joint long- and medium-term development objectives, which today provides the management guidelines. They can only be implemented according to the national legislation, but it is guaranteed that the set goals can be reached.

Establishing a Transboundary Protected Area

Vision for transboundary cooperation in protected areas

The joint WCPA and EUROPARC study identified a series of key developments that were required for successful transboundary protected areas. Joint management was rated as an important element, together with minimum standards of cooperation, official agreements on cooperation and exchange of personnel. A questionnaire sent to protected area administrators found that although 80% agreed that harmonized management plans were necessary, only 17% actually had some. Also 80% were in favour of transboundary tourism in their respective protected area, but only 19% had taken the necessary steps to enable it. 83% considered that staff exchange was necessary, but only one third allowed for it. And only 38% thought that learning the language of their counterpart was also desirable. These results highlighted some of the problems facing those who wish to initiate cooperation across borders.

Threats and problems for transboundary cooperation

Language problems

One of the most common arguments against cooperation across borders is the language barrier. Surely, similar differences as the ones between Austria and the Czech Republic can be found on most continents. But especially in border areas one can always find people who speak both languages. And what keeps park staff from learning the other language? The daily work does not need translators but joint management and implementation plans do. Language is a barrier that is relatively easy to overcome and it should not be allowed to become an obstacle to cooperation.

Social and economic situation

We know a lot about the importance of open borders, for nature, for wildlife, for people. Protected areas and their management need to be harmonized on both sides of a border. But theories and political ideas very often differ from the daily reality. People fighting for their basic needs have no chance to think about sustainability, peace parks or restrictions in land use. Politics have to build the foundations for equal conditions for life in and around protected areas. A growing standard of living also makes for an increasing pressure on the utilization of natural resources.

In Europe one can still find a West to East decline in economic wealth and social benefits, even after the enlargement of the EU. So while one side can easily afford to protect nature, the other side might have to exploit natural resources to keep the balance of the state budget. However even in the wealthy countries in Western Europe, private interests can be a threat to the environment. Landlords want to make profits, companies exploit natural resources

and governments are often rather weak in the field of nature protection. In border areas different interests develop and are much more evident.

Existing programmes such as the Convention on Biological Diversity (CBD), the measures to stop the loss of biodiversity, and sustainability strategies will probably not be sufficient without indemnities to compensate for restricted utilization. International transfers will probably be required for protected areas of international importance.

Remaining physical barriers (Wildlife – a need for exchange)

As long as birds are the only ones to cross borders whenever they want, managers have failed in their job. Keeping reserves fenced to keep wild animals in a compound has nothing to do with protected areas but a lot to do with zoos. There are several reasons for opening borders to wildlife which include migration routes, genetic pools, etc.

However at the same time as borders fell in central Europe, double barbed wire fences divided ecosystems in the Balkans and between Poland and Belarus. And they still do. Strict reserves had no other partners on the other side of the river than gravel digging companies in Croatia, forest was logged in Karelia on the borders to National Parks in Finland and forest companies in some countries had an eye on neighbouring forests in less developed countries. Finally in 1999 protected areas were mined in the Balkans like in Central Europe during the Cold War. In 2000 a Romanian mining company polluted the Tiza River, damaging protected areas down to the Danube delta. And there are many more examples.

Along the former European demarcation line at the Iron Curtain the need for high-quality infrastructure is growing in order to bring Europe closer together. Increasing energy consumption threatens the last natural river ecosystems, not only at borders. The construction of the canal in the Danube Delta is a negative example, which may be repeated. The improved shipping conditions on the Danube also threaten valuable habitats between Germany and Romania. The list of protected areas under the strain of conflicting interests is long. The utilization of natural resources in national parks (in contradiction with the IUCN criteria), the modification of outer borders under the pressure of the tourism industry, exceptional authorizations to excavate mineral resources or the development of winter sports put protected areas under great pressure.

Conflicts/wartime

During the Rwanda/Burundi conflict, refugees partly cut the Virunga NP in Congo. During the Kosovo conflict the Shar mountains and others were mined. Between Ecuador and Peru a territory has been claimed by both sides. Protecting areas in war time is an unsolved problem and cannot only be done through written agreements. Mutual understanding, long-term cooperation and the involvement of local people might help to prevent such conflicts.

Shortly after the Kosovo conflict, during the harsh winter, locals were looking for firewood in unique forests. Before that facilities had been destroyed at great technical expense. It was left to the population to find the bare necessities to survive. But it does not

always have to be wars. Bad relations between states can result in strengthened borders, which may then represent insurmountable obstacles for nature.

The National Park Thayatal as a case study

How it happened …

What began the nature protection campaign in the Thayatal region was the Czech proposal to construct a hydro power plant upstream of Znojmo, which would have devastated a natural, quiet and species-rich valley. Highly motivated environmentalists and citizens of the border region fought successfully against these plans. The Austrian side of the Thayatal became a strict nature reserve.

While the Czech Republic seized the opportunity shortly after the change to turn this no man's land between the Iron Curtain and the state border into a national park, the Austrians were negotiating the establishment of their national park, which is all private property, through private contracts with landowners. This is why the question of the Austrian national park nearly became a never-ending story, as the perceptions of a national park differed very widely for a long time.

Since 1st January 2000, both national parks, Thayatal in Austria and Podyjí in the Czech Republic, can proudly call themselves an Inter-National Park. With one big difference however: while the Czech National Park Podyjí is under the authority of the Ministry and has the status of a nature conservation agency, the National Park Thayatal is a limited company under private law, which acts as a business specializing in nature conservation issues.

In the previous years, the cooperation was reinforced. In summer 1999, the former Czech minister of Environment Milos Kuzvart, his Austrian colleague at the time Martin Bartenstein and the Governor of Lower Austria Erwin Pröll signed a declaration of cooperation in the Thayatal. Admittedly a rather casual agreement but it allowed both administrations some space for their own decisions as well as freedom to act and shape the cooperation. With the creation of a joint commission for bilateral issues and coordination of measures, cooperation is gradually being improved.

Since the Austrian National Park Thayatal was planned, that is since the feasibility study in 1991, there have been regular contacts with colleagues of the Czech national park administration. Here the Czech Republic won the race. In July 1991 the National Park Podyjí was created. In Austria there was at the time only the protected nature area Thayatal, half the size of the present national park. Austria followed in 1999 with the declaration of the National Park.

So how does it work on a daily basis?

As mentioned above, language can be a major but not insurmountable barrier to cooperation. In Thayatal we Austrians tend to rely on the fact that our Czech colleagues may speak a little German, as Slavic languages are not easily accessible to us. But luckily there is also Ms Hrubcova from the Podyjí National Park administration, who is by now able to translate even the most complicated technical terms into both languages. Biologists have an easier time as Latin names permit at least some technical communication. It is through finding such solutions that cooperation can be made so much more effective.

On the different sides of the border there are different regulations and restrictions which are handed down from national legislation. For example on the Czech side of the Thaya River, a fisherman can wade out almost to the middle of the river, where the state border is. On the Austrian side, fishing has already been significantly restricted and may be regulated even more strictly in future.

But it is not possible to manage a transboundary area if the same regulations are not applied on both sides. In one of their regular meetings, both directors agreed to elaborate a long-term management plan for the national park area on both sides of the border. Measures must be coordinated and joint schedules developed. But national legislations are not identical. This is why differences taking into account both regulations must be incorporated in the management plan. This form of working with differing regulations to find common goals, is a daily routine in the work of two national park administrations, and typical for transboundary cooperation in Europe.

Thayatal in Austria and Podyjí in the Czech Republic are like two unlikely brothers; on one side is a business-type administration and on the other, a public authority. That both national parks could nevertheless be developed following a coordinated concept was mainly made possible by the consistent action of the responsible administrations. Thus both national parks are trying to meet the objectives of a national park according to IUCN criteria which are to protect rare landscapes and support their development, at the same time offering education, recreation and information together.

Future prospects/perspective

Transboundary cooperation is an ongoing task. Protected areas at borders do not always complement each other, governmental or economic interests on both sides of the border can, and most often do, vary. And the current situation in border areas is not always peaceful: still it is important to make contacts across borders, to develop and to strengthen them. We have to remember that although national cultures and histories can vary enormously, those both sides of the border often share the same history and have a common culture. This can be a basis for communication.

Borders are not natural, they were created by people. Therefore people should also be able to break them down for our cultural and natural heritage.

3. Joining cultural and natural heritage along the Green Belt

Giorgio Andrian, Ph.D.[4]

Abstract

"The Green Belt is not just an ecological corridor; it is a territorial challenge with geopolitical and cultural relevancies", was recently said about the initiative, reflecting its complexity and multi-faceted nature. Clearly, the proposal to make use of the territories that constituted the 'Iron Curtain' to form a long 'belt' with a strong 'green' connotation is not 'simply' a landscape architecture exercise; it implies the generation of a shared territorial vision, a mosaic of landscape and cultural elements to be framed into a valuable socio-economic process. The landscape elements and the uniqueness of its potential as a structured green backbone of Europe are to be seen in close connection with the symbolic and cultural values of the Green Belt, as one element of a more complex territorial system, the functionality of which relies on both the 'hardware' of its biological characteristics and the 'software' of its cultural and geopolitical features.

La Nature est un temple où de vivants piliers
Laissent parfois sortir de confuses paroles;
L'homme y passe à travers des forêts de symboles
Qui l'observent avec des regards familiers.
(*Les Fleurs du Mal,* C. Baudelaire, 1857)

Green Belt: not 'just' an ecological corridor

"The Green Belt is not just an ecological corridor; it is a territorial challenge with geopolitical and cultural relevancies"; this remark – uttered on the occasion of the concluding session of the first meeting of the Green Belt Working Group[5] – meaningfully reflected the complexity and multi-faceted issues linked to this initiative. Clearly, the proposal to make use of the territories that constituted the 'Iron Curtain' to form a long 'belt' with a strong 'green' connotation is not 'simply' a landscape architecture exercise; it implies the generation of a shared vision.

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[5] The meeting was held at Fertő-Hanság National Park, Hungary, September 8–12, 2004.

While the relationships between the different biological components of the Green Belt are easy to identify, the human relationships – primarily based on *symbols* and their *significances* – can be more complex to evaluate, although extremely important. In fact, the two aspects constitute the 'core' of – respectively – the *natural* and *cultural* relevancies of the Green Belt initiative; in other words, its 'mixed' *heritage*.[6]

Denomination and demarcation

These two main important steps in the process of establishing territoriality are in fact strong components of the Green Belt, and this form of cultural geography – "the essential condition of human communities in relation to nature" (Vallega, 2003) – can provide an interesting approach to assess the symbolic significance of this project. The choice of name – the strongly evocative combination of a *colour* and a *noun* – incorporates a powerful message, especially in antithesis with the previous entity being replaced: a grey barrier, the 'Iron Curtain'.

In fact, the relationship between the 'ecological' approach – driven by a science-based planning scheme – and the 'cultural' issues have always been interlinked elements of the Green Belt that encompass the two sides of the same 'territorial idea' being an ecological corridor with high cultural significance.

Biological and cultural diversity: exclusive domains or interdependent issues?

For a long time 'natural' and 'cultural' issues have represented two very separate conceptual and operative frameworks. In fact, the constituency of the tools that have been generated and implemented at the international scale reflects this 'dualism'. The UNESCO (1972)[7]-promoted World Heritage Convention represents a meaningful example of this dualism: the sites to be designated within the frame of the convention are classified in accordance with the two major categories: the 'cultural' and the 'natural' ones. Cultural sites are represented by monuments or groups of buildings; and natural sites are those that represent physical or biological formations of global significance either for their structures, or for the beauty of the species they contain. However a recent development within the Convention is to allow sites to apply for designation under both categories at the same time. This could represent an exciting new direction for the Convention and for the linking of our cultural and natural heritage.

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[6] The term *heritage* is rooted in the 'law of blood': the *patrimonium* is the legacy of the *pater*, of the ancestors. The linguistic evolution of the word led to its current significance, that has a comprehensive cultural connotation.

[7] Convention Concerning the Protection of the World Cultural and Natural Heritage, http://whc.unesco.org/pg.cfm?cid=182

Working on the natural side of this heritage, the Convention on Biological Diversity (CBD) can be taken as the most refined output of the recent international legal and policy framework distillation process;[8] by offering a scientific-based definition of its major objective – *biological diversity*[9] – it recognises, for the first time in the framework of an international convention, that conservation is "a common concern of humankind"[10] (CBD) and is an integral part of the development process. The three levels of biodiversity to be protected – the *genetic differences*, the *diversity of species* and the *variety of ecosystems* – represent its three major levels of pertinence.[11] Furthermore, the 'web of life' includes people as an integral component, depending upon it for their well-being and livelihoods; "conserving biodiversity is in the interest of all humankind, as biological resources are the pillars for all human societies".[12]

On the other side, the recognition of the *cultural diversity*, as constituting the 'fourth pillar' of the sustainable development,[13] challenges the 'mere' ecological approaches with the confrontation with more complex human dynamics. Despite the firm recognition of the importance of preserving this tangible and intangible heritage, any attempt by the international community to define cultural diversity seems incomplete; UNESCO (2001) tried to distil the guiding principles in its *Universal Declaration on Cultural Diversity*.[14] Although the Declaration does not actually define cultural diversity, a common understanding of the term may nonetheless be established based on UNESCO's definition of culture.[15]

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[8] The CBD (1992) is a pact among governments to set out commitments for maintaining the world's ecological underpinnings at the same time as developing economically. The Convention establishes three main goals: (1) the conservation of biological diversity; (2) the sustainable use of its components; and (3) the fair and equitable sharing of the benefits from the use of genetic resources.

[9] *Biological diversity* is defined as "the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems" (art.2).

[10] www.biodiv.org

[11] The CBD identifies three different levels of biodiversity: (1) *the genetic differences* within each species (such as the varieties of crops and breeds of livestock); (2) *the diversity of species* (namely the 1.75 million species of plants, animals and microrganisms that have been identified so far); and (3) *the variety of ecosystems* (such as those that occur in deserts, forests, wetlands, mountains, lakes, rivers and agricultural landscape).

[12] www.biodiv.org

[13] From the Directive Principles for the Sustainable Territorial Development, elaborated within the Council of Europe CEMAT framework.

[14] The UNESCO Universal Declaration on Cultural Diversity (2001) defines how the international community should deal with cultural diversity. It invites policy makers to: (1) recognise that differences exist in terms of practice, beliefs, value systems and vision; (2) respect the right of each person to be different and be valued as such, and finally; (3) ensure dialogue so that differences become creative and constructive.

[15] Culture is defined as "a set of spiritual, material, intellectual and emotional features of society or a social group, which encompasses, in addition to art and literature, lifestyles, ways of living together, value systems, traditions and beliefs." This definition is in line with the conclusions of the World Conference on Cultural Policies (MODIACULT, Mexico City, 1992), of the World Commission on Culture and Development (Our Creative Diversity, 1995), and of the Intergovernmental Conference on Cultural Policies for Development (Stockholm, 1998).

Accordingly, *cultural diversity* may be understood as – but not limited to – diversity in the following aspects: (1) language; (2) artistic expression (including art, architecture, literature and music); (3) value systems (including religion, ethics, spirituality, beliefs and worldviews); (4) knowledge (e.g. know-how and skills); (5) practices (e.g. rituals, production systems, and knowledge transmission systems); and (6) ways of living together (social systems including institutions, legal systems, leadership and tenure systems). Furthermore it should be remembered that this diversity can be viewed at different geographical levels: for instance between regions, countries or between ethnic groups. Furthermore, differences in cultural expression exist between groups of peoples, for example between men and women; between generations (youth, adults, elderly); between social classes (e.g. middle class, working class); or between occupations (e.g. artists, scientists, fishermen, farmers, businessmen). Other factors, such as ways of living (e.g. rural or urban; nomadic or sedentary); language (e.g. Francophone, Hispanophone); religion (e.g. Muslim, Christian); or political affiliation (e.g. liberal and conservative) also engender distinctive communities that contribute to the cultural diversity of the world.

The UNESCO *Declaration on Cultural Diversity* is significant in its attempt to review cultural diversity not as a simple fact but as a source of exchange and creativity that ensures sustainability of humanity; as such, cultural diversity is also a goal. While cultural differences are often perceived as potential sources of conflict[16] and an obstacle to development, the *Declaration* challenges this perception by affirming that cultural diversity is positive and should therefore be *protected* and *promoted*.

The value of biodiversity for the sustainability of ecosystems has been demonstrated and advocated through a wide spectrum of scientific studies, most recently the Millennium Ecosystem Assessment. The recognition of cultural diversity, however, is primarily rooted in the respect for basic human rights and fundamental freedoms that defend, among others, the right of each person to freely exercise cultures of his/her choice.[17] In other words, the protection of cultural diversity is currently more of an ethical imperative, yet to be demonstrated scientifically.

"Biological and cultural diversities are mutually reinforcing and interdependent", UNESCO firmly stated in 2002, when – in cooperation with UNEP – it convened the Round Table on 'Cultural Diversity and Biodiversity for Sustainable Development'; "cultural diversity and biological diversity together hold the key to ensuring resilience in both social and ecological systems"[18] concluded the shared document presented at the World Summit on

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[16] The "clash of civilizations" perspective represents one of the best known attempts to explain the emergence of conflicting issues at the confrontation of different cultural backgrounds.

[17] The Declaration refers namely to Article 27 of the *Universal Declaration on Human Rights* and Articles 13 and 15 of the *International Covenant on Economic, Social and Cultural Rights*.

[18] The UNESCO (2005) internal working document, "Enhancing the linkages between biological and cultural diversity as a key basis for sustainable development", defines the different concepts used in the joint Main Line of Action (MLA) between the Culture Sector and Natural Sciences Sector.

Sustainable Development. The recent recognition of the close interdependences between these two aspects brings on board the urgent need to redefine trans-disciplinary conceptual categories, to be implemented within innovative operative frameworks. The Green Belt is clearly one of them, where the adoption of a working singularly focussed perspective would reduce its extremely challenging potentials. In fact, the 'mere inclusion' of already identified cultural sites along its path will not guarantee the necessary relevance of the initiative. For the Green Belt to offer a truly unique approach it must act to tie the two aspects – natural and cultural – together into a single strand that will act to enhance the lives of the communities it touches and the species and habitats it covers.

The Green Belt vision: the challenge of territorial systems

The Green Belt *vision* is already declared: "to create the backbone of an ecological network, running from the Barents to the Black Sea that is a global symbol for transboundary cooperation in nature conservation and sustainable development".[19] Evidently, this 'global symbol' needs to be understood and recognised as such, "to make a better use of the spatial planning as the correct arena and instrument"[20] for supporting the 'territorial dimension' of sustainable development. Eventually, the Green Belt can play the role of 'identity cement' in its 'dividing and uniting' spatial function (Gravari Barbas, 1996), when properly included in a wider territorial frame.[21] Doubtless, "a Green Belt means many different things to many different people";[22] nevertheless, its crucial importance as a structural and functional element of a wide European landscape strategy needs to be rooted in a larger understanding of these potentials by the local communities, along and in the vicinity of the corridor.

The ideal perspective of a "Nature that unites what borders divide"[23] needs to be 'translated' into a system of *shared values* to become a constructive element and a precise context of sense for a wide range of stakeholders. The Green Belt has been designed around the basic premise of the ecological network concept, i.e. where a network of core areas (protected and non-protected) is surrounded by buffer zones, sustainable use areas and corridors that allow the movement of species and populations. This approach has been identified as one of the key responses to the extreme fragmentation faced by most of

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19 From the *Green Belt Programme of Work*, this volume.

20 From the Directive Principles for the Sustainable Territorial Development, elaborated within the Council of Europe CEMAT framework.

21 Interestingly, the local dimension of the territorial development has been reflected recently from the 'political arena' of the Council of Europe; on the occasion of the last ENTO meeting (Strasbourg, March 2005) it was clearly remarked that "la démocratie participante oblige à résoudre des problèmes de désidentification de ce que nous appelons aujourd'hui capital social avec les structures institutionnelles de notre système démocratique. La globalisation a besoin – entre d'autres choses – d'une société beaucoup plus interdépendante. Réduire les distances entre État-appareil et État-citoyen oblige à reconduire l'idée d'intérêt général vers la cohésion sociale. Quel meilleur espace pour résoudre ce que les experts appellent insuffisance démocratique que l'espace local ou l'espace régional?"(from the opening speech of M. Juan Ignacio Soto Valle, member of UDITE, Spain).

22 From the *Green Belt Programme of Work*, internal draft document.

23 *Ibidem.*

Europe's ecosystems. Because ecological networks integrate man's land-use practices (albeit in a sustainable manner) into its concept, at some level it recognises that there is a need to link our cultural and natural values. However this aspect of ecological networks has yet to be developed and efforts have concentrated on the biological aspects of the concept. This is also true of the Green Belt which will have to explore the cultural components of the initiative to realize its vision. As the "conservation and sustainable use of biological diversity need to be mainstreamed across all sectors, mobilizing a wide and diverse range of actors" (CBD, 2002), the goal of fostering transboundary cooperation has to be channelled through all the scales of pertinence; local communities have to find the way to be linked with their respective national government positions, to be able to make a sustainable use of the surroundings that the Green Belt territories can represent; in other words, they have to be part of a series of protected cultural landscapes, to serve as "living models of sustainable use of land resources" (Brown *et al.*, 2005).

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4. Between the Alps and the Puszta: A transboundary national park shared by Hungary and Austria

Alois Lang[24] and Attila Fersch[25]

Abstract

The plain surrounding the shallow lake Neusiedl/Fertő on the Austrian-Hungarian border is an extremely important area for biodiversity. This region has witnessed many changes in political history and in the use of its natural resources. During the 1800s, the region was characterized by small holdings and a diverse range of land-use practices. During the twentieth century, land use changed and intensified on both sides of the border. Transboundary cooperation existed for many years through the joint management of the lake and water resources. Towards the end of the Communist period, discussions started between the two countries to establish National Parks on either side of the border. Through extensive dialogue with local stakeholders in both countries, the Parks were zoned and established through a joint ceremony in 1994. Since that time the level of cooperation has increased in tourism, education and management.

Shallow, saline, separated

The area is located at the border – at the natural border between the easternmost hills of the Alps and the westernmost edge of the Puszta, the Small Hungarian Plains (see Figure 2). The end of the Austro-Hungarian Empire in 1918 drew a new political borderline across this unique landscape, separating the extremely shallow steppe lake as well as the valuable cultural land surrounding it into two parts. During the following decades, especially after World War II, regional development took place in two political worlds.

Situated only 115–120m above sea level, the diversity of habitats found within the soda lakes, grassland, reed beds and marshes is home to an unequalled number of rare and endangered species in Central Europe. In addition to that, this wetland plays an important role as a stepping stone for birds migrating between Africa and Northern Europe.

[24] Nationalpark Neusiedler See – Seewinkel, Informationszentrum, A-7142 Illmitz, Austria

[25] Fertő-Hanság Nemzeti Park, Rév Kócsagvár, H-9435 Sarród, Hungary

Figure 2. Lake Neusiedl/Fertő surrounded by the small Hungarian plains

© Nationalpark Neusiedler See – Seewinkel

Cooperation in nature conservation and water management started as early as the 1950s. This was necessary because of the natural dynamics of Neusiedler See/Fertő tó: 320km² in size, the catchment basin of this slightly saline lake with an average depth of 1.1m measures only some 1,300km². Therefore the water level undergoes a seasonal fluctuation of up to 50cm every year. Rainfall, snow and evaporation are the dominant factors affecting the water level in the lake, whereas small rivers, groundwater and minor fountains do not play a significant role. The beginning of the twentieth century saw the first attempts to control the level of the lake and reduce the seasonal fluctuations, through the construction of a long channel, the so-called Einserkanal or Fö csatorna (see Figure 3). This channel stretches from

Figure 3. The sluice system of the Einserkanal

© Nationalpark Neusiedler See – Seewinkel

the south-eastern shore of the lake to the river Raab/Raba, some 36km away. Since then, it has been possible to avoid major flood damage. Transboundary cooperation was essential because the sluice gate as well as the channel remained in the Hungarian part of the area, whereas some 80% of the lake basin became a part of Austria after World War I. From 1956 onwards, a bilateral commission has been overseeing the regulation of the sluice that was jointly renovated in 1992.

Although cooperation was necessary to manage the water resources of the lake, there was no urgent need for closer cooperation as regards nature conservation after the erection of the Iron Curtain, which here consisted of fences, 16m high border towers, open sand stripes and, until 1956, mine fields. In the huge reed beds and on the open water the border was controlled by Hungarian and Russian soldiers in small, fast motor boats. The only existing border checkpoint in today's National Park area, crossing the Einserkanal near the village of Pamhagen, was closed down after World War II – even the bridge was destroyed. Only the railway connection stayed intact, but was mainly used for transporting freight.

A landscape changing its face

On the Austrian side of the border, intensive agriculture on small plots of private farm land pushed back the former pastures and meadows. Cattle farming became less and less attractive, while wine and vegetable farming brought higher incomes to the villages (see Kirchberger and Karpati, this volume). The Hungarians had to follow the socialist rules of large-scale industrial agriculture so private farming was reduced to a minimum. Alder (*Alnus* spp.) forests in the periodically flooded Hanság area were widely replaced by fast-growing poplar (*Populus alba)* plantations, and on both sides of the Iron Curtain arable land was gained by enlarging the system of drains.

Figure 4. Invasive *Impatiens* spp. in poplar plantation in the Hanság

© Takàcs Gábor

Close to the border, there was almost no intensive land use, and the former extensive forms of agriculture – such as hay making, cattle grazing and reed cutting (during the winter) – were given up by the majority of farmers. In combination with the remaining saline shallow lakes ("Lacken") and their surroundings, a network of small protected areas survived this process of intensification. Unfortunately, nature conservation in this period (from the sixties to the beginning of the nineties) was mostly characterized by passive protection, although the scientific work on both sides of the state border brought up remarkable results. At the same time, the young Austrian NGOs like Austria's Nature Conservation Association (ÖNB), WWF Austria – which was founded in the Seewinkel area in 1963 – and the Friends of Nature began to engage in local activities, bringing to public debate a new version of an older project: the establishment of a transboundary National Park. The threats and negative long-term impacts from intensified agriculture and the increasing pressure on habitats resulting from one-day tourism in Austria forced the decision makers to react.

A virtual EXPO and a real National Park

It was in 1988, when – still under a socialist system in Hungary – both countries decided to jointly run for an EXPO in 1995, to be held in both capitals, Vienna and Budapest. As a side effect during the first EXPO planning phase, the idea of a transboundary National Park, located in two states with different political systems, became an attractive part of the concept. For the first time since the 1940s, when scientists had voted for a National Park around Neusiedler See/Fertő tó, the political decision to plan a National Park was taken.

Figure 5. The two national park directors at the opening in 1994

© Nationalpark Neusiedler See – Seewinkel

A bilateral commission started the planning process, involving all stakeholders on the local level. This was of especially high importance in Austria, where the designated National Park land was (and still is) in private hands: some 100km^2 of today's National Park belong to more

than 1,200 families in seven villages. Negotiations with the landowners took almost four years and were constructively supported by the agricultural chamber, and in 1992 the contracts regulating compensation payments for the landowners were finally signed. In Hungary, the first phase of the National Park was established on state land by state law in 1991. To demonstrate the transboundary character of this National Park, a joint opening ceremony was held in April 1994, when the prime ministers of Hungary and Austria, Boross and Vranitzky, both stated their will to intensify cooperation in nature conservation; the event took place on the state border near the joint core zone of the new National Park. Ironically the event that initiated the establishment of the National Parks, the 1995 EXPO in Budapest and Vienna, was never realized, due to lack of money and the fear of too much environmental damage caused by traffic.

From bilateral planning to joint management

Once the Austro-Hungarian planning commission had achieved its function in the establishment of the National Park, it could have been disbanded. However, importantly, both sides agreed to continue the close cooperation in further developing the National Park. The word "planning" was therefore deleted, but a bilateral National Park commission still exists and is active, discussing essential next steps and taking care to use synergies in research, management and ecotourism. Both directors, Laszlo Kárpáti and Kurt Kirchberger, are members of this commission, and both are proud of the fact that the positive atmosphere in everyday cooperation between the staff members of the Park's management has been reducing the importance of the bilateral commission.

Figure 6. A study trip in the Neusiedler See National Park

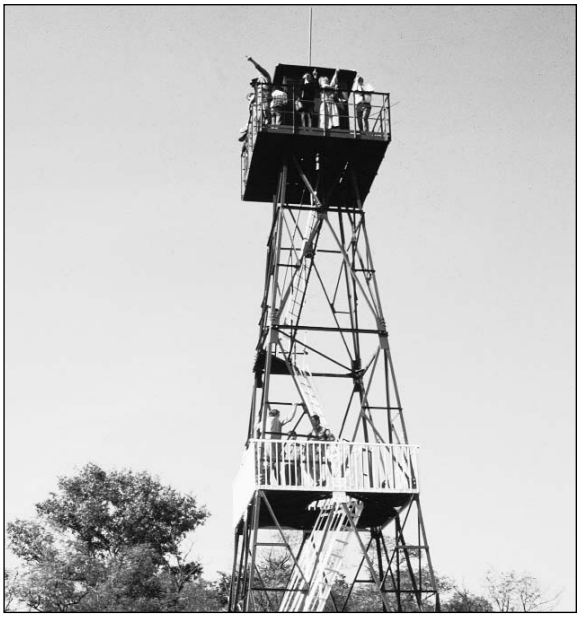
© Nationalpark Neusiedler See – Seewinkel

Wherever possible, knowledge, experience and even infrastructure is shared. Elements of the visitors' and educational programme are jointly developed for both sides, and the mutual

support during international conferences, press trips or study trips hosted by one of the National Park centres clearly indicates that these two National Parks are part of one and the same wetland area.

At the border between the conservation zone and the nature zone on the Austrian side of the National Park, two relicts of the Cold War serve as nature tourism infrastructure: Hungarian border towers, used for observing the death zone along the fences, became useless and were torn down during the changes. In 1994, two of them were brought to Austria, adapted for civil purposes and then erected at the south-eastern edge of the steppe lake, where they offer an impressive view of the pastures, grassland and reeds.

Figure 7. A former border tower



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Nature tourism

Nature tourism has a longer tradition on the Austrian side of the Park, starting during the 1960s mainly with birdwatchers coming to the soda lakes in spring and autumn. The establishment of a transboundary National Park has now attracted a wider range of nature tourists, for a number of reasons: information and infrastructure for visitors has facilitated the individual nature experience, the comprehensive programme with guided tours, excursions and field trips is marketed more and more by the local tourism operators, and finally the open border has motivated guests from western countries to discover a Hungarian National Park. As a symbol of close cooperation in this field, both National Parks have jointly edited the official map (for hikers and bikers) with information in German,

Hungarian and English. In 2001, UNESCO declared the Neusiedler See/Fertő tó a World Heritage Site, highlighting the value of the cultural landscape around the steppe lake. Since then, the activities of both National Parks in preserving pastures and meadows have been communicated to a wider public, contributing to a better understanding of today's nature conservation tasks.

A vital resource for businesses and communities that rely on tourism is the ability to attract target groups outside the summer high season of July and August. This increases the sustainability of businesses such as apartments, pensions and bed-and-breakfast houses. This is exactly the case with nature tourists, and the statistics in the Neusiedler See/Fertő tó area clearly show that the villages with a higher percentage of nature tourists have a significantly longer season than those concentrating on sports or specific events.

Burgenland and the Hungarian Counties of Györ-Moson-Sopron, Vas and Zala founded a EUREGIO cooperation in 1998. Since then the regional media have intensified their cross-border cooperation, and National Park topics became of interest to the newspapers and electronic media on either side of the border. Mutual support in media work and public relations is therefore an important area for transboundary cooperation projects.

Same methods, same instruments

Based on scientific conferences ("Neusiedler See Tagungen") dating back to the 1960s, the exchange of research results between Hungarian and Austrian institutions has generated insights into the needs for active nature conservation and protecting the environment in this sensitive lake area. In general, the loss of rare habitats in the cultural landscape and the threats to endangered species showed a similar background in both countries, primarily involving changes in traditional land-use practices such as: the abandonment of meadows and pastures, unrestricted growth of reeds along the shores of the lake as well as of the soda lakes, fishery focused on non-autochthon species.

Therefore the methods needed to be implemented for preserving or restoring valuable ecosystems turned out to be the same in both parts of the National Park – but the logistical, legal and structural background was (and partly still is) very different. A good example of the necessity for close cooperation is the management of fish fauna in the Neusiedler See/Fertő tó. It would not have made sense, or worse could have been counter-productive, to carry out different management actions or the same actions at different times in one and the same water body. There was a need to control the eel population in the lake and switch from intensive fishery management to traditional practices. However these steps had to be postponed until the directorate of the Fertő-Hanság had been empowered by law to control fisheries on Fertő tó. Harmonization of hunting laws was (and partly is) another field where cooperation is building the basis for joint action. Simultaneous counting of wintering geese between November and February is also a form of practical joint activity that could not be done by one Park Administration on its own.

Breeding the traditional cattle of the Carpathian Basin (Hungarian Grey Cattle) and using them in herds for grazing management – and re-introducing this excellent beef into local restaurants – is another parallel activity in management. Utilizing traditional domestic animals for nature conservation measures has at least three side-effects: it serves as an explanation of the value of cultural landscape, it links nature conservation with tourism, and it contributes to a new, transboundary regional identity.

Several projects, initiated either from the Hungarian or the Austrian Park's Management, have been eligible for EU subsidies – be it for infrastructure, educational or publishing projects. Both Park Administrations are proactive partners within the ambitious, EU co-funded project on "Traffic development in sensitive areas", driven by the respective ministries in Vienna and Budapest. One output of this project is going to be set in use by spring 2006: a solar boat for a maximum of 25 passengers will serve as an excursion boat on the lake, for educational as well as for public relations purposes.

Conclusion

In this case study we have tried to show how cooperation can develop and prosper within a single area that shares the same natural and cultural heritage but is separated by serious political barriers. The situation today is one of successful collaboration between the two National Park directorates and also between the directorates and their local communities. The EUROPARC award for successful transboundary cooperation in nature conservation, given to both directors in 2003, highlights the efforts that have been undertaken in this field since the foundation of the National Park. Only one year later, in September 2004, the first working group meeting of the European Green Belt initiative took place in the Fertő-Hanság Nemzeti Park's directorate – jointly managed by both administrations.

Section 2.
How green is the Green Belt?

Introduction

This section of the book gives an overview of the characteristics of the Green Belt and the specific situation in different regions along its course through Europe. The chapters on the Green Belt in the three regions Fennoscandia, Central Europe and South-East Europe show impressively, that the Green Belt traverses a great variety of different landscapes, of which many are exceptional in being either still comparatively natural, e.g. such as those dominated by old-growth forests or water courses, or extensively used traditional cultural landscapes. These landscapes have in common that they are comparatively rich in biodiversity, many are of outstanding beauty and that national parks and other protected areas accordingly concentrate along the Green Belt.

Although the Green Belt is in general described as following the line of the former Iron Curtain the chapters of this section make clear that this is simplifying the real situation. The term "Iron Curtain" politically does not apply everywhere, e.g. not along the Finnish-Russian border. Besides, the borders along the Green Belt were and still are safeguarded to different degrees and transboundary cooperation was started under and still underlies different preconditions. In spite of all these differences in many places along the Green Belt some people and organizations started to work for the maintenance of the natural and cultural heritage and the establishment and improvement of transboundary cooperation. Throughout the sections of the Green Belt this process is furthest advanced in some Twin Parks, transboundary national parks or biosphere reserves, where harmonization of e.g. the management, joint research programmes, the infrastructure for sustainable tourism and public relations work is well on its way. Elsewhere the common goal to establish transboundary protected areas or joint species protection programmes has given impetus to this process. However, today the necessity for joining forces in nature conservation across borders maybe is felt most strongly in areas of the Green Belt where infrastructure projects like road construction or river regulation are planned as a side effect of a Europe gradually growing together.

The following chapters show that requirements, expectations and goals with regard to the European Green Belt vary regionally starting off with the shape the Green Belt is to take as a backbone of an ecological network. This for some regions mainly means the establishment of core areas and in others also the maintenance of corridors in the shape of river systems

or a connecting structure following the border line. Although the concept of the Green Belt as part of an ecological network is the origin of the initiative, other aspects have quickly gained importance at least in some regions. In order to protect and develop the Green Belt, the acceptance and support of local people is essential, which means that the Green Belt must offer them long-term economic perspectives. Based on the outstanding natural beauty of its landscapes in combination with the historic and cultural heritage the Green Belt offers a chance to enhance sustainable regional development based on soft tourism. This often implies the reestablishment of a regional cultural identity and close collaboration among the people on both sides of the border. Due to history and today's subsequent political and economic situation these aspects of the Green Belt are of special importance in the Balkan region.

The chapters also indicate that the Green Belt initiative has already moved a lot in some regions, especially in South-Eastern and Central Europe, where networks among stakeholders were built and many projects and activities were initiated.

5. The Fennoscandian Green Belt

Lassi Karivalo[26] and Alexey Butorin[27]

The background

For over ten years now, the concept of "the Green Belt", stretching from the Eastern part of the Gulf of Finland in the south to the Finnish-Norwegian-Russian part of Lapland in the north, has been accepted in Finland, Norway and Russia. The concept includes the idea of joint efforts for developing the Fennoscandian Green Belt. A working group coordinating Finland's and Russia's cooperation in nature conservation first discussed the issue in 1994. The idea of the Green Belt of Fennoscandia has since been widely discussed at Russian-Finnish meetings. From 1996 to 1997, there were already plans to nominate working groups to address the issue in both countries, but that did not lead to any concrete result.

Later, this issue attracted a wider response, and many conferences and working meetings have been held with participation from Russian, Finnish, Norwegian and German governmental and non-governmental environmental bodies. The largest conferences were held at Petrozavodsk and Murmansk (Russia), Kuhmo (Finland) and the Island of Vilm (Germany). The latest phase in this issue is the initiative of the European Green Belt with the Fennoscandian Green Belt seen as a northernmost part.

The definition of the Fennoscandian Green Belt

Although the concept of the Fennoscandian Green Belt is widely used, it is not generally accepted so far and an official definition of the Fennoscandian Green Belt has not yet been made. The concept of the Fennoscandian Green Belt is used presently in the nature conservation sector to describe the biodiversity-rich border region between Finland and Russia and Finland and Norway. However, currently there is not even an official delineation of the Fennoscandian Green Belt and although some maps of it exist none have been officially endorsed. Rather than being one single, unbroken zone, the Fennoscandian Green Belt is a network made up of separate protected and unprotected areas rich in nature.

The line of the border between Finland and Russia (and the former Soviet Union) has in most places been approximately the same for hundreds of years. It got its present shape after World War II, when some areas, especially Karelia and Petsamo formerly belonging to Finland, became a part of the Soviet Union. Now they are a part of Russia. Thus when speaking about the Fennoscandian Green Belt we mean the border line which got its shape

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after World War II. The length of the border between Finland and Russia is 1,250km, and between Finland and Norway 100km (in the context of the Green Belt), so the total length of the Fennoscandian Green Belt is about 1,350km.

The concepts of the Iron Curtain and the Fennoscandian Green Belt

Although the Finnish-Russian and the Norwegian-Russian border along the Fennoscandian Green Belt was during Soviet times very strictly controlled, it has generally not been called the Iron Curtain. Historically this term was applied to Central Europe where it has generated the strongest historical and cultural resonance (see Geidesis and Kreutz, this volume). Therefore it is not correct to apply the term "former Iron Curtain", a phrase widely used in Central Europe in relation to the Green Belt, to the Fennoscandian Green Belt.

The Finnish-Russian border is still very strictly controlled, and now also by the European Union, as the border has so-called Schengen status. The official border zone, not to be visited without permission, is narrow on the Finnish side, only 0.5–2.0km. On the Russian side it can be over 20km wide. This border zone is still heavily fenced and, to some extent, hinders the migration of large mammals across the border.

Nature in the Fennoscandian Green Belt

The Fennoscandian Green Belt covers a range of ecosystems from the Arctic tundra on the Barents Sea coast to mixed broad-leaf forests covering the islands in the Gulf of Finland. But the largest part is northern coniferous forest, known as the boreal zone.

Aside from the unique preservation of the last tracts of old-growth taiga in the European part of the continent, this area is highlighted by an interesting geological structure and relief. On one hand, the area is a part of the ancient Baltic crystalline shield. Fragments of the shield appear as large and small ridges and individual erratic massifs. On the other hand, the surface has been intricately transformed by glaciations, which resulted in the undulating moraine relief and unusual shapes of various moraine features, such as kames, eskers, outwash plains, drumlins, *roches moutonnées*, etc. The last glacier receded 10,000 years ago and this region's landforms are among the youngest in the world.

The formations of its ecosystems are still in the early stages and they are still fairly unstable. The dissection of terrain, tectonic depressions and abundant precipitation has resulted in the formation of a multitude of picturesque lakes and mires, the most fascinating trait of the local landscapes. A large number of rapids and waterfalls on small rivers add to the spectacular natural beauty of the area.

The geographical position, climatic and geological features found their reflection in the remarkable mosaic of picturesque landscapes and frequent alteration of spectacular natural complexes. The location of the region in the taiga zone with predominantly light coniferous

pine forests, combined with its remarkable terrain and a multitude of lakes created its unique coloration. In general, the Fennoscandian Green Belt contains the last large massifs of old-growth taiga typical for Fennoscandia, which mainly consist of dry pine forests with a characteristic high fire frequency.

The protection of the Fennoscandian Green Belt

The Fennoscandian Green Belt still contains areas of original nature, boreal forests and mires. Areas along the Finnish-Russian and Finnish-Norwegian border are important for the preservation of the northern coniferous forests. These areas in their natural state, and situated on both sides of the border, are also of great importance, because they safeguard and provide a natural habitat for a number of species of flora and fauna threatened in Finland, Russia and Norway. Thus these three countries have a huge responsibility to preserve this valuable part of Fennoscandia.

One reason for the situation is that the borderline together with border zones have been strictly controlled as a national security belt and it was prohibited to enter the Russian border zone for the last 60 years. As a result nature has had the chance to develop undisturbed. One can say that the high conservation value of the boreal forest ecosystems along the Finnish-Russian border is therefore a result of the strict border control.

The main task of the nature conservation activities in the Fennoscandian Green Belt is the protection of the boreal (i.e. northern coniferous forest) nature of Fennoscandia. The conservation activities take place in cooperation among conservation officials and non-governmental bodies in Finland, Norway and Russia (for example see Hokkanen *et al.*, this volume).

In practice, the protection of the Fennoscandian Green Belt has been promoted by many Finnish, Russian and Norwegian nature conservation cooperation projects focused on, for example:

- important protected areas already established on either side of the border;
- increasing cooperation on the management and use of border-region protected areas;
- the protection of the ecosystems, habitats and living organisms in the boreal zone through cooperation between the countries of the Fennoscandian Green Belt;
- the stepping up of biodiversity research and cultural cooperation;
- the promotion of ecologically sustainable forestry;
- the promotion of natural areas for recreation and environmentally-responsible nature tourism.

One important project in supporting the establishment of new protected areas on the Russian side was the Karelian Parks Tacis project funded by the European Union. This project provided support enabling the development of plans for the management and utilization of the proposed areas of Kalevalsky, Tuulos, Koitajoki-Tolvajärvi and Ladoga Skerries. Paanajärvi National Park, established earlier, was also included.

There is unfortunately not, as concerns the Fennoscandian Green Belt as a whole, any exact information available about the protected areas, but some information on the Finnish, Russian and Norwegian protected areas does exist. The total area of the protected areas along the Fennoscandian Green Belt is approximately 1,310,000 hectares.

Table 1. Protected areas along the Fennoscandian Green Belt

Country	Protected Area	Area/ha
Norway	Øvre Pasvik National Park	11,900
	Øvre Pasvik Landscape Protection Area	5,420
	Pasvik Strict Nature Reserve	1,890
	Store Sametti-Skjelvatnet Nature Reserve	7,340
Finland	Vätsäri Wilderness Area	155,000
	Sarmitunturi Wilderness Area	15,000
	Urho Kekkonen National Park	250,000
	Värriö Strict Nature Reserve	12,500
	Sukerijärvi Strict Nature Reserve	2,200
	Oulanka National Park	27,000
	Kalevala Park (under establishment)	33,500
	Friendship Park	27,900
	Ulvinsalo Strict Nature Reserve	2,500
	Ruunaa Nature Reserve	7,400
	Patvinsuo National Park	10,500
	Koivusuo Strict Nature Reserve	2,200
	Petkeljärvi National Park	700
	Siikalahti Bird Wetland	445
Russia	Pasvik Strict Nature Reserve	14,727
	Laplandsky Strict Nature Reserve/Nature Biosphere Reserve	278,436
	Paanajarvi National Park	104,354
	Kostomukshsky Strict Nature Reserve	47,457
	Kalevalsky National Park(under establishment)	95,886
	Ingermanlandsky Strict Nature Reserve (under establishment)	14,200

Russia

On the Russian side, the forests were nearly totally intact and free from cutting up to the collapse of the Soviet Union. After the collapse of the Soviet Union in the early 1990s, intact forest areas started to be of interest to the forest industry. Logging started threatening the old-growth forests in the border areas. At the same time, conservationists started their own

campaign to save valuable forest areas along the Finnish-Russian border, but especially on the Russian side of the border.

Discussions on protection were started as early as the late 1980s in the official Finnish-Russian working group on nature conservation. As a result of that work, a Friendship Park was established across the Finnish-Russian border. It consists of five separate Finnish protected areas of different status together with Kostomukshsky Strict Nature Reserve on the Russian side. The purpose of the park was to promote environmental research and cooperation in the environmental protection sector in Finland and Russia, in addition to protecting the habitats of the wild forest reindeer (*Rangifer tarandus fennicus*).

Later the campaign of conservationists, in loose cooperation with Finnish authorities, tried to influence Russian authorities to set aside some other valuable areas for conservation purposes. Plenty of joint inventories were carried out on the Russian side of the valuable Fennoscandian Green Belt. After these inventories were carried out, over 30 isolated nature sites forming a narrow line (with an average width of 20–30km) along the border were proposed to be included in the Russian part of the Fennoscandian Green Belt. All chosen forest and taiga tracts had a high level of integrity, which was promoted by the strict near-frontier-zone regime of the Soviet period. By 1998, the number of proposed sites had decreased to 20 and included only existing and projected protected areas of both federal and regional level.

Therefore, taking into consideration the significant difficulties in the realization of such a large-scale project on the Russian side of the border, the number of sites projected into the Fennoscandian Green Belt has gone down to six. Four of the sites already have federal protection status; the other two have Special Protected Natural Area status. All the sites are united into six near-boundary complexes and, in many cases, make a single whole with Finnish and Norwegian near-boundary protected areas, and are with doubt of significant natural value. The distance between the complexes is 30–150km (see Table 1 for details of Russian protected areas). The total area of the Russian protected areas either established or under establishment at the Federal level along the Fennoscandian Green Belt is more than 555,000 ha. Next to the protected areas mentioned above, there are some important natural areas without federal protection status. They are Lapland Forest (*Laplandsky Les*) projected Game Reserve, Alla-Akkajarvi projected Nature Park, Kaita projected Game Reserve, Kutsa regional Game Reserve, the Landscape regional Game Reserve of Koitajoki, Voinitsky projected Game Reserve, Tuulos projected Landscape Game Reserve, Ladoga Skerries projected Nature Park, Karelian Forest regional Game Reserve, Prigranichny projected Nature Park and Jupuazhshuo Wetland Game Reserve. The above-mentioned natural areas may also become clusters of the Fennoscandian Green Belt.

The Russians have been active in promoting the nomination of the Fennoscandian Green Belt as a World Heritage Site. At the initiative of the Russians, the UNESCO World Heritage Committee, at its 25th Session in Helsinki, in December 2001, decided to assess the preconditions for making a proposal for the Fennoscandian Green Belt protected areas to be included in the World Heritage List. Since then a number of seminars have been

organized on the topic, especially by the Natural Heritage Protection Fund Russia and, in cooperation with the Moscow Bureau of UNESCO, the Karelian Research Center Russian Academy of Sciences, Kola biodiversity conservation Centre and Greenpeace Russia, a proposal has been prepared on the Russian part of the Fennoscandian Green Belt for the nomination process of a World Heritage Site.

The proposal includes the most valuable protected areas located on the Russian side along the Russian-Norwegian and Russian-Finnish borders. They include Pasvik Reserve, Laplandsky Reserve, Kostomukshsky Reserve, Paanajarvi National Park and the projected Kalevalsky National Park.

It is a fact that the Fennoscandian Green Belt is the northernmost and most cohesive area of Scotch pine forests in the world, which makes it relevant in the light of the criteria for the World Heritage List. The same latitudes elsewhere in the world are generally characterized by tundra ecosystems or sparse spruce-dominated forests.

The Finnish and Norwegian officials have been informed and involved in this nomination work, but in Finland and in Norway no political-level decision has been made so far on starting the preparation of the whole Fennoscandian Green Belt as a World Heritage Site.

Finland

All Finnish protected areas along the border are of national importance and have been established mostly as part of the realization of national nature conservation programmes. Conservation programmes for national parks, mires, old-growth forests and bird wetlands have been approved by the government. Some additional proposals for protected areas are included in the Finnish Natura 2000 programme, but there are no remarkable differences between the network of already established protected areas and the network of Natura 2000 sites in Finland.

The protection and conservation of intact nature has always taken advantage of various situations threatening nature. In the 1980s, an intense public debate arose about the remaining wilderness areas in Finnish Lapland. This debate subsequently escalated and expanded to include conflicts pertaining to the protection of old-growth forests all over Finland, including border areas. But when forestry activities really started to penetrate the border areas, it caused a situation where strong discussions were started concerning the saving of valuable old-growth forests in the Finnish border regions of the Fennoscandian Green Belt.

Some protected areas had already been established on the Finnish side of the Fennoscandian Green Belt in the 1980s and early 1990s, but that was not enough. The approval of the old-growth forest programme in June 1996, the government approval of the Finnish Natura 2000 Network and the supplementary Natura proposal in 2002, all improved remarkably the protection of the Fennoscandian Green Belt on the Finnish side of the border. However, the Fennoscandian Green Belt is not, and will never become, a single, unbroken protected area. It is a network of core areas provided by separate protected areas that are stepping stones along the border.

The number of noteworthy Finnish protected areas along the Finnish-Russian and Finnish-Norwegian border is about 70. Most of them are situated in Northern Finland. Some are very small (only some hundred hectares) and some large (250,000 hectares in size). The total area of the Finnish protected areas (including wilderness areas) along Finland's eastern border is about 600,000 hectares (see Table 1 for details of the protected areas along the Green Belt). A couple of additional valuable Finnish protected areas will be established along the Finnish-Russian border in the near future. The Finnish protected areas along the Fennoscandian Green Belt fall into IUCN Categories I, II, IV and VI.

In Finland, nearly 100% of the protected areas in the Fennoscandian Green Belt are situated on state land and waters and are managed by the state organization Metsähallitus.[28]

On average, 50% of the land and water areas along the Finnish-Russian Green Belt are state-owned and 50% privately owned, but in Southern Finland 95% are privately owned. The population density in the Finnish-Russian border region is low and the protected areas are uninhabited. The main means of livelihood are forestry, agriculture and, in some areas, also nature tourism. Agriculture and forestry are not allowed in Finnish protected areas, and, in general, there are no great industrial complexes near the border.

Norway

The northernmost part of the Fennoscandian Green Belt stretches up to Norwegian territory, i.e. Pasvik area (See Table 1 for the details of protected areas). Since 1991, there has been trilateral cooperation between Norway, Russia and Finland for nature protection in this region. Primarily efforts have been put into improving conservation measures and cooperation between protected areas. The aim is to establish a well-functioning cross-border Inari-Pasvik protected area consisting of areas of Øvre Pasvik National Park (Norway), Vätsäri Wilderness Area (Finland) and Pasvik Strict Nature Reserve (Russia).

Typical features of Øvre Pasvik National Park include a long and open pinewood valley, low and gently-sloping ridges, glittering lakes and wide bogs – a landscape unchanged since the dawn of time, where Nature's own rhythm rules. The pine forest on the borders to Finland and Russia is one of the largest virgin forests in Norway, a lobe extending from the Siberian taiga. Many easterly species of plants and animals are found here which are rare or unknown elsewhere in Norway.

The Øvre Pasvik National Park Information Centre in Pasvik valley, close to the Finnish and Russian borders, plays an important role in the trilateral Finnish-Norwegian-Russian cooperation. Through exhibitions and information, the Information Centre will spread knowledge on the ecology and history in the Pasvik valley and on the nearest protected areas in Russia and Finland.

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[28] More information on Finnish protected areas is available on the Metsähallitus website: www.metsa.fi/naturalheritage

Transboundary cooperation within the Fennoscandian Green Belt

The objective in improving nature protection in the Fennoscandian Green Belt is to establish a chain of functioning Finnish-Russian and Finnish-Russian-Norwegian cross-border protected areas stretching from the Gulf of Finland in the south to the Pasvik area in Northern Lapland. A network of this kind would provide an opportunity to harmonize the management of protected areas connected on either side of the border or located close to one another. Harmonizing the management principles of protected areas could also be beneficial in the management of the whole Fennoscandian Green Belt natural zone.

The first major achievement in this work was the establishment of the Friendship Protected Area in 1990, consisting of Friendship Park in Finland and Kostomukshsky Strict Nature Reserve in Russia. Now there are three such twin parks along the Fennoscandian Green Belt. Next to Friendship Protected Area, there are also other twin parks, such as Oulanka National Park in Finland and Paanajarvi National Park in Russia as well as Urho Kekkonen National Park in Finland and Lapland Strict Nature Reserve in Russia.

The twin park cooperation is based on an official agreement between the protected areas, which support cooperation in both the short and long term. The EUROPARC Federation's Basic Standards for Transfrontier Cooperation are used in developing the cross-border cooperation. The Twin Park Oulanka National Park-Paanajärvi National Park was awarded the EUROPARC certificate "Transboundary Parks – Following Nature's Design" in September 2005. It is the first one along the Fennoscandian Green Belt. Oulanka and Paanajärvi National Parks also have WWF's PAN Park status.

Cooperation projects are currently under development to establish the following new twin parks:

- Kalevala Park to be established in Suomussalmi and Kalevalsky National Park to be established in Russia
- the existing Eastern Gulf of Finland National Park in Finland and the planned Ingermanlandsky Strict Nature Reserve in Russia

Among the objectives of these cross-border protected areas are joint research projects. The natural conditions on both sides of the border are quite similar, whereas the utilization of natural resources has been different. This provides challenging opportunities for research and comparisons.

Transboundary cooperation in the Fennoscandian Green Belt includes the following collaborative activities:

- biological field projects;
- collection of data and planning work for the establishment of new protected areas;
- creating a service infrastructure for visitors to protected areas;

- building visitor centres to provide services to visitors to protected areas;
- nature tourism projects;
- developing nature education and raising awareness of nature;
- training for staff working in protected areas;
- cooperation in the management and use of protected areas.

In Finnish Northern Karelia, the Northern Karelian Biosphere Reserve has been very active in transboundary cooperation by promoting Finnish-Russian cooperation among local authorities and local people, but also in promoting the process of establishing a new Biosphere Reserve in Russian Karelia (see Hokkanen *et al.*, this volume).

Conclusions

'For the Benefit of the Boreal Nature' is the vision of the Fennoscandian Green Belt. The goal is to create a well functioning and representative network of twinned protected areas from the Gulf of Finland in the south to the Lapland, Inari-Pasvik area, in the north. In the short term, the development of the Fennoscandian Green Belt is based on existing protected areas and on their intensive transboundary cooperation. In the longer term planned protected areas will be established to cover the gaps that still exist in the protected area network along the Fennoscandian Green Belt. Different kinds of tools will also be used to improve the significance of the Fennoscandian Green Belt in the Fennoscandian and in the European contexts. The status of World Heritage Site, models like PAN parks, Biosphere reserves and certified Twin Parks guarantee the future of the Fennoscandian Green Belt as one of the most important biodiversity-rich border zones of nature protection in Europe.

6. The Central European Green Belt

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Abstract

The former Iron Curtain was most strongly expressed in Germany. Right after the fall of the Iron Curtain in 1989, BUND started the Green Belt project; a 1,393km long ecological network from the Baltic Sea to the border area between Saxony, Bavaria and the Czech Republic. Beside its nature protection aspects it has become a unique living memorial of recent German history. The inner-German Green Belt was the starting point for the idea of the Green Belt throughout Europe. Several non-governmental organizations are engaged in the protection of valuable habitats along the Central European Green Belt in a number of transboundary projects. In the seclusion of the Iron Curtain, large pristine landscapes such as the forests in the trilateral region between the Czech Republic/Germany/Austria, the large floodplains of Danube-March-Thaya and Drava-Mura or the puszta landscape around Lake Neusiedel/Fertő, were preserved. Now most of these landscapes are protected as National Parks, Ramsar sites or areas with another conservation status and provide the core areas of the Central European Green Belt. Besides the protection of these core areas, one task for the following years is the preservation and development of connection links and stepping stones, to maintain the function of an ecological network. Therefore also a network of stakeholders has to be built within the Green Belt initiative as a suitable framework.

The Central European Green Belt is one of three regions of activity building the European Green Belt. It runs through Estonia, Latvia, Lithuania, Poland, Germany, Czech Republic, Austria, Slovakia, Hungary, Slovenia, Croatia and Italy. The Central European Green Belt is about 4,830km long and encompasses numerous nature conservation areas and pristine landscapes, e.g. National Park Kuršiu Nerija at the Baltic coast in Lithuania, the

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transboundary National Parks Bayerischer Wald/Šumava, Thayatal/Podyji or Neusiedler See/Fertő Hanság or the floodplains of Danube, Thaya and Morava, the biggest and last pristine floodplains in Central Europe. In the intensively used cultural landscape of Central Europe the Green Belt is a last retreat and structural element for many endangered species.

A major step for the Green Belt Europe was the international conference in Hungary in September 2004. The World Conservation Union (IUCN) and the German Federal Agency for Nature Conservation (BfN) jointly organized a conference that took place in the transboundary protected area of the Fertő-Hanság National Park in Hungary. Over 70 participants from 17 countries attended the conference and among others it was decided that the BUND Project Office Green Belt should be the regional coordinator for the Central European Green Belt. This task includes the organization of workshops in the region, preparation of reports on activities and developments, communication with the national focal points and stakeholders, and support for initiating projects.

The Green Belt in Germany

The so called "Iron Curtain" divided Europe for almost 40 years and was most strongly expressed in Germany. Metal fences, walls, barbed wire, guard towers, spring guns, land mines and watchdogs created a death zone through Germany and separated one country into East and West, dividing families and friends for decades. In this zone forbidden to people, the only winner was nature.

Today, the Green Belt in Germany is the area between the road used for military vehicles and the former borderline of the Federal Republic of Germany (FRG) and the German Democratic Republic (GDR) – now the borderline of the German federal states. In the longer term it is aimed to protect the narrow *central* strip, 50–200m wide, with (large) protected nature conservation areas along the entire length of the Green Belt. The German Green Belt provides an important backbone with ribs on both sides, making up the longest ecological network in Germany.

Since the fall of the Iron Curtain in November 1989, BUND (Bund für Umwelt und Naturschutz Deutschland)[36] and especially its Bavarian branch Bund Naturschutz (BN), have been actively working for the protection of the valuable habitats along the former inner-German border.

Historical development

Already long before the fall of the Iron Curtain, surveys of the border area, mainly only possible from the Western side, showed the remarkable richness of species and habitats. The first mapping project in the inner-German borderline was performed on birds in 1979/80

[36] BUND is one of Germany's leading environmental organizations and a member of Friends of the Earth.

by staff members of the BUND (Beck and Frobel, 1981). In December 1989, BUND organized the first meeting of more than 400 nature conservationists from East and West Germany which took place in the town of Hof in the Bavarian-Saxonian-Czech border region. During the meeting the name "Green Belt" was created by BUND and all participants agreed to the first resolution for the protection of the unique habitats in this lifeline through Germany. Thus, the "Green Belt" project was born. Right from the start, the Green Belt was not only Germany's first nationwide nature conservation project running along nine German Länder but also a living memorial to recent German history.

Ecological network

The German Green Belt extends for 1,393km through 17 distinct physiographic regions from the Baltic Sea in the north to the intersection of the borders between Saxony, Bavaria and the Czech Republic in the south. It is a cross-section through almost every type of German landscape – from the coast to lowlands and low mountain regions. Importantly the Green Belt contains many of Germany's threatened habitat types such as fallow grassland, shrubland, dry grassland, pioneer forest, wet meadows, water bodies and bogs. In the Green Belt these habitat types are closely connected to each other thus providing complex habitats allowing species to use different habitats and to move between them. This has become extremely rare in the intensively used and strongly fragmented German landscape and accordingly is of great ecological importance.

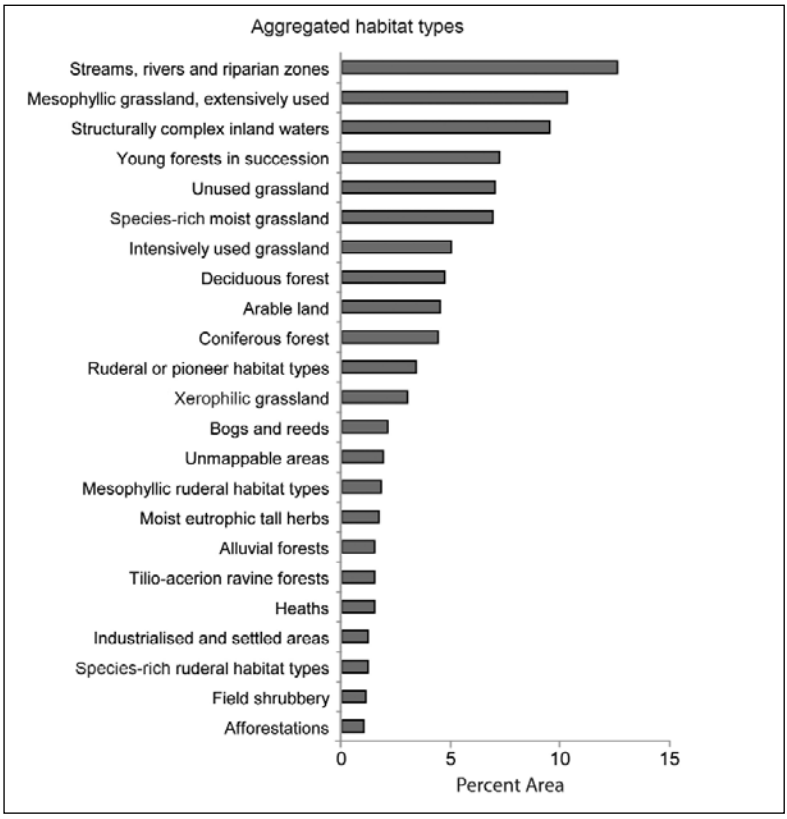
From April 2001 to September 2002, a survey of habitat types along the entire length of the Green Belt was conducted[37] (BN/BUND, 2002, see Figure 8). It proved that the Green Belt is of great value for nature conservation. The survey identified 109 different habitat types contained within the 17,656 hectares of the Green Belt. Approximately 60% is composed of aquatic ecosystems, different forest types, extensively used mesophilic grassland, unused grassland (fallow) and species-rich moist grassland. Half of the area (48%) of the habitat network consists of endangered habitat types (Riecken *et al.,* 1994). About 16% of the area of the Green Belt Germany is covered by priority Annex I habitats (EU Habitats Directive 92/43/EWG).

Currently approximately 28% of this area is protected within nature reserves (i.e. under the statutory protection of German nature conservation law) and about 38% is proposed as Sites of Community Interest (pSCI – EU Habitats Directive) or Special Protected Areas (SPA – EU Birds Directive). Some of the most important areas are the transboundary National Park "Harz/Hochharz" the Biosphere Reserves "Schaalsee", "Flusslandschaft Elbe" and "Rhön", large-scale conservation projects "Hohe Rhön/Lange Rhön", "Drömling" and "Schaalsee-Landschaft" (BfN, 2004) and the Ramsar site "Elbauen Lauenburg–Schnakenburg".

[37] The study was funded by the German Federal Agency for Nature Conservation (BfN) and the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (Bundesamt für Naturschutz, 2004).

By analysing the inventory of habitat types, as well as the literature on planned and existing protected areas, and conducting interviews with all nature conservation authorities along the Green Belt, the 2001 survey succeeded in identifying 32 focal areas of high importance for nature conservation and development. These cover 937km, i.e. 67% of the length and 79% of the area of the German Green Belt. Of these areas 21 were rated as focal areas of at least national importance, which will form core areas in a national ecological network (Schlumprecht *et al.,* 2002).

Figure 8. Distribution of areas of aggregated habitat types (only types with more than 1% area)



Source: Schlumprecht *et al.*, 2002.

There are 150 nature reserves which are included within or directly border the Green Belt. Adding these protected areas to the central Green Belt its area is extended 12.5 times from 17,656 hectares to 223,211 hectares (2,232km^2). This area of connected habitats corresponds nearly to the size of the German federal state Saarland. Additionally, adding the 125 protected areas within 5km radius of the Green Belt, the ecological network is extended 26 times to form an area of 454,381 hectares. This area corresponds to 1.3% of the area of Germany (Geidezis and Kreutz, 2004). Thus, the protected areas along or nearby the Green Belt do have great importance for the function of the national ecological network.

In Germany, the federal states are responsible for nature conservation and the designation of nature reserves. For example, Saxony has already set its entire part of the Green Belt under protection (Findeis, 2000). However there is an urgent need for all federal states to protect the Green Belt and adjacent areas to allow its development as an important part of a national ecological network.

Threats

About 85% of the area of the German Green Belt has not yet been degraded to intensively used arable land or grassland, forest plantation, streets or buildings. Therefore the function of the Green Belt as a system of connected habitats in most parts is ecologically intact at present (BN/BUND, 2002). But from the beginning these unique habitats were threatened in many places. In total approximately 1,949 hectares of the Green Belt are impacted by agricultural practices. Also the development of transport networks has impaired the connectivity of the Green Belt in some locations. Altogether about 450 roads (country roads and village connecting roads) cross the Green Belt (Germany has the most dense road network in Europe). The Green Belt is especially impaired by big motorways dissecting the ecological network. In most cases they were built regardless of the consequences for the Green Belt. Another problem is the development of industrial parks (120 hectares) in and beside the Green Belt and reforestation with not autochthonous species.

The so called "border land law" from 1996 was a major threat to the Green Belt. Former landowners in the border area which was expropriated by the GDR government could get their land back. Today, approximately 20% of the Green Belt is privately owned, 13% is owned by the municipalities and other (public) authorities, around 2% by non-governmental organizations (NGOs), mainly BUND, and 65% by the federal government. For a long time there was the chance that unique habitats would be destroyed if there was a sell-off of the federally owned land on the free market. In a major step for the Green Belt in Germany, the Minister of Environment in 2003 declared that this federally owned land within the Green Belt could be transferred to the ownership of the state for nature conservation purposes. However negotiations on this transfer continued and this pledge remains unfulfilled (Geidezis and Kreutz, 2004). In November 2005, the new Federal Government mentioned the Green Belt as a national natural heritage in their coalition agreement and announced that they will transfer federally owned land in the Green Belt to the Federal States for nature conservation. Now BUND and other NGOs struggling for the protection of the Green Belt have to take the Federal Government up on their promises to secure 65% of the German Green Belt immediately.

Land purchase and Green Share Certificates

Land purchase is most often the only way to protect habitats from destruction in the long term. In five areas along the Green Belt, BUND is buying unique habitats from private owners – up to now around 250 hectares. Then it becomes possible to implement measures for sustainable protection and development of the Green Belt on these lands.

To finance this land purchase and the other BUND projects in the Green Belt, BUND also started investigating innovative funding tools. For example, people can buy "Green Share Certificates" in the German Green Belt, which means that any donor giving 65 Euros becomes a symbolic shareholder in the Green Belt and is invited to special events such as guided excursions and "shareholder-meetings". The Green Belt shareholders have financed land purchase as well as other activities, such as public relations, political lobbying and the implementation of projects. The keen reaction from the public highlights the interest within the general public to preserve these irreplaceable areas. Up to now, more than 9,000 "shareholders" support the German Green Belt.

The Green Belt between the Czech Republic, Germany and Austria

Moving on from the inner German border to the south, the next section, the border between Germany (federal state Bavaria) and the Czech Republic (Bohemia), is 357km long and serves as a retreat for endangered species.

The Southern Regnitz river near the Czech-Bavarian border accommodates the largest populations of pearl mussel (*Margaritifera margaritifera*) in Germany (about 35% of the total German population) and one of the largest in Central Europe. The pearl mussel is primarily threatened by contaminated water which enters waterways as runoff from intensive agriculture. In 2002, the regional group of BN in Hof initiated a transboundary project in cooperation with a Czech school class from Asch (Aš). Together with experts, restoration measures were implemented to improve the river conditions for the pearl mussel. In 2003, a new trilateral association was initiated by BN, Bavarian, Czech and Saxon conservationists called "PerlMut e.V – Flussperlmuschelschutz Bayern-Böhmen-Sachsen". The association works for the protection of the pearl mussel and promotes the development of a transboundary protected area.

Figure 9. Environmental education: Czech pupil with pearl mussel

© Wolfgang Degelmann

The regional BN group in Wunsiedel is running a project (titled "Egeraue") to protect valuable habitats along the Eger river between Bohemia and Bavaria. Together with the Czech NGO, ČSOP (Český svaz ochránců přírody) they founded a transboundary working group in 1990 to implement nature conservation measures. Since that time there has been continuous cooperation between Czech and German conservationists, for example in the implementation of management practices to remove non-native spruce forests along the dry grasslands on the hillsides of the Eger valley to protect rare orchid species.

Further south, the transboundary "Bavarian Forest/Šumava" National Park (Germany/Czech Republic) is one of the great nature protection areas along the European Green Belt. The Bavarian Forest National Park was the first national park in Germany founded in 1970. In 1991 Šumava National Park was established and today it is the largest of the Czech national parks. On the Czech side of the border, the national park stretches to the trilateral border between Germany, Czech Republic and Austria. This region "Böhmerwald, Bayerischer Wald und Mühlviertel" is a unique refuge for many endangered species, e.g. the lynx (*Lynx lynx*), and one of the last areas with pristine forests. Hnuti Duha, the Czech branch of Friends of the Earth, in cooperation with Naturschutzbund Österreich (Austria) and the regional group of BN in Passau (Germany) work closely together for the protection of this important region against a range of threats that include habitat destruction through infrastructure development (roads and skiing facilities) and deforestation. Also since 1993 a transboundary organization, consisting of Czech, Austrian and German members, named "Grünes Herz Europa" ("Zelene Srdce Evropy" (Green Heart of Europe)) has worked in this region to promote sustainable development.

Austria/Czech Republic/Slovakia/Hungary/Slovenia

Austria has an extensive part of the Green Belt in Central Europe with a border 1,300km long with four former Eastern Bloc countries: Czech Republic, Slovakia, Hungary and Slovenia. Together with the Alps this region contains the countries' most important biodiversity areas. Similar to the inner-German border the regions along both sides of the Iron Curtain between Austria and the east-European countries saw little development and agricultural use. The major rivers that snake through the region often defined the borders. They provided important areas for wildlife and are now mostly protected as national parks or Ramsar sites. Also there are a number of important NGOs which have cooperated for many years to enhance the transboundary protection of this border region.[38] One organization in particular, the Naturschutzbund Österreich, is working to see the Green Belt become a reality along the borders of Austria. In a similar way to BUND in Germany, Naturschutzbund Österreich is able to develop projects throughout the country but also to implement local projects on the ground through its regional offices. The following contain some examples of the work being carried out along the borders of Austria.

[38] These NGOs include Naturschutzbund Österreich (Austria), Hnuti Duha (Friends of the Earth Czech Republic), Daphne (Institute of Applied Ecology, Slovakia) and DOPPS (BirdLife Slovenia).

The Austrian-Czech Republic border

In July 2005, the regional section of Naturschutzbund Österreich in Upper Austria opened the first Information Centre on the European Green Belt near the village of Leopoldschlag. The Information Centre provides a meeting point for all kinds of people interested in nature. Qualified landscape and nature guides offer tours to the Green Belt between Austria, the Czech Republic and Germany. Also Naturschutzbund Upper Austria co-operates with regional government and NGOs in Austria, Czech Republic and Germany to improve habitat conditions for species such as the lynx and elk (*Alces alces*). These and other species have been able to re-establish populations in the region due to the large contiguous forests preserved in the border regions. After the opening of the Iron Curtain several roads were built to connect East and West. In order to ensure that populations remain connected, and have safe migration routes, there is an urgent need to build "Green Bridges" over the roads. Naturschutzbund Upper Austria has effectuated the building of several "Green Bridges" over the highways and other implementation measures.

In 1991 the Podyji National Park was established on the Czech side of the Thaya river, which forms the border with Austria. Since that time the idea of creating a single cross border National Park was developed and then in 1999 the Thayatal National Park was opened on the Austrian side (see Brunner, this volume, for a detailed case study of the cooperation between these two National Parks).

The national park is distinguished by steep wooded slopes and the winding river Thaya that cuts deep into the plateau. The Thayatal is a transverse valley featuring a variety of closely entwined habitats. Along the river Thaya, mixed deciduous forests dominate, and lime block forests in glens are considered a feature unique to the area. The extensively cultivated, low-nutrient meadows are mainly dry, and rare species of orchid such as the green-winged orchid (*Orchis morio L.*) or the purple orchid (*Orchis mascula*) are found here.

Green Belt Austria-Slovakia

The floodplains and alluvial forests along the Danube river at the eastern city limits of Vienna and downstream in Lower Austria are often compared with the ecosystems of the tropical rain forests, with their rich variety of species and flood plain forest dynamics. More than 600 different species of fern and flowering plants grow and more than 200 species of vertebrates live here. Altogether, biologists identified some 5,000 species of animal in the Donau-Auen National Park. Also many species such as the kingfisher (*Alcedo atthis*) breed in remarkably high densities in the remains of the backwaters and old river-beds.

The Donau-Auen National Park became internationally known because of the threat to its natural beauty from a power plant project in Hainburg. In 1984 the construction of a hydro-electric power plant was approved. The felling of trees in the alluvial forest near Stopfenreuth in the winter 1984/85 triggered a wave of resistance. The Nobel Prize winning biologist Konrad Lorenz and other scientists, as well as numerous politicians, supported those resisting the developments. The first success was a stop to the construction work, and a 10-year phase of rethinking finally ended with the dismissal of the plan. The natural water

dynamics – both the exchange between river and wetlands through flooding, and the groundwater dynamics – are important for the whole ecosystem.

The floodplains of the Danube river and the National Park reach up to the Slovakian border near Bratislava. Here the river March enters into the Danube, and together with the Thaya river, they form a connected habitat system with a mixture of floodplains and alluvial forests – the biggest close to natural floodplain system in Central Europe. This region forms a unique transboundary wetland area with high biological value, located on the territory between Austria, Slovakia and the Czech Republic. In Slovakia the site consists of a diverse complex of wetlands and provides habitats for a number of noteworthy species of plants and animals e.g. Siberian iris (*Iris sibirica*), water violet (*Hottonia palustris*), Danube crested newt (*Triturus dobrogicus*), black stork (*Ciconia nigra*), greylag goose (*Anser anser*) and European beaver (*Castor fiber*). As a result the wetland has been designated as a Ramsar Site in all of the three countries, and parts have been designated as part of the Natura 2000 network. The site is important also from an economic, cultural and historical point of view, and has significant educational and recreational potential.

During the time of the Iron Curtain, the March floodplains remained in a semi-natural state due to the strict boundary protection. However, since 1989, the site has been exposed to increased economic pressure and rapid development mainly in relation to uncontrolled tourism, extraction of water, gravel and sand, poaching and transport development. In the mid-nineties, NGOs from the trilateral region started working together on common projects focused on conservation of the March-Thaya floodplains. DAPHNE (Slovakia), Veronica (Czech Republic), Distelverein (Austria) and WWF (World Wide Fund for Nature, Austria) implemented a number of conservation, policy and awareness-raising projects. They contributed substantially to the creation of the "Trilateral Ramsar Platform" composed of representatives of environmental ministries, nature conservation agencies, water management bodies and NGOs from the three countries. The Platform works to promote the designation of a trilateral Ramsar Site "Floodplains of March-Thaya-Donau Confluence" and strengthen the development and implementation of a common management strategy for the trilateral site.

The Austrian-Hungarian border

Austria's first national park to be recognised by the World Conservation Union (IUCN), the Neusiedler See-Seewinkel, was established on the plain east of Lake Neusiedl in 1991. At the same time, across the border in Hungary, the Lake Fertő National Park was created. In 1994, the two national parks were joined and inaugurated again by the Prime Minister of Hungary and Chancellor of Austria (Kárpáti, 2004). The inter-national park is now called "Neusiedler See/Seewinkel-Fertő-Hanság". There are still two national park administrations, but cooperation is very close (see Kirchberger and Kárpáti; and Lang and Fersch; all in this volume, for more details).

The region of Lake Neusiedler is a biogeographical border region for many animal and plant species. The 320km² lake has an average water depth of just over one metre and forms the Westernmost prairie lake in Europe. More than half of the lake's surface is covered by reed bed which is an important habitat particularly for birds. The southern part and the neighbouring meadows form the core zone of the National Park, in which every form of exploitation – tourism, hunting, fishing, reed-cutting – has been banned.

Together with the salt lakes, moist meadows and the pastures that have developed over the centuries, the Seewinkel is still a puszta landscape. For the migration of birds, in particular, this inter-relation of natural and cultivated land is extremely important. Furthermore the pastures are home to old and rare species of domestic animals, which are being bred by the national park management again.

The Austrian-Slovenian border

Specific species conservation projects can also provide good examples of the collaboration possible across borders. BirdLife Slovenia (DOPPS) and Euronatur (European Nature Heritage Fund) together with the association "Blaurackenverein LEiV" have run a project to implement conservation measures for the European roller (*Coracias garrulus*) at the border between Austria and Slovenia. This species is a migratory bird, the only representative of the genus *Coracias* in Europe, and in Central Europe is only found in Austria and Brandenburg (Northern Germany). Arid grassland and clear woodlands (here mainly the pannonian oak-hornbeam forests) are the preferred habitat. Besides activities such as installing bird boxes, the transboundary project encourages sustainable and extensive land use to support the valuable habitats and to offer the people on site an additional income through the production and sale of regional products (e.g. basket weaving). Together within environmental education measures, this project has managed to achieve a high acceptance from local communities. The European Roller in this case also acts as a flagship species through which it is possible to ensure the conservation of many other species in the region.[39]

From Alpine peaks to the Adriatic

The Green Belt between Slovenia and Italy

The borderline between Slovenia and Italy is about 150km long and biogeographically very varied: from Alpine peaks to fertile lowlands, from stony karst to coastal cliffs. The border crosses the meeting point of the South-eastern Alps, Dinaric mountain range and flysch Istria, and ends in the Adriatic sea.

It has never been a really closed border, due to permanent contacts between communities from the same cultural background, trading and mixed nationality on both sides of the border. In some areas the terrain is hardly accessible (Alps) or scarcely populated (Karst), so human migration was also limited in the past. These areas are one of the best preserved within the North Adriatic region.

[39] More information is available on the homepage of LEiV: www.blauracke.at

Although there have been many projects on different aspects of nature conservation, sustainable development and tourism in this region, there has been very little coordination or collaboration between them or across the border. A recent example is a LIFE project concerning the conservation of endangered habitats and species within the Karst Edge, which extends from the Italian towards the Croatian border. Future plans for the region include the creation of marine and coastal protected areas and inland there are aims to link the suburbs of Trieste-Trst and Koper-Capodistria with recreation and sports activities.

The Alps on both sides of the border represent the most undisturbed, unpopulated and valuable area, where cross-border activities have not really started. Some new small international crossing points were opened, but infrastructural development is limited due to the Triglav national park on the Slovenian side of the border. The area of the Western Julian Alps, split into Italian and Slovenian parts is considered one of the most untouched and undisturbed areas of the Alps in general.

The Drava Mura river basin: a European Life Line

The Croatian-Hungarian border

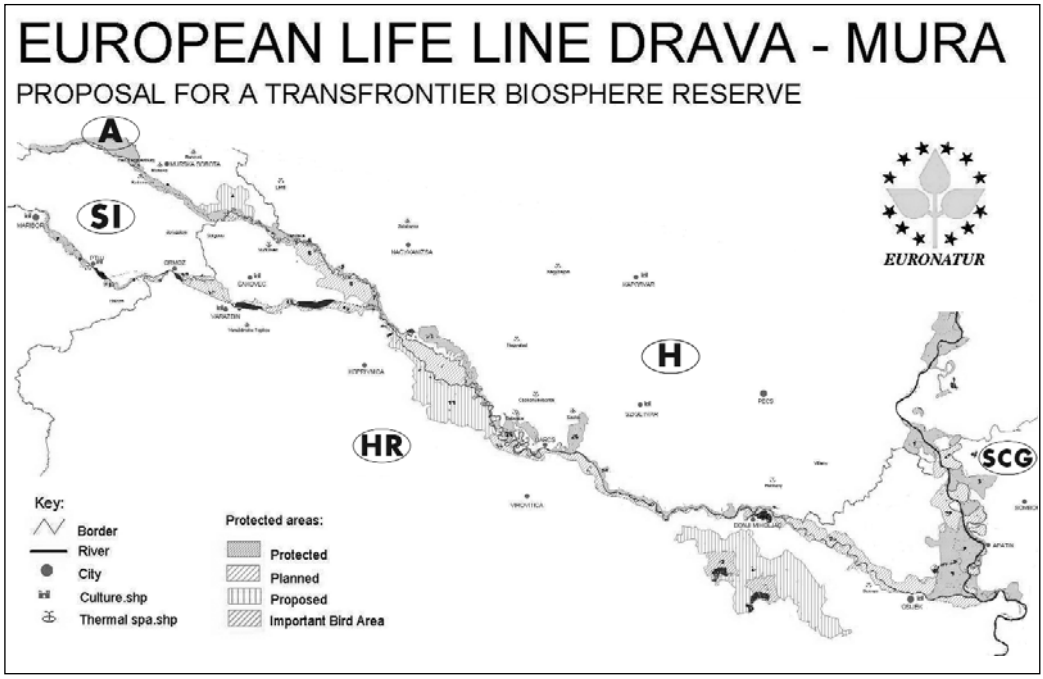
Riparian state borders today are mostly defined as the middle of the river. In many cases the riverbeds have been stabilized with concrete embankments, which change the dynamics of river morphology, causing a loss in the flow of sediments. In earlier times the border followed the river's course at a particular date. Although over time the course of the river has changed, the border has not and it continues to follow the old river-bed, observable as depressions or oxbows. A good example of this phenomenon is the Danube-Drava-Mura corridor connecting Austria, Slovenia, Croatia, Hungary, and Serbia and Montenegro (Schneider-Jacoby, 2005).

The most interesting section of this river-bed is the Croatian-Hungarian border of about 180km (Schneider-Jacoby, 2001). This political border has most likely lasted for a thousand years and was preserved even during the Austro-Hungarian Empire. During the times of the Iron Curtain, most of the floodplain – a wildlife corridor up to 5km wide – was inaccessible, and the natural dynamics formed one of the most diverse stretches of river in Europe (Schneider-Jacoby, 1996). More than 350km of river from Austria and Slovenia (Spielfeld, Bad Radkersburg, Radenci) down to the Danube (Osijek, Apatin, Baja) remained natural, while upstream 27 dams were built on the Drava and 15 on the Mura. The free-flowing Mura and Drava form a unique corridor with the floodplains of the Danube through five countries, constituting a "European Life Line" in need of international protection (Fig. 10; Schneider-Jacoby and Reeder, 1999).

During the socialist era, scientists and local people fought against the construction of dams along the Drava and Mura. In the 1980s, the Mura was saved in Slovenia when local people identified the importance of the living river for the regional culture (Smej *et al.,* 1994). The people of the Prekmurje ("beyond the Mura") did not accept being separated from the rest of the country by reservoirs and dams. This local protest was so strong that the still-

natural Mura was preserved as an extension of the Drava. A different situation preserved the Drava downstream of the last hydro-electric dam (Dubrava, built in 1989) and the mouth of the Mura. Croatian and Hungarian foresters protesting against the new Djurdjevac dam were strong enough to delay the project until the fall of the Iron Curtain. Then NGOs in Hungary proposed the establishment of a national park for the Danube-Drava region. In 1991, the Hungarian government created the Danube-Drava National Park (Schneider-Jacoby, 1996).

Figure 10. Map of protected areas and planned protected areas along the Danube-Drava-Mura corridor



Source: (Euronatur, 1999) according to the 1998–99 survey financed by the Dutch PIN Matra programme. The system of protected areas comprises the core and buffer zones of the proposed biosphere reserve.

During the first Drava Conference in Kaposvar in 1993, the idea of a Drava-Mura Biosphere Reserve arose. Three years later, after the second Drava Conference in Radenci, UNESCO invited the countries to apply for nomination of the Drava-Mura region as a Biosphere Reserve (Schneider-Jacoby and Reeder, 1999). A clear concept for international cooperation and the creation of a transnational protected area was found. A structure for the core areas of the reserve was developed to include:

- Core zones: natural habitats on the Drava with islands and virgin forests, branches and oxbows;
- Buffer zones: managed forests, meadows and pasturage along the river;
- Transition zones: villages, vineyards, agricultural areas, historic cities.

The case study by Reeder *et al.* (this volume) contains more details on the ecological values of the area and the first results of the international monitoring and NGO network to preserve this important wetland.

Public relations

Public relations are an extremely important tool for the success of the Green Belt initiative and it has a unique message that is readily communicated to the public and policy makers alike. Throughout the existence of the German Green Belt, communication with the public has been at the centre of activities. This included the share scheme mentioned above, but also information in press articles, brochures and at the individual sites. BUND has also worked closely with schools taking part in the GEO Biodiversity Day.

Just before the expansion of the European Union in May 2004, BUND in cooperation with NGOs from Austria, Czech Republic, Slovakia, Hungary and Slovenia carried out the first press-trip along parts of the Green Belt. During one week a group of journalists and policy makers were taken to a series of important transboundary nature conservation projects within the area. Project workers at each location explained the importance of the areas and their connection to the Green Belt. This press trip was a first step in building a "Green Belt network" of NGOs, GOs (governmental organizations) and the local people. Besides the overwhelming resonance in the media, it was the starting point for information exchange and close transboundary cooperation particularly with regard to new projects.

Future prospects

In 2005, BUND conducted a 9-month pilot study titled "Experience Green Belt"[40] along the German Green Belt, which assessed the possibilities of establishing nature tourism in the regions of the Green Belt and developed an overall concept for eco-tourism based on nature conservation objectives. The results are intended to be implemented in 3–4 model regions from 2006 to 2010 to provide on-the-ground examples of sustainable regional development within the region of the Central European Green Belt.

As mentioned elsewhere in this book, there are financial mechanisms within the EU that can be used for the implementation of the Green Belt (see Terry *et al.*, this volume). One such opportunity is presented through the INTERREG Programme, which aims to support transboundary cooperation for sustainable development. In 2006 an INTERREG IIIB-project is planned for the Central European Green Belt from the Thuringian-Bavarian border up to the Adriatic Sea and to Croatia. The project aims to show how nature reserves in the densely settled areas of Central Europe can be sustainably protected and at the same time can contribute to economic development as well as cooperation between old and new EU Member States. Possibilities and potential for eco-tourism associated with sustainable development in the Green Belt regions will be investigated. Ongoing projects along the Central European Green Belt should be connected by establishing parts of a European long-distance cycle track.

[40] The study is funded by the German Federal Agency for Nature Conservation (BfN) and the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety.

Conclusion

The implementation of the European Green Belt is an important challenge for European nature conservation in the next decade. The existing nature conservation areas and pristine landscapes should be conserved as core areas and the landscape beside and between these areas must be developed as stepping-stones for species. In this way, the Green Belt Europe contributes to the implementation of the Convention on Biological Diversity (CBD), Natura 2000 and the pan-European Ecological Network.

Building networks is not only very important for the Green Belt on a biological scale, but also on the cultural and societal level, and a working network of stakeholders from NGOs and GOs will be decisive for the implementation of the Green Belt. This offers more than "only" nature conservation. It is a mechanism for information transfer and transboundary cooperation with an amplification effect for other European conservation projects. The Green Belt is part of our common European natural and cultural heritage and should be communicated also as a tool for understanding among nations and sustainable regional development along the former border areas.

From 11–13 October 2005, the first workshop for the implementation of the Central European Green Belt took place in the Mitwitz Nature Conservation Centre near the German Green Belt. About 40 participants from nearly all adjacent countries discussed initiatives, opportunities and projects regarding inventories of habitats, public relation and environmental education, e.g. UNESCO school projects and public biodiversity days, as well as common problems concerning the protection of the Green Belt. The workshop was a fruitful and constructive meeting of stakeholders, who agreed on several essential next steps for establishing the Central European Green Belt.

Beside these very positive developments in building networks among stakeholders and initiating projects and activities, the Green Belt initiative has to cope with several problems and massive threats. A negative consequence of the enlarged European Union are the plans for intensified infrastructure measures. Planned road building in former undisturbed landscapes like the Danube and March floodplains between Vienna and Bratislava or the planned building of hydropower stations along the Mura threaten the unique ecological network of the Green Belt. To save the Green Belt also as a living memorial, the initiative needs to work on several levels: political lobby work, public relations, research, national and international cooperation and local implementation measures.

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7. The South-Eastern European Green Belt

Martin Schneider-Jacoby,[41] Gabriel Schwaderer[42] and Wolfgang Fremuth[43]

Political background: Linking EU and the Balkans

The Iron Curtain separated several countries and not just the two political blocs in South-Eastern Europe. While Greece has been part of the European Union for some time, most of the other states were inside the Eastern Bloc, and only two had a different development. While Yugoslavia was not part of the Eastern Bloc and people were allowed to travel, Albania had closed its borders and was isolated from the rest of Europe from the early 1970s onwards. Furthermore, the border between former Yugoslavia and Greece was heavily controlled and only few border crossings were open. For example, at Lake Prespa, all border crossings between the three states Albania, Greece and former Yugoslavia were closed, and only a few fishermen used the lake with their boats. During the Yugoslav times, there was even a military harbour at the lake with a few old patrol boats.

Thus, on the Balkan Peninsula, the European Green Belt follows not only the borders of the states of the Eastern Bloc, but also those of Albania and former Yugoslavia forming a "Y" from the Danube to the Mediterranean and the Black Sea. Now, there is the great opportunity within the European Green Belt initiative to link all these states and sites in the region and to develop the remote areas at the borders as large-scale protected areas following international guidelines.

The IUCN Strategy for South Eastern Europe "Conservation without Frontiers - Towards a new Image for the Balkans" identifies a preliminary list of 38 important transboundary sites, where protected areas should be developed. Twenty of these sites are part of the Green Belt initiative in the region (see Fig. 11). Only one country, Bosnia and Herzegovina, out of eight covered by the new IUCN SEE office in Belgrade is not situated at the Green Belt but all neighbouring countries are within reach. Thus, the Green Belt initiative offers an ideal opportunity to promote protected areas as a tool for regional development in the Southeast of Europe and, at the same time, to form an outstanding chain of protected areas.

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[43] Zoologische Gesellschaft Frankfurt (ZGF), Alfred-Brehm-Platz 16, D-60316 Frankfurt/Main, Germany

Figure 11. Map of important transboundary sites in South Eastern Europe as identified in the IUCN Strategy "Conservation without Frontiers – Towards a new Image for the Balkans"

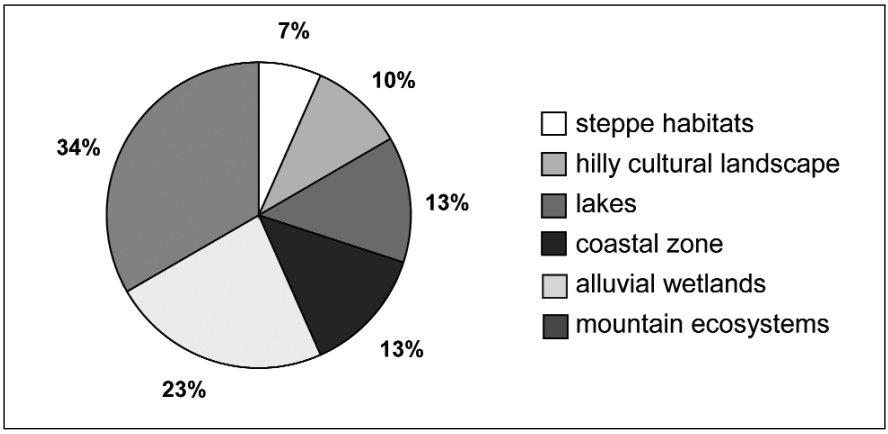
Habitats: From the Pannonian Plain to the Mediterranean and Black Sea coast

Ecological network across the Balkan Peninsula

The Green Belt in South Eastern Europe is extremely heterogeneous, but forms a mostly natural corridor. The lowest point in the Pannonian Plain is the Danube, which rises only 68m above sea level, while the mountain peaks are up to 2,753m high in the Korab Mountains between Albania and Macedonia. From the Adriatic Sea and the mouth of the Bojana-Buna River, the landscape rises, within a distance of only 80km, up to 2,693m in the Prokletije massif between Albania, Montenegro and in the province of Kosovo in Serbia-Montenegro. Thus the Green Belt links extremely important wetlands such as coastal areas, rivers and lakes with the mountains in the very centre of the Balkan peninsula. No large towns or industrial zones are located along the formerly strictly controlled border and the whole range offers excellent opportunities for the establishment of large-scale protected areas.

The first assessment of the priority sites for transboundary cooperation already shows a great variety in important habitats (IUCN, 2004). Rivers and lakes often form the borders between states, as well as mountain fringes. In several priority sites, these habitat types are connected, for example in the centre of the Balkan peninsula, mountain national parks are linked with the protected Lakes Prespa and Ohrid. On the coast, marine habitats such as beaches and lagoons are interrelated with the freshwater ecosystems of Lake Skadar or the alluvial wetlands of the Evros-Meric River. The percentage of habitats based on the priority sites (Fig. 12, Table 2) does not reflect the real habitat distribution along the Green Belt. Although many wetlands are situated at the border, the biggest part of the European Green Belt in the Balkans is formed by mountain chain and forest complexes.

Figure 12. Habitats according to the list of priority transboundary areas for nature conservation in the IUCN SEE Strategy



Source: IUCN, 2004; compare with Table 2.

Alluvial wetlands: The Danube and its tributaries

Torrential rains battered western Romania at the end of April 2005, flooding thousands of homes and disrupting rail and road traffic in what local officials said were the worst floods within the last 50 years.[44] The Romanian Ministry of Environment said the worst hit area was Timis County, on the border with Serbia and Montenegro, where 2,500 houses and 30,000 hectares of crops were destroyed by flood waters. The local government put the army on flood alert as many villages came under nearly 2m of water. In the neighbouring Vojvodina, hundreds of homes were flooded and dozens of livestock drowned in a village on Thursday, 21st April, 2005. Most of the 3,000 residents of villages Jasa Tomic and Medja fled to nearby towns.

[44] Reuters and Dnevni list, 26 April 2005.

Table 2. Green Belt Priority areas according to IUCN (2004)

No.	Countries	Border region	General description	Habitat
1	A, HR, HU, SI, SCG	Danube-Drava-Mura	400km alluvial corridor and alluvial wetlands	alluvial wetland
2	A, HU, SI	Goricko-Raab-Örség	Cultural landscape	hilly cultural landscape
3	AL, GR	Butrint-Thiamis-Kalamas	Lake and coastal ecosystems	alluvial wetlands, coastal zone
4	AL, GR	Aoos/Vijose	Alluvial ecosystem from the mountains to the Adriatic coast	alluvial wetland
5	AL, GR, MK	Prespa-Ohrid	Old lake ecosystem and high mountains	lake, mountain
6	AL, MK, SCG	Sar Planina	High mountain ecosystems	mountain
7	AL, SCG	Prokletije Mountain	High mountain ecosystems	mountain
8	AL, SCG	Skadar Lake/ Bojana-Buna	Lake, coastal and alluvial ecosystems	lake, alluvial wetland, coastal
9	BG, GR	Western Rhodope Mountains	Rich biodiversity (various endemic species and relicts), virgin forests	mountain
10	BG, GR	Central Rhodope Mountains and Nestos	Diverse alpine biotopes including river valleys	mountain
11	BG, GR	Eastern Rhodope Mountains	Large, diverse steppe and grassland areas and river	mountain
12	BG, GR, TR	Evros-Maritsa-Meric River	Important alluvial wetland	alluvial wetland, coastal zone
13	BG, TR	Strandja	Rich landscape with high diversity of vertebrates, unique flora	cultural landscape, coastal zone, alluvials wetlands
14	BG, MK, SCG	Balkan Mountain	High mountain ecosystems	mountain
15	HU, SCG	Seleven-Subotica sands	Steppe habitats and wetlands	steppe area, lakes
16	MK, GR	Lake Dojran	Important freshwater lake	lake
17	S&M, RO	Djerdap-Deliblatska Pescara	Danube valley including large forest area and the biggest inland sand dune area	cultural landscape, steppe area, alluvial wetland
18	BG, MK, GR	Belasica-"Granicni Planini"-Osogovo-Malesevski Planini	Mountain ecosystems	mountain
19	AL, MK	Jablanica-Shebenik	Mountain ecosystems	mountain
20	GR, MK	Kozuf-Kajmaktcalou	Mountain ecosystems	mountain

The Timis River (Serbian: Tamis) is one of the tributaries of the Danube, slowly moving in its lower courses with very little gradient through the flat Pannonian Plain. Along most parts of its upper stretch in Romania, the river was canalized and embankments were built along the river banks. Near the border in Romania, dams were not well maintained and therefore could not hold back the flood that occurred in early 2005. As with other regions of Europe, this showed that while villages require adequate flood protection, the alluvial plains have to be preserved as natural flood plains (compare with Brundic *et al.,* 2001). As part of the European Green Belt, this area is of special interest, as the still existing floodplains are not only extremely important for flood control, but also provide habitats for many species such as the white stork (*Ciconia ciconia*). Up to 32 pairs of White Stork live in one village in the lowest part of the Tamis valley in Vojvodina; their foraging habitats being temporarily flooded pastures, saline meadows and wetlands along the river. In 19 villages situated along the Vojvodinian section of the river, some 330 pairs of White Stork bred in 2004. Flooded forests along the Tamis form ideal conditions for breeding of Black Storks (*Ciconia nigra*) and White-tailed Eagles (*Haliaeetus albicilla*), while six large semi-extensively managed carp fishponds situated near the river banks provide nationally important breeding sites for Whiskered Terns (*Chlidonias hybridus*) and Ferruginous Ducks (*Aythya nyroca*). Four mixed heron colonies also breed along the Vojvodinal Tamis (Tucakov, 2005).

Although the alluvial plains of the Tamis river are extremely important for biodiversity, they remain unprotected. Further north, however, the floodplains of the Danube river have gained considerable attention during the last years. In the triangle between Hungary, Serbia and Montenegro, and Croatia three large protected areas have been established. From the "Bansko Brdo" elevation it is possible to see the Danube-Drava National Park in the north (Hungary), the Special Nature Reserve Gornje Podunavlje in the east (Serbia and Montenegro) on the opposite bank of the Danube and the Nature Park Kopacki Rit (Croatia) in the south. Only in Croatia has a small stretch of Danube wetlands not been protected yet, although it has been proposed for protection by the county of Osijek-Baranja.

Here, where the South Eastern branch of the European Green Belt starts, the huge ecological potential of the border area along the former Iron Curtain through the Balkan Peninsula becomes obvious. It is not only a small stripe, but a vast habitat network, which has been left to nature or has been used in an extensive way (Schneider-Jacoby, 1994; 2005; see also Reeder *et al.,* this volume).

Steppe areas: Great Bustard and European Roller

Between the Danube and the Tisa River, the Green Belt is formed by a steppe area between Hungary and the province Vojvodina in Serbia and Montenegro. The area is known as the North-Backa Sand Region and is protected within the Green Belt as Regional Park Subotica Sands (Suboticka Pescara) in Vojvodina (Butorac *et al.,* 2002). The region is characterized by sand dunes rising up to 60m and a high ground water level in the depressions in between. The Backa region was known in earlier times as the "land of the thousand lakes", but decreasing ground water levels have caused many of the depressions to dry out.

Nevertheless, the mosaic of extremely dry and wet areas forms the basis for a rich flora and fauna in this part of the Green Belt.

The Subotica Lakes and Sand Terrain (which form an Important Bird Area, (Heath and Evans, 2000)) cover an area of 200km^2 in the far north-eastern region of the Vojvodina (Backa). Ludas Lake and the related wetlands hold remarkable populations of wetland birds such as Little Bittern (*Ixobrychus minutus*, 70–100 pairs), Squacco Heron (*Ardeola ralloides*, 35–50) or Purple Heron (*Ardea purpurea,* 80–100). While Hungary is still home to a stable Great Bustard (*Otis tarda*) population of approximately 1,100 birds, the last remaining flock in Serbia and Montenegro (little more than 30 birds) lives near the border and depends on the remaining steppe and grassland areas. Protection measures aim to increase the last population of this impressive steppe bird. Even more threatened is a former common and colourful bird, the European Roller (*Coracias garrulus*). The large decline of this species throughout its breeding range led to a recent uplisting by BirdLife International to a near threatened status in Europe. While the last birds in Austria breed at the Green Belt near the Hungarian and Slovenian border, the last 65–85 pairs in Vojvodina breed in the vicinity of Hungary, which with 400–700 pairs provides the last stronghold in Central Europe (Sackl *et al.,* 2004).

The development of protected areas along the Pannonian part of the Green Belt as well as transboundary cooperation in the conservation of the spacious steppe and dry grassland with sporadic wetlands areas will be an important task in order to preserve many rare and endangered species. Not only Great Bustard and European Roller need better protection, but also Red-footed Falcon (*Falco vespertinus*), Lesser Grey Shrike (*Lanius minor*) and many other species of the cultural landscape need urgent measures to stabilize and increase the remaining populations. Transboundary cooperation is essential for these species, and projects such as the LIFE-funded "Pannonian sand dunes" are a good example.[45]

Cultural landscapes: pastures and vultures

Cultural landscapes with pastures, hedgerows and small villages are the main feature of the Balkan Peninsula.[46] Here, a great variety of native domestic breeds has survived (e.g. Stumberger *et al.,* 2004) and many animal species already rare in Western Europe are still widespread. Cultural landscapes are common also in wetlands and on mountains, but they are more prevalent in hilly areas. Here, the open landscape offers ideal conditions for rural tourism. The seven "Lucern Sites", known for the "best practice in rural areas" and named after the conference of the European Ministers of Environment in 1995, are examples of such areas (IUCN, 1995; Nature Park Lonjsko Polje, 2001). One site, the Strandja Nature Park in Bulgaria at the border with Turkey, is situated at the far end of the Balkan Green Belt (Zlatanova and Vassilev, 2001). With 1,116km^2, Strandja is the largest protected area in

[45] For more information see www.sandduene.at

[46] www.monitoring.eu.com/balkan/

Bulgaria and consists of a mosaic of strict reserves (5), protected sites (11), natural monuments (17) and a historic site of national importance. Only 8,000 people in 21 settlements live in the border region which amounts to less than eight inhabitants per square kilometre. The management plan for the area defines a tourism zone which covers existing and planned tourist facilities and routes and diverse opportunities for nature-friendly tourism inside the park. Local food which can be consumed and bought during visits to the park form an important part of the local economy. Strandja is a good example of how remote areas along the Green Belt can be developed sustainably: the park demonstrates the value of the natural and cultural landscapes for tourism.

Egyptian, Black, Bearded and Griffon Vulture Populations

Four vulture species still live in the Balkans. They strongly depend on traditional cattle breeding and pastures. The key area of their range (besides a few colonies in Serbia and Montenegro) is situated near the border areas along the Green Belt. At present, there still exists a stable Black vulture (*Aegypius monachus*) population in North-eastern Greece (Dadia) near Bulgaria and Turkey. This population of about 110 individuals is the last remaining one in the Balkans and will be the founder population for expansion and for reintroducing the Black Vulture in Bulgaria and neighbouring Macedonia, in order to secure its long-term survival. Existing vulture populations are supported by the regional programme of the Zoological Society Frankfurt (ZGF), which has managed to allow further population development. Each of the four vulture species has different food requirements. The Black vulture is a large vulture able to open dead animals with its strong beak. This way, the Black vulture creates access to the food source for Griffon (*Gyps fulvus*) and Egyptian vultures (*Neophron percnopterus*), which have trouble opening the bodies of dead animals. The Egyptian vulture has a sharp beak enabling it to penetrate cavities inside small bodies and to clean up remnants. Finally, the Bearded vulture (*Gypaetus barbatus*) takes care of the bones left over when the other three vulture species have finished. The manner in which these vultures complement each other, very much facilitates supplementary feeding as a basic need and management tool for all species together. This improves the effectiveness of conservation measures.[47]

Mountains: Home of the Balkan Lynx and Brown Bear

The South Eastern European Green Belt is characterized by its mountainous and very remote areas which have a low human impact. Most parts of the mountains are dominated by typical forest communities and summer pastures with a high biodiversity. Other sections though – especially in Albania – are degraded by high human impact due to forest exploitation and livestock grazing. In these areas, the Green Belt cannot be considered green any more, but heavily degraded by erosion caused mainly by heavy winter rainfall. Still, the mountain chains along the South Eastern European Green Belt with their forests and summer pastures are the most important habitats for mammals like chamois (*Rupicapra rupicapra*), red deer (*Cervus elaphus*) and roe deer (*Capreolus capreolus*). In consequence, large

[47] www.zgf.de

carnivores like brown bear (*Ursus arctos*), wolf (*Canis lupus*), and lynx (*Lynx lynx*) are also present in these areas.

With some exceptions, starting south of Belgrade the Balkan Green Belt runs through the various Balkan mountain landscapes. Northwest of Sofia, the mountains of Stara Planina form the border between Bulgaria, and Serbia and Montenegro. The most important sections of the Macedonian-Bulgarian border are located along the mountains of Ograždеn, Maleševska and Vlahina. In the triangle of Bulgaria, Greece and Macedonia, the border runs along the mountains of Belasica and Kerkini. In the western part of the Greek-Macedonian border, the Kožuf Mountains and Mount Kajmakčalan form the Green Belt. The mountains of Pelister, Galičica, Mal i Thatë and Jablanica surround the lakes of Ohrid, Macro and Micro Prespa. North of Jablanica, the Albanian-Macedonian border is formed by the Korab Mountains which contain the highest peak in the Balkan Green Belt. The border between Albania, and Serbia and Montenegro is formed by the Prokletije Mountains. The Rhodope mountain range forms the Green Belt along the Greek-Bulgarian border.

Mavrovo National Park and surroundings

The Mavrovo National Park is the largest national park in Macedonia and is located in the south western part of the Balkans near Macedonia's border with Albania and Kosovo. It is one of the protected pearls of the Balkan Green Belt, containing important habitat for several of Europe's large mammals. The National Park covers 730km^2 and stretches from the Mavrovo Lake in the East to the Albanian border in the West and from the border with Kosovo in the North to the Debar Lake in the South. In most available maps the Mavrovo National Park is drawn with its old boundaries dating back to 1949 when it covered only 117.5km^2. Already in 1952 though, the park had been enlarged significantly. The reason for creating the park was the protection of the exceptional natural beauty and the scientifically and historically important forests around Mavrovo valley. The highest peak in the park is the Korab with about 2,750m altitude. The Korab Mountains border the Province of Kosovo in Serbia and Montenegro in the north, and Albania in the west. Deep-cut river valleys separate the Korab Mountains from the Shar Mountains in the north-east and the Bistra Mountains in the south-east.

The climate of the area is characterized by cold and snowy winters and mild summers. The precipitation varies from 900mm to 1,400mm. Although there is no accurate data on the changes in vegetation cover over time, it is clear that on a large proportion of the high plains there has been significant deforestation. These areas were or still are used as summer pastures. Until the 1950s, more than 150,000 sheep were grazing in the area of the Mavrovo National Park. Today, the number has decreased to about 15,000. Sheep grazing is still organized using a transhumance system, which is typical for numerous areas of the Balkan Green Belt. Today, though, the sheep no longer migrate but are transported by trucks. In the past there was considerable deforestation to create more grazing pastures for sheep. As a result of this it is thought that certain tree species such as Mountain Pine (*Pinus Mugo*) disappeared from the National Park. As a result of this, most of the vegetation inside the Mavrovo National Park and its surroundings is dominated by different types of grassland.

The alpine zone (above 2,200m) is characterized by alpine grassland or bare areas. The sub alpine zone (1,700–2,200m) is dominated by grasslands and forests consisting mainly of Norway Spruce (*Picea abies*) and Common beech (*Fagus sylvatica*). The montane zone (1,200–1,700m) is characterized by mixed beech and fir forest. In lower elevations, different oak species replace beech and fir.

Strong need for forest restoration

Forest degradation is a general problem in the Balkans. However in many areas the forests remain relatively intact due to the defended areas around the borders. The forests of Albania provide a heavily degraded exception to this, primarily due to specific political conditions within Albania dating back to the 1970s. Albania shifted to autarky which – as a consequence – increased the pressure on the natural resources in the country significantly. On satellite images, the Albanian border to its neighbouring countries is quite visible in some sections due to the erosion caused by completely cutting down the forests on the Albanian side. In these areas, comprehensive programmes to restore the forests are strongly needed. In the Albanian Prespa National Park significant efforts were initiated to restore the forests. First of all the number of goats and sheep was reduced drastically from 12,000 to 2,800, with the result that there was natural restoration and regeneration of the beech and oak forests. The efforts in the Albanian Prespa National Park provide a model for forest restoration in other degraded sections of the South Eastern European Green Belt.

Threat to the South Eastern European Green Belt – Road construction in the Kresna Gorge

One example of the threatened 'pearls' of the Balkan Green Belt is the Kresna Gorge in Bulgaria. Initiatives such as the European Green Belt aim to strengthen the habitat networks in Europe, but there are also other trans-European network initiatives with different aims, e.g. those for traffic and telecommunication (c.f. Fischer and Waliczky, 2001; WWF, 2002). For example the Trans-European Transport Networks (TEN-T) of the European Union are identified as a major tool to improve the internal market within the EU and meet the objectives of the Lisbon Agenda. The traffic network crosses the Green Belt in several sections, for example the planned N4 highway from Athens to Sofia passes directly through the Kresna Gorge, and will have a particularly heavy impact in the Green Belt. The Green Belt can provide an international initiative with which to address the serious negative impacts of such transport networks in Europe. Concerning Kresna Gorge, an alliance of conservation NGOs has prepared plausible proposals on how the negative impact of the highway on a valuable pearl of the Balkan Green Belt could be reduced significantly.[48]

[48] www.kresna.org

Balkan Lynx

The Balkan Lynx population is considered to be the most endangered autochthonous lynx population in Europe. Current research even suggests that it should be considered as a separate subspecies. Although there is a general lack of data concerning its distribution, population size and dynamics, it is clear that the Balkan lynx population has to be identified as critically endangered with a maximum of about 100 mature individuals and its distribution restricted to a maximum area of 6,000km^2 (von Arx *et al.,* 2004) crossing Albanian, Macedonian and Serbian-Montenegrin territory. According to current knowledge, the core zone of the range of the Balkan lynx overlaps significantly with the Balkan Green Belt in the transboundary area of Albania and Macedonia. One of the nuclei for the lynx population is the Mavrovo National Park in Macedonia. But other parts of the Green Belt such as the mountain range of Jablanica and Shibenik are also likely to be important, although so far, knowledge about lynx occurrence in that area is quite poor. The Balkan lynx – especially if it is classified as a separate subspecies – is a flagship species for the section of the Balkan Green Belt shared by Albania and Macedonia as well as by Serbia and Montenegro, and Albania. The effective protection of these sections of the Green Belt will therefore be crucial for the survival of the Balkan lynx. For this reason, Euronatur together with the IUCN Cat Specialist Group and many partners in the region have started a Balkan Lynx conservation project (Breitenmoser *et al.,* 2005; see Schwaderer and Spangenberg, this volume for more details).

Brown Bear

The distribution of two distinct bear populations overlaps with the Balkan Green Belt: the Alps-Dinaric-Pindos population and the Rila-Rhodope population. The first is estimated to hold about 2,800 individuals, the latter about 500 individuals (Swenson *et al.,* 2000). Both are most probably fragmented due to habitat degradation and in some parts also by direct persecution. The main distribution areas of the Rila-Rhodope population are the mountains of Pirin, Rila and the Western Rhodopes in the transboundary zone between Bulgaria and Greece. Occurrence of Brown Bear has been reported also in the mountains of Maleševska and Vlahina at the border of Bulgaria and Macedonia. These areas are important sections of the Balkan Green Belt. Along the Greek-Macedonian border, single observations of bears in the area of Mount Kajmakčalan and the Kožuf Mountains have also been reported (Spassov, 2003). This isolated small number of bears most probably belongs to the Alps-Dinaric-Pindos population as well as the bears living in Albania and the western parts of Macedonia and Greece. Important habitats for bears are the mountains of Grammos and Morava in the transboundary area of Albania and Greece. In consequence, the Brown Bear could also be considered as an important flagship species for the conservation of the Balkan Green Belt.

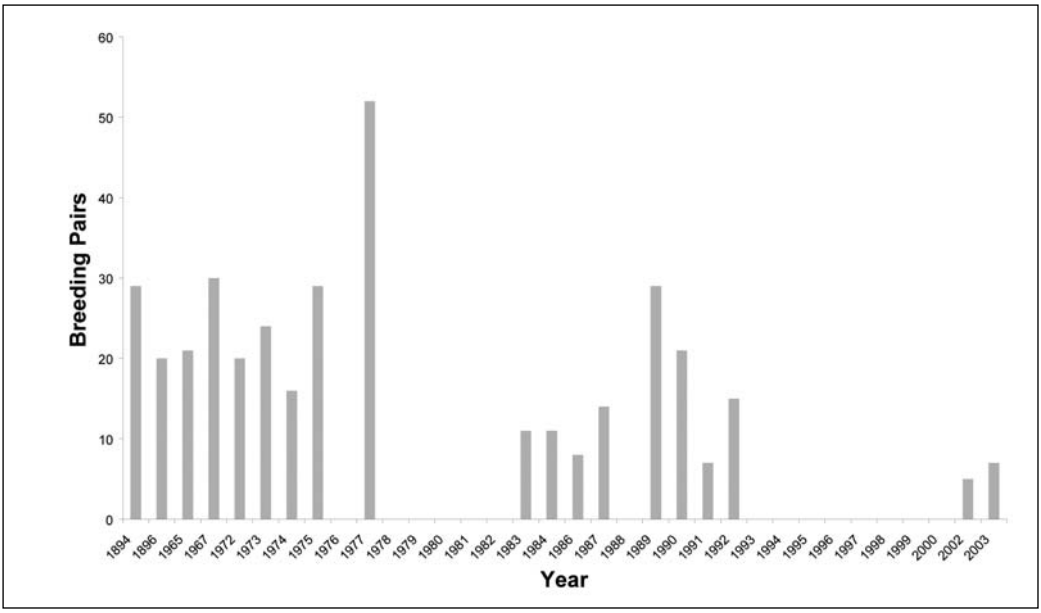
Figure 13. Distribution of the Brown Bear in the Southern Balkan countries

Lakes: Pelicans and wintering waterfowl

The Balkan Peninsula is rich in wetlands. All four large natural lakes – Ohrid, Prespa (Micro and Macro Prespa), Dojran and Skadar – are situated on the line of the former Iron Curtain and have been partly preserved from development by the restricted access. The Dalmatian Pelican (*Pelecanus crispus*) is one of the flagship species for these important wetlands. In the Greek National Park Micro Prespa the population rose during the last years to more than 500 pairs (Crivelli *et al.,* 2000), while the colony in the Lake Skadar National Park in Serbia and Montenegro dropped to a low of 5–7 pairs and has had no breeding success for several years (Figure 14, Saveljić *et al.,* 2005). While special programmes in Greece such as artificial nest sites and protected core zones led to better breeding success, the national park administration in Serbia and Montenegro was forced to sell licences to Italian bird hunters in order to earn an income. As the large military zone at the Iron Curtain, where the Pelicans are breeding, ceased to exist, uncontrolled transboundary activities started after 1990 and even increased during the time of the embargo on Yugoslavia. Thus, the Dalmatian Pelican

is a good example of the global value of the Balkan lakes and wetlands, but at the same time an appropriate indicator on the effectiveness of post Iron Curtain protection measures. While at Micro Prespa the colonies have been protected, at Lake Skadar urgent measures are needed to implement a transboundary protected area and management.

Figure 14. Dalmatian Pelicans breeding at Lake Skadar National Park in Montenegro near the Albanian border



Source: Saveljić *et al.*, 2005.

Coastal areas: Dolphins and natural river estuaries

The watch towers and bunkers where the Bojana Buna River flows into the Adriatic Sea and along the beach of Velipoja in Albania are today monuments of Albania's isolation from the rest of Europe. But the other three branches also, at the Albanian-Greek, Greek-Turkish and Turkish-Bulgarian border where the Green Belt meets the sea, were over many decades characterized by closed borders and strict control. The natural value of all four sites is clearly documented in the inventory *Important Bird Areas in Europe* (Heath and Evans, 2000). These priority sites for conservation have been defined by ornithologists at each of the four coastal areas of the Green Belt on both sides of the border.

The Evros-Meric river forms a large delta between Greece and Turkey in the Aegean Sea with large natural wetlands of significant importance for migrating birds, used for example by up to 2,600 Dalmatian Pelicans and 5,000 White Storks. Dalmatian pelicans also breed on the Greek Kalamas estuary at the Albanian border, in the Ionian Sea. These birds fly north in the autumn, using the salt pans in the Bojana Delta as feeding habitat before flying again to the south. The coastlines in this region are natural with intact seasonally flooded forests, for example the Turkish Igeneada Forest, a 10km pristine dune and beach system close to

the Bulgarian Strandja Nature Park. Again tourism in this region was restricted by the border control. Thus, the coastal Green Belt areas are of great importance for nature conservation in Europe, since the coastal zone especially in the Mediterranean Sea has been impacted by unsustainable tourism development for many decades. Marine protected areas are still underrepresented worldwide and all four transboundary areas are in need of urgent protection.

Recent evaluations in the Albanian-Montenegrin Bojana Buna Delta demonstrate both the great value of the coastal areas and the threats caused by rapidly increasing tourism development. The dynamic coastline of 30km has been preserved as well as 44km of the natural river at the border between Albania and Serbia and Montenegro from the Adria to Lake Skadar. During the times of the Iron Curtain, huge colonies of herons and Pygmy Cormorants (*Phalacrocorax pygmaeus*) were situated at the Green Belt. These areas are still used for breeding but the breeding success for waterbird species has decreased. Until 1990, no boating was possible on the river and access to the island was strictly regulated. During these times, the colonies of hundreds of Pygmy Cormorants and herons were protected by the border control. In the future, the proposed Marine Park Bojana-Buna Delta will have to be controlled by rangers and a park visitor programme should be initiated to ensure that tourism becomes more sustainable than today (Stumberger *et al.,* 2005).

The establishment of the transboundary protected area in the Bojana Buna Delta within the Green Belt is urgently needed (see Schneider-Jacoby *et al.,* this volume, for more details). Already 200,000 tourists in Serbia and Montenegro and 50,000 in Albania use the natural coastal landscape for their summer holidays. In 2003, in Albania for the first time illegal houses were destroyed and the Administration is trying to make the development process more sustainable through urban planning regulations. Conversely, in Serbia and Montenegro new access roads are being built through the pristine barrier island, where endangered bird species such as Kentish Plover (*Charadrius alexandrinus*), Baillon's Crake (*Porzana pusilla*), Stone Curlew (*Burhinus oedicnemus*) and Little Tern (*Sterna albifrons*) breed in high numbers (Stumberger *et al.,* 2005). New houses are built on the protected "Large Beach" (Velika Plaza), a natural monument of Montenegro since 1968, and destroy the aesthetic and natural value. This development is threatening not only the natural values, but the touristic value as well (DEG, 2003). The best attraction of the Bojana Delta is the pristine beach connected with the Bojana-Buna River and Lake Skadar. Loggerhead Turtles (*Caretta caretta*) still use the sand at the mouth of the river to deposit their eggs and dolphins have been seen 30km upstream feeding in the Bojana River. This unique habitat in Europe probably survived only because the area had been preserved by the Iron Curtain.

Outlook: Linking landscape and development

During the joint international workshop "MAB Biosphere Reserves and Transboundary Cooperation in the SEE Region", seven workshops along the South Eastern European Green Belt were proposed by the participants to stimulate regional development based on protected areas on the Balkan Peninsula. It became clear that various initiatives by GOs and

NGOs in all countries are aiming to establish protected areas along the borders. There is a large interest in regional and transboundary cooperation and topics such as the design of protected areas, rural development and the financing of protected areas are of great importance. It is interesting to see that all workshops for which concrete locations had been proposed are in sites at the Green Belt offering a road map for the first steps to implement this unique corridor in Southeast Europe (Andrian, 2004).

As the protected areas along the Balkan Green Belt are not only small pearls but huge jewels sitting close together, the design, the function and economic benefits of protected areas are a crucial issue for the success of the concept of the Green Belt. The natural corridor in South-eastern Europe is very wide and the areas on both sides of the former Iron Curtain spread out not only a few metres but in some areas tens of kilometres. Often, the border is in the centre of huge ecosystems such as the Balkan lakes or the wild mountain complexes. Even on the coast, natural beaches, lagoons and dune areas are about 10km – or even more – wide on both sides of the borders. Transboundary cooperation and programmes as started for the lake system of Prespa and Ohrid are important highlights in the regional development along the Green Belt. Tourism projects and participatory approaches to park management and rural development programmes are important tools as demonstrated in Strandja Nature Park. In addition, the Green Belt initiative is a unique opportunity to promote the rich natural and cultural heritage of the Balkans and show the very diverse and beautiful face of this region to the rest of Europe.

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Section 3.
Case studies from along the Green Belt

Introduction

So far in this book we have discussed much of the theory of the Green Belt and its aims and objectives. Section 2 also saw a detailed review of the status of the different areas that make up the Green Belt along its range. In this Section we would like to zoom into the local level and to identify a number of case studies demonstrating the activities that are under way in the Green Belt. Our aim in this section is to show the breadth of activity that is taking place adapted to the range of habitat types found in the Green Belt and the specific regional demands.

Taking a general geographic route through the Green Belt, this section starts in Fennoscandia dominated by forested areas with a presentation of the cooperation between Finland and Russia on conservation and rural development issues. The chapter shows that in northern and central areas there is a good match between protected areas on either side of the border. But in the south the situation is more complicated as much of the forest in Finland is privately owned. The authors review some of the work that has taken place in this region and discuss the value of the biosphere reserve approach for this area.

Moving into Central Europe two case studies look at different aspects of rural land use and agricultural practices. Julia Kelemen-Finan provides a summary of a long-term project being run by Distelverein in Austria concerning the protection and sustainable use of the Morava-Dyje floodplain and the conversion of former arable land to wet meadows. From the start of the project, Distelverein has emphasised the need to work with local stakeholders such as farmers. At the border between Austria and Hungary, the directors of the Neusiedler See and Fertő-Hanság National Parks discuss the agricultural and land-use practices in their respective regions, and the changes that EU membership has brought to the region. In Austria, since joining the EU in 1995, the National Park, which contains a significant amount of privately owned land, has been able to work with farmers on agri-environmental schemes. Hungary's recent membership of the EU will now see the possibility for similar schemes to be employed there.

Some of Europe's most important river bodies, the Danube, Drava and Mura networks pass along sections of the Green Belt, as they form the borders between several countries in the region. These river systems and their associated wetlands and floodplains are extremely

important for both biodiversity and human use; the latter, e.g. regulation and damming activities, has placed them under considerable pressure in different parts of their range. David Reeder and colleagues discuss their work on the Drava-Mura river basin that forms the border between five countries in the Green Belt. They discuss the natural diversity found in the floodplains and some of the activities that are taking place to show the value of protecting this biodiversity to the local communities. Moving into South Eastern Europe, Martin Schneider-Jacoby and colleagues discuss another important wetland area in the Bojana-Buna Delta between Serbia and Montenegro and Albania, which feeds the waters of Lake Skadar into the Adriatic Sea. This coastal area has had a different history on either side of the border with different use and protection status.

Two more case studies located further to the south-east focus on goals and problems in specific mountainous areas. Gabriel Schwarderer and Annette Spangenberg turn their attention to the protection of a large mammal in the mountainous border area between Macedonia and Albania. Recent work has suggested that the lynx found there could be part of a distinct sub-species, and activities are underway to support the protection of this area as a migration route for large mammals such as the lynx. Finally Nikos Grigoriadis and Elena Kmetova describe the diversity of the Rhodope Mountains between Greece and Bulgaria.

Each of the chapters in this section has focussed on some of the important habitats found in different areas of the Green Belt. Although there are specific conditions found in each of these areas, there are also a number of parallels that could be drawn with other regions. Part of the aim of the Green Belt is to draw together these experiences and communicate them, hopefully to provide a valuable source of experience and advice. Also these case studies will hopefully act as a stimulus to inspire partners to identify projects and activities that could take place elsewhere in the Green Belt.

8. Combining nature protection and local development in the southern part of the Green Belt of Fennoscandia

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Abstract

The backbone of the Green Belt of Fennoscandia is in the north. Extensive national parks and other nature reserves have been established in both Russia and Finland. In the southern part of the border area nature protection has been more difficult: in Finland an extensive set of small forest reserves has been created along the border until the Ilomantsi area. In Russia there are very few forest reserves near the border to the south from the town of Kostomuksha and the pressure for forest use is high. Diversification of the border area districts' economy is needed to extend the ecological corridor of coniferous forests also to the southern part of the Green Belt of Fennoscandia. Cross-border cooperation starting with joint research has led to biosphere reserve projects combining nature protection and development. Tourism is a promising field for joint operations, and gives opportunities to reach both administrations and local people.

Introduction

The Green Belt of Fennoscandia is made up of the border areas between Russia, Finland and Norway. This paper concentrates on the situation in Russia and in Finland. The history of settlements and also the development and land use of border areas is, in general, different in Russia and Finland. From the point of view of forests the main differences are the ownership of the land and differing forestry practices, which also reflect the different size

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of the countries. In Russia land is owned by the state and forestry is a large-scale activity. Also access and economic activities in border areas on the Russian side are controlled by a specific regime with strict limitations (Gromtsev and Gromtsev, 2004). The width of the strip where activities are limited ranges from 2–20km in different parts of the border zone, totaling 166,000ha in area. Gromtsev and Gromtsev (2004) also state that the road network near the border on the Russian side is sparse, and the proportion of farmland is negligible. Thus, an "ecological contrast" border has formed, and given the relatively undisturbed status of the districts in Russian Karelia, it would be expedient to develop a network of protected areas adjoining Finland. In this environment of activities nature protection has also followed the large-scale model: most nature reserves are tens of thousands of hectares. For example, Paanajärvi National Park covers 103,000ha (Gromtsev, 2001), Kostomukshsky Strict Nature Reserve is 47,500ha (Kashevarov, 1998) and Tolvajärvi Landscape Reserve is 42,000ha (Kolomytsev, 2001).

In northern Finland most of the forest land is state-owned, whereas in southern Finland only fragments of forest land are owned by the state. Private sector actors – individuals, companies, municipalities, associations etc. – make their own decisions about forest use. This approach makes the pattern of forest much more fragmented and fine-grained than in the Russian system where forest use is centrally governed. Forest protection is also much more complicated in this "southern" environment, where there are many more stakeholders and interest groups and a clear and immediate connection to the economy of many stakeholders. These features can easily be seen in the size, number and status of nature reserves: in the north the reserves are extensive, whereas in the south the reserves are small, scattered and in some cases totally missing. In spite of crucial differences in the economies, the same pattern holds true also in Russia: protection has been more complicated in the southern part of the Green Belt of Fennoscandia and many of the important nature reserves are still just proposals.

This paper illustrates the situation along the Finnish-Russian border in the middle-southern part of the Green Belt of Fennoscandia and discusses the Biosphere Reserve (BR) concept for working with local populations and administrations. These activities are extremely important, even when very small and limited, and have allowed research and researchers to participate in the many-sided joint development operations. In practice, alternatives to forestry are needed to make it possible to save the nature in these border regions.

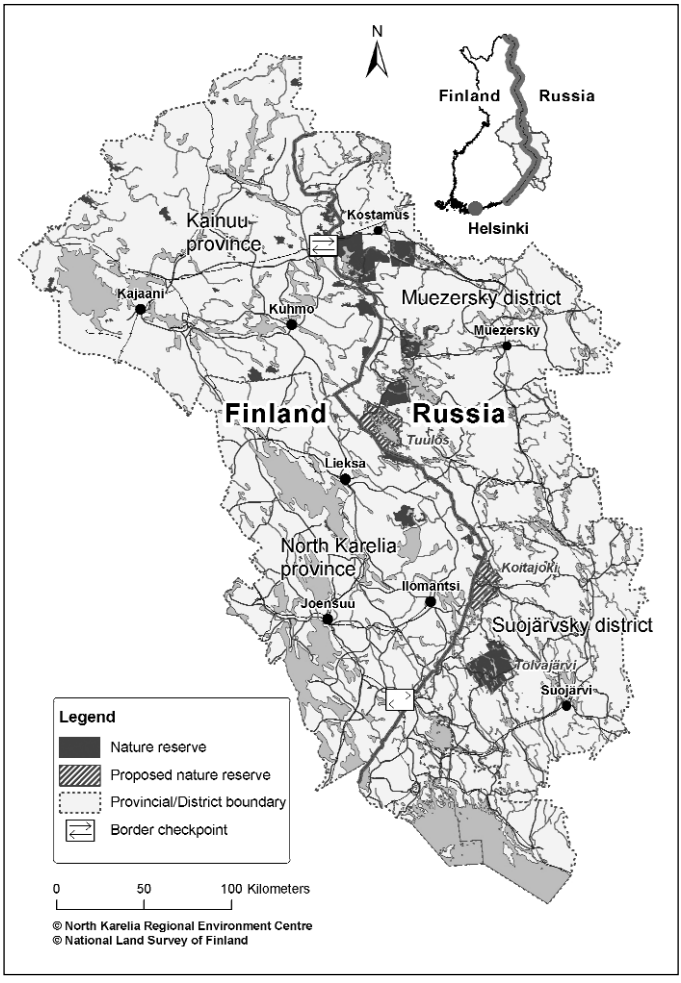
Target area and partnership

The region of activities is located around the easternmost corner of Finland and covers the Finnish provinces of North Karelia and Kainuu and the Russian (Republic of Karelia) areas Kostomuksha (Kostamus in Karelian language), Muezersky (Muujärvi) and Suojarvi Districts (Suojarvi) (see Figure 15). The main areas of activity covered in this paper from Russia are Koitajoki-Tolvajärvi proposed national park in the Suojarvi District, Tuulos (Tuulijärvi) proposed national park and Lieksajärvi water basin in Muezerka and

Kostomuksha Strict Nature Reserve. On the Finnish side, Koitajoki area in Ilomantsi, North Karelia and Kuhmo town in the Kainuu province are principal targets.

The main local partners from Russia are the districts (Suojarvi and Muezersky) and the main scientific partners have been the Karelian Research Centre of the Russian Academy of Sciences (Petrozavodsk), Petrozavodsk State Pedagogical University and Kostomuksha Strict Nature Reserve (*zapovednik*) from Kostomuksha. Governmental organizations have also participated in the projects. An internal goal has been to prepare the establishment of an international biosphere reserve together with Finnish partners for this region.

Figure 15. Target area from the southern part of the Green Belt of Fennoscandia includes North Karelia and Kainuu provinces from Finland and Kostomuksha, Muezersky and Suojarvsky Districts from Russia



Map: Regional Environment Centre of North Karelia/Jukka Nykänen.

The North Karelia biosphere reserve is situated in Ilomantsi municipality and Lieksa City in North Karelia. These municipalities and areas outside of the BR delineation, including Tuupovaara municipality south from Ilomantsi (nowadays belonging to Joensuu City), have been the main partners in the projects with Russian districts. BR activities have been co-ordinated by the North Karelia Regional Environment Centre in cooperation with the Finnish Ministry of the Environment. The main collaborators have been Metsähallitus (taking care of state forests and nature reserves), University of Joensuu through several faculties and Mekrijärvi Research station. Scientific cooperation with the Friendship Park Research Centre (Kuhmo, Finland) – another institution under the Ministry of the Environment in Finland – has increased as north-south cooperation along the Fennoscandian Green Belt has become more important.

The border was very strictly guarded and restricted for economic activities and free movement during the Soviet Union era. This has made it possible for nature to survive under the pressures of economic interests. Despite the Soviet Union having been changed to the Russian Federation, the border is still strictly guarded, but the economy is gaining more freedom. The European Union (EU) is a strong player in the border area because the border between Russia and Finland is also the external border of the EU. The influence of the EU can be seen through various border area programmes such as Interreg, Tacis, Phare, EU Northern Dimension and the Neighbourhood Programme. These programmes nowadays make up the majority of the funding in border area development. All these programmes have links to the economy, but they also support environmental awareness, sustainable development and tend to link local communities to the economic activities. Thus, from a practical point of view, Finland joining the EU in 1995 brought a new and powerful partner into border area activities and gave a considerable financial and legislative boost to sustainable development efforts.

Development of cooperation

Goal: joint environmental policy

A joint environmental policy for the border area is a key requirement for reconciling the problems between the use of natural resources and their protection. This comprehensive principle presented by Titov *et al.* (1995) has been one of the cornerstones of the Green Belt of Fennoscandia since the evolution of the idea in the beginning of the 1990s. To pursue a joint environmental policy good relationships are obligatory and the different actors from all levels of society must be included. This can sometimes introduce complications and forces the different sides to meet and work together, for example environmental, political and industrial stakeholders. Furthermore local opinion must be taken into account in all proposals and actions.

These ideas fully match with BR principles and also EU programmes. Working with the scope of a Biosphere Reserve has the advantage that it provides a neutral platform drawing together different stakeholder activities from extensive areas to build ecologically meaningful structures. At the border, genuine cross-border cooperation is pursued because nature does not recognise the borders either.

Forest issues in focus

The remote and sparsely populated areas along the border – i.e., the Green Belt of Fennoscandia – are mainly forested with patches of mires, ponds and lakes. The area is not rich in minerals, and on the Finnish side there are no major polluters. On the Russian side only the Kostomuksha iron mine and the adjacent industrial complex is situated near the border. These facts set aside many of the issues and problems common in densely populated and industrialized countries, and also the scale of the problems in the settlements differs from that found in the big cities. The industrialized use of forests is crucial economically to both countries in the Fennoscandian Green Belt area. Forests are also very important sources of recreation and non-forestry products. Forestry-related development activities can also easily take their main role in the biosphere reserve type of operations.

Ecological background

Development activities that take place within biosphere reserves must be based on sound scientific information and since the 1980s, ecological data has been jointly collected by Finnish and Russian scientists from the border area (Ruuhijärvi, 2003). Over the course of several years, scientific cooperation has been the starting point for most joint activities (other than forestry). The research partners have learnt to know each other well and the development of activities is a natural consequence: nature needs to be used in a more environmentally friendly manner, and the decisions are societal. The partners, knowing the operational environment in both countries, have moved a step closer to broadening the spectrum of activities from mere research tasks to research and development projects.

Sustainable development

'Sustainable development' is a commonly used phrase that is largely intangible from the local perspective. Development activities along the Green Belt must inject meaning into this phrase. In several cases the work to be done is very simple, but the background and consequences need to be interpreted at the local level. Helping local people in their everyday life helps in developing nature protection measures and *vice versa*. The ecological background and the requirements for sustainability limit the set of development activities that can be used, but there are still many options to promote environmentally friendly practices in all fields of society and to reach as many stakeholder groups as possible. Improving environmental awareness requires starting by increasing understanding of the issues involved. Activities to improve understanding can be built into practical work on many different areas such as waste management, economic use of nature resources, new bio-energy technologies and infrastructure development (roads, water supplies etc.). The possibilities for work in the remote villages are endless, and the targets must be carefully chosen to be of most use to the people, so that they can understand the connection between nature and their living conditions.

Local participation and continuity of actions

In many cases development activities and nature protection often ignore local opinion, especially if it is against the planned activity. However open discussion and consensus are needed to guarantee the results and their sustainability in the future. Local administration is

in a key position when local interests have to be taken into account in the decision-making process, and most development projects have included official participation from local authorities. Understanding and trusted relationships between the partners also create understanding between the often different cultures involved, which is essential in all activities.

Also it is vitally important to ensure the continuity of bilateral relations, and this takes continuous effort. However project funding is mostly short-term, and therefore does not support continuity well. Also the rapid political changes at the regional or national level can make it difficult to maintain contact. For example the situation in Russia during the last ten years, with its many changes in administration, has made transboundary cooperation complicated. When new contacts and perspectives have been needed, the help from researchers and research institutions has been crucial. The existing networks of cooperating researchers have created new channels and found the right people for continuing collaboration.

Finnish perspectives

On the Finnish side in North Karelia and Kuhmo, the majority of the remaining natural forests are already under protection under several programmes such as the National Park programme, Old Growth Forest Protection Programme and Natura 2000. Currently the main task is to link these different protected areas into a functional network. The Natural Heritage Services in Metsähallitus (Finnish Forest and Park Service) is responsible for the protected areas and Metsähallitus Forestry takes care of the forestry on state-owned land. Metsähallitus has adopted a participatory landscape ecological approach within forestry planning, and landscape ecological plans have been compiled for state-owned areas adjacent to the border. The process is transparent and, in principle, makes it possible to reconcile forestry interests with those of nature protection. Landscape ecological planning takes into account the need of ecological corridors in between the protected areas; as well as the need for natural resource use such as hunting and recreation. On private land this type of approach is much more difficult to implement.

Research and long-term collection of ecological data are essential to be able to improve the management of protected areas. Within the forest areas in Finland, both Metsähallitus Natural Heritage Services and the national environmental administration have performed extensive inventories. Russian scientists have participated in these studies, and especially species inventories have benefited from Russian involvement and expertise (e.g., Polevoi and Ståhls, 1994; Polevoi, 1995; Yakovlev *et al.,* 1995; Bondarceva *et al.,* 2001; Polevoi, 2001; Yakovlev *et al.,* 2001; Bondarceva and Kotkova, 2003; Maksimov *et al.,* 2003; Heikkilä *et al.,* 2000; Niemelä *et al.,* 2001; Leinonen and Itämies, 2003; Várkonyi *et al.,* 2003; Heikkilä and Várkonyi, 2004; Kashevarov and Várkonyi, 2004; Penttilä *et al.,* 2004). Many new species for the provinces, for Finland and even for the continent have been found through these surveys. In the Kuhmo area, the Friendship Park Research Centre has been the main research unit and in North Karelia the BR has worked with the Russian scientists.

The proper management of protected areas also includes their use by people. Visitor centres and other services are important in introducing the reserves to the public. The network of Finnish reserves is well presented on the Metsähallitus website,[55] and this information is exchanged in cross-border cooperation. The Finnish-Russian Friendship Nature Reserve between Kuhmo and Kostomuksha is an excellent example of Metsähallitus' long-term collaboration in management planning and ecological education. However, a practical problem emerges when there is no counterpart, i.e. a reserve, to work with as, for example, in the Muezersky District in Russia. To overcome this problem, Metsähallitus Natural Heritage Services has also participated in biosphere reserve actions in Muezerka to develop relationships with the district administration and to help with its expertise in the creation of new functioning reserves. A similar approach has also been adopted in the Suojarvi District.

Activities in the Suojarvi and Muezersky districts of Russia

Forest protection

Suojarvi and Muezersky Districts are areas with extensive forest resources (see Table 3), intensive forest use (see Table 4) and less well developed nature reserve networks. From the Green Belt of Fennoscandia perspective the most important areas near the border, Tuulos in Muezersky district and Koitajoki-Tolvajärvi in Suojarvi, are only proposed national parks and there is no clear indication at the moment about their realization. From Tuulos and Koitajoki-Tolvajärvi there is fairly good documentation of biota, management plans and therefore a good basis for the nomination of a national park (e.g., Bondarceva and Kotkova, 2003; Friman and Högmander, 2001; Kolomytsev, 2001; Kuznetsov, 2001).

In Muezerka there are two game sanctuaries near the border totalling 31,500ha. Unfortunately these areas do not have a true protection status, since regulations for game sanctuaries do not restrict nature use except for hunting. Moreover, the Institute of Biology of the Karelian Research Centre, Russian Academy of Sciences, has recommended that the operation of the game sanctuaries be discontinued.[56] Although there is sufficient background information to support the protection of these sites, economic interests currently dominate. Therefore there are collaborative projects underway to seek new means to decrease the gap between economy and protection, i.e., how to find new, sustainable ways of using the forests.

Tourism versus forestry

The most important enterprises in Muezersky district and in Suojarvi are forest companies. The role of forestry is complex. The forests provide work for foresters, but they also provide berries, mushrooms and game for the same people and for a great number of others. Fishing is also important for local livelihoods. The road network in the area is sparse and in poor condition. Thus forest cuttings, needing reasonable roads for the transportation of logs, also provide new channels for local people to exploit non-timber forest products. There seem to

[55] www.metsa.fi

[56] http://muetacis.krc.karelia.ru/protected/index.html

be very few options to diversify the economy by production of goods. It is possible to increase the degree of development of forestry products, and this field should be explored also in Biosphere Reserve projects.

Table 3. Suojarvi and Muezersky District forestry indicators and area of nature reserves as compared with Finnish border area municipalities (both from North to South)

District/ municipality	Working age population	Forestry and agriculture employees (%)	Taxes from forestry (% of total)	Total area (km²)	Strict Nature Reserves, National Parks, nature reserves (km²)	Game reserves, landscape reserves, nature monuments (km²)	Nature reserves, (total) in programmes * (km²)	Nature reserves (% of total area)
Muezersky[a]	8,800	45.6	88.5	17,660	477[d,e]	343[d,e]	818[d,e]	4.6
Suojarvi[a]	14,083	42.6	46.4	13,700	-	894[d]	894[d]	6.5
Kuhmo[b]	6,901	14.9	n.a.	5,458	271[f]	-	271	5
Lieksa[c]	8,884	9.8	n.a.	3,425	84[f]	-	84	2.5
Ilomantsi[c]	4,005	12.7	n.a.	3,172	141[f]	-	141	4.5

[a] Morozova *et al.* (2001).

[b] Kainuu Regional Council 2004 (www.kainuu.fi).

[c] North Karelia Regional Council 2004 (www.north-karelia.fi).

[d] Karelian Research Centre 2006.

[e] Includes Kostomuksha Strict Nature Reserve (475km²) which is situated mainly in Kostomuksha District.

[f] North Karelia Regional Environment Centre/Finnish Ministry of the Environment.

n.a. = not available

* Strict nature reserves, national parks, nature reserves, old growth forests

Services are poorly developed in the area, and tourism seems to be a promising direction to gain new sources of income. Both Finnish (North Karelia) and Russian (Republic of Karelia) strategies have emphasised the importance of developing tourism. Tourism needs infrastructure – roads, clean water, housing – and it also needs clean lakes, intact forests, rich wildlife etc. All these things are equally important for the local population.

The studies conducted in cooperative projects (Friman and Högmander, 2001; Morozova *et al.*, 2004; Nemkovich and Saveliev, 2004; Nemkovich and Saveliev, 2005) also find grounds from local attitudes and potential from nature to promote tourism: the Suojarvi district can use the Tolvajärvi landscape reserve for ecological and nature tourism, nearby there is a war memorial complex at Kollasjärvi and also other historically and culturally important places such as the villages of Korpiselkä, Veshklitsa and Porosozero. There are many excellent waterways in both Suojarvi and Muezerka for water tourism and fishing. In Muezerka there are many recreationally attractive pine forests, often interspersed with spruce stands. Suojarvi District is logistically in a better situation due to the Niirala international cross border

checkpoint being very near. Muezersky district lacks a permanent checkpoint, but a temporary one exists and its development has already been planned (Nemkovich *et al.*, 2004). Also nearby, the Ruunaa area in Finland offers potential for future tourist development with its 120,000–150,000 annual visitors.

Table 4. State forest fund and final harvest by forest management units from north to south

Forest management unit (leshoz)	Total area (ha)	Forest area (ha)	Total standing stock (m^3x1000)	Final harvest in 2001 (m^3x1000)
Pyaozersky	1,324,170	762,136	61485.1	324.2
Kalevalsky	762,848	475,380	37891.3	316.8
Kostomukshsky	339,001	225,719	31743.0	205.0
Muezersky	**1,095,057**	**690,457**	**53974.3**	**505.9**
Suojarvsky	**778,374**	**568,109**	**58367.8**	**478.8**
Sortavalsky	158,492	141,686	29172.3	209.8
Lahdenpohsky	162,873	149,039	27096.8	219.4

Source: Calculated as of January 1, 2001; data from the Karelian Research Centre of Russian Academy of Sciences, Institute of Forestry.

Several development projects by various actors have been performed in both Suojarvi and Muezerka. The practical work in Suojarvi has included improving roads to the nature reserve and building new infrastructure for tourism and teaching traditional methods of management. New brochures (Mingasov, 2000) and maps for promoting the area and environmental education materials for schools have also been created (e.g., Ieshko and Mikhailova, 2000; Gromtsev, 2005).[57] Muezerka projects have trained local builders, created tourist structures, inventoried nature trails and waterways and prepared plans for developing nature tourism and border crossing. Practical work to improve the clean water supply of the villages has also been undertaken.

All the activities and long-term cooperation have created a good network of actors and a positive atmosphere for discussing matters openly. New projects are being planned and nature values subsequently gain more importance in local development plans. The strict resistance to increased protection has obviously decreased within the Suojarvi administration, especially as to improving the status of Tolvajärvi Landscape Reserve to a national park. National park status, however, needs federal approval and the Russian list of

[57] See also http://suotacis.krc.karelia.ru

new national parks for the next few years does not include Tolvajärvi alone nor Koitajoki-Tolvajärvi. This is unfortunate, as there would be greater visibility for the region which would include a boost to the economy and more jobs.

The Tuulos proposed national park in Muezerka is considered the most promising water body also for tourism in the area, and even landscape reserve status would improve the situation considerably. However the area is still within the restricted border zone and this limits its recreational and tourist use. Lake Lieksanjärvi area, directly to the east from Tuulos, is not a restricted area and a landscape reserve around the lake would create a great tourist resort with fishing and hiking opportunities and numerous rapids. Protection of the lake would also include the forest that surrounds it, and so enhance forest protection in the area.

The European Green Belt cooperation provides an opportunity to improve the situation in the border area between Russia and Finland in the future, providing more partners, more experiences and better funding options. Wider visibility with European partnerships would also help secure more local, regional and national stakeholders to take part in projects. This boost is very much needed, because fundamental changes in the economy of the area are needed. Finally this work would further enhance relations at the border and between the EU and Russia, increasing stability, openness and democracy.

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9. Sustainable use of the Morava-Dyje floodplain in Austria

Julia Kelemen-Finan[58]

Abstract

Several detailed concepts have been developed to preserve the outstanding but seriously threatened biodiversity of the Morava-Dyje floodplain. The NGO Distelverein is currently working on a project to re-convert arable fields in an area called "Lange Luss" to wet meadows. A key aspect of the project is to interest farmers in participating in sustainable land use. Further tasks include procuring suitable financial incentives as well as optimizing the political climate.

Introduction

The land now referred to as the "Green Belt" between Lower Austria, the Czech Republic and Slovakia was formed by the dynamics of the rivers Dyje (Thaya) and Morava (March), (see Figure 16). The floodplain of the partly still meandering rivers is one of the most valuable wetlands in Central Europe. It supports stretches of floodplain forests with oxbow lakes and a wide variety of habitats. Large open areas were formed by centuries of low-intensity farming: floodplain hay meadows, with shrubs and coppiced willow trees, all home to abundant wildlife. Before flood protection dams were built in the early twentieth century, the only possible agricultural use of the open, regularly flooded areas was as hay meadows or pastures. The decline of animal husbandry within the last 40 years has resulted in the conversion of a large part of the valuable meadows to arable land. Still, there are some stretches of species-rich and partly flooded meadows left, which are home to corncrakes (*Crex crex*), white storks (*Ciconia ciconia*) and rare branchipods. The best remaining examples of these wet meadows are on the Slovakian side of the border.

In 1983 the Austrian part of the Morava-Dyje-Floodplains were designated as a Ramsar area, one of the most important in Austria. Similar designations on the Slovak and Czech side of the border followed. However, in the course of monitoring procedures in Lower Austria in 1991, the international Ramsar expert committee noted a deterioration of habitat quality due to intensive land-use practices. In 1996/97 the area was nominated for Natura 2000. With its 11 habitat types and 25 animal species listed in Annexes I and II of the EU Habitat Directive, plus 41 bird species listed in Annex I of the EU Birds Directive the area is an important contribution to the biodiversity of the EU.

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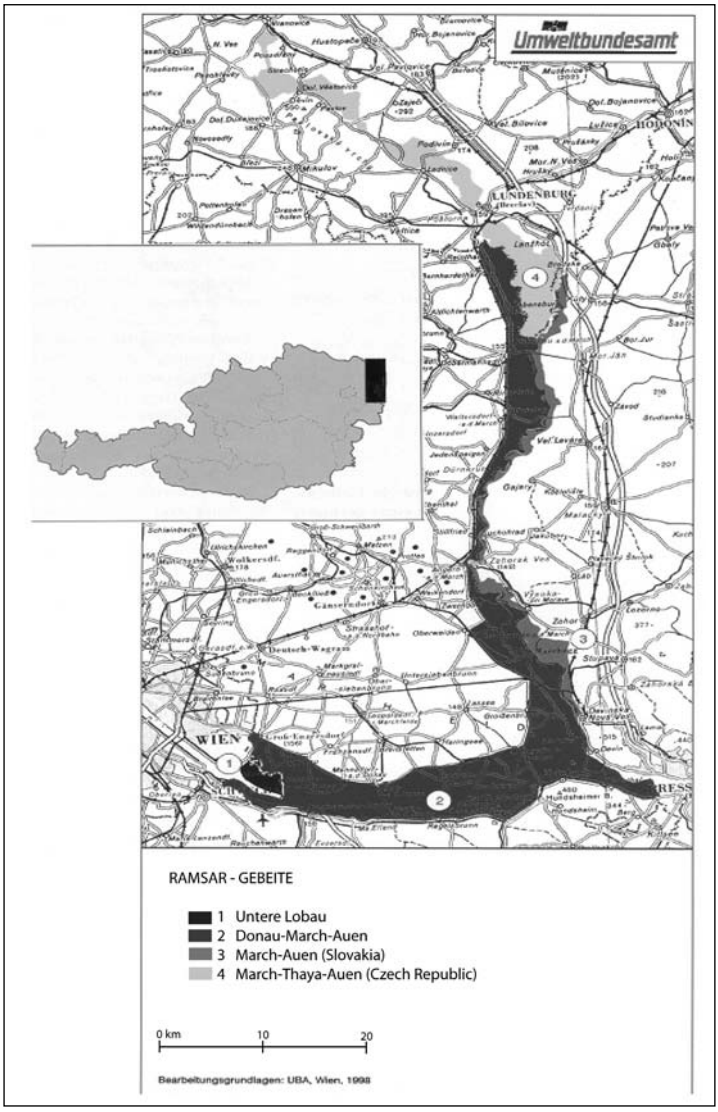
Efforts made in the 1980s to include the Morava-Dyje Floodplains in the Danube National Park failed, largely because of the private interests of the many small-scale landowners. Whereas in the Danube National Park most of the land is state-owned, land within the Morava-Dyje floodplain is privately owned by numerous farmers. A typical farm manages between 40 and 100 hectares of mostly arable land as well as some hay meadows, and participates in mostly community-based subsistence forestry (there are few large landowners). Already back in the late eighties, it was obvious that nature conservation efforts, which were governed by council regulations (a common practice back then), would not succeed in the Morava Region because of farmers' protests.

Figure 16. A map of the Morava region on the Slovak border, between Vienna and Bratislava



When the Distelverein (a small NGO based in Lower Austria) started its activities in the area, around the time of the fall of the Iron Curtain in 1989, its central message was: the only way to preserve habitats with high conservation value is by cooperating with the farmers. This has to involve awareness-raising (e.g. persuading farmers to maintain or enhance sustainable low-intensity farming) as well as financial incentives (to compensate for loss of income). Since that time a lot of nature conservation and sustainable development activities have been carried out. The political background has also changed quite considerably, with both positive as well as negative results. The extended "New Europe", with a focus on trans-European road networks, has moved the "Twin Cities" Vienna and Bratislava, a mere 60km apart, a lot closer. The floodplains of the Morava as well as the Danube river are right in between, and therefore the potential threats of urban development to the floodplain habitats are obvious.

In the following pages we would like to present a brief overview of concepts for the development of the area as well as the implementation of projects, which Distelverein has been involved with, and finally we would like to draw some conclusions about what we find important for projects to be successful. All concepts and projects emphasise the importance of "sustainable" or "wise" use of resources for the development of the region.

Concepts and strategies for the development of the area

The two base-line regional concepts, which still provide the background for projects, were the "Ramsar concept" of 1993–94 and the "MARTHA95 concept" which focuses on river restoration and ecological issues. They were followed by a lot of implementation projects, some of which are still in progress (see below). Concepts still in development include the "bilateral general project Morava" (BGM), focussing on the EU Water Framework Directive, as well as a concept that operates beyond the Morava-Dyje border region, namely the "Biosphere Region concept" which includes suggestions for a wildlife corridor that links the Alps with the Carpathian mountains ("Alpine Carpathian Corridor").

The Ramsar Concept

A concept for the regional implementation of the Ramsar Concept was developed between 1993 and 1994 following the recommendation of the Ramsar committee to provide a "general concept for the development and administration of the Austrian part of the Morava-Dyje Region". Thus the Distelverein supervised an interdisciplinary project where some 80 experts (scientists and government representatives) analysed key issues and developed a policy for wise use, interacting with regional stakeholders and land users. This process resulted in the definition of possible solutions for the most controversial issues (land use, nature conservation, water management, etc.). Politicians, scientists, land users and other interest groups were called to cooperate on various issues. Over the past ten years the "Ramsar platform", a multi-interest group that resulted from the concept and still meets regularly, has proved to have a highly effective problem-solving capacity.

MARTHA95

MARTHA95 is the acronym (MARch and THAya, German for the two rivers) for the general concept for river engineering and ecology of the Morava-Dyje river basin (for the Austrian part only). It was produced in 1995 under the project management of the National Rivers and Shipping Authority. It analysed the ecological and engineering background of the area and identified guidelines and necessary measures for the revitalization of the river and its surroundings. The result was a very detailed concept, supported with many maps, for sustainable use along the stretch of the Austro-Slovak border area down to the river Danube. MARTHA95 also initiated concrete projects for five distinct areas, some of which are still being implemented.

Since the two rivers define the borders, nearly every single restoration measure has to be agreed by Slovak and Czech authorities. This introduced a problem for the implementation of the concept during the nineties, as the aims and attitudes of the two countries differed towards river restoration practices therefore there was not a lot of scope for joint projects. The cooperation between the Austrian and the Slovak side within MARTHA95 consisted mostly of expert discussions. The Slovak authorities then elaborated on their own concept for the Morava river basin management (REMORAVA – concept for restoration).

Bilateral General project Morava (BGM)

The "BGM" is an INTERREG project that aims to develop the first transboundary strategy for river restoration in the Morava region. It is carried out by the "Umweltbundesamt" (Federal Environment Agency for Austria) together with the Water Research Institute in Bratislava, and is supported by the Ministries for Agriculture and the Environment as well as the Rivers Authorities. Distelverein is one of the contractors and the project runs until the end of 2006. The project started in 2004 following the requirements of the legal conversion of the EU Water Framework Directive to Austrian law in 2003. On the basis of this Directive and other legal demands the BGM has an even more "multi-disciplinary" approach to river basin management than preceding concepts. It has to merge a wide variety of interests and aims, such as land use, flood protection, Natura 2000, and the interests of various other stakeholders, as well as including public participation. Most relevant, the management strategy (and management plans for some aspects of river restoration) resulting from the project will have to be bilaterally accepted (by Austrian and Slovak authorities). This presents possibly the largest challenge for the project.

Biosphere park/region

The idea of designating the Morava-Dyje region as a UNESCO Biosphere reserve, as the protection status best suited for cultural landscapes requiring sustainable land use for their maintenance, has been investigated for years. Distelverein even commissioned a feasibility study which came to positive conclusions. However, the political climate has not been favourable, particularly since another Biosphere reserve was designated in the Vienna Woods only a couple of years ago. Meanwhile, the "PGO", a joint regional planning cooperative of Austrian, Slovak and Hungarian officials, has presented the results of a strategy called JORDES (JOint Regional DEvelopment Strategy, 2005). In this strategy the model for a

"Biosphere region" is introduced. The concept emphasises the unique cultural and natural heritage of this border region, stretching from the Vienna woods, across the Morava-Dyje-Danube floodplains and the Lake Neusiedl into Hungary and the Slovak Carpathian Mountains. One of the aims is to link the habitats by wildlife corridors (e.g. the "Alpine-Carpathian Corridor"). However, current political discussions on transboundary regional planning proposals centre to a large extent on the building of new roads. It is questionable whether the erection of continuous wildlife corridors, large enough to accommodate big mammals, will be a compatible goal.

Projects and milestones

Overview

The concepts and strategies resulted in a lot of projects during the past 20 years, many of which aimed to initiate or continue "wise use" activities. The projects focussed on a variety of issues and habitats. To mention just a few:

- *River restoration*: Stretches of river were revitalized, e.g. by removing stone blocks. Oxbow lakes were re-connected to the river, floodplain forests were re-hydrated.
- *Forestry*: The old tradition of willow coppicing was re-activated, and is now the basis for an annual "willow festival" that includes art workshops, etc. Other forestry-related projects include the designation of protected trees for rare breeding birds, or the special management of riverbanks.
- *Agriculture*: Farmers were encouraged to cultivate abandoned meadows again, by cutting or grazing. Two herds of Galloway cattle, which were introduced where grazing had been abandoned for decades, are now a popular tourist attraction (see Figure 17). A lot of farmers were persuaded to manage "set-aside" for wildlife purposes, their services being financed by regional programmes to start with, and by the EU Agriculture and Environment funds since Austria joined the EU in 1995. Meanwhile it is common practice for farmers in this region to receive a small additional income for "tending the landscape".
- *Species protection*: Measures for the protection of key species were taken, such as late hay cutting for the protection of corncrake chicks. Native carp and crabs were bred and re-introduced, the carp also for commercial use. An awareness-raising campaign as well as compensation measures were developed to protect the successfully spreading beaver.

A lot of these projects were carried out as part of the two Distelverein-LIFE projects (co-funded by the EU Life Nature Programme, between 1995 and 2003); some others were co-funded by the EU INTERREG Programme.

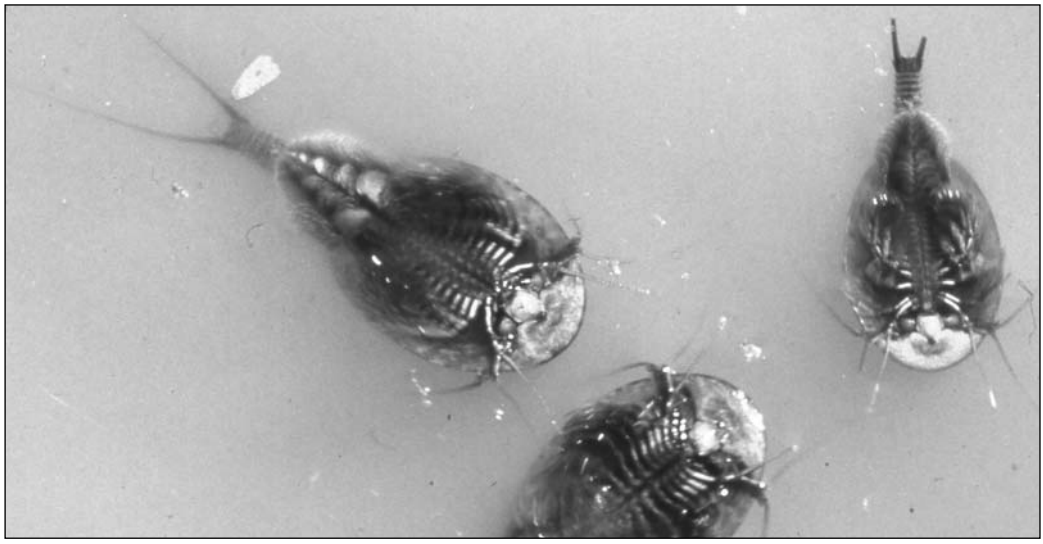
Figure 17. Galloway cattle tending the landscape around Marchegg

© Distelverein

Lange Luss sustainable management project

The Lange Luss is an area beween Marchegg and the Schlosshof Castle (see the photo section for an aerial image of the region). It lies within the only stretch along the Morava River which is not separated from the river by a flood protection dam. Thus it gets flooded on an annual or bi-annual basis. The Morava River causes flooding in spring, and then the back pressure from the flooding of the Danube can cause additional flooding in summer. Despite the flooding of the 450 hectares of land which used to be meadows and which were a haven for wildlife, only some 100 hectares of meadows have been left. The remainder was transformed to arable land over the past four decades. The Lange Luss is still the best area along the Morava River (and for some species, for the whole of Austria), for certain wetland birds (corncrake, white stork, lapwing (*Vanellus vanellus*), etc), branchipods and this type of wet meadows (of the *Cnidion venosi* alliance). Threats to wildlife besides arable farming include the abandonment of management, due to the structure of the fields: 435 hectares are divided up into 354 individual fields. At present, the fields are long and narrow, often only a few tractor widths, and are arranged perpendicular to the direction of flooding (which follows the remnants of former side arms of the Morava; see aerial picture in photo section). This means that nearly each narrow field has dry patches as well as wet hollows. In order to have access to all parts of his field, the farmer has to work his way across these hollows even though cultivating these "drowning" patches of fields with sugar beet or wheat is of no benefit to him. Potentially precious wet habitats for wildlife (branchipods, etc.) get lost due to this practice.

Figure 18. Tadpole Shrimps (*Triops cancriformis*): endangered branchipods found in the Lange Luss (up to 10cm long)



© W. Hödl

Figure 19. Temporarily stagnant pools are the habitat for rare branchipods such as the tadpole shrimp

© Distelverein

Thus the aim of the Lange Luss project is to re-arrange the field structure in a participatory process of swapping, selling, new leases, etc, so as to create fields which run parallel rather than perpendicular to the flooding. (The hydrological regime will not be affected initially.). The subsequent advantage for nature conservation is that the "best" wildlife areas, i.e. the wetter parts, can be re-converted to meadows (or managed appropriately for other purposes). The advantage for the farmers is that they will get more manageable field structures with less varying soil moisture. This rearranging is a challenging process, since it involves 80 landowners and 50 tenants. In a first step, the Distelverein compiled a GIS-based concept for sustainable use, based on existing locations of and the requirements for four "key groups" of conservation interests, i.e. wet meadows, birds, branchipods, and amphibians and reptiles. Parallel to the scientific analyses, we tried to generate interest among farmers and other land users for the project. In individual talks each farmer was asked about his perspective and priorities for the area, his possibilities for participation in the process and plans for further management (selling, renting, managing for wildlife, etc).

Parallel to the locally-based activities, Distelverein has been involved in lobbying for the appropriate measures for land management to be included in the new agri-environment programme (ÖPUL) for the coming period 2007–13. Although the lobbying was reasonably successful – it will remain possible for farmers to be compensated for financial losses due to the management of arable land as if it were grassland, or for the management of set-aside – it turned out that there are new, serious threats to nature conservation. There are future prospects for farmers which did not exist to this extent before, such as support for the growth of renewable energy crops. The Lange Luss is potentially very suitable for the production of fast growing crops for energy production (e.g. by burning cereals or wood), and the profit for the farmer exceeds that for nature conservation measures. So some of the Distelverein's tactics had to be changed, and for the first time the organization will try to secure land by acquisition. and bear the financial risk of managing it for wildlife purposes, where it is not reasonable to ask the farmers to do so (or where they have economically more interesting alternatives). Funding for the Lange Luss project will be provided by the federal and national government, and (possibly) co-funded by the EU Interreg Programme. The government is also interested because the project will help meet the goals of the Water Framework Directive, which requires appropriate management of floodplains (for less nitrate and pesticide discharge into the groundwater and the rivers). Close cooperation with a similar project across the Slovak border, carried out by the NGO Daphne, is planned. The money for land acquisition will come solely from the fundraising campaign "My square metre of Morava meadow", to be launched in Spring 2006.

Conclusions

A lot of concepts have been provided for the area and many ideas have actually been implemented through projects – although not nearly enough! We have identified three key issues which we consider important for the success of a project.

Cooperation

Distelverein is a platform for land users (particularly farmers and hunters) and conservationists on a regional basis. The fact that organizations such as the Chamber of Agriculture, the hunters' association, the "Naturschutzbund" (a nature conservation NGO) and WWF Austria are members of the Distelverein, provides opportunities to tackle "traditional" conflicts between these interest groups. The Distelverein has also always sought dialogue with government administrations and with officials as well as NGOs in Slovakia and the Czech Republic. The "Trilateral Ramsar Platform", a forum for environmental and hydraulic engineering officials as well as NGOs from all three countries, was initiated during our LIFE-projects and has since served to coordinate engineering and management decisions. One of its concrete goals is the development of a trilateral management plan for the Morava-Dyje floodplain. A memorandum of understanding has already been signed by the ministries of all three countries. Being a small NGO, it has also become increasingly important over the last few years to cooperate with other NGOs across Europe. Being an active player within the Danube Environmental Forum (DEF), a network of 175 NGOs across Central and Eastern Europe, has improved the Distelverein's access to decision makers and funding.

Lobbying

Our good contacts with various interest groups and government officials have occasionally allowed us to take an active role in decision-making processes. Distelverein has for example had opportunities to discuss and make suggestions for the Austrian version of the EU Agri-environment programme (ÖPUL), now coming into its fourth planning period since 1995. Scrutinising and trying to adapt measures (such as conditions for the management of set-aside or meadows) has been absolutely vital to our work on the ground, since we need appropriate measures to implement our land-use related projects.

Communication

Arguably the most interesting aspect of our work is the relationship with the local people. Since we believe in nature conservation as a voluntary process, we spend a lot of time explaining concepts, discussing the needs of farmers and other land users and trying to find compromises between their views and those of a conservationist. It is also fun! And sometimes you don't only change the farmer's point of view – you change your own.

The Green Belt initiative provides new possibilities to approach the local communities with the concept of nature conservation, and will hopefully raise awareness further. The NGO Naturschutzbund, Green Belt coordinator for Austria, has produced a CD-ROM about key regions along the Austrian Green Belt, which will be handed out to all relevant councils. The Morava region features prominently, and the Lange Luss will be marketed as a "pearl" along the Green Belt chain. This should help Distelverein to implement projects, not least by people donating to our "My square metre of Morava meadow" campaign.

10. The development of cooperation and land use around Lake Neusiedl/Fertő

Kurt Kirchberger[59] and Laszlo Karpati[60]

Abstract

The Lake Neusiedl/Fertő has no natural outlet and therefore much of the land used to be waterlogged. For hundreds of years people have drained portions of this land to grow crops or graze livestock. After the Second World War there were major changes in land-use practices. Immediately on the Hungarian side those using natural resources were forced into collective farms or state enterprises, which saw extensive drainage operations and the introduction of alien species for farming. On the Austrian side there was also a rapid increase in intensification and farmers developed more and more land for agriculture. Livestock grazing and management decreased rapidly during this time. As Austria moved towards accession to the EU, a number of mechanisms became available to manage farmland in a more sustainable way and at the same time discussions were ongoing concerning the establishment of the two National Parks. Through the zoning plan of the Neusiedler See National Park and the agri-environmental measures of the EU, it has been possible to work with local farmers to support extensive land-use practices. The National Parks now work closely with landowners and include features like livestock grazing in their Management Plans. In almost all the parts of the transboundary protected area on either side of the border, today's land use is again based on non-industrial and traditional practices.

The early history of the region

The western part of the Carpathian basin was occupied by Hungarian tribes at the end of the 10th century. Over 1000 years ago when these immigrants arrived they would have found a fertile area that was easy to defend, located between two wetlands – one in the south along the river Raba, and one in the north: the Hanság part of Lake Fertő (Neusiedler See). Later on noble families began to organize agriculture, and monks successfully drained parts of the wetland. Cattle and sheep grazing predominated and was concentrated on the dry places, partly even on small islands. Other land-use practices such as growing corn, vegetables and grapes played only a minor role.

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Local rights of succession meant that agricultural units had to be split between the children of a family. This caused the increasing division of land into smaller units and hindered the development of larger farms. Only strategic marriages within the same local community could lead to the preservation of farm units that were financially sustainable, but even those had to face severe difficulties in agriculture, caused by a wide dispersion of all the tiny plots.

Combined with this history of forming small agricultural units, the structure of the soil in the area also made intensive farming difficult. The lower (clay) soil was very tight, retaining water from winter and spring precipitation as well as melted snow and ice on the surface, sometimes until early summer. This retention of water together with the high salinity of the soils made it difficult to maximize crop production.

Things started to change when from the 17th century larger drainage systems were built. The efforts to win more arable land were intensified from the middle of the 18th century with the building of the first Hanság canal, which contributed to economic growth in the villages. This process culminated in 1895 in the building of the Fö csatorna (Einser-Kanal), a 32km long canal which was used as an outlet for Lake Neusiedl (which has no natural outlet) and to drain the Hanság area.

The agricultural landscape east and south of Fertő/Neusiedler See

As more land was reclaimed, agriculture such as vegetable growing became the main income especially for the Croatian communities, settled by Maria Theresa in the 18th century in the south western part of Fertő, close to the city of Sopron (Ödenburg).

In other settlements south of the lake – in Sarród, Szeplák, Hegykö, Balf or Fertőrakos – fishery rights were annually given by the landowners to "fishermen-bands", associated in groups of families. These fishermen paid for their concession in money, in fish and in work: they even had to act as wardens to prevent poaching. They lived under difficult conditions, partly in small wooden houses on columns in the shallow water, and sold their fish in ice blocks even to distant villages, where they exchanged it for timber.

Reed cutting started later – there was only a small strip of reeds surrounding the steppe lake before the 19th century. Noble families and the church organized reed use on their own: "inspectors" hired workers for the winter time, when reeds were cut manually on the frozen lake. The use of grassland followed the same development: landowners charged their inspectors with hiring workers for keeping their cattle and for making hay. These workers, hired on a daily basis, were called "Napszam" from 1848.

Digging peat, starting from the 1870s, became a characteristic land use in the Hanság, when the eastern part of the lake was less and less flooded. The first mills with steam engines, driven by dried peat, signalled the mechanization of agriculture, and in the mid 1920s, even an electric power plant was built in the Hanság, delivering electricity into nine villages. Small train lines crossed the Hanság, enabling the start of timber production in

1880. But it was only in the 1950s, when the communist government decided to switch forestry from alder to poplar clones (for the paper industry), that forestry really developed.

The post-war period

In Hungary after the War, Communist rule changed the way in which natural resources were used and managed. The State became the single owner of the land and therefore had all rights of use. This rule was rejected by many experienced old fishermen and therefore they had to leave their profession, together with their families. Similarly reed cutting and the use of grasslands were rapidly nationalized. The State established a new "factory" close to the lake by starting an export trade in reeds, and it forced farmers to bring their land into the cooperative (i.e. state) farms. The Communists undertook an extensive land modification project, using large groups of students to dig channels and even kill local vipers (*Viper rakosiensis*).[61] In the Hanság areas, even with extensive drainage, the land remained partially water-logged and many of the alien species introduced for production, such as poplar trees, did not fare well – requiring intensive management.

Figure 20. Reed cutting around the lake in the 1960s

© Nationalpark Neusiedler See-Seewinkel

[61] Margóczi, K., Takács, G., Pellinger, A. and Karpati, L. 2002. Wetland Reconstruction in Hanság. Presentation made to the 3rd European Conference on Restoration Ecology. Budapest, Hungary. www.botanika.hu/restoration/

As the pressure for arable farmland mounted, in the early 1950s, large initiatives were undertaken to increase the drainage through systems of channels and ditches. Deep canals cut through the waterproof clay level, thus lowering the water table and destroying huge parts of natural wetland areas. In previous times, drainage work was focused on places in the vicinity of the villages, whereas "modern" drainage methods covered all areas. Hay making and grazing around the villages from now on was replaced by intensive agriculture. In Austria, a result of this was that pasture land, which had been traditionally used as a common property, was divided into small arable plots and handed over to the members of the agricultural communities ("Urbarialgemeinde"). Vineyards expanded rapidly, and the favourable market situation enabled even those small agricultural units to survive quite well until the 1980s.

Figure 21. Vineyards on the northern shore of the lake in Austria

© Nationalpark Neusiedler See-Seewinkel

To the landscape this process resulted in an increase in the pressure of use: step by step all plots located slightly higher were, for the first time, used as fields or vineyards, and parallel to this, cattle farming decreased dramatically, finally being completely abandoned (with the exception of the village of Apetlon). At the same time income from tourism began to compensate the lower agricultural income in several villages of the area, and in some cases the abandoned barns and cow sheds on farms were adapted to host holiday makers. Those parts of the landscape that remained 'untouched' by intensive agriculture were only partly used for growing hay or were simply left unused. However, on these abandoned areas biodiversity started to decrease and indicators of biodiversity loss such as the presence of fast-growing shrubs or reeds – covering the soda-lakes – made the changes visible.

Cooperation between two political systems

Lang and Fersch (this volume) discuss in more detail the development of cooperation between the two National Parks and the establishment of a joint management regime for the area. But it is worth considering some of the features of this cooperation against the background of changing agricultural pressures and land uses. After the end of the First World War, and the establishment of new borders between Austria and Hungary, the recently built Fö csatorna (Einser-Kanal) became part of the border itself, with the sluice gate and most of the canal in Hungary, and the vast majority of the lake in Austria. It was essential at this stage that there was cooperation between the authorities managing this canal. This cooperation carried on through the twentieth century with the establishment of a joint management commission in 1956. In terms of nature conservation there was little active cooperation between the two regions until the seventies when the issue of establishing national parks in the region was raised. Finally, in 1988 a joint commission was installed between Hungarian and Austrian authorities and stakeholders to work on the establishment of the national parks.

Political changes in Hungary

After the political changes in the late 1980s, discussions started on how to reallocate the land to the previous owners. Before 1945, most of the land belonged to noble families, between 1945 and 1948 it was in the hands of local families. The result was that the nobles who left Hungary in 1945 were entitled to get "compensation tickets", enabling them to buy firms at the Budapest stock exchange. The local families who stayed land owners until 1948 were in a position to claim their former property. The result of these discussions varies from area to area in today's National Park region: the largest part of the Hanság is still in the hands of the state's forest company, while some of the peat bog lakes are owned by the National Park, which also has the grazing rights for the maintenance of the grassland in the Hanság and along the Fertő Lake.

Within the military zone along the shore of the lake, especially on the sodic soil, no human use had been tolerated. Invasive species have partly covered these valuable niches for endangered species – but today the National Park is successfully working in gaining back these "forgotten" habitats by keeping these grasslands free through extensive grazing with sheep and cattle.

The establishment of the national park, agricultural changes and Austria's entry to the EU

When the first concrete negotiations to realize the Neusiedler See National Park started in the second half of the 1980s, they were targeted at the long-term preservation of larger areas through contracts with the local, mostly private, land owners. However at the start of the process, these negotiations were hampered by a strong mistrust among landowners and farmers concerning the future plans for the protected area and the possible restrictions on

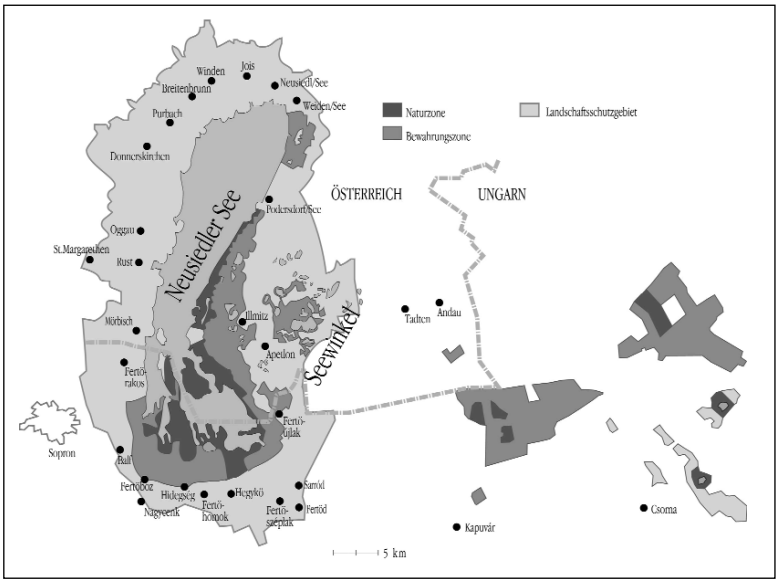
land use that could be enforced. Some of the farmers feared that bans or severe restrictions would be imposed on their practices and as a result the Planning Committee for the National Park was only able to secure the most important 'core areas' of grassland, reeds and water for the project.

Around the same time Austria was entering into discussions concerning accession to the European Union and it became clear that the country's agricultural policy would have to be changed to come into line with the EU's Common Agricultural Policy (CAP). Subsidies for agricultural products had to be reduced and in their place grants depending on the size of land were introduced in order to reduce the surplus of agricultural products on the market and to improve the ecological status. One of the measures initially was the introduction of agricultural alternatives, based on subsidies for individual fields where rape, sunflowers or soya-beans were planted. Another option to reduce over-production was to halt production on fields. This approach offered new opportunities to use these fields for conservation purposes, although it offered the least compensation. To enhance the use of land for conservation it became necessary to add some funds from the nature conservation budget to those of the agricultural subsidies as a measure to bring the level of funding for conservation actions up to the level of soya-bean subsidies – to make them attractive to the farmers. This approach succeeded and the funds from the nature conservation budget developed into a real steering instrument. Conservationists were able to decide where to utilize them.

It was finally possible to create a buffer zone within the Planning Area of the Neusiedler See National Park (as a first step with a size of some 2,500ha), where agri-environmental instruments could prove their effectiveness. A few years after establishing the Neusiedler See National Park in 1994, it became feasible to set aside hundreds of hectares and to manage them according to conservation goals. Since then, these areas developed back towards traditional pasture land.

With the introduction of the European Union's Agri-environmental programme in 1995 (ÖPUL in Austria), funding for environmental measures was guaranteed and therefore national financial support for these measures from conservation budgets was no longer required. The first environmental measures introduced for agriculture in Austria – before EU accession – had been acceptable to farmers because they managed to stabilize income. But the agri-environmental measures that were adopted through the CAP (ÖPUL, 1995) became increasingly restrictive through the prohibition of grazing or hay making. Only when the next nature conservation programme (in the framework of the so-called WF 10) was formulated on the regional level, were the first management methods, tailored to meet the requirements of preserving cultural land, set into force. As a consequence, more and more land has been set aside by its owners, and most of these fields were then integrated with the objectives of the National Park's management. Since then, approximately 60% of the potential land within the buffer zone that could be used for agriculture has been left unused. It seems to be unrealistic to reach 100%, as there are excellent areas for wine-growing included in this zone, which are successfully used by professional farmers.

Figure 22. The zoning of the National Parks



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Thus in the last decade compensation payments from the National Park and the financial support from the ÖPUL agri-environmental programmes have created possibilities for landowners to earn an 'agricultural' income without running a farm (the running of which would have been impossible nowadays given the small size of most holdings in the region). At the same time landowners, to a great extent the younger generation, have changed their professional orientation, leading to a significant change in the society of the villages, away from traditional rural lifestyles, towards urbanization.

The present and the future

The land management and its development as well as the conservation of cultural landscapes, which until recently has been linked with traditional agriculture, now in large parts of the area has to be organized, coordinated and sometimes even implemented by the National Parks' administration. On the Austrian side of the lake, some of the measures being used include:

- renting grassland to people who run riding-schools or stables, or those who are offering coach-rides through the National Park;
- renting reed-covered meadows and reed-covered shores of the soda lakes to reed harvesting companies;
- combining small plots of pasture land and renting them to cattle farmers and horse stable owners;
- establishing and keeping park-owned herds (e.g. Hungarian Grey Cattle, White Donkeys, Przewalski Horses) and using them for redevelopment and preservation of cultural landscapes.

As a result of the Neusiedler-See National Park's long-term goals and the different measures implemented within Austria for agri-environmental landscapes, the character of the National Park's landscape has changed towards large, open steppe habitats. Now the area resembles much more the Hungarian side of the border where the National Park contains the large grassland areas close to the Iron Curtain that had been untouched for decades. Close to the border, the re-introduction of grazing by the National Park contributed essentially to the establishment of a transboundary open grassland area south and east of the lake as well as in parts of the Hanság.

Educational and eco-touristic programmes are also designed in close cooperation, and the mutual use of the visitor infrastructure in the conservation zone is one of the visible advantages. Due to the language barrier, the major part of both the educational and the eco-touristic offer has to be run separately, but more and more programme elements like field trips are run by crossing the border.

Figure 23. The new Mexiko-Puszta visitor centre at the Fertő-Hanság National Park

© Goda István

Managing the cultural land as well as raising awareness on the natural beauties of this area is leading to a certain valorization within the National Park's area: although hunting, professional fishing and leisure use has been more and more restricted, some of the management issues are covered by private partners like reed-cutting companies or livestock farmers, breeding mainly cattle, sheep and horses. They contribute with their activities to the management objectives in, or in close proximity to, the park's sites. Concerning eco-tourism, the National Park directorate is making use of several tourist services in the surrounding villages – from accommodation facilities to restaurants and logistics providers to local handicraft makers and print shops. Finally, the meat of the rare Hungarian Grey Cattle from

the National Park's herds is sold to nearby restaurants as a delicacy. In general, the positive image of this National Park supports the tourism marketing of the whole region in the Small Hungarian Plains.

In the spring of 2006, the new nature education centre of the Fertő-Hanság National Park will be opened, located close to the state border. The building that has been renovated for this purpose is a former military barracks, where soldiers used to survey the border strip to Austria for decades. This centre not only upgrades the potential for environmental education in the National Park, it will also work as an important infrastructure for our joint efforts in demonstrating the economic values of our natural heritage.

Figure 24. Canoeing among the reeds on the lake

© Goda István

Conclusions

When the border fences were torn down in 1990, a new chapter in transboundary cooperation was also opened for agricultural land: some cooperative farms became private farms, others were closed down and integrated into the National Park's conservation zone, others became a part of new "bilateral" companies. Where for decades local people had to work on the fields under military control in Hungary, today Hungarian Grey Cattle have been reintroduced and are grazing in large herds. In almost all the parts of the transboundary protected area on either side of the border, today's land use is again based on non-industrial, traditional forms of fishery, water management, cattle farming, reed cutting, forestry and hunting. The rich biodiversity and unique character of the area could thus partly be re-established.

11. The protection of the Drava-Mura wetlands

David Reeder,[62] Arno Mohl,[63] Martin Schneider-Jacoby[64] and Borut Stumberger[65]

Abstract

The remaining free-flowing 380km of the rivers Drava and Mura vitalize one of the last large contiguous areas of natural dynamic floodplain in Southeast-Central Europe; many of its habitats and species are endangered or threatened across the continent. The corridor formed by these rivers is a critical section of the European Green Belt network. Bio-ecological studies since the 1980s have consistently pointed out the significant biodiversity of the Drava-Mura, but nature protection efforts are neither sufficiently coordinated in some countries of the region nor harmonized across borders. The proposed Danube-Drava-Mura Biosphere Reserve was initiated by Euronatur as a transboundary chain of linked protected areas in Austria, Slovenia, Croatia, Hungary and the Vojvodina province of Serbia-Montenegro; it also encompasses sustainable development across the region. The Biosphere Reserve proposal was supported by UNESCO in 1998; many component sections of this part of the Green Belt are already protected or proposed for protection.

Introduction

The River Drava rises in the Italian Alps and flows some 720km across Central Europe, discharging an average of 578m^3 per second into the Danube, making it the third largest tributary of that great European river. Twenty-two hydropower dams were built on the upstream Drava in the course of the 20th century, and another 26 on its main tributary the Mura, but the lower stretches of the Drava-Mura corridor constitute some 380km of free-flowing, relatively natural, watercourse; forming together with the adjacent Danube areas a floodplain and wetland system of approximately 100,000 hectares. This floodplain retains many dynamic features: eroding cliffs, ever-shifting sand and gravel banks and river islands; oxbow lakes, branches and side-channels in areas of living floodplain, wetlands and floodplain forests rich in wildlife. Many of the Drava-Mura habitats and species are rare, endangered or threatened throughout Europe.

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Although parts of the Drava were regulated in the 19th and early 20th centuries, the river's natural character was saved by politics (Schneider-Jacoby, 1996a,b): the Iron Curtain between Hungary and Yugoslavia created a corridor inaccessible to people and development. In a changed political climate, the challenge is to maintain the high biodiversity and beautiful riverine landscapes which thus survived. The Drava-Mura corridor is an integral section of the European Green Belt, a proposed network of protected and surrounding landscapes along the route of the former Iron Curtain, and this initiative provides further support for protecting the rich natural lands and waters of the Drava-Mura.

The proposed Danube-Drava-Mura Biosphere Reserve

Following the collapse of Communism throughout Europe, Euronatur began building support among GOs and NGOs in the countries of the region – Austria, Slovenia, Hungary, Croatia and extending across the Danube into the province of Vojvodina (Serbia and Montenegro, SCG) – to establish a transboundary protected area along the river corridor. Several of the areas in this region are already protected or proposed for protection (see Table 5): linking these sites together could form a Transboundary Biosphere Reserve, based on the UNESCO concept of preserving and developing the natural and cultural heritage of large areas. Thus the whole South-eastern part of the Green Belt would be protected as one international protected area serving as a framework for regional development and mutual understanding.

The project to nominate this as a UNESCO MAB Biosphere Reserve began in 1993, a long process of international conferences, capacity-building of NGOs and lobbying at regional, national and international levels (Schneider-Jacoby and Reeder, 1999). In 1998, UNESCO supported the proposal, but despite UNESCO's support, institutions at a national level were not ready for such a progressive step, and took no action until recently. Euronatur, WWF, the Drava League and other NGOs are continuing the initiative (Schneider-Jacoby, 2001c), and recent Croatian proposals for establishing a Drava-Mura Regional Park are very encouraging.

Table 5. Areas now protected and proposed for protection in the planned Danube-Drava-Mura Biosphere Reserve

Country	Protected/proposed area	Status
Austria	Mura	Natura 2000 site
Slovenia	Mura Regional Park	Planned, not established
Hungary	Danube-Drava National Park	Hungarian Drava along Green Belt
Hungary/Croatia	Mura	Landscape protected area along Green Belt
Croatia	Kopacki rit Nature Park	Proposed National Park
Croatia	Drava-Mura Regional Park	Proposed
Croatia	Drava, Slovenia-Danube	Proposed protection in county spatial plans
Serbia-Montenegro	Danube alluvial wetlands	Special Nature Reserve Gornje Podunavlje

Ecological values of the Drava

Habitat and species inventories along the Drava between Donja Dubrava and Belisce[66]

In 2004, WWF-DCP prepared an inventory of key habitats and species along the Drava (Reeder, 2005), bringing together Croatian and Hungarian scientists and NGOs to confirm and begin quantifying the biodiversity of the river corridor. Selected taxa were studied (Table 6), and the results showed how little known and little recorded are the flora and fauna of the Croatian Drava region and that many species threatened internationally are not protected in Croatia. For example no fish species are protected, and only 44 species of vascular plants, as opposed to over 500 across the border in Hungary. An orchid new to the Croatian flora, probably *Epipactys tallosii,* was discovered but not confirmed; and the presence of a dragonfly new to Croatia, *Aeshna viridis,* was confirmed.[67]

Despite the damage to the Drava's ecosystems by anthropogenic activities, in many places they are still in remarkably good health. But it is clear that adequate nature protection is desperately needed. Gravel pits and artificial water bodies of a young age, have a relatively high number of species. Such habitats contribute to biodiversity in replicating to some extent floodplain features such as oxbows: thus there is a strong rationale for taking gravel, if necessary, from the old floodplain, away from the river – at properly ecologically designed sites – instead of from its bed and banks.

Table 6. Taxa studied and numbers of species recorded in the 2004 WWF-DCP Drava Inventory Project

Taxon	Species recorded in 2004 (No.)	Total known (incl. other studies)	Protected (No.)
Aquatic macrophytes	66	66	8[a]
Vascular plants	?	?	16[b]
Odonata (dragonflies)	43	54[h]	3[c, d]
Ichthyofauna	47	>61[h]	5[a, c, d]
Amphibians and reptiles	10	27[h]	16[b ,c], 11[d]
Ornithofauna[g]	79	>291[g, h]	88[a], 50[e]
Mammals	Otter (73% frequency)	67[h]	88[a], 50[e]

Source: Reeder, 2005.
[a] Croatian Red List; [b] Protected in Hungary; [c] Bern Convention; [d] EU Habitats Directive; [e] EU Birds Directive; [f] In Hungarian Drava region; [g] 291 species of wild birds have been recorded in Kopacki rit Nature Park; [h] Schneider-Jacoby (1994a)

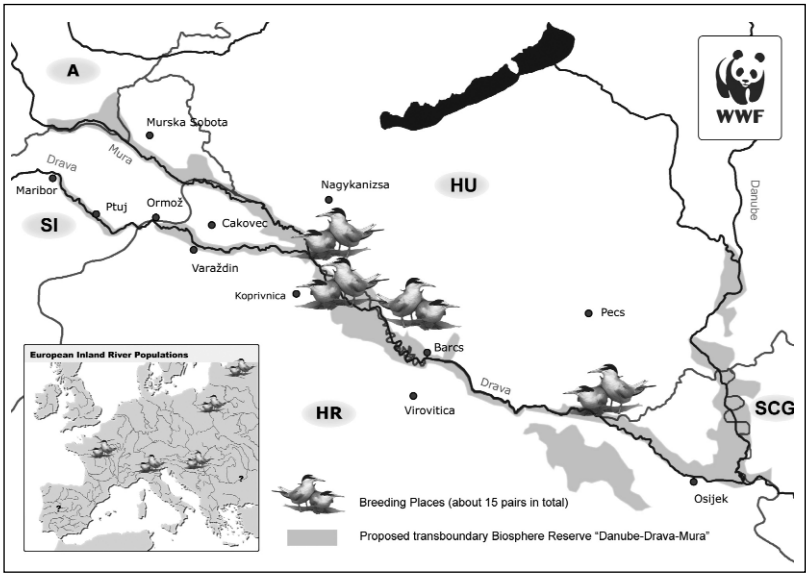
[66] Drava League, Green Action, DOPPS/BirdLife Slovenia, WWF-DCP and WWF-At, Euronatur, Drava Federation, see: www.dravanews.hu

[67] A EURONATUR study between 1992 and 1994 recorded over 270 species of birds; 61 of fish; 67 of mammals; 50 Odonata; 15 amphibians; 5 lizards; 6 snakes. In terms of abundance, 2000 pairs of herons were counted, 2400 pairs of cormorants, 115 black storks and over 800 white storks (Schneider-Jacoby, 1994a).

The little tern on the Drava River – the best bio-indicator of intact river stretches[68]

In former times the little tern *Sterna albifrons* was a typical breeding bird on the natural Drava River in Slovenia, Croatia and Hungary. The construction of dams in the 1970s and 1980s destroyed its critical breeding areas – extensive gravel banks – between Maribor and Legrad. The tern became extinct in this area (Stumberger, 1981; Schneider-Jacoby, 1996a). In the rest of Europe the situation is similar: hydropower dams, river channelling and sediment extraction have all contributed to the drastic decline of this species.

Figure 25. Distribution of the little tern *Sterna albifrons* along the Drava River and along rivers in Europe



Source: WWF Austria.

The little tern's presence is one of the best indicators for well-preserved river stretches, where the river is able to erode its banks and create a wide riverbed with shifting gravel and sand banks freshly deposited after high water periods. Today, the distribution of the tern along the Drava, totalling not more than 15 breeding pairs, is limited to the Drava's free flowing lower course along the Green Belt (Bécsy *et al.*, 1995; Radovic, 1996; Mohl and Schwarz, 1998a; Mohl, 2001; Schneider-Jacoby, 1998, 2001a; Tadić, 2005, pers comm.; WWF Austria, 2006) (see Figure 25). Such habitats are also used by other birds: the common tern *Sterna hirundo*, common sandpiper *Acitis hypoleucos,* the little ringed plover *Charadrius dubius* and stone-curlew *Burhinus oedicnemus*.

[68] WWF-At, WWF-DCP, WWF-H, Drava League, Green Action, DOPPS-BirdLife Slovenia, Euronatur, Drava Federation see: www.sterna-albifrons.net

Ongoing river channelling and sediment extraction activities by Croatian and Hungarian water management authorities are seriously threatening the last remaining colonies of the little tern along the Drava. Human disturbance (boating, angling) is also an increasing threat (Mohl, 2001). The survival of the last breeding pairs of the little tern along the Drava is very uncertain if water management in Croatia and Hungary is not adapted to modern approaches and shifted from 'river regulation' to 'river restoration'.

Sand martin *Riparia riparia* and bee-eater *Merops apiaster* on the Drava and Mura rivers – a case of recent longitudinal species distribution

In Europe, sand martins originally bred in wall-notches and steep banks all along the rivers (Glutz von Blotzheim, 1985). The bee-eater, too, prefers valleys with vertical riverbanks (Hagemeijer and Blair, 1997). The distribution, numbers and size of sand martin and bee-eater colonies at natural breeding sites along the European rivers are poorly known (such as along the Tisza river in the Pannonian Plains (Szep, 1991)). This is understandable in places where colony distribution of both species along the rivers is no longer possible due to their regulation. On the 310km long and predominantly natural course of the Drava river, with its tributary the Mura, between Austria and the Danube, 14,283 pairs of sand martins (79 colonies) and 1,189 pairs of bee-eaters (36 colonies) bred in 2000, with the largest colonies numbering 1,500 pairs of the first and 150 pairs of the second species (see Table 7 and Figures 26, 27).

Table 7. Number and colony size of sand martins *Riparia riparia* and bee-eaters *Merops apiaster* breeding along the Drava and Mura rivers

Species	River	Colonies	Pairs	Pairs/Colony
Riparia riparia	Mura	21	1,599	76
	Drava	57	12,684	223
Total		**78**	**14,283**	**-**
Merops apiaster	Mura	2	13	6
	Drava	34	1,183	35
Total		**36**	**1,196**	**-**

On the Drava and Mura rivers, the two species are excellent indicators of the morphological state of these watercourses. Although several point regulations have been carried out since 1991, the characteristic longitudinal colony distribution pattern is still present today along the two rivers. In the area of hydroelectric plants and total regulation in Austria, Slovenia and across the Slovene-Croatian border, the colonies have almost disappeared (Figures 26 and 27). Here the remaining colonies depend on the construction of artificial sand banks e.g. by conservation measures undertaken by DOPPS-BirdLife Slovenia. The characteristic sand martin colony continuous distribution pattern has changed into a sporadic, dotted pattern (Bracko and Stumberger, 1995; Sackl and Ilzer, 1997). The size of

Figure 26. Colony distribution and size of sand martins *Riparia riparia* breeding along the Drava and Mura rivers

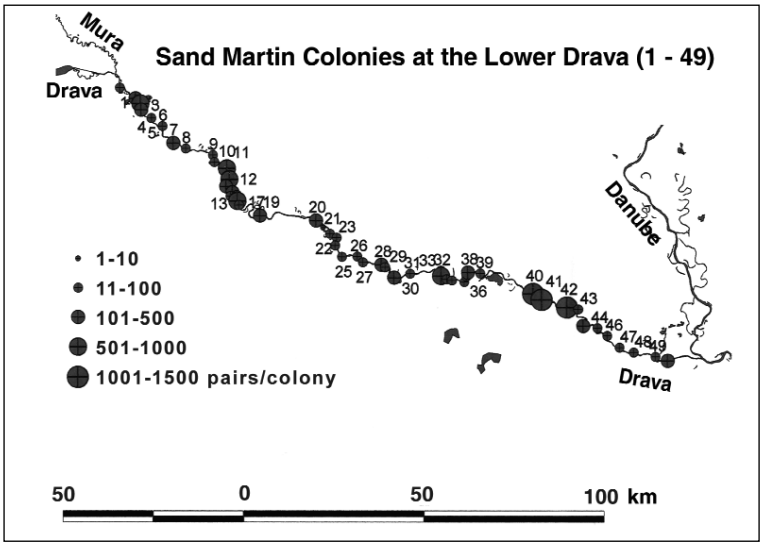
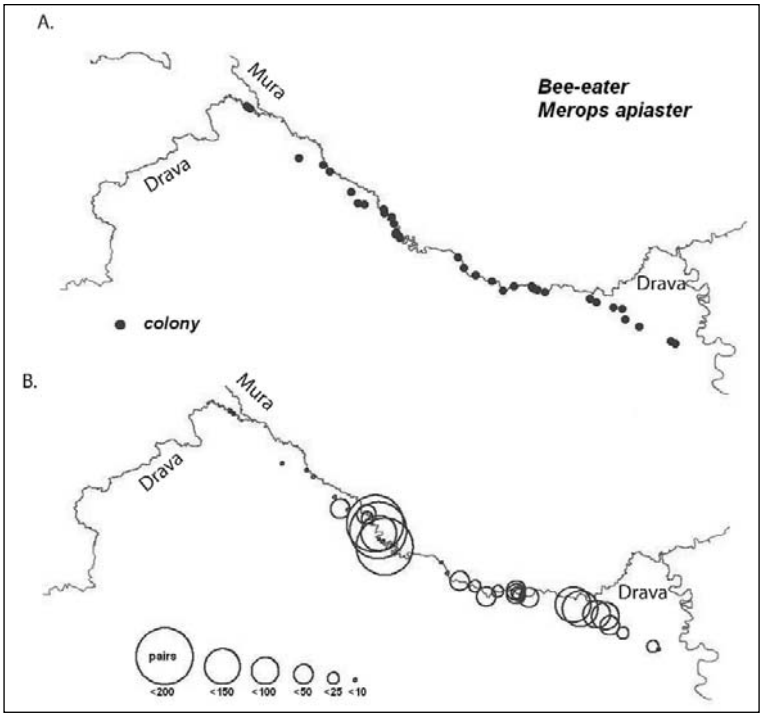


Figure 27. Colony distribution (A) and colony size (B) of bee-eaters *Merops apiaster* breeding along the Drava and Mura rivers



sand martin colonies along natural river sections is three times greater than in regulated sections (Table 7), while the bee-eater simply does not breed on regulated sections any more. Thus both species are excellent indicators for the great ecological value of the Green Belt section of the Drava and Mura rivers.

Mid-winter waterfowl counts in January 2005 (IWC) in the proposed Drava-Mura-Danube Biosphere Reserve

In January 2005, more than 100 observers carried out the first large-scale waterbird census on the Drava (439km), Mura (124km) and part of the Danube (109km) river between Austria, Slovenia, Croatia, Hungary and Serbia. Of the total 672km of the courses on all three rivers, the only areas not counted were parts of the Drava river on the border between Croatia and Hungary (63km) or in part of the border Mura river between Slovenia, Hungary and Croatia (47km). Exactly 156,145 waterbirds belonging to 51 species were counted. The numbers of waterbirds on the Drava in Croatia alone exceed the criterion of the Ramsar Convention on internationally important wetlands (20,000 waterbirds) by no less than 5.5 times. On the basis of the 108 white-tailed Eagles (*Haliaeetus albicilla*) counted along the rivers, an estimate can be made that in the area of the proposed Drava-Mura-Danube Biosphere Reserve no less than 100 pairs of these eagles may breed (compare Schneider-Jacoby *et al.,* 2003; Mohl and Schwarz, 2003).

A special feature of the census was the number of 659 pygmy cormorants (*Phalacrocorax pygmaeus*) counted there – more than 1.5% of their global population (compare BirdLife International, 2004). This species indicates the significance of the Drava's free-flowing sections during the wintering season, even in places where the river is (in Slovenia as well as in Croatia) dammed with hydroelectric power plants: the pygmy cormorants feed almost exclusively on the relict 'Old Drava' river. It is clear, therefore, that the highly significant wetlands of the proposed Danube-Mura-Drava Biosphere Reserve section of the Green Belt have not been, until recently, internationally recognised.

Ecological assessment of the Drava River between Botovo and Ferdinandovac according to EU environmental standards

A first assessment of the ecological values of the Drava River between Botovo and Ferdinandovac on the Croatian-Hungarian border was carried out during the years 1997 and 1998 (Mohl and Schwarz, 1998a). Based on remote sensing and GIS technology the distribution of the habitats within the floodplain area and the eco-morphology of the 40km long river section was analysed. The river stretch hosts about 10 habitat types according to the Habitats Directive, including two identified as priority natural habitat types (alluvial forests of about 10km² and semi-natural dry grasslands of about 5km²) which are endangered in Europe. The site is also important for more than 50 bird species including white-tailed eagle, black stork and little tern, which are protected under the EU Birds Directive. The study also showed the potentially negative ecological consequences of the planned Croatian hydropower dam "Novo Virje" (still an unsolved political issue) and further river channelling and sediment extraction.

The data has been further used as a basis to promote stronger protection of the Drava floodplains in Croatia (Mohl and Schwarz, 1997, 1998b; Schwarz and Bloesch, 2004; Schneider-Jacoby, [in press]). Based on this data set and additional investigations, an evaluation of the area according to international criteria provided by the EU Habitats (92/43/EEC) and Birds (79/409/EEC) Directives, the legal basis for the establishment of Natura 2000 sites, and Water Framework Directive (2000/60/EC) has been carried out (WWF/Euronatur 2005). The results illustrate the ecological potential and international importance of the entire Drava-Mura corridor along the Green Belt, and the obligation to protect and manage the river ecosystem under the obligations of these Directives. What is required is coherent ecological management, linking these areas in Croatia with the adjacent areas in Slovenia and Hungary which have already been proposed as Natura 2000 sites.

New life along the Green Belt

The Drava and the Green Belt between Austria, Slovenia, Croatia, Hungary and Vojvodina offer a great potential for tourism development based on the rivers (Schneider-Jacoby, 2001b, [in press]). Furthermore, WWF is committed to the sustainable development of the transboundary region, and is promoting sustainable tourism and allied initiatives as a means of showing local people and authorities that nature protection, and its cultural context, can have an economic value.

The *Tourism by the River* concept allows each village to retain its place by the river and its identity; it is also a gateway to the unspoiled river landscape along the Green Belt. There are several successful models already in the region.[69] Zones for fishing, swimming, and nature-watching have to be defined: such an ecological basis can generate income whilst ensuring that the secret life of the river has space to survive. *Tourism along the River* proposes the use of public transport and international trails for hiking and biking; enjoys the unique cultural and natural heritage of the international region; gives a marketing platform for regional specialties, e.g., wine; and integrates all regional attractions, e.g., fish farms, parks, museums and festivals. In Hungary, the Danube-Drava National Park already has 200,000 guests annually; a good bicycle connection to Austria along the Danube, Drava and Mura would bring many more guests to the region. The Drava League's work has extended into promoting sustainable development through cycle routes linking tourist destinations; and the annual International Drava Day is a showcase for the region, helping to forge a cross-border 'Drava identity' which includes people and communities from Slovenia, Croatia and Hungary.

[69] Danube-Drava National Park in Hungary; Polana International Stork Village in Slovenia, Kopacki rit Nature Park in Croatia.

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12. The Bojana-Buna delta between Albania, and Serbia and Montenegro

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Abstract

The coastal part of the European Green Belt between Albania and Montenegro is characterized by a 30km-wide natural dune area connected with the brackish and fresh water habitats along the Bojana-Buna river. The 250km² lowland area between Lake Skadar and the Adriatic Sea was named Bojana-Buna Delta after the river, which forms the border between the two states. The coastal area including the riverine corridor has not been developed as it was situated at the Iron Curtain. Border crossings were closed for over forty years. A rapid assessment in 2003 and 2004 identified the great ecological value of the coastal zone at the border. Fifteen priority areas for protection have been identified based on the vegetation and their functions in the habitat network. Since November 2005 the Albanian part of the Bojana-Buna delta has been protected as well as the Albanian part of Lake Skadar. As Lake Skadar is already a National Park in Montenegro, now nearly 1,000km² are protected on the Green Belt between Albania and Montenegro. Only the part of the Bojana-Delta in the community of Ulcinj (Montenegro) is still not protected, although several very important habitats in this area are of international importance.

More than forty years of separation

The Iron Curtain between Albania and the former Yugoslavia was even more strictly guarded than the border between the separated parts of Germany. From 1947 until 1990 only in very rare cases were people allowed to see their relatives on the other side of the border. Although the border was not fenced, a broad strip was protected from any development and strictly controlled. A wide river, the Bojana (Montenegrin) or Buna (Albanian), forms the border flowing from Lake Skadar to the Adriatic Sea. Watchtowers,

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bunkers and special trails completed a control system that was impossible to cross. As Albanians lived on both sides, families were separated for over forty years. Montenegrin people also were married with partners in Albania, for example in Shkodra, and had to stay abroad for many years without a chance to visit their parents or relatives.

On both sides of the estuary of the Bojana-Buna river, there are two unique wetland areas, each covering about 500ha. Although still well preserved, both have a totally different recent history. In Albania the reserve Velipoja was protected as a special reserve, but used at the same time as a hunting ground by the former leader of the country, Enver Hodza. While birds suffered from the hunting, the site itself stayed in a close-to-natural condition, free of illegal building. Open shallow lakes in the depression completed a mosaic of habitats of sand dunes and alluvial forests. The opposite side of the river however was one of the world's leading nudist camps and a pearl of Yugoslav tourism. Access to Ada Island was limited strictly to the visitors. Although during the peak season up to 2,000 guests stayed on the island, 90% of the area was well protected by the exclusive tourism resort, which included a hunting ban. The strict control of the border area protected most of the island including the beach and the mouth of the river. Here virgin forests cover the banks of the Bojana River hosting bird colonies and until recently marine turtles.

The Bojana-Buna River basin

The Drin (Albanian Drini) has an annual flow of 339.3m^3/s (Raicich, 1991) and is 285km long. The catchment has a total area of 14,173km^2 flowing from Ohrid Lake (Macedonia) and Kosovo (Serbia and Montenegro) through North Albania. Along the Drin River three hydropower plants have been built with a total water storage volume of 3.730 x 10^6m^3, a huge capacity totalling approximately 34% of the annual flow of the river. In 1846 the waters of the Drin joined with the Bojana-Buna river coming out of Lake Skadar, after a great flood event. As the catchment of Lake Skadar is about 5.500km^2, the change to the mouth of the Drin River to the north enlarged the Bojana-Buna River Basin to nearly 20,000km^2. While dams were built in Albania, they are absent from the catchment area of Lake Skadar in Montenegro and the unique wetland system is freely connected with the Adriatic Sea and the hinterland through natural riverine corridors.

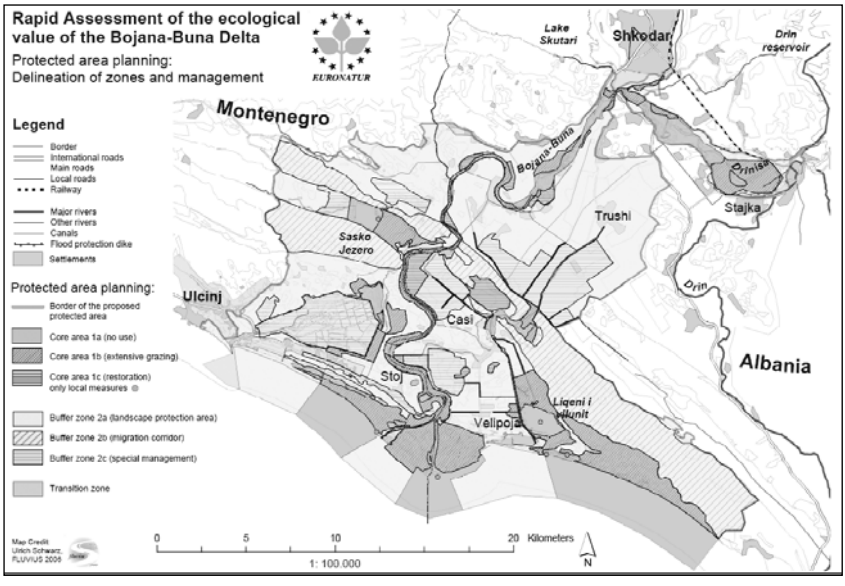
It is important to add that the Bojana-Buna river has still kept its main hydrological characteristics as before the conjunction with the Drin river in 1846, which means that the river could not deepen or enlarge its bed considerably to pass more than 1,500m^3/sec water flow. Today the sediments of the furcation zone have entered the river-bed below Shkodra and have partly transformed the meandering river bed into a braided river with numerous islands. The maximum flood was measured on 13th January 1963 at Vau Dejes and is far beyond the capacity of the lower Bojana-Buna river. This year the discharge reached 5,180m^3/s and about 200km^2 were flooded (Kolneci, 2000). The mean annual flow of the Bojana-Buna river is 672m^3/s, which makes it the second largest river of the Adriatic Sea after the Po.

Rapid assessment of the ecological value

In 2003 Euronatur started on the rapid assessment of the environmental values of the coastal zone on both sides of the former Iron Curtain (Schneider-Jacoby *et al.*, in prep.). The project was based on the Regional Master Plan for Tourism for the Velika Plaza, Ada Island and Ulcinj (DEG, 2003), which proposed the establishment of a protected area in the eastern part of the great beach, Velika Plaza, and to base the tourism of the country on the natural assets (using a new slogan: "wild beauty"). The study area was named the Bojana-Buna delta, as the 44km long river formed with its sediments and flood events the lowlands both sides of the border. The whole area is shaped like a triangle and covers about 25,000ha in area. The tip is in Shkodra, where the waters of the lake and the Drin River merge just below the ancient Rosafa castle, while the base is formed by 30km-long beaches on both sides of the estuary. The border crossing between Shkodra and Ulcinj over the Bojana was only re-opened in 2003 after four decades of isolation and the two Albanian towns Shkodra in Albania and Ulcinj in Montenegro were reconnected.

The results of the first year of the rapid assessment from spring 2003 until spring 2004 are very promising (Schneider-Jacoby *et al.*, in prep.; Stumberger *et al.*, 2005). A set of 15 important sites in the Bojana-Buna delta have been identified covering a great variety of natural habitats and cultural landscapes (see Figure 28 and Table 8). These priority areas were zoned based on the Biosphere Reserve concept. The natural sites are proposed as the core zone of the delta. Here the natural dynamic of the river and the dunes is the most important asset. In addition the alluvial forests and the different wetland habitats host important plant associations and a set of endangered animals. The cultural landscapes formed by the hedgerow landscape in Montenegro or the large pastures in Albania have to become managed protected areas, as well as the Solana Ulcinj (saltpans).

Figure 28. Proposed zonation concept for the Bojana-Buna delta



Source: Schneider-Jacoby *et al.,* in prep.

Table 8. 15 priority sites identified in the rapid assessment of the Bojana-Buna delta

Nr.	Name	Country	Size (ha)	Habitat	Zone	Description
1	Ada island and Velipoja Reserve with prodelta	MN	454	Ada island	I (partly II)	Natural mouth of the Bojana-Buna river, unique dynamic coastline and virgin forests
		AL	566	Velipoja	I (partly II)	Protected area with large depression, forests and dunes
		AL / MN	863	pro-delta	I (partly II)	Important shallow water area at the mouth of the river
2	Velika Plaza with prodelta	MN	642	barrier island	I (partly II)	Dunes, forest, depressions, grassland ecosystems on natural relief formed by the sea
		MN	993	pro-delta	I (partly II)	Important shallow water area
3	Ulcinj salt-pans “Solana Ulcinj”	MN	1,476	saltpans	II	Managed protected wetland used for salt production and Port Milena (inlet to the remaining parts of the lagoon
4	Ulcinj and Zoganje Fields	MN	1,449	cultural landscape	II	Hedgerows, small field and temporary flooded orchid meadows (87ha)
5	Kneta marshes	MN	361	old lagoon	I	Brackish swamps (old lagoon) with tamarix, sedge, reed and halophyte vegetation
6	Bojana-Buna alluvial forest	AL / MN	750	alluvial forests	I	Mixed alluvial forest including oak
7	Lake Sasko	MN	577	fresh water	I (partly II)	Natural Karst freshwater lake connected during high water with the river
8	Bojana-Buna furcation zone	AL / MN	885	fresh water	I	Braided river with gravel island and natural banks (high river morphology)
9	Extensive pastures Gjo-Lulit and Gjeratit	AL	1,775	grassland	II	Large, partly flooded pastures: largest open landscape in the Delta
10	Kneta Gjeratit and liq. Murtemes marshes	AL	246	marsh	I	Wetlands with changing water levels and large reed beds, partly grazed

Cont.

Table 8. 15 priority sites identified in the rapid assessment of the Bojana-Buna delta (Cont.)

Nr.	Name	Country	Size (ha)	Habitat	Zone	Description
11	Fishponds Reci	AL	114	fish ponds	II	Abandoned fish farm with important wetland habitats
12	Velipoja and Fusha e Pentarit	AL	1,341	cultural landscape	II	Small-scale agriculture and pastures with streams and channels (former floodplain, four sites)
13	Viluni lagoon	AL	829	lagoon	I (partly II)	Natural lagoon with transition zone (grazing 542ha) and open connection to the sea
14	Bax-Rrjolli with pro-delta	AL	1,240	beach	I (partly II)	Natural beach with a dynamic morphology and extensive grazing, no access road
			2,259	pro-delta	I (partly II)	Important shallow water zone
15	Migration corridor	AL / MN	7,154	mediterr-anean forests	II (partly I)	Two tectonic Karst chains through the delta incuding cliff and partly old forest
	Total size of proposed zone I and II		**23,974**			

Source: Schneider-Jacoby *et al.*, in prep.

Very high biodiversity

Birds

During the first year of the assessment between April 2003 and January 2004, 237 bird species were recorded in the Bojana-Buna delta. These included 114 breeding birds and 16 species possibly breeding in the area. In addition 52 and 51 species were classified as regular or occasional passage migrants or winter visitors, respectively. In comparison, between 1969 and 1975, Vasić (1979) recorded 229 species, including 56 confirmed and 23 probably breeding species, around Ulcinj. According to the species-area relationship for the Mediterranean region discussed by Blondel and Aronson (1999), the number of breeding species in the Bojana-Buna delta is far above the average for areas of comparable size (*c.* 40 species).

Seven species of colonial water birds are good indicators of the value of the habitat mosaic at the Green Belt. Cormorant and heron species were found nesting in colonies on the islands of Paratuk and Ada, and in the marshes of Velipoja Reserve (Table 9), and nesting colonies are concentrated along the borderline formed by the Bojana/Buna river. The most important feeding habitats (Table 10) during the breeding period (April–June) are

the Ulcinj salt-pans (44.7% of the observations), followed by marshlands (7.9%), lakes (9.0%), lagoons (7.3%), and ponds (4.8%) throughout the river delta and along the lower Bojana/Buna river. The remaining 26.3% of the observations are distributed across ten habitat types. The observations of feeding herons, cormorants and spoonbills prove the importance of the mosaic of different wetlands, as they are used during different times and by different species.

Table 9. Breeding cormorant and heron species in the Bojana-Buna delta

Species	Pairs		
	Ada*	Paratuk	Velipoja**
Phalacrocorax carbo	-	2	-
Phalacrocorax pygmaeus	125	220	20
Nycticorax nycticorax	30	25	?
Ardeola ralloides	36	30	10
Egretta garzetta	70	210	8
Ardea cinerea	15	-	-
Ardea purpurea	?	-	?
Plegadis falcinellus	-	58 ***	-
Platalea leucorodia	19	8	10

Source: Stumberger in Schneider-Jacoby *et al.*, in prep.

* colony destroyed by humans after May 12th

** satellite colony formed after May 12th

*** roosting site

Waders, gulls and terns are also good indicators of the ecological condition for the Bojana/Buna delta. Three distinct breeding habitats exist: the 10km long furcation zone of the river with open gravel habitats, a 30km long shoreline with sand-dunes and lagoons (both primary habitats), and the 1,449ha Ulcinj salt-pans (secondary habitat). The first habitat type is inhabited by common sandpipers *Actitis hypoleucos*, almost half of the nesting population of little ringed plovers *Charadrius dubius* and a smaller part of breeding numbers of stone curlews *Burhinus oedicnemus*. In the second area along the beach, oystercatchers *Haematopus ostralegus*, the larger portion of stone curlews, half of the nesting population of little ringed plovers and a third of all Kentish plovers *Charadrius alexandrinus* are found nesting. The breeding populations of all other wader species, gulls and terns, are today concentrated in the Solana Ulcinj (salt-pans), a secondary habitat not impacted by tourism. At the great beach of Ulcinj, Velika Plaza, the breeding waders and little terns have been disturbed and only a few pairs of stone curlew and Kentish plover are still present during summer.

Table 10. Feeding habitats of colonial waterbirds in Bojana-Buna delta (N_{ind} = 2041)

Species	P	Sh	Sd*	M*	L*	Sa(*)	La	F*	B	R	So*	H*	Pa	C	Sb
Great Cormorant *Phalacrocorax carbo*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Little Cormorant *Ph. pygmaeus*	+	-	-	+	••	••	•••	-	+	-	-	-	-	+	+
Black crowned night heron *Nycticorax nycticorax*	-	-	-	••	•	-	-	-	•	-	+	-	+	-	-
Squacco Heron *Ardeola ralloides*	+	-	-	•	-	-	•	•	+	+	-	-	+	•	-
Little Egret *Egretta garzetta*	+	+	+	•	+	••	+	-	+	+	+	-	+	+	-
Great White Egret *Egretta alba*	-	-	-	-	••	••	-	-	-	-	-	-	-	-	-
Grey Heron *Ardea cinerea*	+	-	•	+	-	•••	•	-	-	•	+	-	-	+	-
Purple Heron *Ardea purpurea*	-	-	-	••	-	+	-	-	-	-	-	+	-	•	-
Glossy ibis *Plegadis falcinellus*	-	-	-	•••	-	+	-	-	-	-	-	-	-	-	-
Spoonbill *Platalea leucorodia*	-	-	-	-	-	•••	-	-	-	-	+	-	-	-	-

Source: Stumberger in Schneider-Jacoby *et al.,* in prep. Circles indicate the proportion of birds recorded per habitat type: • 10–20%, •• 20–30%, ••• 30–40%, • 40–60%, •• 60–80% and ••• 80–100% etc.

+ proportions below 10%, – species was not registered, * habitat type is grazed by stock, (*) leaves are grazed by stock

Habitat type denotations: P – prodelta, Sh – shore, Sd – sand-dunes, M– marsh, L – lagoon, Sa – salt-pans, La – lake, F – fishponds, B – backwater, R – river, So – softwood, H – hedgerows, Pa – pastures, A – arable land and small-scale agricultural land, C – channel, Sb – special biotopes.

Table 11. Habitat use of the waders, gulls and terns in the Bojana-Buna delta

Species	Pairs			2003–2004		
	∑ min-max	MN	AL	N_{obs}	N_{ind}	Main breeding habitat
Oystercatcher *Haematopus ostralegus*	8–10	3	7	18	137	shore, sand-dunes
Black-winged Stilt *Himantupus himantopus*	82–107	81	1	109	279	salt-pans
Avocet *Recurvirostra avosetta*	1	1	0	2	3	salt-pans
Stone Curlew *Burhinus oedicnemus*	39–50	30	9	74	122	sand-dunes, salt-pans, river
Collared Pratincole *Glareola pratincola*	38	34	4	54	115	salt-pans, sand-dunes, fishponds
Little ringed Plover *Charadrius dubius*	66–80	21	49	82	149	river, sand-dunes, salt-pans
Kentish Plover *Charadrius alexandrinus*	77	60	17	125	256	salt-pans, shore, sand-dunes
Redshank *Tringa totanus*	48–70	46	2	83	589	salt-pans, lagoon (marsh)
Common Sandpiper *Actitis hypoleucos*	5–20	1	4	48	87	river
Yellow-legged Gull *Larus cachinnans*	29–32	28	1	189	3.519	salt-pans, sand-dunes
Slender-billed Gull *Larus genei*	2	2	0	7	20	salt-pans
Caspian Tern *Sterna caspia*	2	?	?	6	12	lake? river?
CommonTern *Sterna hirundo*	27–33	27	0	72	225	salt-pans
Little Tern *Sterna albifrons*	96–133	96	0	138	318	salt-pans

Source: Stumberger in Schneider-Jacoby *et al.,* in prep.

MN = Montenegro, AL = Albania, N_{obs} = number of observations, N_{ind} = number of individuals

Mammals

Mammals were not mapped by a special research team, but observations of three species are very interesting. 92.3% of all observations of golden jackal *Canis aureus* are concentrated in the forests and marshes of the riverine floodplains: the most densely inhabited area is Ada, where three howling groups were regularly heard in summer 2003. According to our data the species appears to be concentrated in two areas, where hunting is officially banned: Velipoja and Ada Reserve.

In June 2004 tracks of an adult brown bear *Ursus arctos*, a young bear and, parallel to them, of an adult and its young were found in the sand-dunes south of Bax-Rjolli. Behind the beach, there is an area of some 50km^2 unpopulated by people. The area is home to a range of domestic breeds including semi-feral asses, horses, freely grazing sheep, goats and cattle (including old indigenous breeds such as busha cattle, Karakatchan sheep, Sika and Shkodra pigs (Stumberger *et al.*, 2004)) and together with refuse this provides ample feeding opportunities for brown bears in the area's marshes and sand-dunes. Presently it is not clear if bears occur regularly in the area. However, the proposed protection area should enclose the mountainous hinterland as well and the need of a corridor through the delta to connect the wilderness areas in Albania with the mountains in Montenegro (migration corridors, Table 8).

We saw bottlenose dolphin *Tursiops truncatus* on five occasions in the river, on three in its pro-delta and only once at sea. The largest group size was five and six individuals (median 2). On July 7th, 2003, a playful group was present in the Bojana-Buna near the island of Paratuk, an important breeding site for colonial birds and resting site for Dalmatian Pelicans. Bottlenose Dolphins prefer coastal waters and river deltas, which offer rich fish prey. During the summer the Bojana-Buna delta appears to be important for giving birth and rearing young for the local group (Hussenot and Robineau, 1994).

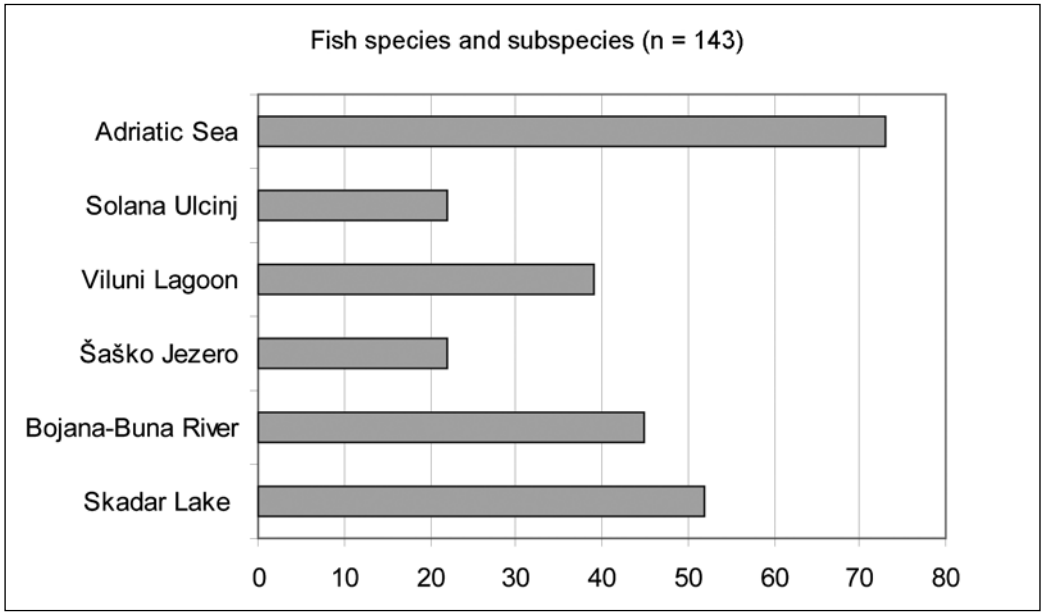
Amphibians and reptiles

The list of 12 amphibians and 28 reptiles already recorded is impressive and more research is needed. Important key areas for these species such as Velika Plaza, Ada and the coastal areas in Albania are under pressure from development. The first studies presented in the Regional Master Plan for Tourism (DEG, 2003) clearly demonstrate the value of the barrier island Velika Plaza with dynamic reliefs and different habitats from open sand dunes to the alluvial forest. Most important is the occurrence of Loggerhead turtle (*Caretta caretta*) on Ada island in small numbers in summer 2003 (D. Saveljić, pers. comm.).

Fish

The Bojana-Buna Delta is still an ideal habitat for fish. 143 fish species and sub-species have been listed by the experts from Albania and Montenegro. The high diversity reflects the habitat mosaic of the Bojana-Buna Delta and the open connections between the Adriatic Sea and Skadar Lake, but also between the sea and the lagoons and the river and the adjacent wetlands such as Lake Šaško. Also very important to the overall diversity of this area is the ability of different species to migrate between the different sites (Figure 29).

Figure 29. Number of fish species and sub-species in different wetlands in the Bojana-Buna delta



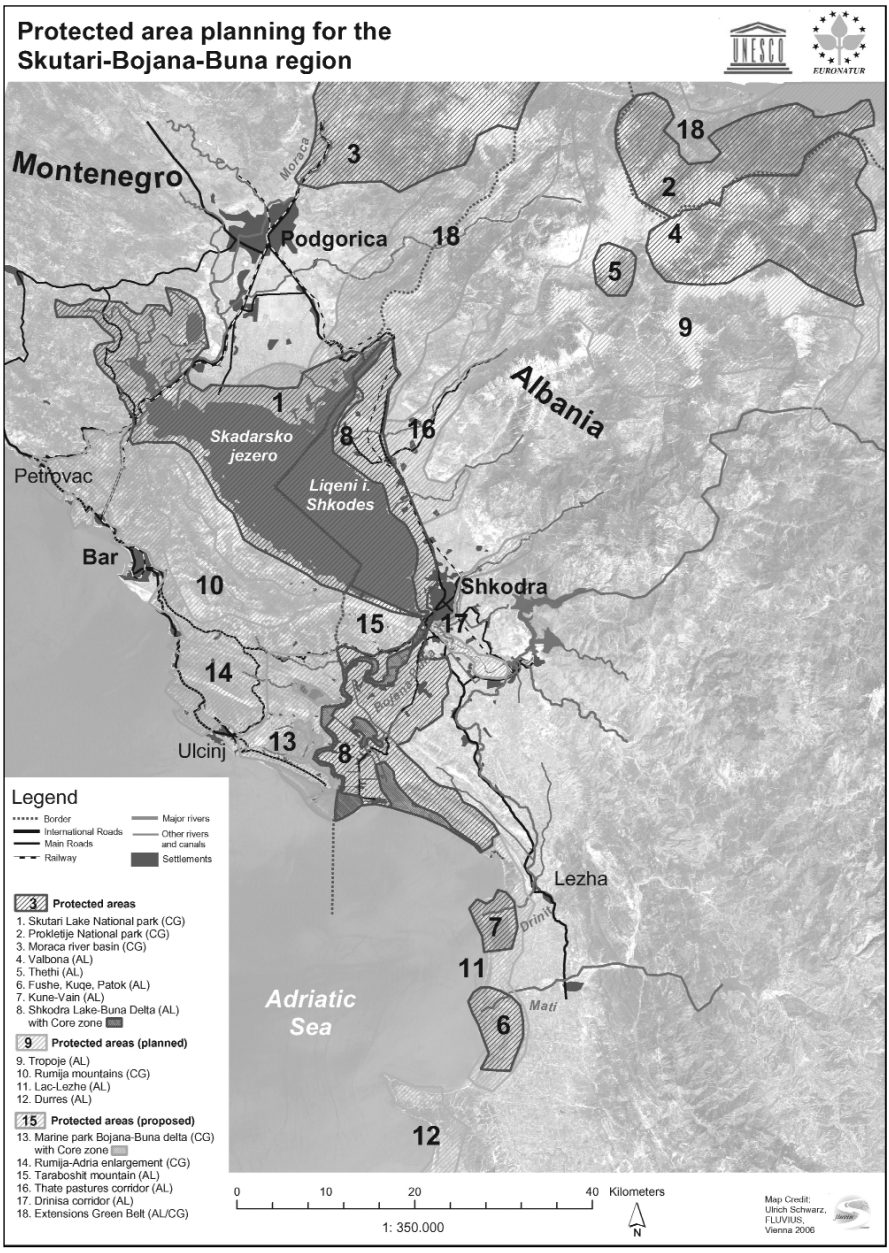
Source: Schneider-Jacoby *et al.,* in prep.

Regional development concept for the Bojana-Buna delta

Many deltas in the Mediterranean region have been described as priority sites to establish Marine Protected Areas, but information on the value of the Albanian and Montenegrin coastal areas is largely missing (Kelleher *et al.*, 1995). The protection of the Bojana-Buna delta is important as a link between Skadar Lake and the Adriatic Sea along the European Green Belt (Figure 30). While in Montenegro, 400km^2 around Lake Skadar is already protected as a National Park, 495km^2 of the Albanian site were protected by a decision of the Council of Ministers taken on November 2nd 2005 (Order No 682/2.11.2005). The new managed protected area includes the entire Albanian part of Lake Skadar (265km^2) and the terrestrial and marine area of the delta (230km^2) including the 44km long Bojana-Buna river and the coastal mountains up to 544m above sea level.

The Albanian decision offers a great opportunity to develop a transboundary protected area according to the international guidelines of UNESCO and the Ramsar Convention. According to the Euronatur assessment, the area hosts a unique diversity, as here in the Adriatic Sea dolphins, golden eagle, pelicans and bears can be found in one environment. Most important now is the inclusion of the Bojana-Buna delta in Montenegro in the network of protected areas (Heath and Evans, 2000). The protection of the landscape values and high biodiversity should be used to prolong the tourist season and to stop illegal building in the natural areas, as for example at Velika Plaza. The saltpans, Solan Ulcinj, offer great opportunities for bird watching including species such as the Dalmatian pelican (Saveljić and Rubinić, 2005).

Figure 30. Network of protected areas on the Green Belt between Albania and Montenegro



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13. Transboundary protected area of Jablanica-Shebenik as a chance for the Balkan Lynx

Gabriel Schwaderer and Annette Spangenberg[76]

Abstract

Along the European Green Belt there are already several transboundary protected areas. But there are still many natural treasures not yet protected such as the Jablanica-Shebenik area. This transboundary region of Albania and Macedonia serves as habitat for threatened species like the Balkan lynx. With the backing of the relevant ministries in Macedonia and Albania, EURONATUR, together with its partner organizations in both countries and with financial support from the German Federal Agency for Nature Conservation (BfN), is trying to safeguard this essential part of the South Eastern European Green Belt. To the endangered Balkan lynx and other species, Jablanica-Shebenik is an important corridor and part of their range.

The ecological value of Jablanica and Shebenik

The slopes of the Jablanica-Shebenik mountain range which extend to Lake Ohrid in the north are covered with forests of different age mostly dominated by beech (*Fagus sylvatica*). Most of the valley bottoms of the mountain range have been used as summer pastures for sheep and goats for centuries. This form of land use has resulted in a vegetation cover characterized by calcareous grasslands with well adapted plants and high biodiversity. In parts where the pastures are used less intensively today, *Juniperus* marks the beginning of succession.

In addition to the grazing impact, especially on the Albanian side, forests in lower elevations were heavily used in a coppice system. Although for about ten years, human pressure has decreased significantly and the forests are regenerating, the bushy habit of the trees still indicates the over-exploitation of these areas. In some parts, this has resulted in complete deforestation and, as a consequence thereof, in heavy top soil erosion. On the Macedonian side, forest habitats are in better shape. The northern part of the Jablanica Massif especially is covered with dense forests. The abundance of lynx prey species such as red deer and chamois indicate that lynx occurrence is possible. Another factor underlining this is the

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proximity of the area to the Mavrovo National Park which holds one of the nuclei of the lynx population in Macedonia (von Arx *et al.*, 2004; Breitenmoser *et al.*, 2005).

Although conditions for lynx on the Albanian side are less favourable – apart from hares (*Lepus europaeus*), hardly any indications of prey species exist – the shooting of a lynx near Qarrishtë in summer 2004 proves that lynx are also present in the Shebenik area.

These factors as well as the ELOIS data (von Arx *et al.*, 2004) suggest that the Jablanica-Shebenik mountain range forms an important part of the lynx range in the western Balkans. The preliminary results of an ecological assessment show that it is not only the occurrence of Balkan lynx that suggests protecting the Jablanica-Shebenik area but also data on the occurrence of rare plant and fish species. Field studies must also take into account socio-economic aspects. The information gathered within the framework of these field appraisals provides a basis for the development of management plans as well as sustainable development approaches specifically addressing the local conditions. Subsequently, strong efforts for the protection and improvement of this area are to be taken. A precondition for the implementation of effective and successful conservation measures is sound knowledge within the fields of large carnivore conservation and monitoring as well as in the field of protected area management. In this context Geographical Information Systems (GIS) are important tools.

Neither in Albania nor in Macedonia are there sufficient experts with the required skills. As a consequence, neither reliable data concerning the population size of lynx nor sufficient knowledge for setting up a monitoring system exists.

Therefore, the European Nature Heritage Fund (Euronatur) together with regional NGOs in Albania and Macedonia and the support of the relevant ministries and institutions in both countries is currently conducting a project financially supported by the German Federal Agency for Nature Conservation (BfN).

Joint efforts to protect Jablanica-Shebenik

The overall objective of the project is to serve as a contribution to safeguarding the European Green Belt with the main focus on the western Balkans as an important part of the range of the Balkan lynx. The guiding idea to achieve this objective is to build capacity within local and national environmental NGOs mainly in the fields of conservation and management of large carnivores as well as the designation and management of transboundary protected areas with particular regard to Natura 2000. This is in line with IUCN's Balkan strategy (IUCN, 2004) and the national biodiversity strategies of Albania and Macedonia. Both countries, with their relevant ministries and institutions, have supported past activities and expressed their willingness to support future activities (Breitenmoser *et al.*, 2005).

There are various steps to be undertaken in order to attain the outlined objectives. The preparation of transboundary protected areas along the European Green Belt supports the safeguarding of ecological corridors for bear, wolf, lynx and many other species. Important players in this process, besides the relevant ministries, are local and national NGOs who – at the moment – show a deficit of knowledge in these specific areas. Therefore, the project also wants to impart know-how within these fields in order to build expertise in large carnivore conservation and protected areas.

These steps include:

- Development of technical documents for the designation of protected areas between Albania and Macedonia with special regard to the Jablanica-Shebenik area as an important ecological corridor and habitat for Balkan lynx, Brown bear and other endangered species.
- Lobbying for the European Green Belt in Albania and Macedonia; identification of further potential transboundary protected areas in the frame of the Green Belt.
- Training for young conservationists in Germany and Switzerland with the main focus on monitoring the Balkan lynx, other large carnivore species and their prey species as well as on the development and implementation of protection measures (Breitenmoser *et al.*, 2005).
- Field work in Albania and Macedonia in order to implement the theoretical knowledge acquired in the above-mentioned training.
- Training for young conservationists in the field of transboundary protected area designation and management as well as the effective use of GIS in protected area management.

The project combines different aspects: the young conservationists being trained by experienced scientists use their new knowledge for example for the setting up of monitoring systems for the Balkan lynx and the relevant prey species as well as for the implementation of ecological assessments and the preparation of technical documents necessary for the designation process of protected areas. By doing so, they gain both theoretical as well as practical experience which they can then transfer to other projects as well.

Expected long-term effects of the project

One of the expected results of the project is the safeguarding of an important part of the European Green Belt as an ecological corridor for many threatened species and an important part of the range of the Balkan lynx. In this respect the Jablanica-Shebenik area between Albania and Macedonia is expected to be developed as a transboundary protected area.

Strengthening the capacity of NGOs in nature conservation by providing training and education in different fields is an important contribution to consolidating the environmental movement in the Balkan area. At the same time, transboundary cooperation in nature conservation plays an important role for regional stabilization and peacekeeping: establishing bi- and trilateral projects along the European Green Belt supports the dialogue between different nations as well as the development of transboundary networks.

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14. Rhodope Mountains: The Green Belt between Greece and Bulgaria

Dr Nikolaos Grigoriadis[77] and Elena Kmetova[78]

Abstract

The Rhodope Mountains, along the Greek-Bulgarian border, harbour impressive ecosystems with diverse landscapes, rich biodiversity and unique cultural elements. The area also holds numerous rare, threatened and endemic species of flora and fauna. Therefore numerous activities are being implemented in order to preserve the unique biodiversity and promote sustainable development of the area. Among the most important problems are over-exploitation of the forest sector, illegal hunting, insufficient administration, lack of financial support for nature conservation issues and protected areas. Common needs are closer collaboration between Bulgaria and Greece, and the establishment of joint management plans and conservation measures.

Ecological value of the area

The range of the Rhodope Mountains constitutes the natural border between Greece and Bulgaria and is characterized by its mountainous forest ecosystems, rich biodiversity and particular cultural elements. For the entire period of the Cold War, this region was designated as a military zone and a prohibited area. During this time nature was able to experience a long period of recovery, while an extensive demographic collapse took place.

The recesses of the vast Rhodope Mountains have preserved a wealth of unique plants. Looking at the Bulgarian component, one can find over 1,700 higher plant species, 90 of which are Balkan endemics, 80 of which are Bulgarian endemics and 15 are Rhodopean endemics. As far as the Greek part is concerned, there are over 1,000 identified species and subspecies of flora, and many threatened and also endemic species (see Table 12).

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Table 12. Important species of flora and fauna in NATURA 2000 sites in the Greek part of the Rhodope Mountains

Groups	Species	Population*	Site assessment**
Birds	*Tetrao urogallus*	700	A
	Bonasa bonasia	P	A
	Gypaetus barbatus	R	A
	Neophron perconopterus	P (Breed)	A
Mammals	*Ursus arctos*	25(30)i	B(C)
	Canis lupus	C (R)	A
	Cervus elaphus	P	A
	Rupicarpa rupicarpa balcanica	100i	A
Amphibians	*Bombina variegata*	C	B
	Rana graeca	C	C
Reptiles	*Vipera ursini*	P	B
	Vipera ammodytes	P	C
	Elaphe quatuorlineata	P/P	D/D
Fish	*Salmo macrostigma*	V	A
Invertebrates	*Lucanus cervus*	V	A
Plants	*Lilium rhodopeum*	R	D
	Pinus peuce	P	D
	Lathraea rhodopea	P	D

* Estimate of size of population (C=common, R=rare, V=very rare, P=lack of information)
** Total estimation of habitat based on the population, the degree of maintenance and the isolation (A=excellent, B=good, C=sufficient, D=insignificant population)

There are also local endemic Rhodopean species, such as *Soldanella rhodopea, Geum rhodopeum, Viola ganiatsasii, Viola rhodopea, Lilium rhodopeum*, some Balkan endemics, such as *Haberlea rhodopensis, Lathraea rhodopea, Anthemis macedonica* and some Greek endemics, such as *Dianthus corymbosus, Rhinanthus pubescens* that have been recorded for the (South) Rhodope Mountains.

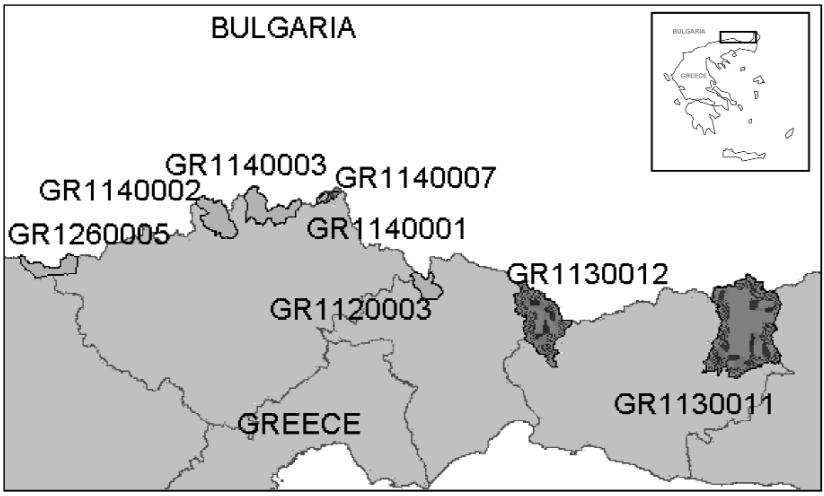
The fauna of the mountains is no less impressive due to the diverse landscape, the array of vegetation, the climatic peculiarities and its large area. As a whole the faunal diversity has not been thoroughly studied because of the former political restrictions, but even the short studies implemented so far have proved that the region is rich in biodiversity and has a great

conservation value. The Bulgarian part is inhabited by various species, some of them of international conservation significance – for example fish species: *Sabanejewia aurata balcanica, Cobitis peshevi,* etc; amphibians and reptiles – *Bombina variegata, Triturus alpestris, Lacerta vivipara, Anguis fragilis, Ablepharus kitaibelii* and others; dozens of species of birds, such as *Aegypius monachus, Gyps fulvus, Neophron percnopterus, Aquila chrysaetus, Hieraaetus pennatus, Tetrao urogallus,* and many others; 12 species of bats and many other mammal species – *Canis lupus, Ursus arctos, Lutra lutra,* etc.

The Greek side has the same impressive biodiversity. It is worth mentioning that the Central Rhodopes are inhabited by 25–30 Bears (*Ursus arctos*), making it the second most important biotope in the country after the northern Pindos range. The region also provides biotopes for other important species such as deer, (e.g. *Tetrao urogallus, Bonasa bonasia)* with the most southerly range in Europe. The easterly range of the Rhodopes is also a very important place for raptor species.

Today the Greek-Bulgarian border is of international ecological interest and that is why many sites are included in the Natura 2000 network of protected areas. Being an accession country, Bulgaria has not developed the network yet, but studies have been implemented in the border area for the last three years. The Green Balkans Federation has coordinated the establishment of the Natura 2000 network in Bulgaria over a three-year period of field studies. So far four potential sites have been identified at the very border area plus another 41 Rhodopean river gullies and valleys. Each of the sites is important for the conservation of significant habitats and rich biodiversity. The Greek part of the network is concentrated in eight proposed Sites of Community Interest (pSCI) (Figure 31 and Table 13). Two of these sites, the Virgin Forest of Central Rhodope (GR 1140007) and the Chaidou Forest (GR 1120003) also constitute biogenetic reserves.

Figure 31. Protected areas of international importance in the Rhodope range between Greece and Bulgaria



The Natura 2000 sites identified in Figure 31 have an intense mountainous character (minimum altitude of 50m, maximum 2,212m, average altitude of 670–1700m) and a total surface area of 78,282.3 hectares. More than 25 different habitats are found in the region, four of which are priority habitats for the EU Habitats Directive: alluvial forests with *Alnus* (91E0), Sub-Mediterranean Pine forests with endemic black pines (9530), grassland with *Nardus* (6230) and active Blanket bogs (7130). Of most importance for the conservation of natural ecosystems in Greece is the unique Virgin Forest of Frakto (or Zagradenia) in Central Rhodope (Biogenetic Reserve, Monument of Nature and pSCI), which gets its name from its largely undisturbed nature. The area contains many important species in a Greek and European context, for example the largest population of chamois, recognised as a Balkan subspecies (*Rupicapra rupicapra balcanica*) in the country.

Table 13. Important protected areas of international interest (NATURA 2000) in the Greek (South) Rhodope Mountains

	Name	Area (ha)	Value (S) and Natura 2000 code
1	KORYFES OROUS ORVILOS (GR1260005)	4,914.8	pSCI Habitat types: 4060, 5210, 62A0, 8210, 9150, 9530, 9540
2	RODOPI SIMYDA (GR1140002)	6,708.9	pSCI Habitat types: 62A0, 8220, 9110, 91E0
3	PERIOCHI ELATIA, PYRAMIS KOUTRA (GR1140003)	7,431.5	pSCI Habitat types: 3290, 6230, 62A0, 6430, 7130, 9110, 9130, 91E0, 9280, 9410
4	DASOS FRAKTOU (GR1140001)	1,085.5	Biogenetic resource pSCI Habitat types: 6170, 8210, 8220, 9110, 9130, 9410
5	PARTHENO DASOS KENTRIKIS RODOPIS (GR1140007)	569.0	pSCI/SPA Habitat types: 6210, 6432, 8220, 9110, 91L0, 9130, 9410, 9440
6	OROS CHAIDOU & GYRO KORYFES (GR1120003)	3,488.6	pSCI Habitat types: 3290, 5150, 6173, 9110, 9280, 924A, 925, 9280, 9440
7	KOILADA KOMSATOU (GR1130012)	16,582.0	SPA - Mainly for its ornithological value (raptors)
8	KOILADA FILIOURI (GR1130011)	37,502.0	SPA - Mainly for its ornithological value (raptors etc)
	TOTAL	**78,282.3**	

Conservation activities and cooperation

Many activities are being implemented in order to preserve the unique biodiversity of the Rhodope Mountains. One of them is identifying and designating protected areas. The Green Balkans Federation has prepared the documentation required for the designation of a large Nature Park in the Western Rhodopes covering 600km^2. There is a proposal compiled by the Bulgarian Society for the Protection of Birds to designate another Nature Park comprising the whole Eastern part of the mountains. If both proposals are accepted they would form the largest protected area in Europe and therefore preserve the whole Bulgarian part of the Rhodope Mountains. Another tool is the Natura 2000 network of protected areas. Green Balkans implemented a UNDP/GEF Project studying 100 Rhodopean rivers for Natura 2000 eligibility in 2004. As mentioned above, the Greek side of Rhodope Mountains is already represented in Natura 2000 with five Sites of Community Importance (SCI), two Special Protection Areas (SPA) and one SCI/SPA with both characteristics. There are also other protected areas of national interest, as the Refuges of wildlife and the Monuments of Nature designated in accordance with the Greek forest legislation in the region.

Another conservation measure being undertaken in the region is the Green Balkans voluntary network for the protection of Bulgarian forest. The organization has recruited over 100 citizens as volunteers, whose task is to report cases of illegal felling, forest fires or corruption in the forest sector to Green Balkans. These volunteers have passed a preliminary specialized training course in identifying violations in the forest sector and knowing the appropriate response in accordance with Bulgarian legislation. The reportings are investigated by a Green Balkans expert who sets up common investigations and implements joint examinations on the current sites. If a violation is found then he prepares the required documents and passes them to the Prosecutor's Office. The results clearly show the effectiveness of this scheme: over a period of three years until 2005 over 200 reportings were received, 65 inner and 6 joint examinations were carried out by the project team, 25 cases were passed to the Prosecutor's Office, 12 incorrectly privatized forest companies are still being investigated, 15 administrative punishments were enforced and 3 foresters were fired. The violations investigated cost millions of dollars.

As far as international cooperation is concerned, several transboundary projects have started in the region aiming at economic growth, preservation of the environment and culture of the region for the last few years. One of them is supported through INTERREG III-A/PHARE CBC, at the Nestos river in the Central Rhodope Mountains.

The Rhodope Mountains have also been included among the target areas of the Action Plan for the Recovery and Conservation of Vultures on the Balkan Peninsula. Green Balkans is actively involved in its implementation and has taken responsibilities for the restoration of the bearded vulture (*Gypaetus barbatus*) and the conservation of the existing colonies of griffon vultures (*Gyps fulvus*) and black vultures (*Aegypius monachus*) in the eastern Rhodopes. These activities are carried out together with representatives of the Dadia Reserve (Greece),

while the Balkans Vulture Plan is coordinated and supported by the Frankfurt Zoological Society, the Black Vulture Conservation Foundation and DBU.

Other areas of collaboration include campaigns against the construction of gold-extraction mines near the Bulgarian town of Krumovgrad, where Green Balkans representatives participated together with Greek people in protests and environmental impact assessment studies.

Threats

The main threats on the Bulgarian side of the border are unsustainable forest management plans and illegal felling, development of huge tourist infrastructure, change of woodland ownership status, excessive exploitation of forest resources and unsustainable management, and insufficient control over the compliance with nature-conservation legislation. Among the other serious threats are intentional forest fires, started in order to easily export and sell the burned timber. A very recent threat is the growth in investment proposals to construct mini water-power plants that would have an extremely negative impact on the local ecosystems.

As for Greece, there are important delays at the national level regarding the effectiveness, financing and the application of institutional status for Management Bodies for protected areas. In the region, the conservation and management of forest habitats is the responsibility of the Forest Service (Ministry of Rural Development and Food). There is an urgent need for foresters to implement all the measures for the protection of the rich biodiversity in the region according to regulations such as the Birds and Habitats Directives.

Therefore among the most important common problems in the area are: decline or degradation of habitats, illegal hunting, exploitation of pastures, excessive wood extraction and poisonous baits, threatening whole populations of raptors and vultures on both sides of the border.

Required conservation measures

In recent years the region and communities on either side of the border have been coming closer together. It is important that future work in the Rhodopes provides a common vision that includes local people. The residents – Sarakatsanoi and Pomakoi in Eastern Rhodope – have the same history, so it is easier to collaborate closely in the future.

There is an urgent need to implement a systematic scientific research and monitoring system for the most important ecosystems, habitats and species on both sides of the border. Furthermore rural development measures should be implemented that can support sustainable land-use schemes and promote eco-tourism and village tourism instead of mass tourism through places such as large ski-resorts.

In Bulgaria, ongoing work on the identification and designation of Natura 2000 sites should be supported. Ideally the designation process and subsequent management will take full account of transboundary issues. Elsewhere in Europe sites were designated with little regard for activities on the other side of the border.

It is also absolutely necessary to operate adequate Environmental Impact Assessments of investment intentions and proposals and to tighten control over the implementation of the national nature conservation legislation. There is also a need for closer collaboration between the two parts (Greece and Bulgaria), exchanging knowledge and establishing common management plans and measures.

To conclude, the Rhodope Mountains conserve a unique complex of landscapes and habitats not only of local and regional, but also of European conservation concern. Only joint international efforts can lead to successful preservation of the rich natural resources, culture and livelihood of the local people in the whole border area. The Green Belt is a great tool for realizing that nature knows no boundaries and grants great opportunities to learn more about what's on the other side and what people are working for there. Hopefully our common work within the Green Belt initiative will succeed in promoting the great value of the Rhodope Mountains and uniting NGOs, local people and authorities and governments on both sides of the border to work together for the conservation of the great biodiversity of the area.

Acknowledgements

Many thanks to the Greek Biotop/Wetland Centre (EKBY) and to the forest services of the Prefecture of Drama for the information that they provided. Also I would like to thank Kostas Vidakis for the photographic documentation.

Section 4.
Turning the vision into reality

Introduction

The aim of this book has been not only to show some of the activities and important regions of the Green Belt, but also to identify where the initiative has to go in the future. Thus in this section, the authors focus on how the Green Belt fits within the international nature conservation scene and what it has to do to meet the objectives set out in the Programme of Work.

A major project currently underway aims to develop a GIS map and database for the Green Belt. The project will provide baseline information concerning the habitats and protected areas found along the Green Belt and will identify areas that should be the focus for future activities. Helmut Schlumprecht discusses past experience with mapping the German Green Belt, and identifies some of the challenges and approaches to mapping an area as large as the entire Green Belt.

Semi-natural grasslands and farmland are important habitat types found in the Green Belt, especially in Central Europe. These landscapes are closely associated with traditional land-use practices and also high biodiversity. In recent years these areas have come under pressure as the land was non-profitable and was either abandoned as people moved out of rural areas, or turned over to intensive production. Based on discussions that took place at the first working group meeting for the Green Belt in Hungary, Uwe Riecken identifies a number of future areas and activities that should be addressed through the Green Belt in order to conserve these traditional cultural landscapes.

A major topic that is identified in various chapters throughout the book is the role of tourism in nature conservation and sustainable development. Most authors recognise that whereas tourism has put immense pressure on ecosystems, properly managed it has potential to provide a very useful source of financing for rural communities. As Barbara Engels and Tatjana Gerling show, the Green Belt has the cultural and natural diversity necessary to support the development of sustainable tourism; but ensuring that the benefits of tourism last over time and reach the local level, whilst remaining ecologically benign, is a difficult challenge. However it is also one of the future challenges for the Green Belt. Another important challenge is to ensure that the Green Belt is able to provide a successful model for conservation financing. Andrew Terry reviews the current situation for conservation financing and shows that as nature conservation is merged with development spending at both the global and European levels, the Green Belt is well positioned to take advantage of

future funding possibilities. However, as identified by other authors, this will involve considerable work and good collaboration between partners from different regions in the initiative.

Finally in this publication, the editors look beyond the borders of the Green Belt to see how it fits into an increasing international community of large-scale conservation initiatives. Projects that have been running for many years in the USA, Canada and Central America, share the goals of transboundary cooperation for conservation and development. Furthermore other countries are looking to the Green Belt as a possible model for activities in their region. Overall the Green Belt has got off to a flying start, but the initiative faces numerous challenges for the future. To meet the objectives of the Programme of Work, the Green Belt will have to identify new partners and project approaches.

15. Mapping the European Green Belt

Helmut Schlumprecht[79]

Abstract

The European Green Belt aims to transform the former man-made political border of the Iron Curtain into a network, covering and connecting a large diversity of biological and socio-economic conditions; thus changing this instrument of separation into an instrument of unity for 22 countries and promoting transboundary cooperation for biodiversity conservation and regional development. In order to enable targeted activities and communication, an overview of the situation (concerning land cover, protected areas and projects) along the entire Green Belt has to be gained using the theoretical background from landscape ecology. The development of an information system and the mapping of the European Green Belt serve as fundamental tools for that aim. The image of the Green Belt as an important and beneficial area can be shaped and consolidated in the public as well as in the political view with the help of the Green Belt mapping and database project.

Introduction

The European Green Belt initiative aims to establish an ecological network running along the entire length of the former Iron Curtain to promote transboundary cooperation for biodiversity conservation and sustainable regional development. This ecological role for the Green Belt is based on the principles of connectivity between core areas that may be protected areas (but not always) and their surrounding landscapes.

There is a large diversity of biological and socio-economic conditions along the Green Belt, and the Programme of Work calls for targeted activities to be planned along its route. However for these projects to have an impact, there are a number of fundamental questions that need to be answered. First and foremost we need to know where the core areas are and what the different habitat types and species found within the Green Belt are. This information will make it possible to identify gaps or focal areas for future projects. Furthermore it is important to establish whether connecitivity exists between these core areas or whether there are any barriers or gaps that need to be mitigated. Such questions can only be answered when national information from both sides of a borderline is combined and an overview of the local situation in the context of the entire Green Belt or long sections of it is gained. To achieve this, a common database for geographical and textual

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information will be needed. It can provide valuable information on the status of the Green Belt, on conservation needs, ongoing activities and most importantly on gaps for future projects and actions.

This kind of overview so far only exists for a few sections of the Green Belt (see for instance Schlumprecht *et al.* (2002) for Germany). Accordingly a mapping project for the entire Green Belt was initiated in 2005.[80] Currently there are a number of data sources in Europe that contain both geographical and alphanumeric information concerning land use practices and nature conservation areas. Combining existing information from various sources will lead to an information system covering the entire Green Belt, including information on all protected and designated areas under national legislation and international treaties as well as other information on valuable natural areas including ongoing and planned nature conservation projects.

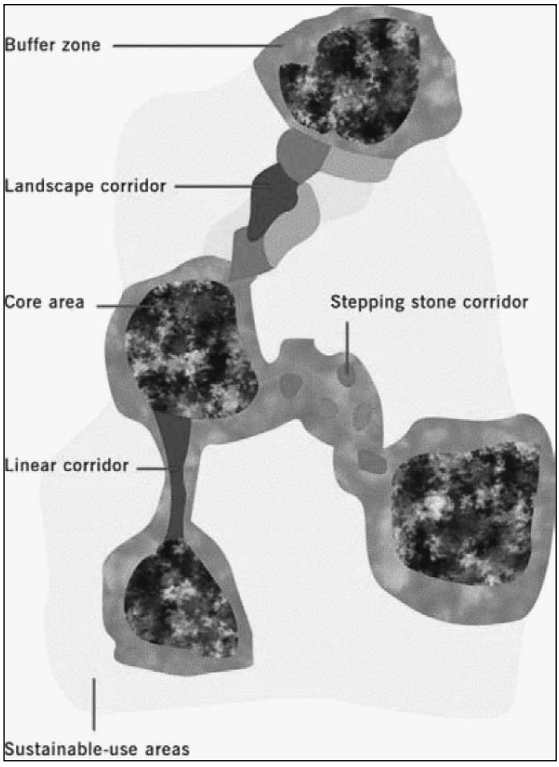
In this chapter, the development of an information system containing data concerning land cover, the protected areas and projects in the Green Belt will be described. The steps being employed to develop a collated GIS map of the route of the European Green Belt linked to a database on the different networks of protected and designated areas will then be discussed. The base maps containing information from the Corine Land Cover project (and the assessments of the change in land cover between 1990 and 2000) will show how the core areas of the Green Belt integrate into their broader landscapes. An analysis of these data in combination with additional information on existing and planned projects can serve to find focus areas for future actions.

Theoretical background – elements of ecological networks

The assessment of the Green Belt will be based on the theoretical background of ecological networks and landscape ecology. Ecological networks view the landscape as a matrix of land-use types, which have a varying degree of human use related to biodiversity. For example the core areas of ecological networks are usually protected areas or high nature value areas (e.g. high nature value farmland). These core areas can be connected by landscape features such as corridors or stepping stones (there are differences in the use of these terms). Usually, surrounding the core areas, there are buffer zones and sustainable use areas, which allow more intensive human use, but which should also take full account of the provision of ecosystem services. This network should then function to support populations of species, i.e. allow migration, emigration and immigration, within the wider landscape with many users and demands as well as industrial, urban and agricultural devolopments (Bouwma *et al.,* 2002, Figure 32).

[80] Funded by the German Federal Agency for Nature Conservation and the German Federal Environmental Foundation (DBU).

Figure 32. Elements of an ecological network



Source: Bouwma *et al.* 2002.

Whatever its scale may be (from regional to continental scale), an ecological network consists of the following elements (Bouwma *et al.,* 2002; Ingegnioli, 2002):

- **Core areas**: areas where important species or ecosystems are present and their habitat requirements are fulfilled.
- **Corridors**: functional linkage between ecosystems or resource habitats of a species (with three subtypes of corridor, based on physiognomic structure: linear, stepping stones or landscape) enabling dispersal and migration of species and resulting in a favourable effect on the genetic and species exchange (individuals, seeds, genes) as well as on other interactions between ecosystems. The terminology on corridors is highly variable and inconsistent.
- **Buffer areas:** located around core areas or corridors to safeguard them from negative influences from surrounding areas. Some human activity is implicitly permitted within the buffer zones.

Ingegnioli (2002) adds "rehabilitation areas" to this simplifying abstraction of real landscapes. For a discussion of the theoretical background see Wiens (1995, 2002) or Harrison and Fahrig (1995).

The nature of ecological corridors and their efficiency in connecting remnants of valuable habitats and in permeating the landscape depends on the habitat type they originate from and the land-use mosaic within which they are embedded and of which they consist. Their connectivity varies from high to low depending on their spatial arrangement, internal structure and management. The more complex a corridor, the better it can function for different species groups and the more it is multifunctional in an ecological sense (Bouwma *et al.,* 2002).

Ecological networks function primarily to allow species to disperse and migrate between sites reducing the likelihood of extinction of populations that may otherwise become vulnerable to demographic and environmental stochastic events. Important concepts for the role of the Green Belt are those of connectivity, which can be seen as the processes by which sites are inter-connected and connectedness, which is a measure of the spatial structure of landscapes and can be described from mappable elements (Bouwma *et al.,* 2002). Through this process it is possible to identify sites that have become isolated, e.g. semi-natural habitats that occur within intensively managed agricultural landscapes. The Green Belt contains a vast range of landscapes with different degrees of connectedness and isolation.

When assessing the connectivity and connectedness of the Green Belt, we have to remember that it is a specific kind of corridor as it originates from a human-made border traversing and connecting all kinds of habitats in different landscapes. This initiative was born from a political barrier and in fact it travels through many regional scale networks and corridors such as rivers and river valleys.

Based on this background and previous work on ecological networks, a set of criteria was drafted to identify the different following elements of an ecological network within the Green Belt database (Table 14).

Building up a common database for geographical and textual information

Data sources

One of the often cited problems for biodiversity conservation within Europe is the paucity of data available on the state of nature. However there is a considerable amount of data in existence, stored in national or regional databases. One of the major obstacles is collating this data into usable formats. The Green Belt Mapping Project is bringing together data from 22 countries on land cover, land use and protected areas. Thus a number of data sources are being used and much of the work involved is in matching the GIS and database elements from different formats and standards. Below a summary of the different data sources being used in the project is given.

Table 14. Criteria for the determination of elements that are important to the function of the Green Belt as an ecological network

Code	Type	Description
1	Core areas	Large protected areas like national parks including their planned enlargements, very large SCI/SPAs or nature reserves, or UNESCO World Heritage Sites.
2	Cluster of stepping stones	a) Small to medium-sized SCI/SPAs or nature reserves (similar sites with common conservation targets) which are grouped together b) Biosphere reserves (their zonation usually reflects a similar situation).
3	Linear corridors	Narrow but long continuous protected areas running on or along the Green Belt or crossing it (e.g. parts of the river Elbe, or of the Drava-Mura-River system) and connecting protected areas along the Green Belt.
4	Satellite areas in buffer zones, or core satellite area	Small to medium-sized protected areas in the direct neighbourhood of/in a buffer zone around core areas, assumed to be functionally connected to the core areas or having a high potential for the development of connectivity.
0	Stepping stones	Small and medium-sized protected areas (important on a regional or local scale, but not on an international scale).

For types 1 to 4, data processing in GIS and database is planned, for type 0 there will be no further data processing, but the data records of these areas will not be deleted. Areas of international conventions for bird protection, i.e. RAMSAR sites and IBAs (Important Bird Areas) could be included in type 1.

Corine Land Cover (CLC2000)

The COoRdinate INformation on the Environment (Corine) Land Cover project was initiated through the European Environment Agency (EEA) in the early nineties. The project used a standard methodology and nomenclature to identify the dominant land cover patterns through remote sensing interpretation of satellite images. Land cover was then re-analysed in 2000 to give a picture of the changes that have taken place to European terrestrial habitats and land use over the past ten years. The Land Cover maps for 2000 form the base layer of the GIS over which vector data from protected areas will be laid. This will enable the users to assess the dominant land-use types in and around the protected areas. It will also be possible to integrate maps of land-use change in 1999–2000, which can show emerging threats to different areas. The main disadvantage of this approach for the Green Belt project is that although the Corine database covers 29 countries, it does not currently cover Russia, Serbia and Montenegro (to be completed by the end of 2006), Albania, Macedonia or Turkey. Thus alternative data sources will have to be sought for these countries.

EU Habitats and Birds Directives database of Sites of Community Interest (SCI) or Special Areas of Conservation (SAC), and Special Protection Areas (SPA)

The Natura 2000 network, which was established under the EU Birds and Habitats Directives, requires that member states provide the European Commission with data concerning each of the sites designated under the directives in a standard data form. These standard data forms contain a significant amount of alphanumeric information about each area and can be stored by country in the Natura 2000 software (an MS Access-database). Although EU Member States are not obliged to provide GIS data on the sites, most of them do so. Thus the Natura 2000 network is an important source of alphanumeric and geographic data for the project on protected areas. The Natura 2000 software can handle information on Emerald Network sites as well. The process of defining Natura 2000 sites can be complex; member states are required to submit lists to the European Commission, which are adopted or revised during biogeographically based seminars. Often there are considerable discussions or revisions based on the expert input from state agencies or the non-governmental sectors. Most of the lists have been adopted for the EU-15 member states, and they are currently being analysed for the new member states. The project is working with national agencies to ensure that the most accurate and correct data is used.

Information on protected areas by national nature conservation law

Information on protected areas designated under national law, which are not included in the Natura 2000 or Emerald networks will also be processed and combined with the other data sources within the GIS and geodatabases for the Green Belt Europe. Again, this data is being submitted by the countries along the Green Belt. In some cases countries use different definitions to identify types of protected area. Therefore, all protected areas will be identified and, where possible, their IUCN Protected Area Management Category will be used to allow comparison between different types of protected area throughout the Green Belt.

Information on other areas of high conservational value, ongoing and planned nature conservation projects

Information on other areas of high conservational value, especially on ongoing and planned nature conservation projects is another important element to be included in the GIS and database. Furthermore there are several other databases at the European level dealing with important areas for nature (e.g. High Nature Value Farmland) or connectivity (e.g. the Pan-European Ecological Network maps). It is within the longer-term objective of the project to harness these important sources of information.

Geographical information

The integration of national information into a common data storage requires the transfer and combination of national geographic information into a uniform geographic information system and the use of a common geodetic reference system. We aim at storing the geographical information (digital maps of nature conservation areas) in a geographical information system (ArcGIS 9.x by ESRI, see Figure 33) and the textual/database information (habitats, species…) in an extended MS Access Database (on the basis of the Natura 2000 Software Nat2000_v2.0, see Figure 34). Digital maps of protected areas will be combined (e.g. polygons in the ArcView/ArcGIS shape-format or in the ArcInfo.e00-format) from all 22 countries along the Green Belt.

Figure 33. A schematic diagram showing the process being used to standardize data

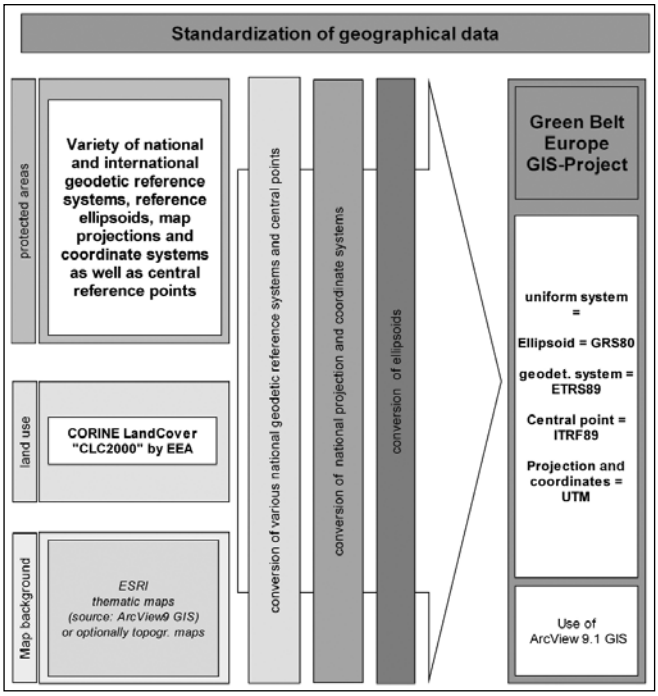
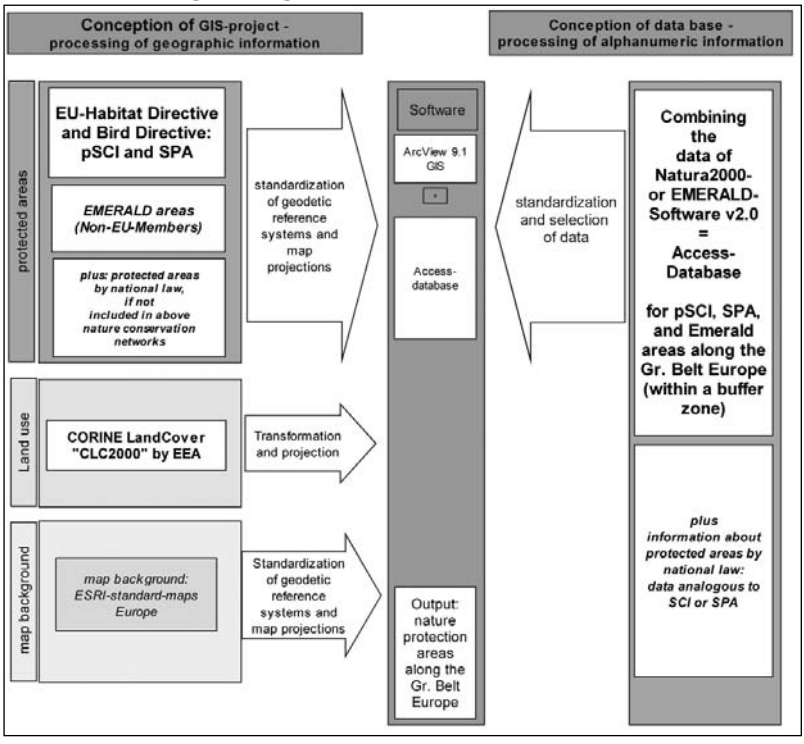


Figure 34. The methodology being used to create the information and GIS database



We are interested in data concerning protected or planned nature conservation areas in a buffer zone of about 25–50km on either side of the border line in each country in the Central European and South Eastern European Green Belt, and of about 100km in the Fennoscandian Green Belt. Not only existing protected areas (SCI/SAC, SPA, or national parks, nature reserves…) and large-scale nature conservation projects, but planned SCI/SPA-areas, planned national parks, planned enlargements of existing national parks or nature reserves and planned projects will also be included in this information system.

Common geodetic reference systems and coordinate systems

One of the major obstacles facing the unified use of geodetic data in Europe is the large range of GIS reference systems used in each country. Thus the combination and unification of the maps of nature conservation areas along the Green Belt is a difficult and complex task, and requires a detailed description of the map specifications used.

This is a problem that was also recognised by the European Union, which has proposed a Directive for "Infrastructure for Spatial Information in Europe" or INSPIRE for short (see also www.ec-gis.org/inspire/). INSPIRE proposes to develop a harmonized European spatial information infrastructure that allows users to access spatial or geographical information from a wide range of sources at different geographical scales. The number of initiatives and projects using the recommended reference systems is increasing rapidly and the Green Belt aims to follow these standards and to contribute to this process.

Therefore we have developed a standardization protocol to describe in detail the geodetic reference systems, coordinate systems and map projections of the geographical information used. To create a joint GIS project of the European Green Belt we need to know the projections of all the countries belonging to it, and the geodetic reference systems and coordinate systems used. In this way the data submitted can be converted to a standardized format.[81] Based on the INSPIRE standards and the recommendations of Kanellopoulos (2005) for data infrastructures of protected areas it will be possible to transform the maps and their projections and the geodetic reference systems of the 22 countries into this target system.

Common alphanumeric information

We are collecting and collating the following nationally held information:

- The Natura 2000 Database for EU Member States including all relevant information about the sites of community interest (fixed or proposed sites, or potential Natura 2000 sites);

[81] The definition of the target is the Geodetic reference system ETRS89 – European terrestrial reference system 1989, the GRS80-ellipsoid geographical reference system by the convention of the International Union for Geodetic and Geography 1980, or the identical WGS84 — World Geodetic System 1984. The central point is ITRF89 – International terrestrial reference frame 1989. We prefer to use ETRS-89 Transverse Mercator (UTM) projection for the map projections (an alternative could be ETRS89-LCC Lambert Conic conformal).

- The Emerald Network for non-EU Member States;
- Nationally designated protected areas (e.g. national parks, biosphere reserves, nature parks and nature reserves, World Heritage Sites) if they are not included in the Natura 2000 or Emerald systems;
- A standard data format along the Green Belt based on the Natura 2000 data sheets.

For some countries however this will require that the relevant data is transferred into this database. Table 15 shows the minimum of information on protected areas required for this step. The database will contain detailed information on elements of the Green Belt, including details on protection status, management plans, habitats and species, threats etc. (Table 15). The language of the database will be English. The database will be open to the addition of new data fields and data. Some information is expected to be stored in national languages.

Table 15. Minimum of required information* on protected areas

Field description	**Remarks**
Site identification	
Type	
Site code, or identification number	
Compilation date	
Site name	
Site indication and designation/classification dates	
Site location	Polygons in a shape-format in the GIS with a common identifier (site code or identification number)
General site character	
Quality and importance	
Site protection status	
Designation types on national and regional level	With an explanation of national legal protection status
Body responsible for site management	
Site management and plans	Existence of a plan (yes/no); name of plan
Country	
Website of the body responsible for site management	
Website of the area (if available)	

* i.e. database information for non-NATURA 2000 or non-EMERALD sites with no storage in the NATURA2000 software

Benefits

Data analysis

An analysis of the data will lead to the determination of the elements of an ecological network mentioned above, i.e. core areas, clusters of stepping stones, linear corridors and satellite areas located in buffer zones. The database will provide information on protected habitat types and species present within these elements. A further analysis of the spatial relationships between these identified elements in combination with a consideration of the surrounding land use and land cover will allow us to identify components of the Green Belt that are in a good state, others that provide good preconditions for improvement and finally gaps that are in need of improvement.

An analysis of these data can also help to answer more specific questions like the following, which are typically addressed in any conservation planning process (Hobbs, 2002):

- Which are the priority areas to retain?
- Should we concentrate on retaining existing fragments or on habitat reconstruction, and which portion of resources should go into each?
- How much restoration or reconstruction is required, and in what configuration?
- When should we concentrate on protecting existing corridors or providing more corridors, versus protecting habitat area or trying to provide additional habitat?

Questions such as, 'where do we need sustainable use areas to connect core areas?' can then be answered depending on the type of landscape (agricultural, fragmented, intact etc., see Hobbs (2002) for the underlying concepts). It is hoped that the outcomes of these analyses can be used either to identify areas for projects to be initiated or to provide input into ongoing projects. The information from the database will be available to stakeholders to use in their work.

Recommendations for management activities

Based on the principles of landscape ecology and metapopulation theory, it will be possible to use the database to derive some general recommendations for activities that would be most supportive of the development or restoration of an effective habitat network (see Table 16).

The spatial and textual data analysis will not only extract information such as dominant land cover, percentage cover of protected areas, important species or areas etc., but also lead to a discussion of topics such as the degree of connectivity of the Green Belt at different spatial scales. This will allow the identifcation of target areas for future work, a key objective of this project. After an assessment of the status (e.g. management plans, threats, levels of infrastructure development, or species) of protected areas and project areas, the gap analysis will identify priority areas for future activities, e.g. vulnerable habitats in undesignated areas or gaps in terms of connectivity with the aim to close these gaps and enhance connectivity.

Table 16. Management actions in a habitat network

Action	Landscape alteration level			
	Intact	Variegated	Fragmented	Relictual
Maintain	Matrix	Matrix, especially patches	Fragments in good conditions	-
Improve	-	Buffer areas, connecting areas	Fragments	Fragments
Reconstruct	-	-	Buffer areas, connecting areas	Buffer areas
Sustainable use	-	X	X	-

Legend: Matrix – the predominant part of the landscape, consisting of habitat (in intact and variegated landscapes) or destroyed habitat (in fragmented and relictual landscapes). Fragments – least-modified habitat surrounded by areas of highly modified habitat. Buffer areas – occur around fragments or patches of least-modified habitat. Connecting areas – occur between fragments or patches of least-modified habitat.

The principles of Landscape Ecology set up by Freemark *et al.* (2002) and listed in Table 17 can only be applied, if focal species and target habitats are explicitly known and identified for all spatial levels from a local to a regional or larger scale. The necessary information will be provided by the Green Belt Mapping project. The Green Belt thus offers the chance to test such principles (Hobbs, 2002; Freemark *et al.,* 2002) on an existing ecological network and therefore can enhance scientific research and progress in this area.

Table 17. Principles for applying landscape ecology to biological conservation on different scales

Scale	Principle
Patch	• Maintain suitable habitat composition and quality within patches. • Maintain larger, more compact areas. • Population demography whithin fragments can vary with the quantity and quality of different habitats whithin a fragment, fragment size and shape. • Orient patch to intercept wildlife movement and enhance habitat suitability.
Landscape	• Maintain landscape mosaics that are more permeable. • More corridors, habitat linkages, or stepping stones can facilitate the movement of some animals. • Maintain landscape mosaics with sufficient proportions of suitable habitat.
Regional and larger	• Maintain closer proximity to, and higher connectivity, with source landscapes and regions. • Interconnect reserves enveloped in well-managed, multiple-use buffer zones or surrounding landscapes to maintain biodiversity. • Maintain connectivity by a network of large natural areas connected by landscape linkages. • Maintain sufficient suitable habitat across species´ native ranges.

Practical use of data and results

The GIS map and database will be a scientifically rigorous database that can be used by project partners to study the different areas of the Green Belt Europe and to effectively focus future actions. The database and the results from the first steps of analysis will be made available to stakeholders active in the Green Belt in various ways:

- The Database CD-ROM: It will contain the database and related communication material. The database will be accessible for Green Belt project partners and for those accepting an agreement on the conditions of its use.
- The Green Belt Report: This will contain the results of the analysis and a synthetic review of the status of the Green Belt.
- Web Interface: A generally accessible interface that will allow the visualization of the Green Belt on large spatial scales and provide general information extracted from the database. A central map of the Green Belt will be developed that allows the user to zoom into specific regions and to see the core areas of the Green Belt and the major land-use types. The map will contain links to information sheets for each of the areas in the GIS and geo-database. These information sheets will be developed from the database and can be updated as well as the database itself. Furthermore the website will provide links to the websites or other contact details of each of the identified sites and will also highlight some of the key features for the sites.

The Green Belt map and database can be analysed further in many ways and thus its implications will go beyond pure nature conservation interests. For example the database will also provide valuable information on the potential of different regions in the Green Belt for sustainable regional development including eco-tourism. The map and database can in general serve as a tool for transboundary cooperation in Europe. Because of its uniqueness in Europe, the Green Belt can become an established and respected mechanism for sharing knowledge, experience and best practice on transboundary cooperation for nature conservation and sustainable development from a local to a European scale. The database can also be used by stakeholders to gain and keep an overview on running projects and project proposals from the local to national level along the Green Belt.

Communication

The Green Belt map and database will also provide a communication tool towards politicians and the public. First of all it is expected to show that areas valuable for nature conservation are actually concentrated along the Green Belt and thus will illustrate the importance of the Green Belt from this point of view. The map and database will also help to select case studies, e.g. best-practice examples for sustainable development along the Green Belt that highlight the benefits of the Green Belt towards national and regional authorities and the public.

In practical terms communicating positive or negative experiences in transboundary cooperation (funding, management plans, conflict resolution, public-private collaboration) can improve the integration of biodiversity conservation and sustainability into local land-use practices.

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16. Agricultural ecosystems

Uwe Riecken[82]

Abstract

Large areas of the Green Belt are covered by traditional cultural landscapes with a high biodiversity. These landscapes are under strong economic pressure due to their low productivity and the effects of the EU agricultural policy. As a result there will be, and still are, enormous changes both in social as well as in landscape structure in those regions. From a nature conservation point of view but also in expectation of the related economic and social problems, strategies, concepts and measures are required to protect these landscapes.

Introduction

This short paper summarises the main outcomes of the agricultural ecosystems workshop held during the meeting in Hungary. The main starting point for the initiative is the large number of more or less protected but also often very endangered impressive natural landscapes along the Green Belt (Geidezis and Kreutz, Schneider-Jacoby *et al.*; both this volume). Therefore the main focus today is on the implementation of adequate nature reserves in these areas. On the other hand the Green Belt covers a number of traditional cultural landscapes which contain a high biodiversity. Cultural landscapes are the result of the interaction between the natural conditions and use by man, and examples include the mountain ranges in Germany, parts of the Austrian-Hungarian border and large parts of the mountain ranges in the Balkan region. These cultural landscapes, especially where they are dominated by grassland ecosystems are the result of different types of livestock grazing during the last centuries (Konold *et al.*, 2004). Changes in the former natural landscapes were primarily caused by the introduction of farming systems and livestock husbandry. A knock-on effect of these changes was that in many cases as habitats were opened up (e.g. deforested), species were able to expand and biodiversity increased. Some of these landscapes might have existed in a similar form and structure since the Roman period or even earlier. Due to technical, social and economic development and changes, cultural landscapes have to be viewed as dynamic and continually changing.

Economic and ecological changes

In many parts of the Green Belt these traditional farming systems are nowadays under severe economic pressure. Generally they are characterized by small farm sizes and a high level of self-supply (subsistence farming) for the local people. There are often only a few

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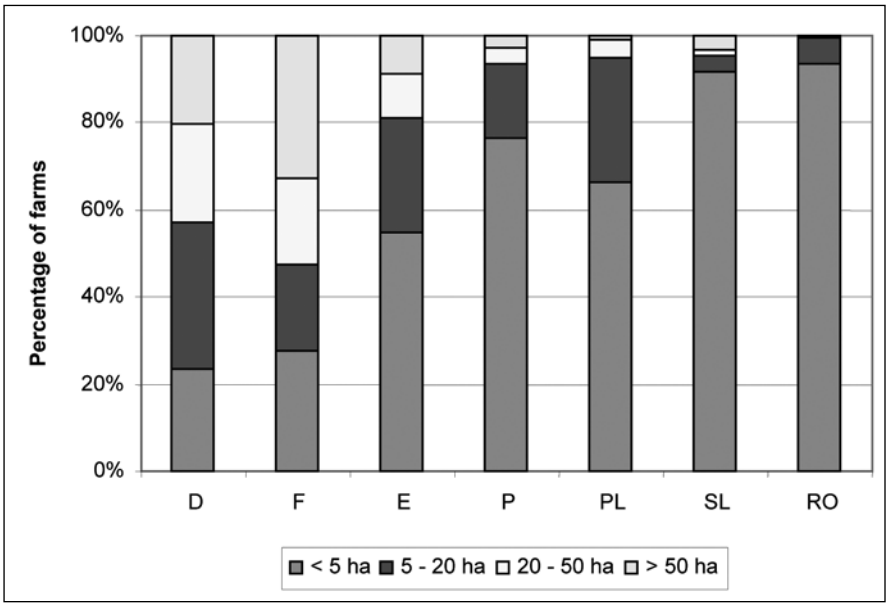
products that are sold due to their low productivity and distance from markets. Within Europe there is a clear difference between average farm sizes in the old EU-member states (e.g. Germany, France), where already more then 20% or even 30% of all farms are bigger than 50ha, and those in the new Member States and future Members (see Figure 35). In Slovakia and Romania small farms of less than 5ha still make up more then 90% of all farms. Spain, Poland and Portugal fall between these two extremes.

Figure 35. Distribution of farm sizes in 2003 in selected European countries



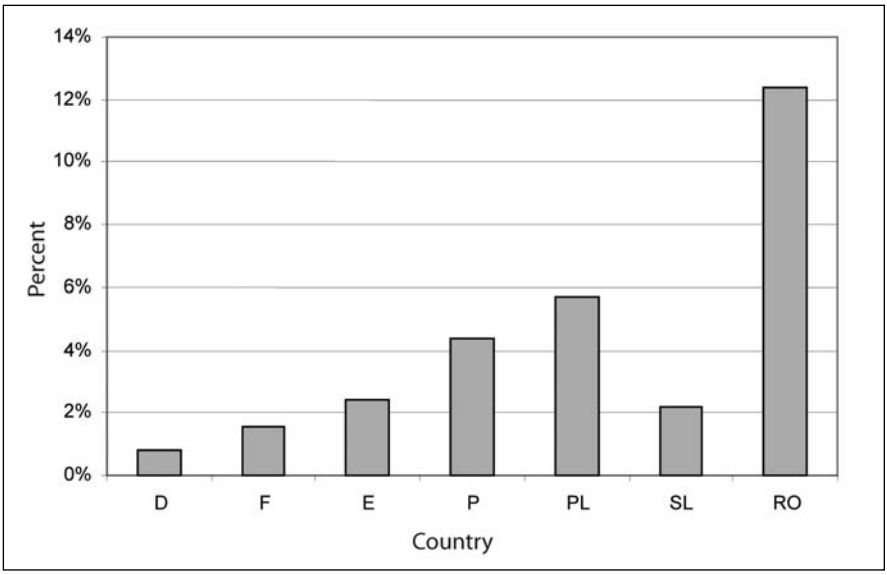
D – Germany, F – France, E – Spain, P – Portugal, PL – Poland, SL – Slovakia, RO – Romania (EUROSTAT, 2005).

Low farm sizes are often combined with a high input of manpower, mainly by family members. The longer a state is a member of the EU the lower is the percentage of people working on farms in relation to the total population (Figure 36). The only exception to this rule is Slovakia, where the percentage already is as low as in Spain and only little higher than in France.

Due to small farm sizes and the low numbers of livestock, many farmers are not able to raise sufficient income from their farms. Young people especially will leave these regions looking for employment in other sectors such as industry or in other EU member states. As a result there will be enormous changes both in social as well as landscape structure in those regions which are not yet part of the EU or belong to the new member states. In the old EU states such as Germany these changes have already happened during the last decades or are in progress. In those areas which are suitable for more intensive farming, the process of intensification is inevitable and, as seen elsewhere in Europe, will result in the creation of larger farms and subsequent reductions in biodiversity. In other regions, land abandonment will increase, ending up in reforestation or forest development (Luick, 1997). Along with

these developments comes a decrease in the number of farms and jobs in agriculture and most likely social and economic problems for the communities in these regions.

Figure 36. Percentage of all people employed in agriculture in relation to the total population in 2003 in selected European countries



Source: EUROSTAT, 2005.

The existence of low intensity livestock farming is the basis for the typically high biodiversity of these regions including the presence of large carnivores such as wolf, lynx and bear, which can benefit from dead livestock (e.g. Riecken *et al.,* 2002). Related land-use systems such as transhumance migrations are typical for many mountain areas in Europe (Jacobeit, 1961; Mayor-Lòpez, 2002; Didebulidze and Plachter, 2002), and often important for the ecological connectivity of open ecosystems (FISCHER *et al.*, 1996). Finally traditional cultural landscapes can also serve as effective buffer zones for natural areas.

Strategies, concepts and measures needed to protect cultural landscapes

In 2007 two more countries along the Green Belt with large extensive livestock farming systems are expected to join the EU. From a nature conservation point of view but also in expectation of the economic and social problems, strategies, concepts and measures are required to assist this process that nobody will be able to avoid. Some measures are as necessary in the old as well as in the new EU-member states:

- Targeted implementation of the EU funding for rural development. It is necessary to develop programmes which make it possible to keep the extensive pastures and meadows in use without intensification and destroying the typical landscape elements and structures. These programmes should also cover transhumance systems.

- Regional rural development programmes should be available for the whole Green Belt area. Additional national activities should be assisted e.g. by special EU-funding like LEADER+ or LIFE.
- Subsidies from the EU are already limited and will become more limited when the EU will grow in 2007. This means that it is also important to raise more income from agricultural products. One solution could be to create regional products, labels and marketing structures. This regional development should be supported by a diversification of income sources. Examples are the production of local hand-made products, small enterprises for the further treatment of local agricultural products or the development of touristic opportunities.
- A transboundary communication network could be helpful as a platform for sharing ideas and products or for the creation of cross-border ecotourism opportunities. Tourism development cooperation between nature reserve administrations and local people and authorities could also be helpful and end up with a "win-win situation" for both partners.
- Sustainable forestry programmes fitting the requirements of the Green Belt are also needed. But it is also very important that these programmes do not compete with programmes for rural development focussing on grassland ecosystems etc.
- Finally a communication strategy could help to connect the aspects of rural development and nature conservation with a strong regional identification comprising the local or regional natural and cultural heritage.

All these activities should be assisted by additional nature conservation efforts such as the implementation of the EU Habitats Directive (esp. Article 10 concerning connectivity), the EU Water Directive, the pan-European Ecological Networks and the Biosphere Reserve concept.

On the other hand a sufficient infrastructure is also needed. These structures include traffic infrastructure, marketing organizations and labels, small hotels and other facilities for tourists but they should fit in with the regional structure and requirements of nature conservation.

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17. Sustainable tourism – a development option for the Green Belt?

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Abstract

Sustainable tourism development in protected areas and adjacent regions can present a successful option for regional development along the European Green Belt. The most suitable approach could be the integration of nature conservation with non-consumptive land-use activities that create socio-economic benefits for local communities. Increasing demand for nature experiences and sports activities represent an incentive for regions to develop specific tourism products linked to nature and the countryside. The regions along the European Green Belt offer a broad variety of attractive natural and cultural features. This article summarises the findings of an analysis of three transboundary protected areas along the European Green Belt and leads to several suggestions for a strategy for sustainable tourism within the Green Belt. Examples from different protected areas along the Green Belt represent good-practice examples integrating the ecological, economic and social needs of present and future generations, which can be applied to other areas.

Tourism and protected areas: opportunities and challenges

As the Green Belt consists mostly of biodiversity-rich and therefore often sensitive natural areas one might ask whether tourism is the right development option for this area. To answer this question requires a thorough analysis of the relationship between tourism and nature conservation in the context of their mutual dependency. This chapter focuses on the relationship between tourism and the core areas of the Green Belt, protected areas.

People enjoy visiting natural surroundings and therefore important natural areas are also beneficial to the tourism industry. Furthermore tourism has the ability to support the conservation of nature and rural areas as it can help to improve the image and the acceptance of protected areas, leading to a better understanding of the nature conservation goals (FNNPE, 1993).

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However most often we are used to seeing the negative impacts of tourism on natural areas through the over-exploitation of natural resources and the unsustainable development of infrastructure to accommodate and support increasing visitor numbers The negative consequences range from massive traffic problems, e.g. those in the South East Rügen Biosphere Reserve (since the summer of 1991 there have regularly been up to 15,000 vehicles per day there), right up to direct impacts of tourism on the flora and fauna, mainly resulting from certain leisure activities. The increased consumption of resources (land, water, energy), and waste and sewage products also have a negative impact (Engels and Job-Hoben, 2005).

Given this balance of positive and negative effects, there is one certainty and that is that natural areas are becoming increasingly important for tourism. There are growing numbers of holidaymakers who take the decision to spend their holiday or day-trip in and around a protected area. In the first half of 2003 the Hainich National Park located in the German Green Belt in Thuringia recorded a growth in visitors of 20% in comparison to the previous year and the proportion of visitors coming from outside the region rose from 15% to 30% (Newsletter *Fahrtziel Natur* 19/03). Given this background of increasing human pressure on natural areas, joint actions on increasing the sustainability of tourism along the European Green Belt are needed. However, before actions are taken within the scope of the Green Belt, it is imperative that a common understanding of what the term 'sustainable' means in relation to tourism is developed. As many areas suitable for sustainable tourism development in the Green Belt are protected areas, the definition given by EUROPARC Federation seems to be the most appropriate and applicable starting point:

> sustainable tourism is *"any form of tourism development, management or activity which ensures the long-term protection and preservation of natural, cultural and social resources and contributes in a positive and equitable manner to the economic development and well-being of individuals living, working, or staying in protected areas"* (EUROPARC Federation, 2004).

As the primary function of protected areas is nature conservation, there can be limitations to the extent to which tourism can be applied within specific areas. Depending on the primary management objective of the protected area, tourism is compatible with protected landscapes (IUCN category V; e.g. nature parks), national parks (IUCN category II) and biosphere reserves (IUCN category V) (IUCN, 1994).[85] Thus, while tourism activities in

[85] IUCN categorises protected areas by management objective and has identified six distinct categories of protected areas in order to enable the comparability of protected areas worldwide (IUCN, 1994):

I. Strict Nature Reserve/Wilderness Area: protected area managed mainly for science or wilderness protection;

II. National Park: protected area managed mainly for ecosystem protection and recreation;

III. Natural Monument: protected area managed mainly for conservation of specific natural features;

IV. Habitat/Species Management Area: protected area managed mainly for conservation through management intervention;

V. Protected Landscape/Seascape: protected area managed mainly for landscape/seascape protection and recreation;

VI. Managed Resource Protected Area: protected area managed mainly for the sustainable use of natural ecosystems.

nature reserves, national parks and World Heritage sites might be limited with respect to certain (core) zones due to conservation requirements, biosphere reserves and other Category V areas (e.g. the German and Austrian nature parks) might offer greater possibilities for tourism as regional economic development is among their primary objectives.

The World Heritage natural sites as well cultural landscapes (such as the Fertő-Hanság-Neusiedler See in Austria/Hungary) are most attractive to tourists thanks to their international status (label) and unique characteristics. However, tourism development in World Heritage sites as well as in other protected areas is associated with high standards of management practices as only strictly controlled and environmentally responsible visitation is allowed (Ceballos-Lascuráin, 1996). On the other hand, it is easier to integrate tourism with nature conservation goals in protected areas that have well-defined management plans. The World Heritage Convention with its site management requirements represents an excellent framework for the sound use of nature and offers substantive guidance for tourism management in WH sites.

Transboundary protected areas play an even more important role as they are often located in peripheral regions where the attractiveness of wilderness and nature is most prominent. However these regions, which in some cases were defended or restricted, were often neglected and missed out on development activities that occurred elsewhere. Furthermore these sites often lacked infrastructure and missed out on opportunities for cooperation between nature conservation and tourism partners on either side of the border. However in present times the existence of transboundary protected areas offers an excellent basis for cooperation as the presence of an institutional framework on both sides especially facilitates first contact and joint (tourism) projects.

The "Green belt" as a tourism destination?

In order to evaluate the tourism potential of the European Green Belt, three factors are essential: (1) the natural, cultural and socio-economic conditions, (2) the supply side in the form of services and infrastructure and (3) the demand side – the tourists.[86]

Natural, cultural and socio-economic conditions

The natural areas in and around the Green Belt have everything in terms of nature and countryside that a holidaymaker could desire: virgin forest on the Fennoscandian border, coastlines in the Baltic region, middle range mountains on the German Federal States borders, high mountains in the Alpine region, as well as cultural landscapes, rivers and forests (see Table 18).

[86] As this analysis is based on a study of three transboundary protected areas in Northern and Central Europe and as substantial information is almost only available on projects from the Northern and Central part of the Green Belt, examples and analysis in this text mostly refer to these two regions. Nevertheless, the South-eastern European regions along the Green Belt offer great opportunities for future sustainable tourism development.

Table 18. Natural and cultural tourist attractions along the European Green Belt

Natural attractions	Cultural attractions
Hydrological resources: Lakes Rivers Sea coasts Waterfalls, rapids	Common European historical heritage Cultural traditions Gastronomy and culinary art Regional products Architecture Traditional regional agricultural and land-use practices Relicts of the former border Handicrafts Events
Geological resources: Mountains Hills Sand and beaches Caves	
Landscape/relief: Old growth boreal forests Broad-leaf forests Grasslands Rural landscapes	
Biological diversity: Regional species of flora and fauna	
Protected areas: UNESCO World Heritage sites UNESCO Biosphere Reserves IUCN Categories I – VI	
Climate zones: Cold and dry in North Europe Moderate in Central Europe Mild in Southern Europe	

The unique richness in biodiversity and the various attractions for different nature-related sports activities make them attractive destinations for a holiday in Europe based on a nature and countryside experience. And the Green Belt region offers even more: the 40-year history of the division of Europe into East and West has delivered historical monuments and the former border region is associated with considerable emotion. Curiosity will also attract people to visit the former border areas as many of these have been "forbidden ground" for a long time (see Figure 37). Communication of historic themes "from Iron Curtain to life line": museums and historic monuments on the former border play an important role, in certain areas, to attract tourists interested in culture.

Figure 37. Relicts of the former Austrian-Hungarian border at Neusiedlersee

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Supply side

Analysis of the offer of sustainable tourism products (holiday catalogues, internet offers, etc.) along the European Green Belt showed that Central European countries like Germany and Austria lead the market for nature-based tourism. Most environmental management schemes (e.g. Viabono and VISIT) and ecotourism tour operators are found here. Nevertheless, various examples from areas all along the European Green Belt show a broad variety of tourism products linked to different features of nature and culture (see Figure 38).

Information centres are the main suppliers of the tourism products inside the protected area in all analysed case studies. Their involvement varies from passive visitor management (distribution of information material and brochures, construction of tourism infrastructure such as visitor centres, installation of visitor management signboards) to active interaction with tourists (guided tours through the protected area, selling regional products). Also since visiting a protected area is often included as part of a diverse tourism programme, local and regional tour companies and NGOs cooperate with the protected areas. However, most of the visitors travel independently taking advantage of easy accessibility, well-developed tourism infrastructure and visitor management signboards (Gerling, 2005). This might lead to problems such as an increase in individual transport and might also make it more difficult to control the impacts.

Figure 38. Combined natural and cultural offering: The "Harzer Hexenstieg" ("Witches footpath") in the Harz Nationalpark, Germany

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Touristic cultural offerings are especially diverse in the traditional tourist destinations like the Rhön and the Fertő-Neusiedler Lake, where local communities provide the majority of the accommodation, catering businesses and other services. Thus, the seasonal nature-based tourism offers of the protected areas are backed with year-round cultural attractions, which can increase the economic sustainability of tourism in future. As most of the Green Belt regions are rural regions, they offer old agriculture and viniculture traditions and tourists are attracted by local products such as wine, meat and cheese. For example, the Lake Ohrid region on the border of Albania and Macedonia offers not only historic remains and beautiful nature but also a famous music festival „Ohridsko leto" (Summer in Ohrid). It has to be mentioned that up to now cultural tourism is only little developed in Macedonia (Viaggiareibalcani, 2006). This leads to the conclusion that the development potential is comparatively high.

Of course together with the variety of natural and socio-cultural attractions offered by the Green Belt, the fact that it can serve as a symbol for re-unification and cooperation in Europe and a shared European history, is an important enhancing attraction. However currently there has been little development of these cultural attractions, for example the site of the pan-European Picnic or the former structures that separated countries. Therefore the tourism potential for this aspect of the Green Belt is currently quite low and could present a challenge for the development of a unique profile for the European Green Belt as a tourism destination (Gerling, 2005).

Demand side

Demand dynamics

After the borders were opened in 1990s, tourism flows into the protected areas along the Green Belt have been steadily increasing. However, experiences from several protected areas show an obvious drop in tourist numbers within the Western areas which was caused by visitor re-distribution into the newly discovered Eastern regions along the border.

Profile of tourists and visitors

The visitor profile depends on the geographical location, natural and cultural attractiveness, conditions for specific tourism activities as well as available infrastructure. Thus, the visitor profile varies from eco-tourism in the narrow sense (birdwatchers in Fertő-Hanság) to mass tourism (beach tourists in Fertő-Hanság/Neusiedler; health resort tourists in Bad Kissingen/Germany).

Furthermore, protected areas along the European Green Belt are primarily visited by national and regional tourists. For example, Finnish citizens make up three quarters of the Oulanka Park visitors, and almost all travellers to the Rhön region are German. When looking at the origins of the international visitors to these sites, most come from Germany, France, Switzerland and the Benelux countries.

The distribution of tourist age categories is comparatively similar in all examined protected areas. Middle-aged visitors dominate, while numbers of the young and older visitors vary depending on the difficulty of the natural conditions and level of the infrastructure development. Thus, tourists under 30 prefer extreme sports (canoeing, rafting, hiking, etc.) and a challenging natural environment, which are best represented in places such as Oulanka. Health resorts and countryside pensions in the Rhön region are prominent holiday destinations for elderly citizens, where they comprise half of the customers (Gerling, 2005).

Comparing the numbers of day-trippers and longer holiday-makers shows a common trend. Namely, all examined protected areas are popular amongst day-trippers (35% in Oulanka, 55% in Rhön and 45% in Fertő-Neusiedler) who combine visits to the protected areas with staying at the nearby settlements, health and skiing resorts (Gerling, 2005).

Motivations and activities

When looking for 'nature-based tourism' in Europe, most people are looking to see "untouched nature" or "wilderness". Therefore these types of landscape are usually found in rural regions and associated with protected areas. "Experiencing nature" is one of the most important holiday motives of Germans (F.U.R., 2002) and can support the decision to visit nature conservation areas and especially large protected areas (Petermann and Revermann 2002); for example, 44.4% of all Germans state that during the last three years they visited a "nature attraction" (F.U.R., 2004).

A comparative analysis of the visitor motivations revealed a dominance of the unique natural conditions in attracting tourists. Most of them come to enjoy nature and a landscape as a symbol of peace and harmony. Further motives are associated with specific natural conditions and abundance of the cultural offers. For example, the majority of the Oulanka visitors in summer come for passive nature and animal observation. On the contrary, active hikers, ramblers, paragliders and cyclists are common guests in the Rhön biosphere reserve and at the Fertő-Neusiedler Lake. Educational programmes and tours organized by the information centres attract mainly school groups (90%). Experiencing local cuisine and visits to the cultural sites provide the third popular incentive for tourists in the Central European Rhön and the Fertő-Neusiedler regions (Gerling, 2005).

Satisfaction

The satisfaction of tourists concerning the natural components of their experience can be an important criterion to assess the tourism potential of an area. Visitor satisfaction surveys gave quite a positive feedback. For example, 50% of the Oulanka visitors were completely satisfied with provided services and 44% consider them "fairly good". Moreover, the share of the regular tourists (10–20 visits) is especially high in the Rhön biosphere reserve. Such a high degree of visitor satisfaction is also caused by moderate prices and the hospitability of local people (Gerling, 2005).

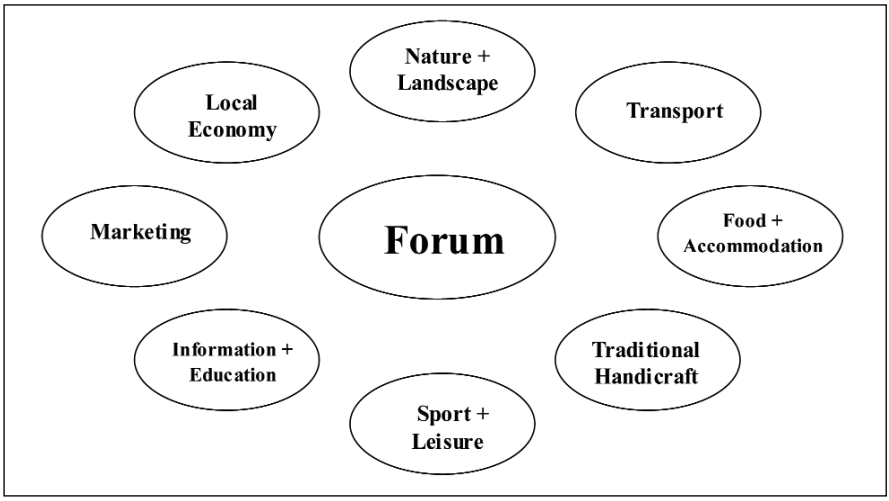
Management options for tourism at the Green Belt

There are many options for developing tourism within the European Green Belt. Against the background of the opportunities and risks outlined above, ecological protection goals are often in opposition to tourism development goals. The biggest challenge will be the question of how best to integrate nature conservation and tourism development and how to make tourism within the Green Belt as sustainable – in the threefold meaning: economically, ecologically and socially – as possible. Based on the definition of sustainable tourism mentioned previously, several good-practice examples exist along the European Green Belt, especially in Central Europe.

The Harz National Park located at the border of the German Länder of Saxony and Lower-Saxony right in the middle of the German Green Belt has already embarked on sustainable tourism development by signing the "European Charter for sustainable tourism in Protected areas", a project led by EUROPARC Federation. Participating areas undertake to develop and implement a concept and a plan of action for sustainable tourism in the region involving all relevant players in the so-called 'Charter Forum", e.g. providers of tourist services, tourism organizations, protected area administrations, planners and politicians and, not least, the local population (see Figure 39). This participative approach ensures a large ownership of the planning process and leads to a broad acceptance of the measures. Participation can be marketed as a quality feature with great effectiveness. The Charter process – as with practically all integrative processes – is an analysis of the strengths and weaknesses of the region concerned, from which the opportunities and risks of tourism

development can be seen and priority fields for action can be derived (Engels and Job-Hoben, 2005).

Figure 39. The Charter Parks Forum



Source: Wilken, 2003.

In the framework of sustainable tourism in protected areas, a special role can be attributed to biosphere reserves (e.g. see Hokkanen *et al.,* this volume; Terry *et al.,* this volume). The promotion of sustainable economic, social and cultural development (in 'development zones') is an objective of the Seville Strategy of the Man and the Biosphere Programme (MAB) as well as the protective function of the biosphere reserves for the purposes of conserving biodiversity in the core zones (UNESCO, 1996). The UNESCO MAB Programme together with its biosphere reserves thus offers the best conditions for tourism development geared towards these principles.

The WWF-led PAN Parks initiative also aims to provide a conservation-based response to the growing market of nature-oriented tourism. This is to be achieved by creating a quality brand which stands for: (1) an expanding network of well-managed protected areas; (2) areas which are widely-known by Europeans as natural capitals, which they know and are proud of; (3) "must see" sites for tourists and wildlife lovers; (4) wider public and political support for protected areas: and (5) new income for parks and new jobs for rural residents (PAN Parks, 2005a). Interviews with park managers showed that managers of protected areas consider both the European Charter and the PAN Parks approach as equivalent, and preference of one project over another is based on positive or negative experience of the nearby park (Gerling, 2005).

The PAN Parks model has also been practised in South-Eastern Europe. In 2004, the Central Balkan National Park engaged in a wide participative process with all the relevant stakeholders in the surrounding region with the purpose of developing a Sustainable Tourism Development Strategy. One of the results of this process is a local PAN Parks group, which has started developing local standards for PAN Parks business partners. The main concern of the tourism business in developing the strategy is the diversification of their services, increase of international guests and the extension of the tourist season in order to improve the economic performance and secure the development of accommodation and services. The next step is the certification of business partners, which guarantee the provision of sustainable and high quality tourist services. The process has shown that the park and the region have sufficient tourism potential and carrying capacity for sustainable tourism, especially with the development of visitor infrastructure inside and in the surroundings of the national park (PAN Parks, 2005b).

The concentration of visitor numbers in attractive but sensitive areas presents a major threat. Sustainable tourism includes nature–sensitive visitor information and management, which ensures that the tourism opportunities offered meet the tourist's wishes and at the same time preserve sensitive nature areas. Comprehensive visitor management is based on the analysis of critical loads and risk potentials needed for these areas. Measures include infrastructure planning (car parks, marked paths) and the use of a so-called "honey pot strategy", which combines an attractive touristic offer (services, visitor centres) with adequate infrastructure. Thus, visitors can be successfully concentrated in predefined areas and, at the same time, acceptance for access bans in the core conservation zones can be increased (Petermann and Revermann, 2002, e.g. see Figure 40).

Figure 40. Visitor management in the Harz Nationalpark, Germany

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Positive examples also exist in South-Eastern Europe. The WWF Danube-Carpathian Programme (DCP) and DOEN Foundation have started a project "Sustainable rural tourism as a tool for improving nature management in the Middle Danube Floodplains" in the Vojvodina province of Serbia and Montenegro. The Gornje podunavlje area on which the project focuses, is a little-developed rural region, economically disadvantaged, yet possessing a rich natural and cultural heritage which could support a considerable sustainable tourism trade. This combined floodplain area is currently managed under three different national protection regimes in Serbia, Croatia and Hungary. However, these lands represent a single ecological unit and should therefore be managed through a joint plan. The project aims to promote ecotourism, through training and marketing, particularly in the Serbian part, but also to ensure that tourism service providers understand that well-managed nature is an economic asset and to encourage them – as stakeholders – to take an active part in ensuring that it is effective. It is anticipated that another benefit of this project will be improved contacts and cooperation across national frontiers, between nature managers, tourism entrepreneurs and citizens (IUCN, 2005).

Economic, ecological and social implications: Main findings from case studies

Thus, due to different natural, economic and socio-cultural conditions along the European Green Belt no universal tourism development scenario can be offered. Rather, tourism development plans should meet local needs while using the experience of sustainable tourism development projects in other protected areas in the European Green Belt. In this respect, an analysis of the successful case studies in tourism development is necessary (Gerling, 2005).

Ecological impacts from tourism in many protected areas along the Green Belt might still be insignificant due to the moderate number of visitors. However in some areas, capacity level has been reached: e.g. in the Fertő-Hanság and Neusiedler See-Seewinkel National Parks the concentration of visitors at the lakeshore may reach critical values during hot summer weekends. In the Harz National Park the famous 'Brocken' welcomes around 1 million visitors a year leading to high impacts from traffic (Gerling, 2005).

On the other hand, development of sustainable tourism may generate positive economic effects for the region (e.g. increasing the value-added rate). A recent study commissioned by the German Federal Agency for Nature Conservation has revealed that protected areas can contribute significantly to regional economic systems. The Müritz National Park's tourism in 2004 accounted for 13,4 million Euros gross turnover, corresponding to 630 jobs in the region while in the nature parks Hoher Fläming (near Berlin) and Altmühltal (Bavaria) the gross turnover from tourism accounted for 6,2 million Euros and 20,7 million Euros respectively (Job *et al.,* 2005). The challenge for the region is to ensure that the generated income remains in the region. Regional economic flows are an important component: products sold in souvenir shops and restaurants in the parks should ideally come from local producers, which ideally use nature-based production methods (e.g. organic farming). The

local purchase not only generates local income but also helps to minimize negative ecological impacts from transport.

Evaluation of the socio-economic impacts in three protected areas along the European Green Belt (Oulanka-Paanajärvi National Park Russia/Finland, Rhön Biosphere reserve Germany, Fertő-Hanság-Neusiedler-See National Park, Hungary/Austria) showed that sustainable tourism in the analysed protected areas has positive qualitative and quantitative effects. As most of the accommodation, restaurants and tourism-related services are privately owned by the local communities, the financial benefits of tourism flow into the regional and local budgets. Even though positive socio-economic impacts (jobs, revenues) dominate, the seasonality of the tourism creates challenges for considering sustainable tourism a reliable economic alternative for the region (Gerling, 2005).

The case of the Rhön Biosphere Reserve: Tourism as an integral part of the regional development strategy

The overall goal of the Rhön Biosphere Reserve is to promote environmentally sound economic activities in harmony with nature. The Reserve acts as a model for sustainable regional development, and all activities are integrated into an overall plan that aims to protect cultural landscapes through sustainable land use, conservation and enjoyment of nature, development of sustainable tourism and the promotion of other sustainable businesses (Rhön Biosphere Reserve, 2005).

Projects to support the extensive use and ecological production of natural resources in accordance with the needs of the biosphere reserve in Thuringia were supported by the European Union and the state of Thuringia. At present 6% of the agricultural lands in the Rhön are under biological crops (Iron Curtain Project, 2005). In order to promote cultivation of ecological crops, ARGE (Regionale Arbeitsgemeinschaft Rhön – the Rhön Regional Working Group) introduced a regional Rhön bio-label award. The projects have been supported by local communities, and most of them are self-sustaining businesses now (Gerling, 2005). Moreover, tourism projects are promoted through cooperation with agriculture, the manufacturing industry and commerce. For example, the marketing of products from traditional orchards, Rhön lamb, beef and brown trout is coupled with services in the field of leisure and tourism (Geier, 2005).

Together with extensive agriculture and forestry, tourism is one of the leading land-use activities in the Rhön region. Moreover, tourism development is successfully coupled with agricultural projects. For example, nearly half of the tourists in the Rhön buy regional lamb sausage and local bread (Table 19) (Regionale Arbeitsgemeinschaft Rhön, 2005; Fuchs, 2001).

However, the administration of the Rhön Biosphere Reserve is not directly involved in the tourism business, relying on the partnership with local and regional stakeholders within the frameworks of ARGE (Hess and Sauer, 2005). Created in 1997, this public association of regional stakeholders from five administrative districts adjacent to the Rhön Biosphere Reserve promotes transboundary cooperation on sustainable development in the Rhön

Table 19. Rhön regional products, most popular among tourists

Products	% of visitors
(Lamb) sausage	50,7
(Caraway) bread	44,7
Honey	22,7
Beer	14,0
(Goat) cheese	8,7
Milk	6,7

Source: Fuchs (2001).

region and the creation of the region's image as an economic, cultural and natural unit. In particular, ARGE coordinates transboundary cooperation of tourism organizations in the Rhön region (Bavaria, Hesse and Thuringia) as a non-trading partnership of three federal states (Regionale Arbeitsgemeinschaft Rhön, 2005).

At present, the region is divided not by political, but only administrative borders. There are neither linguistic nor cultural barriers (Pokorny, 2005), which simplified the development of a common tourism infrastructure network in the region. However, the administrative division of the Rhön creates problems for tourism planners, because the tourism development strategy and programme has to comply with the regulations of all three federal *Länder* sharing the Rhön Biosphere Reserve and the Rhön region (Pokorny, 2005).

Conclusions

The high number of protected areas of different status along the route of the Green Belt has the potential to ensure the sustainability of tourism development. Transboundary protected areas and their adjacent regions especially possess comparatively high tourism potential.

As Europe presents a high diversity of cultures, natural resources and socio-political conditions, sustainable tourism development initiatives in practice will bring quite different results depending on the specific political, economic, cultural and natural factors.

The existing well-established socio-political framework for sustainable land use and nature conservation in the Northern and Central European countries along the Green Belt provides a solid background for the implementation of sustainable tourism development initiatives and projects. The less developed framework in South-Eastern Europe still needs to be further developed, but attractive natural and cultural features build the basis for future

development processes. Furthermore it should be remembered that tourism opportunities in this region are being developed at a rapid rate, and it will be important to ensure as much of this development is sustainable as possible.

There still remains an inequality between the social and economic conditions for tourism development in the former Eastern and Western countries along the former Iron Curtain. For example, investments in the tourism infrastructure and visitor management schemes are vitally important in Russia, Hungary and Thuringia (Germany) as well as for many South Eastern European countries.

Nonetheless, a number of problems identified in the development of transboundary tourism in the analysed protected areas may create future challenges for the European Green Belt project. The Green Belt Programme of Work foresees sustainable tourism development as one development option and as a field for further cooperation and projects (IUCN, 2004). In this respect, transboundary development programmes of the European Union are making a significant contribution to infrastructure development. The EU Regional development funds as well as Structural funds offer financing opportunities. For example, transboundary regional development concepts including tourism can be subject to funding under the EU INTERREG initiative. As the application for most EU projects requires a network of partners, the European Green Belt network is a useful prerequisite to ensure further funding of the sustainable tourism initiatives along its borders.

In line with the declining importance of agriculture in Europe, sustainable tourism has good opportunities to replace it, especially in the well-preserved marginal border areas along the former Iron Curtain. Furthermore, integrated regional development, which connects sustainable tourism and local agricultural production (e.g. through the promotion of regional products in restaurants, farm holidays or specific events such as cheese-making on a farm) can present an important contribution to keeping extensive agriculture alive in the region.

The seasonality of nature-based tourism often leads to seasonality of the provided jobs and incomes, and therefore can diminish the socio-economic significance of tourism in the region. However prolonging the tourism season with specific cultural offers, diversification in general and construction of the infrastructure for new nature-based tourism activities may improve the situation in the future.

Despite the problem of seasonality, sustainable tourism might be able to counteract the increasing depopulation of rural regions through the provision of secure incomes and stable jobs. In order to ensure this scenario, methods to prolong the tourism season, the introduction of new tourism packages, as well as the diversification of cultural attractions and events is necessary.

However, the future of tourism within the Green Belt is heavily dependent on the quality of nature. Joint development of objectives and concepts to develop tourism in the Green Belt regions benefits not just tourism but also the Green Belt natural areas themselves by

increasing regional wealth creation, by giving greater importance to rural areas, by creating more acceptance for nature conservation among the local population and increasing awareness of nature and the environment among holidaymakers. In this respect, the European Green Belt can contribute to the further coupling of regional tourism development within Pan-European and international sustainable land-use strategies, conventions and programmes.

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18. Financial mechanisms for the Green Belt and ecological networks

Andrew Terry[87]

Abstract

Conservation finance is a relatively new field that has developed in response to the large shortfall in funding available for biodiversity conservation. Globally, funding is moving away from direct support to nature conservation projects and more towards the integration of biodiversity concerns into other sectors or broader environmental and humanitarian areas. This move reflects also the growing awareness of the importance of biodiversity to human wellbeing; however it currently places biodiversity projects in direct competition with other sectors that may be better placed to secure funds. The Green Belt is an initiative that should be well placed to engage with the donor community given its twin vision of rural development and biodiversity conservation. Although some significant funds for the initiative have come from bilateral donor support, the future funding sources are likely to be predominantly from European Community funding. As the European Union moves into the new financial perspective for 2007–2013, it is integrating nature conservation spending into its other policy sectors, and the Green Belt provides a good tool to secure financial support from the large rural development budgets. However there are caveats to this which include the requirements for national co-financing and the complexity of preparing bids for these funds. Successful examples show that it is possible, and as experience broadens so too should the success of finding financial support.

The direction of conservation finance

The need for new and innovative financial tools to support biodiversity conservation has been raised in numerous international fora in recent years. Successive CBD COPs, the IUCN World Conservation Congress and the UNESCO Biodiversity Conference (Paris, 2005) all identified that the lack in funding mechanisms presents a significant threat to the ability of countries to meet the commitments they made to halt the loss of biodiversity.

The conservation of biodiversity requires both direct action to protect ecosystems in the short term and the full integration of biodiversity concerns into other sectors in the long term. The financial mechanisms used to support these two objectives will differ broadly. Here I try to provide a summary of global and European conservation finance to identify the opportunities open to the Green Belt and the actions that the initiative must take in the coming years to ensure financial sustainability.

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An overview of global spending on nature and conservation is generally lacking. Even the most well defined aspect of conservation, the establishment and management of protected areas, suffers from a general lack of information. The most recent global survey was carried out in 1999, using figures from 1995 and this database is still used for reviews of protected area financing (James *et al.,* 2001 in Emerton *et al.,* 2006). Based on this database, the estimated annual expenditure on protected areas is 6.5 billion USD which comes primarily from national budgets or international donor assistance (Emerton *et al.,* 2006). Unsurprisingly most of this money is spent in developed countries, with almost half being spent in the USA. Estimates of the needs for global financing for protected areas alone show a wide variation and range from 12bn USD (Bruner *et al.,* 2003 in Emerton *et al.,* 2006) to 38bn USD (IUCN, 2005), to 45bn USD (Balmford *et al.,* 2002). Whatever the accurate figure, it is sure that there is a massive shortfall in the funds available to conservation.

So where does all this money come from, and where can it come from in the future? To answer the first questions, in general national budgets provide the main source of funding; although money spent on the environment usually only makes up 0.1–1% of a country's Gross Domestic Product (GDP). The remaining funds come from international donor assistance, either from multilateral or bilateral donors or from private foundations and charitable organizations. A review of submissions to the CBD COP8, concerning the CBD's Programme of Work on Protected Areas, showed that countries while relying on national budgets supplemented these funds with income from a variety of sources including environmental taxes (e.g. Estonia), trust funds, sale of state land (e.g. Finland), visitor fees, European Community funds and multilateral donors.[88] This situation is unlikely to change, natural resources and biodiversity are identified as public goods, which are currently undervalued (in part due to a lack of adequate valuation tools) in the market place, and they will therefore remain primarily supported by national budgets.

Again it is difficult to identify trends in funding for nature conservation, but in general it seems that funding slowed during the 1990s and did not keep pace with the development of new protected areas or conservation initiatives (Emerton *et al.,* 2006). Coupled with this expansion in protected areas, has been a trend for increasing financial liberalization and deregulation leading to stricter public spending and a consolidation of funds directed towards biodiversity conservation into more general budgets (Emerton *et al.,* 2006). This observation also holds true for the future development of the EU's budget, which is discussed in more detail later in this chapter. Coupled with this grouping of financial mechanisms has come a change in general attitudes (donor and governmental) towards biodiversity conservation. Donors are moving away from supporting conservation-only projects and towards what they would call the "mainstreaming" of biodiversity concerns into other sectors. In theory this is a very positive move as it shows the importance of biodiversity to human wellbeing and it fulfils the long-term objective mentioned above. But

[88] Review of implementation of the Programme of Work on Protected Areas for the period 2004-2006 (UNEP/CBD/COP/8/29).

an unfortunate side-effect of this is that donors are moving away from supporting the short-term direct conservation projects towards sustainable use or integrated development projects (Lapham and Livermore, 2003). This use of natural resources is also emphasised in the shift of priorities towards a focus on poverty alleviation and water resources.

Financing the Green Belt

We have to see how the Green Belt fits in against this background of global and European financial priorities, and therefore how it can be financed in the coming years. The Green Belt is the sort of initiative that donors should be very interested in. The initiative's vision involves the intertwining of biodiversity conservation with sustainable development. Therefore it implicitly recognises that in Europe, protecting nature requires an emphasis on sustainable land-use practices, a better understanding among local communities and the integration of protected areas into their wider landscapes. This double vision is then framed by the historical background of the Iron Curtain, which has become a symbol in Europe for all that was negative about political and ideological separation (see Andrian, this volume). Integrating natural and cultural heritage in this way and trying to improve the regional development of Europe's border communities should find favour with the expressed objectives of donors.

However there are a number of features that make the Green Belt also difficult to fund. First and foremost it is an initiative spanning 22 countries and to provide any form of coordination function – i.e. coordinating activities in these countries, the Secretariat must receive some central funds not attached to specific projects. This is a function that is traditionally very difficult to find financial support for as donors generally seek 'on the ground' results for the projects they finance. Second, the initiative also encompasses the range of socio-economic conditions in Europe. In general there is a downward gradient from North-West to South-East in terms of socio-economic conditions in Europe. Furthermore the initiative spans the borders between old and new EU Member States, EU Candidate countries and the external border of the EU. As the 10 Central European countries joined the EU in May 2004, donor attention moved away from this region, as it came under the EU's support mechanisms. This attention moved towards South-Eastern Europe, where there still remain important stores of biological and cultural diversity attached to severe economic conditions. Thus a quick review of the current project portfolio for the Green Belt and also the opportunities with donors reveals a strong bias towards South Eastern Europe (A. Terry, pers. obs.). This presents a challenge to secure funding for projects in the Fennoscandian and Central European Green Belt regions.

In the following sections I discuss a number of funding mechanisms and sources that could be used to support projects or activities within the Green Belt. Given the importance of the European Union as a financial force in Europe, there is a bias towards its funding sources. The overall message of this section is that for the Green Belt and for nature conservation in general to be financially sustainable in the long term, it must diversify its funding sources. This requires not only skills in applying for money from different sources,

but also capacity to prepare and submit applications and this will present a significant draw on the resources of participants. But at the same time it will open new and generally much larger sources of funding, and stands to provide the financial security required for implementing large-scale initiatives. It also stands to communicate, through the results of projects, the message that biodiversity conservation does not necessarily have to conflict with economic development and in fact can provide a positive tool for further development.

National governmental assistance

It is generally acknowledged that as natural landscapes are national assets the majority of responsibility for financial support should rest with governments. However in many cases governments do not have (or do not allocate) enough resources for the protection of nature, or the state bodies responsible do not have the relative strength to compete with the interests of other sectors. There are a number of mechanisms, however, that governments can implement to support the better protection of natural resources such as encouraging protected areas to retain and raise their own revenues.

Across Europe, the governance of protected areas follows different models and this can create barriers to transboundary cooperation. Examples highlighted in this publication from the Thayatal and Podyjí National Parks (Brunner) and the Neusiedler See/Fertő-Hanság National Parks (Lang and Fersch) show the cooperation possible between protected areas run as private enterprises on the Austrian side, and State organizations on the Czech and Hungarian side.

It is hoped that the Green Belt can act as an enabling mechanism to enhance the funding that protected areas or regional initiatives receive from national sources. The initiative can help provide the basis for the effective use of national funds. But importantly it can add a regional and international dimension to such spending. Thus funds spent on local or regional level activities stand to be communicated throughout the range of the Green Belt and beyond. This 'amplifier' effect is something that is often viewed as advantageous by national authorities. Once the State authorities back the idea, organizations working at the local level can benefit. An example of a similar situation is the Green Belt in Austria. Through the work of the national focal point in Austria, Naturschutzbund Österreich (ONB), the government has become a supporter of the initiative and there are numerous initiatives underway across the country for the Green Belt. In Serbia, the government was encouraged by the Green Belt and level of international interest to nominate a number of sites along their border region that could be core areas for the Green Belt.

International bilateral or multilateral donors

Donor institutions provide the next major source of funding for protecting biodiversity. It is clear that even with their significant financial support, they cannot provide all the resources necessary to meet our conservation targets (Quintela *et al.*, 2004). When speaking about donor agencies and the environment, we are primarily talking about the environmental component of development agencies such as the World Bank, UNDP and EuropeAid. In

Europe these agencies focus on the regions in most need of development assistance, which are primarily South Eastern Europe, Eastern Europe and Central Asia. Bilateral donors, such as the development agencies of national governments have a similar focus. A major challenge is working both the multilateral and bilateral agencies to increase the profile of biodiversity within their spending and to ensure that major development projects do not impact too negatively on a country's natural resources.

The principal global fund is the Global Environment Facility (GEF) established in 1992 through the CBD, which spends 9% of its 1.7bn Euro biodiversity budget in Eastern Europe and Central Asia.[89] A very rough review of GEF funding in the countries that make up the Green Belt shows that approximately 66 million Euros has been spent in 15 countries on biodiversity projects. In the future, GEF's priorities are to provide support for *in situ* conservation in protected areas and the mainstreaming of biodiversity into 'production landscapes'. An example of important GEF funding within the Green Belt is the Prespa basin in the trilateral region between Albania, Greece and FYR Macedonia. The area contains two important lakes, three National Parks and two Ramsar Sites, and in Greece Natura 2000 sites. A joint 'Prespa Park' was launched in the region in 2000, and since then projects have begun to develop joint hydrological and biodiversity management plans.

Table 20. EU membership status of countries in the Green Belt

Status	Country
Member State	Finland, Estonia, Lithuania, Latvia, Poland, Germany, Czech Republic, Slovakia, Austria, Hungary, Slovenia, Greece
Acceding Country	Bulgaria, Romania
Candidate Country	Croatia, Turkey, FYROM Macedonia
Potential Candidate	Serbia and Montenegro, Albania
Non-EU	Norway, Russian Federation

Source: http://europa.eu.int/comm/enlargement/index_en.htm

The European Union

The EU is one of the most important institutions for the Green Belt. Currently, eight new Member States, two acceding countries, three candidate countries and two potential candidate countries, are part of the initiative (see Table 20). The financial mechanisms and policies of the EU have changed the landscapes of its Member States for ever and this

[89] GEF's work on biodiversity and sustainable use. GEF Leaflet, February 2006.

process is currently underway within the 10 countries that joined in 2004. The EU's annual budget of approximately 100 billion Euros is predominantly spent on agriculture (45%) and structural operations (32%), making them extremely important sources of potential funding for the Green Belt (see Figure 41). In general it can be extremely complicated to gain an understanding of how the different EU funds work and interact. However it is becoming increasingly necessary to understand this as more projects are required to seek funding for multiple sources. In 2007, the EU enters a new financial period (until 2013), and during 2006 the 'financial perspectives' for this new period have been discussed and agreed. The total agreed budget for 2007–2013 is 866.4 billion Euros (see Table 21); again agriculture and structural cohesion receive the largest amounts. Of the 371 billion Euros directed towards the management of natural resources, 293 billion will go to market related expenditure and direct payments, e.g. within the Common Agricultural Policy. In the following sections I will give a brief summary of the different mechanisms within the EU that are important for the Green Belt, and try to give some analysis on how the initiative can successfully access them.

Figure 41. The proportion of spending in each sector within the EU's 2006 budget

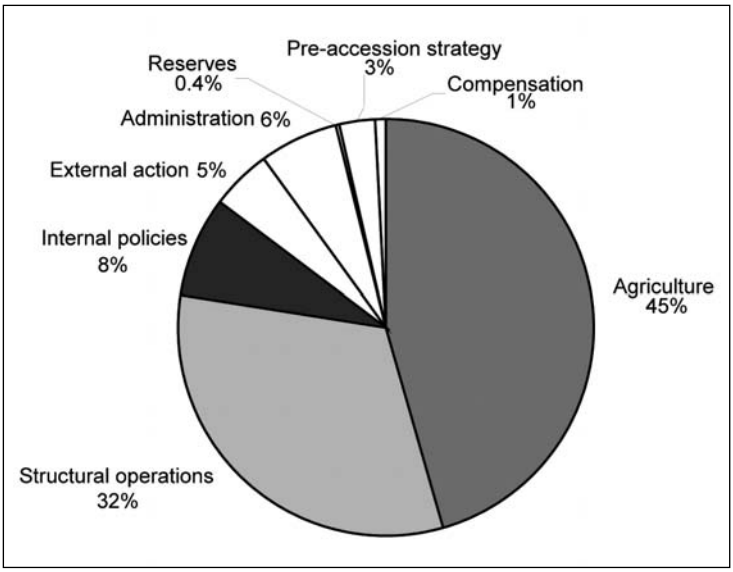

Table 21. The EU's financial perspectives for 2007–2013*

Heading	Total for 2007–2013 (billion Euros)
Heading 1: sustainable growth	
1a) competition for growth and employment	74.22
1b) cohesion for growth and employment	307.919
Heading 2: conservation and management of natural resources (including agriculture, fisheries and environment)	371.344
Heading 3: citizenship, freedom, security and justice	
3a) freedom, security and justice	6.63
3b) citizenship	4.14
Heading 4: the EU as a global partner	51.01
Heading 5: administration	50.3
Compensation	0.8
Total	**866.363**

* Figures are based on the amounts agreed at the trialogue meeting (European Council, Commission and Parliament) 4th April 2006.

Structural and Cohesion funds

Activities supported by these funds aim to address the imbalance between the socio-economic conditions faced in the different Member States. These funds concentrate on the 'Objective 1' less developed regions which for the Green Belt include Northern Finland, the new Member States and Greece. Thus large sections of the Green Belt are eligible for these funds. There are five main funds including:

- The European Rural Development Fund (ERDF)
- The European Social Fund (ESF)
- The European Agricultural Guidance and Guarantee Fund (EAGGF)
- The Financial Instrument for Fisheries Guidance (FIFG)
- The Cohesion Fund

These funds are generally developed through a programme approach, where the Member States develop implementation plans and are also required to co-finance projects. The programmes are also developed in relation to their relevant policy areas, for example the EAGGF supports pillar of the CAP (see next section).

Projects are selected at the national level, and therefore communication with the relevant Ministries and agencies is essential. The funds are mostly used to fund a few large-scale development projects, which tend to concentrate on infrastructure (especially the Cohesion Fund). These projects tend to have a poor record of environmental integration and

biodiversity conservation. A well known example of this is the support provided for the Trans-European Transport Network (TENS-T). Several parts of the TENS-T cross the Green Belt and pose significant threats to, for example, the Danube river corridor. This is one of the EU's major waterway transport corridors. The EU has identified areas along the Danube which are 'bottlenecks' affecting the flow of shipping and which should (and are) undergoing widening and development. However WWF has identified that over 65% of these bottlenecks are Natura 2000 sites (WWF, 2006).

Although the Structural and Cohesion Funds continue to be used for major development and infrastructures that clearly fly in the face of the EU's own environmental and nature conservation policy, they also provide a valuable source of potential funding for the Green Belt. One of the important mechanisms controlled through the ERDF is the INTERREG Programme managed by DG Regional Policy (DG REGIO).

The INTERREG Programme

INTERREG III (the programme for 2000–2006) supports projects that develop cooperation between regions either within the EU or with external countries. There are three main strands:

- Cross-border cooperation promoting integrated regional development between neighbouring border regions;
- Transnational cooperation aiming to promote a higher degree of integration across large groupings of European regions; and
- Interregional cooperation throughout the territory of the Union (and neighbouring countries).[90]

Thus transboundary cooperation is a key element of this programme, which had a budget of 4.9 billion Euros. Recently a project involving the Green Belt was awarded under the CADSES[91] programme of INTERREG. INTERREG divides the EU into 13 different regions, and CADSES is one of the most complex, but contains a large proportion of the Green Belt (see Figure 42). The project which was developed by Salve Consult, aims to strengthen the role of natural heritage as an active factor for regional development to improve the quality of life in less-favoured areas. The project partners will carry out analyses on the major gaps for nature protection in the region, the development of sensitive transport plans and the role of local communities in tourism for the Green Belt. Through the project a common media and marketing campaign would be developed including travelling exhibitions, printed materials in eight languages and web resources. At the same time the project will develop cycle and hiking trails along or through sections of the Green Belt. The consortium implementing the project includes 17 partners (State authorities, regional

[90] http://europa.eu.int/comm/regional_policy/interreg3/foire/faq1_en.htm

[91] Central Adriatic Danubian South-Eastern European Space (CADSES).

authorities, NGOs and sector representations) working in eight countries. With a budget of 1.2 million Euros, it is easy to see how important the results of this project can be for the Green Belt in terms of fostering cooperation and demonstrating the values of biodiversity. Although no one should be in doubt about the complexity of preparing such consortia and projects, they provide one of the most promising areas of financial support for the Green Belt in the future.

Figure 42. The CADSES Region of the INTERREG Programme

Source: www.cadses.net

Agricultural and forestry funds

The CAP has had the single greatest impact on the European landscape of any EU policy. Divided into three pillars, it focuses on 1) direct payments to farmers, 2) rural development and 3) the financial resources to fund activities. Both pillars 1 and 2 of the CAP can have significant impacts on biodiversity both positively and negatively, but in general most environmental activities focus on the rural development measures of pillar 2. Between 2000–2006, almost 50 billion Euros were spent on rural development, with the emphasis being on agri-environmental schemes (13bn), development of rural areas (12bn) and less favoured areas (6bn).[92] Since the accession of the 10 new member states, over half of the population of the EU is considered as living in a rural area, so rural development measures are an extremely important tool.

[92] http://europa.eu.int/comm/agriculture/publi/fact/rurdev2003/en.pdf

The rural development funds can get used in two major ways, either to modernize the agricultural sector, which is done mostly in less wealthy EU countries or to promote environmental land management, which is practised in the more wealthy countries. Countries such as Austria and the southern regions of Germany have used the rural development funds to preserve cultural landscapes and manage environmental land use, whereas countries such as Poland and Hungary have used the funds to modernize their agricultural sectors.

Although these funds will not always be useful for the protection of ecosystems, they provide an important source of funding for the Green Belt. It is also important to remember that these funds need to be matched and co-financed by funds at the national level. Therefore most spending is carried out through programmes identified within each country. As a result close collaboration with state and regional authorities is required.

Although the current funding situation within the CAP is extremely complex, it is being simplified to two main funds: the European Agricultural Fund for Rural Development (EAFRD) and the European Agricultural Guidance Fund (EAGF). The EAFRD is focussing more on the integration of agriculture into the wider landscape, and there are more mechanisms for the financing of conservation-related projects and Natura 2000 activities. Currently the estimated budget for EAFRD is around 75 billion Euros for 2007–2013. Within this fund are four axes that look at different rural development aspects:

- Improving competitiveness of farming and forestry – minimum of 10% of national spending should go on this;
- Improving environment and the countryside – minimum of 25% of national spending should go on this;
- Improving quality of life and diversification – minimum of 10% of national spending should go on this;
- The LEADER Programme – minimum of 5% of national spending should go on this.

The LEADER Programme

The LEADER programme is interesting for the Green Belt because it focuses on the development activities by and for local stakeholders. This programme is implemented through Local Area Groups (LAG) which are public-private partnerships containing a mixture of representatives from different socio-economic sectors. These groups then receive funds and select projects for implementation. Currently (i.e. up to the end of 2006) the priority themes for LEADER are:

- The use of know-how and new technologies to make the products and services of rural areas more competitive (11%);
- Improving the quality of life in rural areas (24%);
- Adding value to local products, in particular by facilitating access to markets for small production units via collective actions (20%);
- Making the best use of natural and cultural resources, including enhancing the value of Sites of Community Interest selected under Natura 2000 (34%).

The Green Belt could be well integrated into these priorities and there is a strong emphasis on improving the natural and cultural heritage of a region (either directly or through improving quality of life). Also there can be a transboundary perspective to LEADER projects. An example of this is the cooperation between eight European wetlands in five countries to improve their natural and cultural value. Within the project, coordinated by Delta 2000,[93] partners have developed an exchange of best practice concerning projects and procedures related to the environment, tourism, rural development and agriculture. The project has also fostered partnerships for transboundary cooperation and used a joint communications strategy for the different regions. The Green Belt has the opportunity to provide the support structure and linking mechanism for a number of local authorities and NGOs which could work together on sustainable development and nature conservation issues.

Nature protection funds

The flagship nature conservation initiative within the EU is its Natura 2000 network of protected areas. Established under the Habitats Directive of 1992 and including the Special Protected Areas established under the Birds Directive of 1979, this network aims to protect Europe's representative species and habitats. Establishing the network is a condition of accession to the EU and the associated regulations have to be passed into national law. Sites are identified by the Member States and proposed lists are passed to the European Commission. Currently the network has been implemented in the former EU member states, with lists accepted for nearly all the biogeographic regions. The process of implementation is underway in the ten countries that joined in 2004 (see Terry *et al.*, this volume, for further discussion). The implementation of this network, which now covers some 18% of the EU's terrestrial surface, was supported through direct funding under the LIFE Nature programme. Between 2000 and 2004, the EU spent 300 million Euros under LIFE Nature, providing a maximum of 50% funding for projects, the remaining co-financing having to come from Member States (AEAT, 2003). Although this may sound a lot, in 2004 the amount spent on LIFE Nature amounted to 0.06% (approximately 60 million Euros) of the EU's annual budget, compared to 34% which went to Structural and Cohesion Funds (WWF, 2006).

However in 2006, LIFE funding comes to an end, and for the EU's new financial period (2007–2013), two financial streams are being followed; the integration of conservation concerns into other budget lines and the establishment of a LIFE+ fund. This is because as Natura 2000 becomes established in countries, much more money is required to implement and manage it. The EU estimates this cost to be approximately 6.1 billion Euros a year,[94] which is seen by many as being a conservative estimate (WWF, 2005). An indicative budget

[93] www.deltaduemila.net

[94] Communication from the Commission on Financing Natura 2000 (COM(2004)431 final).

for this new fund is 100 million Euros, which falls far short of the estimated cost. The Commission sees that most of the money should come from the larger funds associated with rural development, agriculture or structure and cohesion. This need for integration presents an opportunity for the Green Belt to assist countries. Thus there is a real opportunity to use the initiative to work with State agencies on the integration of Natura 2000 sites with the Green Belt into the larger financial funding programmes.

Cultural heritage funds

As has been mentioned several times, the Green Belt's joint vision is to support conservation and rural development. Above I have discussed a number of large funds within the EU focussed on the development of rural communities and how they can also be used for nature conservation within the Green Belt. However there are also funds within the EU for the preservation of cultural diversity. Although much smaller than some of these large development programmes, they could provide an important direction for the Green Belt to take, especially if the initiative is to support the vast cultural diversity found throughout its range. One such programme is Culture 2000, which had a budget of 235 million Euros for 2000–2006. It seeks to encourage cultural creation, improved access to cultural sites, better access to culture and also the preservation of cultural heritage. In this way the programme aims to support projects with a European dimension. For 2007, a new financial mechanism has been proposed that will have an expanded budget up to 400 million Euros. The Green Belt would provide a unique initiative to highlight the diverse cultures found in the border communities in Europe. It could also support cross-border exchanges between communities that were either side of the Iron Curtain.

The future of EU funding

As has been mentioned several times, the EU's financial period comes to an end in 2006, and a new financial period until 2013 starts in 2007. It has taken many years to develop and debate the new budget with several areas of national interest being closely fought over by the Member States. In general the proportion of funding remains similar to that from the previous period, agriculture will receive the largest sums (although less than proposed), closely followed by Structural and Cohesion funds (which were increased) (see Table 2). But there have been some important changes in the ways funds are allocated. Principally, agricultural funds continue to go through reform which is seen as improving their environmental impact, for example through measures such as compulsory cross-compliance. Also the Structural Funds have been re-organized, with the EAFRD providing rural development funding. This will increase coherence and transparency within rural development spending and also stands to broaden the interaction between agricultural and environmental spending. This means that there should be a greater ability for Green Belt projects to profit in the next financial period. But as the EU's nature conservation objectives also see greater integration with these large funds, the Green Belt should be used as a tool to ensure that money is used for conservation and not just development.

Non-EU financial mechanisms

As part of agreements with the EU, European Free Trade Area (EFTA) countries have starting developing Structural and Cohesion Funds to support development in the new EU Member States. Norway for example has allocated 1.17bn Euros for implementation in 2004–2009. This money is partitioned between countries based on population and so Poland receives approximately 50% of the funds. Although studies carried out prior to the allocation of funds identified a number of key needs within the new Member States, particularly environmental projects, the money is not ear-marked for specific issues. Therefore it is up to the governments of the countries involved to partition the money. This approach presents significant concerns, because for example in the Polish case, biodiversity and nature protection (including Natura 2000) are identified as 'Sustainable Development' issues. Poland allocated 24% (€134 million) to Environmental Protection which primarily includes waste treatment, energy and infrastructure and 1% (€5.5 million) to sustainable development! Biodiversity conservation would only make up a small proportion of that 1%. This example is symptomatic of the way in which funds are allocated and provides another reason why the Green Belt has to diversify its objectives to other funding sources or budget lines.

Public-private partnerships (PPP)

Increasingly organizations working within nature conservation are engaging with the private sector. In fact a recent review of 34 IUCN member organizations showed that 30 engaged with the business sector on a regular basis (Heap, 2005). There are two primary reasons for this; to improve the environmental sustainability of corporate activities and to open new sources of funding for biodiversity conservation (Quintela *et al.*, 2004). In general however this engagement is at a very early stage. The IUCN review found that very little guidance existed on the operational level, with most NGO guidelines concentrating on matters of 'principle' such as conditions for acceptance of funds and use of logos.

PPPs can occur at various levels including relationships at the international level with large multi-nationals, for example the current agreement between Rio Tinto, a major mining company, and Conservation International to work together on biodiversity monitoring in West Africa, or at the regional and local level, for example the relationship between the Mobitel mobile phone company in Slovenia and the Sečovlje Salina Nature Park. The Slovenian mobile phone company, which supports different cultural and scientific activities, has shown increased sales of subscriptions through the support of areas such as Sečovlje. For the Nature Park this is a highly visible and positive relationship, although it is vulnerable to changes in the business model of the company. Through careful partnerships such as this it is possible to develop win-win situations. As companies increasingly use environmental or social responsibility to 'sell' their image, this form of collaboration will become increasingly common. There is a vast range of different forms that such collaborations can take and it will require imagination on the part of those working for nature conservation to identify opportunities that match their needs. For the Green Belt possible opportunities include

partnerships with tourism providers, food and drink companies, local businesses, publishers, and given the range of the Green Belt, large multi-nationals. This should be a future area of investigation for the Green Belt initiative.

Conclusions

I have tried to present a broad overview of the direction that global conservation financing is taking in the coming years and what this could mean for the Green Belt. In general, to maintain financial sustainability, conservation organizations and initiatives have to diversify the funding sources they approach. This need for diversification and shifting donor focus towards the integration of conservation into broader humanitarian goals is not necessarily a threat to the Green Belt, and in fact could support future funding for the initiative. To date, projects in the Green Belt have focussed on its conservation objectives – i.e. on identifying and working with the 'pearls'. Although these areas are very important for biodiversity, it is the broader landscapes that desperately require attention throughout the Green Belt.

As we have seen, bilateral and multilateral donor support within the Green Belt, currently focuses on South Eastern Europe. As these countries go through political and economic reform in the coming years, this focus is unlikely to change; although already increasing attention is being paid to Central Asia. Project financing for the Green Belt has been greatest for this region. There are limited opportunities for securing donor support in Central Europe and effort should be put into securing funds in the Karelian region of Russia where there is a strong need for conservation work. European Community financial support is increasingly important for the Green Belt.

Some of the EU's largest funds go to supporting structural rural development in Central Europe, and this provides the initiative with an opportunity to access these funds to integrate conservation into rural development. Already there has been one successful INTERREG project in the region. Also there are numerous funds that support cooperation with non-EU Member States, e.g. TACIS. Of course there are significant difficulties associated with this approach, mostly through the need for national co-financing and the complexity of preparing submissions, but the Green Belt should provide a tool to develop the necessary partnerships between stakeholders and to share experience with project development. With this in mind the Green Belt has the potential to act as a major enabler of conservation finance throughout its range.

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19. The future for the Green Belt

Andrew Terry, Karin Ullrich and Uwe Riecken

Abstract

Starting the European Green Belt has been a major undertaking and as the contributions to this volume show, the first years of its implementation have been busy and successful. This initiative forms an important contribution to the growing body of work on transboundary cooperation at the international level. Examples in other parts of the world include the Mesoamerican Biological Corridor and the Yellowstone to Yukon initiative between the USA and Canada. Such initiatives often mix nature protection objectives with regional planning and sustainable development. They also emphasise the importance of working with local stakeholders. The Green Belt is also being identified as a role model for other Green Belts elsewhere in the world. To ensure the future sustainability of the Green Belt in Europe, the initiative will have to continue to increase the number of partners it works with and also the different sectors that it engages. Most of all it must continue to show its added value to those protecting habitats in border regions and supporting the sustainable development of rural communities.

Introduction

The Green Belt concept, which was already developed separately in two regions – Fennoscandia as purely a biological network, and Germany as both a historical monument and a biological network – has now been broadened to include 22 countries. Within the space of 18 months of the first working group meeting in 2004, of which this publication is the result, there are at least five major pan-Green Belt projects under way supported by international donors as well as numerous regional and national projects. The articles within this book provide some insight into the many different activities that are going on within the Green Belt, and also the wide range of issues and topics which the initiative has to address in the future. Initially the Secretariat has had a close role in the development of these projects, but increasingly it will find that the concept takes a life of its own and projects develop independently within the different sections. Thus in this chapter we would like to give a broad view of some of the issues that the initiative will have to approach as it expands and develops over time.

But the Green Belt does not act alone; it fits within an institutional framework that includes European and global multilateral environmental agreements, such as the EU Nature Directives, the Pan-European Ecological Network and the CBD. As such, ours is but one initiative in an increasing global portfolio of major transboundary cooperation projects. Therefore we will also take this opportunity to discuss how the Green Belt fits within this global setting and how it can relate to some of the other, either active or proposed, major initiatives.

The global context

Transboundary cooperation for conservation is not a new concept; the first transboundary protected area, the Waterton-Glacier International Peace Park, was founded in 1932 between Canada and USA as an international symbol of peace and cooperation (Mittermeier *et al.*, 2005). In Europe, following the example of the cooperation that was developing in North America, Poland and the former Czechoslovakia started negotiations on the designation of bilateral protected areas (Brunner, 1999). The first transboundary protected area in Europe was the Pieniny Nature Reserve between Slovakia and Poland (Brunner, 1999).

But in most cases it took many more years for the concept of transboundary cooperation to spread, with the concept being implemented in Central America in 1974 and Africa in 1992 and the world's first transboundary marine protected area was initiated in 1996 in Asia (Mittermeier *et al.*, 2005). Generally States have looked at the national level when declaring protected areas for their nature, and not beyond. The inclusion of transboundary cooperation as an active conservation goal and associated activity has increased dramatically within the past 30 years. In 1997, a review found 136 complexes containing 488 protected areas (Zbicz and Green, 1997). By 2001, this had increased to 169 complexes containing 666 protected areas (Zbicz, 2001). In the most recent analysis in 2005, this has now increased to 188 complexes involving 818 protected areas (Mittermeier *et al.*, 2005). However these statistics belie the fact that many of the areas were classified because they formed protected areas either side of a border. Yet in many cases cooperation between the two was fairly low. This has been changing in recent years, and as Mittermeier *et al.* (2005) note, transboundary conservation is "a concept whose time has come" (p.27). In this section we highlight several global initiatives that are very close in their objectives to the Green Belt. In most cases these are not standard transboundary protected areas, but fall more broadly into the concept of transboundary conservation areas, which are defined by IUCN as areas in which "protected areas may be, but not necessarily so, a feature of the regional landscape, but where conservation and sustainable development goals have been asserted within a framework of cooperative management."

The Yellowstone to Yukon Initiative (Y2Y)

The Y2Y initiative is a cooperation between over 170 organizations spanning the Yellowstone to Yukon ecoregion of the North Western United States and Canada (Willcox *et al.*, 1998). The ecoregion starts in Wyoming and stretches north for 3,200km to the Yukon in North West Canada. The initiative aims to maintain landscape and biological diversity along the backbone of the Rocky Mountains and covers approximately 1.2 million km^2 of primarily tundra and coniferous forest (Merrill and Mattson, 1998). The region is the only place in North America that is home to all the large mammals that were present before human impacts in the last two centuries started decimating their numbers. Similar to the Green Belt, the initiative does not have explicitly stated borders. In general the edges of the initiative correspond to the ecological boundaries along the eastern foothills and the western inland-coastal watersheds, but they are permeable and depend on the projects or processes under consideration.

At the same time the region is home to some 31 different First Nations/Native American groups who have lived and used the land for over 10,000 years. Within the region the initiative developed a coherent conservation plan, which aims to establish an ecological network for the region, containing core areas, corridors and buffer zones within a matrix of multiple-use landscapes (Noss, 1998). Currently there are 17 core areas and corridors identified within the region. However the area is also brought together by the threats it faces.

In general the region faces numerous threats from the over-exploitation of natural resources. Estimates of resource extraction show that almost half the region was being harvested for timber (approximately 400,000km^2), while oil and gas extraction has seen the drilling of 51,000 wells and the construction of 163,200km of road for access (Sawyer and Mayhood, 1998). With plans to maintain oil and gas production, an additional 137,000 wells will have to be dug before 2015. However these sectors have seen a declining role in the economic development of the areas, with most income being generated from non-labour sources such as returns past investments (Rasker and Alexander, 1998). Between 1986 and 1991, 99% of new jobs were in this sector. The region now enjoys considerable economic growth with over 115m visitors a year. This growth however has brought a new breed of threats with recreation activities now impacting on species and habitats (Soulé, 1998).

As the region continues to develop, Y2Y faces the same sorts of issues as the Green Belt. The initiative has to support regional development but at the same time ensure that the core areas and corridors remain for the populations of large carnivores and other species. Importantly the initiative acts with a wide range of stakeholders including conservation organizations, regional and federal authorities, schools, social groups and local communities. The initiative works with local communities through an approach called community stewardship – which "includes locally driven efforts to protect the ecological integrity of an area while striving to meet economic and social needs". This approach is very similar to the community conserved area (CCA) approaches adopted in many developing countries and has important implications for major conservation initiatives. We explore this notion of CCAs later in this chapter.

The Mesoamerican Biological Corridor (MBC)

This landscape corridor initiative spans the southern states of Mexico and the Central American countries of Guatemala, El Salvador, Nicaragua, Belize, Honduras, Costa Rica and Panama. The goal is similar to that of the Green Belt to conserve ecosystem and biological diversity and support regional sustainable development. But in many respects it exists on a far greater scale. The MBC encompasses whole countries in the region, trying to establish a coherent network of protected areas and sustainable land use. In total it covers almost 0.5% of the world's terrestrial surface with virtually the whole area being designated a biodiversity hotspot. The region is host to a vast store of biodiversity, however for many years it was ravaged by civil conflict. This period has now passed, but the natural resources of the region have been heavily over-exploited, there is a great inequality in wealth and almost half the population of the region remain below the poverty line (Miller *et al.*, 2001). Towards the end

of the nineties, the region was also ravaged by natural disasters including Hurricane Mitch in 1998, major earthquakes, floods and forest fires. The impacts of these disasters were exacerbated by the land-use changes and exploitation of natural resources in the region.

The MBC was born out of the reconstruction process that took place in the region. National administrations, civil society and also the international donor community recognised the need for urgent action to protect and restore Central America's biodiversity. Several initiatives took place at the political level which included the development of inter-regional agreements on protected areas and the linking of democracy, health, environment and development. The MBC itself started as a project to develop a corridor for the Florida panther through Mexico and Panama, called Paseo Pantera. This project which focused on biological aspects was broadened both geographically and in its objectives to the whole of the Central American region. Receiving further endorsement from the heads of state of these countries, the initiative has received most of its funding from the Global Environment Facility (GEF) which has run projects on the whole network and at the regional level.

The MBC was created in part in response to criticisms that the Paseo Pantera faced from local communities who feared that their land could be co-opted for conservation purposes. However, while the MBC has been implemented well at the large scale, acting to unite leaders from eight Central American countries, and to attract international donor support for conservation in the region – it has also been criticised for its implementation at the local level (Miller *et al.*, 2001). It is extremely difficult to ensure that projects which are started at an international level reach down in an effective and equitable way to local level. Indeed the Green Belt shares the same aims of being effective at the local to the international levels and the experiences of the MBC should serve to guide efforts with this initiative. Although it is true that the MBC has a far more difficult task to ensure the effective participation and sharing of costs and benefits among local communities, the Green Belt states clearly that it aims to support rural communities to enhance their economic development. Conservation initiatives in these regions cannot act to create new barriers or place restrictions on land use on the people they aim to support. The MBC remains a very important initiative that aims to rethink the way in which land-use planning is managed to support development and conservation. Similarly to the Green Belt, the MBC faces numerous challenges to integrate stakeholders at different levels and with very different objectives, which lead to differing expectations from the initiative. Implementing measures that build trust among stakeholders and confidence that the initiative can deliver its objectives and not pose an additional constraint on development or a draw on conservation money are essential in the coming years.

The Demilitarized Zone (DMZ) between North and South Korea

The previous two examples from North and Central America describe large-scale initiatives based on ecological premises that share similar aims to the Green Belt to support conservation and rural development. Here we discuss a potential future initiative that is similar to the Green Belt from its political and historical origin. The demilitarized zone

(DMZ) is a strip approximately 4km wide and running for 248km between North and South Korea. It originally delineated the US and Soviet controlled sections of Korea at the end of the Second World War. At the end of the Korean War in 1953, the Armistice detailed that a 2km buffer was to be established either side of the front and it also specified the troop numbers that could be placed in that zone. Since that time it has become one of the more tensely guarded barriers in the world and active troops are kept in the region. The border is still closed to movement. However there are two villages within the DMZ, one on the Northern side and one on the Southern – both are strictly controlled. As with the Iron Curtain, the lack of human occupation and use in the last 50 years has left nature largely undisturbed and now the DMZ represents one of the most complete temperate forest habitats in the world.

There is considerable interest among the environmental and NGO community in establishing the DMZ as a wildlife corridor. In South Korea, especially, there is widespread commercial interest in developing the region either for industrial or tourism purposes. However there are a number of significant barriers. First and foremost is the reluctance of the two governments to work together or even in the future to work towards a re-unification. On a practical level the whole area is riddled with land mines, making it an extremely dangerous place to work.

In South Korea there is currently only a little forestry or agricultural use. Therefore nature has had the chance to develop more or less undisturbed. The forests especially are in good condition whereas the forests in North Korea have suffered severe negative impacts from human activity due to the lack of energy for heating and cooking. Accordingly different NGOs, representatives from administrations and scientists in South Korea are trying to promote the region as a wildlife corridor and are getting prepared for a future reunification. In the meantime the DMZ is one of the three "national ecological core patches" of the eco-network of the Korean peninsula (Ministry of Environment Republic of Korea, 2005). In August 2005, a special ecological conservation plan was established and implemented by the Korean Ministry of Environment based on the findings of a three-year research programme in this region. Additionally a discussion on designating the DMZ as a UNESCO biosphere reserve has been started between North and South Korean Ministers of environment to enhance environmental cooperation between both states (Ministry of Environment Republic of Korea, 2005).

As a result of this interest Korean officials and NGOs have made several visits to Germany and have organized several workshops and events on the topic of the Green Belt. One workshop was organized by the Korean office of the German Hans-Seidel-Foundation during the Asia-Europe Environment Forum "1/3 of our planet: What can Asia and Europe do for sustainable development", 23–25 November 2005 in Jakarta. During this workshop, representatives from BN Bayern and the German Federal Agency of Nature Conservation (BfN) presented an overview on the German and European situations and the nature conservation activities along the Green Belt. The German and European Green Belt initiatives will be presented during the conference on "The DMZ's Ecology and Peace of the

Korean Peninsula", organized by the Dongguk University in Seoul in May 2006. Finally, the first steps towards the implementation of cooperation between German and Korean NGOs (Friends of the Earth) were taken in November 2005.

The Green Belt goes global

As these different examples show, the Green Belt fits within a growing group of large transboundary conservation initiatives that aim to support regional development and conservation. They all recognise the need to maintain the diversity and integrity of landscape features, and also the need to support the development and growth of local communities. These initiatives are no longer about protected areas alone; but instead they form regional planning and land-use concepts within which protected areas act as core areas. Furthermore they are all initiatives that can and are communicating beyond the biodiversity or development 'worlds'. Importantly they are able to speak to the general public and to communicate broad issues. Thus for any of these initiatives to truly succeed, i.e. to become self-sufficient and not reliant on top-down international donor support, they must work closely with local communities and gain their trust. Once local communities and authorities see the benefits of these initiatives, the concepts will be able to filter into broader development objectives (such as employment and infrastructure). The Green Belt can learn a lot from both Y2Y and the MBC as to how this has been implemented to date, and it should be able to work with NGOs and administrations in the DMZ of Korea on future initiatives.

Extending the Green Belt in Europe

Of course there is also considerable room for expansion within Europe. As stated several times the Green Belt initiative was started around a past political barrier – the Iron Curtain – and did not focus on the most important eco-regions of Europe. There are numerous other sites that represent important eco-regions and also important economic and political barriers that could use the Green Belt as a basis for initiative transboundary cooperation. One of the largest of these areas is the border zone that runs from the Baltic to the Black Sea between Poland and Belarus and the Ukraine. This region which spans 1,300km had a similar history to the Iron Curtain border, for many years it has been closed and suffered from the mass migration of people away from the area. In 1992, a draft inventory was made of the border region between Poland and Belarus which forms one of Europe's most important biodiversity regions. Based on this inventory a series of proposals were made for transboundary protected areas. Currently this remains a proposal due to lack of funds. In 2004 when Poland joined the EU, this border became the external border of the EU. This has the potential to have significant negative and positive effects. The negative effects have already been established as fences were built along the border even between the Bialowieza National Park in Poland and the Belovezhskaya Pushcha National Park in Belarus. Now people require a visa to travel across the border, where once movement was less restricted. There is considerable interest among the experts who have been involved in the Green Belt to see activities start in this region. It is important for the initiative to become established

around a single coherent concept though, and until it is almost self-sufficient, or until the Green Belt is widely recognised, it would be unwise to broaden the scope too quickly. However at the same time there is a pressing need to support activities in this region and so it is likely that the Green Belt Secretariat will work with local experts and NGOs on a concept or pilot projects for the region.

Ensuring the success of the Green Belt in the future

Throughout this publication authors have discussed the various activities that are currently happening within the Green Belt and many of the issues that need to be addressed in the future. Here we aim to discuss some of the operational issues that the Green Belt will have to address in the coming years. Ultimately, even with all the external financial support possible, it is these factors that will determine whether the Green Belt can have an added value outside the immediate circle of the biodiversity community, and can be a truly integrative initiative. Also we have to be honest that it is acting against a long history of initiatives that never really managed to capture the imaginations and support of the public and regional authorities. We all know initiatives that have a high profile while they have equally high financial support, but once that support dries up, so does the participation. But at the same time we also need to recognise that these initiatives do not become successes overnight and need years rather than months to work into people's minds.

Working with all partners

As would be expected for an initiative this young, the drive for project development and the funding is coming from a small group of organizations with a background of working within international projects. Many other organizations have also expressed interest and are members of projects, but are yet to be initiators of action. The structure of the Green Belt was designed to promote integration and participation. There is a need to have national focal points, experts within nationally accredited institutions who can act for the State, be active participants in projects. These national focal points and countries involved are grouped into the three organizational regions to allow specific regional issues to be dealt with more effectively (see Riecken *et al.*, this volume, for details). The role of the national focal points is an important one; these people provide the direct links with the State and have the opportunity to promote State participation in activities and to promote the initiative as a tool the State can use to realize conservation and development objectives and commitments. To date the level of involvement of national focal points has varied considerably among countries, and more work is required on behalf of the secretariat to establish regular lines of communication with them. There have been successful examples of collaboration, for example the involvement of Croatia in an INTERREG IIIB CADSES project resulted from the focal point for Croatia meeting project participants at a Green Belt Central European regional meeting. This is exactly the situation that the Secretariat is keen to foster and it is also an example of how national authorities can benefit from the Green Belt. With more communication this sort of success should become more regular.

Linking to the local level

Better communication and interaction with national focal points is one aspect, but efforts also need to be made to support communication with NGOs and institutions working at the local level. The Green Belt can provide a very useful tool for these organizations to communicate their activities and to share experience. Furthermore it can provide a tool for these organizations to participate in large-scale projects. Discussed by Terry (this volume) earlier, several programmes within the EU provide mechanisms that could be used by the Green Belt to work with local organizations. Principally this is the LEADER programme which is being identified as a future tool for conservation and rural development within the new financial perspective of the EU.

Initially at least efforts to engage with the local level will have to come from the Secretariat and the regional coordinators. Currently there is a project underway, being supported by the Dutch Government, which is developing concepts for action within the Green Belt at the local level and is working with local communities in Serbia and Montenegro on transboundary cooperation. Effort is underway to increase this activity at the local level and to communicate it throughout the initiative.

Working in all regions

The directions in which the international donor community focus their attention also has an impact on the way in which large-scale initiatives can focus their activities. Currently the project portfolio of the Green Belt shows the greatest diversity of different donor types for Central Europe, with projects from the European Commission, bilateral donors, national donors, and NGO activities. In South Eastern Europe the portfolio contains the largest projects but mainly from international or bilateral donors. In terms of project development the Fennoscandian region shows the least development. This is in part due to the only very recent identification of a regional coordinator for it, but also because of the comparatively low level of communication between the Secretariat and stakeholders in the region. Fennoscandia has a long history of working on trilateral cooperation for the border region within the "Green Belt of Fennoscandia" initiative, which was aimed solely at nature conservation (Karivalo and Butorin, this volume). The Secretariat has to enhance communication with organizations and focal points in the region. An immediate focus is to work with organizations in the region to identify areas of collaboration for the Green Belt and to start some pilot projects. Already a good step is the first Fennoscandian Regional Meeting which will take place in late 2006.

Working with the private sector

Traditionally working with the private sector has posed a problem for nature conservationists. Most of the impacts that NGOs respond to are caused by private sector resource use. Furthermore the need to maximize profitability has made it difficult for people to see a link between the two groups. Increasingly however organizations are working with

the private sector and also there is awareness on the side of the private sector that it is possible to balance profitability with sound resource use. Also within large corporations the fields of corporate social responsibility and quality management are becoming increasingly important. CEOs recognise their value as they most often mention such activities in their statements to shareholders. Therefore there is scope for positive collaboration and also there exist some innovative examples, such as the Secovlje Salt-pans Landscape Park in Slovenia which is supported by a large mobile phone company as part of its corporate social responsibility. The company has been able to show that supporting the protected area has benefited their sales (see Terry, this volume).

Within the Green Belt Programme of Work, there are several tasks foreseen to include working with the private. The potential for tourism within the Green Belt is discussed elsewhere in the publication (Engels and Gerling, this volume). But also discussed is the development of a brand for the Green Belt that could be used with services and products. This is something that takes time to develop (although the Programme of Work foresees it happening in 2007) and can only really start once the initiative has a sound project base and a good record with local authorities and good communications. But the Green Belt does also provide an interesting prospect to market regional products and tourism services. There are a number of ways how the Green Belt can start to initiate interest in regional products, for example by simply highlighting what parts of the Green Belt are known for what products. If browsers on the website can view different parts of the Green Belt and see what conservation projects are happening they should also be able to see what wines are produced there or whether their area is known for its craftwork.

Conclusions

Throughout this publication we have seen that the Green Belt has got off to a flying start with projects being implemented from different donors and at different levels. We also focussed on the unique character of the Green Belt as both an important part of a European ecological network as well as a living monument with outstanding historic importance opening up good chances for sustainable regional development.

In this chapter we have tried to place this initiative within the broader scope of initiatives happening at the global level, and have shown how these different approaches can support each other. We then turned our attention back onto the initiative in Europe and have tried to identify some areas that the Green Belt will have to concentrate on to ensure its longevity. We have emphasised the need to work at the local level and to communicate these achievements throughout the network. Above all in the coming years the Green Belt has to continue to show its added value for the conservation of border regions and the generation of development opportunities for their communities.

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Appendix 1.
The Green Belt Programme of Work

Programme of Work

In 2004, experts and national representatives from the countries along the Green Belt met at the Fertő-Hanság National Park in Hungary to launch the initiative and identify the steps required to make the Green Belt a success. The main outcome of this meeting was the Programme of Work which was then consulted widely among stakeholders and partners along the Green Belt. The Programme document is modeled on the Convention on Biological Diversity Programme of Work on Protected Areas. There are three overall Programme elements that outline the actions required to meet the objectives of the initiative and the activities that will support the realization of these actions. There are seven goals, each of which contain a number of time defined targets. For each goal, the activities are separated by whether the Secretariat or the Stakeholders should carry them out. In this way it is possible for the Secretariat – held by IUCN ROfE – to support the activities of stakeholders and vice versa. By developing a series of time defined and concise targets it is hoped that this document will promote activities 'on the ground' and ensure that the Green Belt becomes a physical reality.

ELEMENT 1	DIRECT ACTIONS FOR THE ESTABLISHMENT OF THE EUROPEAN GREEN BELT
GOAL 1:	The establishment of the European Green Belt as a functional ecological network
GOAL 2:	The Green Belt becomes an established and respected mechanism for the sharing of knowledge, experience and best practice on transboundary cooperation for nature conservation and sustainable development.
GOAL 3:	The Green Belt becomes a viable tool to assist the sustainable development of communities at the local level within its range.
GOAL 4:	The Green Belt becomes an ecological laboratory to study landscape and continental scale ecological processes and the response of habitats and species to major ecological changes.

ELEMENT 2	INSTITUTIONAL STRUCTURE AND STAKEHOLDER PARTICIPATION
GOAL 5:	The Green Belt operates with a transparent and efficient structure that ensures the largest participation possible of all interested stakeholders.

ELEMENT 3	ENABLING ACTIVITIES
GOAL 6:	The Green Belt becomes a widely acknowledged initiative within participating countries and among international organisations.
GOAL 7:	The Green Belt is recognised as a 'brand' for products and activities that enhance local and regional sustainable development and nature conservation.

Within each goal, the Programme identifies targets and activities that are suggested to be undertaken by the stakeholders involved in the initiative and the secretariat. These targets and activities have been devised to ensure that they are SMART:

SPECIFIC, MEASURABLE, ACHIEVABLE, RELEVANT AND TIMED

The Programme of Work will be annually assessed and compared to the activities taking place within the Green Belt.

european greenbelt

The Programme of Work 2005

PROGRAMME ELEMENT 1

Direct actions for the establishment of the European Green Belt.

This details the actions that need to be taken in the establishment of the Belt in the different ecosystems and countries that run along the belt. It lists specific targets and priorities for each country involved.

GOAL 1 **The establishment of the European Green Belt as a functional ecological network**

Target: By 2010 the European Green Belt is established securing its development to a functional ecological network, being representative of the ecosystems along its route. It will serve to embed the protected areas involved further into their surrounding landscapes. As such the Green Belt will become an important contribution to the commitments made by EU heads of State and Pan-European Environment Ministers to halt the loss of biodiversity by 2010. The Green Belt will contribute to the Pan-European Ecological Network and will help EU Member States to fulfill their obligations to the Habitats Directive, including Article 10 concerning connectivity. The Green Belt will also become an important contribution to the CBD Programme of Work on Protected Areas Goal 1.3 , as well as to other international conventions and initiatives .

SUGGESTED ACTIVITIES OF STAKEHOLDERS:

1.1.1: By 2006 make available to the Secretariat relevant data stored by NGOs or international and national agencies to be accessed and used for the production of a GIS map and database of the entire Green Belt to be accessible, as far as is permitted, to all stakeholders.

1.1.2: By 2006, develop a portfolio of running projects and project proposals to take place at the local level in regions along the Green Belt.

1.1.3: By 2007 conduct a gap analysis to identify priority areas i.e. undesignated areas, vulnerable habitats, etc. for Green Belt activities

1.1.4: By 2007 complete an assessment of the 'status' of the Green Belt along its route (e.g. status of protected areas, levels of infrastructure development, water quality, species status)

1.1.5: By 2007 transboundary projects are initiated to support integrated water basin management within the Green Belt

1.1.6: By 2008, the Green Belt becomes part of national action plans for the development, management and enhancement of protected areas and the fostering of transboundary cooperation.

SUGGESTED ACTIVITIES OF THE SECRETARIAT:

1.1.7: Facilitate the initiation of a project to create a GIS map of the entire Green Belt by 2006, including information on all protected and designated areas under national legislation and international treaties.

1.1.8: Prepare maps for educational and tourist purposes under the corporate design of the Green Belt.

1.1.9: In collaboration with stakeholders, the Secretariat should identify several representative regions along the Green Belt, within which to focus activities. These focal regions will act as case studies to highlight the benefits of the Green Belt to national and regional authorities and the public. These case studies will then be disseminated to all potential actors and the general public (e.g. "Green Belt region of the Year")

1.1.10: Coordinate with national authorities and NGOs the identification of representative species that could be used to provide a public face for the Green Belt. These species would be used as one informal 'barometer' of the status of the Green Belt over time and a reminder of the important biodiversity within the region.

1.1.11: In collaboration with stakeholders initiate and support the establishment of protected areas and protected corridors within the Green belt in order to close identified gaps and enhance connectivity.

1.1.12: Promote the Green Belt towards the major international agreements to ensure that the Green Belt remains a useful tool for the protection of biodiversity.

1.1.13: Initiate a study on the change in status of relevant species and habitats in the Green Belt and on the changes in different forms of land use etc.

1.1.14: Initiate an assessment of the natural and cultural sites along the Green Belt.

1.1.15: Promote the ecosystem approach as a tool for integrated management of biodiversity.

GOAL 2 **The Green Belt becomes an established mechanism for the sharing of knowledge, experience and best practice on transboundary cooperation for nature conservation and sustainable development.**

Target. By 2008 the necessary mechanisms are in place and are running to allow participants to share and use positive/negative experiences in transboundary cooperation. Information will be available on diverse issues such as funding, management plans, conflict resolution, public-private collaboration etc.

SUGGESTED ACTIVITIES OF THE STAKEHOLDERS:

1.2.1: Stakeholders share their experiences of collaboration for transboundary cooperation.

1.2.2: Stakeholders share positive and negative experiences of working with actors working outside the environmental sector.

1.2.3: Stakeholders include the Green Belt initiative into project proposals they develop.

1.2.4: Stakeholders active in the area of the Green Belt inform the Secretariat of all projects and their status to allow an overview of activities.

1.2.5: Stakeholders translate information into local languages.

SUGGESTED ACTIVITIES OF THE SECRETARIAT:

1.2.6: The Secretariat makes it possible for stakeholders to share experiences in local initiatives from different regions of the Green Belt, primarily through web tools, a printed newsletter and accessible database.

1.2.7: The Secretariat pursues links with the private sector and explores possible collaborative projects to raise the profile of sustainable activities within private practices.

1.2.8: The Secretariat works with actors (organisations, authorities etc), outside the environmental sector (e.g. transport, infrastructure, development, tourism) to promote synergies with the Green Belt.

GOAL 3: **The Green Belt becomes a viable tool to aid the sustainable development of communities at the local level within its range.**

Target: By 2006 projects have been successfully initiated within the Green Belt focussing at the integration of biodiversity conservation and sustainability into local land use practices.

SUGGESTED ACTIVITIES OF THE STAKEHOLDERS:

1.3.1: Partner organisations identify funding opportunities for local level projects and seek to integrate the Green Belt concept into them.

1.3.2: Stakeholders integrate the Green Belt into events organised at the local level.

1.3.3: Stakeholders inform the secretariat of projects approved under the Green Belt initiative

SUGGESTED ACTIVITIES OF THE SECRETARIAT:

1.3.4: The secretariat seeks funding sources, especially EU level funding, and coordinates the creation of consortia of organisations to work with transboundary cooperation at the local level.

1.3.5: The secretariat develops a Green Belt corporate design for use by the stakeholders.

GOAL 4: **The Green Belt becomes an ecological laboratory to study landscape and continental scale ecological processes and the response of habitats and species to major ecological changes.**

Target: By 2007 the Green Belt becomes a target area for landscape and biodiversity research projects.

SUGGESTED ACTIVITIES OF THE STAKEHOLDERS:

1.4.1: Green Belt stakeholders actively seek partnership and funding for the development of large-scale research projects along the Green Belt.

SUGGESTED ACTIVITIES OF THE SECRETARIAT:

1.4.2: The secretariat works to ensure that by 2007 the Green Belt is part of at least one major research project concerning the landscape ecological processes.

PROGRAMME ELEMENT 2

Institutional structure and stakeholder participation.

This details the roles of the different actors in the initiative, including major international NGOs, national NGOs and the countries involved. It details the structure of the different working groups and the reporting and activity obligations.

GOAL 5: **The Green Belt operates with a transparent and efficient structure that ensures the full participation of all stakeholders.**

Target: By 2006 national focal points have been established for all countries along the Green Belt and are working with the initiative under a shared set of 'Operative Principles' to be developed in collaboration with them.

SUGGESTED ACTIONS BY THE STAKEHOLDERS

2.1.1: Countries bordering the Green Belt ensure that there is a representative authorised by their respective state agency responsible for nature and regional development that represents their country within the Green Belt initiative, hereafter called the 'National Focal Point'.

2.1.2: National focal points propose synergies between their duties and Green Belt activities through promoting the incorporation of the Green Belt within state conservation projects and mechanisms.

2.1.3: National focal points promote collaboration between the Green Belt and national administrations outside nature conservation, e.g. transport or development.

2.1.4: Stakeholders ensure that the Secretariat is fully informed of project planning and communications activities made under the Green Belt.

2.1.5: All stakeholders strive to create new synergies between their respective activities and increase cooperation between national focal points, state organisations and NGOs.

SUGGESTED ACTIONS BY THE SECRETARIAT

2.1.6: As soon as possible the Secretariat develops a set of 'Operative Principles' consulting them with national focal points and regional coordinators.

2.1.7: By mid-2005 the Secretariat ensures that there is a Green Belt coordinator position created, that is dedicated to overseeing this initiative.

2.1.8 By the end of 2007 Secretariat undertakes a review of lessons learnt implementing the Programme of Work.

2.1.9: The efficacy of the institutional structure is assessed on an annual basis and the Secretariat identifies improvements and changes.

Target: By 2006 regional subdivisions are established for the Green Belt and are being coordinated by organisations with sufficient experience and expertise in that region and which are recognised by the stakeholders in the region.

SUGGESTED ACTIONS BY THE STAKEHOLDERS

2.2.1: Regional coordinating organisations organise annual workshops in their region to discuss current activities in the Green Belt.

2.2.2: Regional coordinating organisations prepare annual reports on activities and developments in their region.

2.2.3: Regional coordinating organisations ensure full communication with national focus points and stakeholders at the national level, and advise the Secretariat on important issues in their region as they develop.

SUGGESTED ACTIONS BY THE SECRETARIAT

2.2.4: As soon as possible the Secretariat develops a Memorandum of Understanding in consultation with the organisations that will act as regional coordinators.

2.2.5: National authorities are consulted as to which regional subdivisions best suit their work.

PROGRAMME ELEMENT 3

Enabling activities.

This element identifies the different activities and tools that will be used to ensure that the targets in Elements 1 and 2 are achieved. Primarily these relate to targeting funding opportunities, communications tools and the exchange of information and best practice between countries and experts involved in the initiative.

GOAL 6: **The Green Belt becomes a widely acknowledged initiative within participating countries and among international organisations**

Target: From 2005 on the Green Belt is promoted at relevant national and international forums, and synergies are identified between the Green Belt and other national and international initiatives

SUGGESTED ACTIONS BY THE STAKEHOLDERS:

3.1.1: Partners inform the Secretariat of project and funding opportunities as they arise along the Green Belt.

SUGGESTED ACTIONS BY THE SECRETARIAT:

3.1.2: The Secretariat supports the administrative and communications /promotional activities of the Green Belt.

3.1.3: From 2005 the Green Belt Secretariat strives to initiate and coordinate the implementation of the projects on the ground.

Target: By 2006 the necessary communications methods are established to ensure the wide dissemination of information to relevant stakeholders, participants and policy-makers.

SUGGESTED ACTIONS BY THE STAKEHOLDERS:

3.2.1: Stakeholders engage with the Secretariat to offer information and input into the content of the website as well as to translate the main information into local languages.

3.2.2: Stakeholders offer the documents and experience that can be shared broadly.

SUGGESTED ACTIONS BY THE SECRETARIAT:

3.2.3: By mid-2005 the Secretariat has successfully secured financial support and initiated the development of a Green Belt website that is the information hub for the entire initiative.

3.2.4: The Secretariat ensures that the Green Belt website is regularly maintained and updated.

3.2.5: The Secretariat develops a newsletter that is available in print and electronically (by 2006) to be distributed to all stakeholders and contributes to existing newsletters, updating them on developments and activities in the initiative.

3.2.6: The Secretariat secures funding for a workshop every two years to take place in a different country each time to discuss the current and future developments taking place within the Green Belt.

3.2.7: The Secretariat organises biennial workshops with a host country and local organisation.

GOAL 7: **The Green Belt becomes a 'brand' for products and activities that enhance local and regional sustainable development and nature conservation.**

Target: By 2007, a concept for Green Belt brand is established to create a brand that is sought by organisations and businesses to attach to their products.

SUGGESTED ACTIONS BY THE STAKEHOLDERS:

3.3.1: Stakeholders propose products, which could be used to promote the use of the brand in different regions of the Green Belt.

3.3.2: Ideas on how to use the brand are collected and sent to the Secretariat, which will develop proposals for discussion at the regional or national level.

SUGGESTED ACTIONS BY THE SECRETARIAT:

3.3.3: The Secretariat should initiate the development of terms of reference permitting the use of this brand.

3.3.4: By 2007 a number of test cases should be established to promote the use of the brand in different regions.

3.3.5: By 2008 the Secretariat should work to launch the brand and ensure it is functioning and generating interest from local and regional businesses.

Target: By 2007 the Green Belt has successfully integrated its activities with local and regional businesses, providing a working mutually beneficial example of public-private partnerships.

SUGGESTED ACTIONS BY THE STAKEHOLDERS:

3.4.1: Stakeholders should initiate pilot projects working with private-public partnerships.

SUGGESTED ACTIONS BY THE SECRETARIAT:

3.4.2: The Secretariat will seek to secure funding for a pilot study to review existing private-public partnerships along the Green Belt and to establish guidelines for future interactions.

3.4.3: The Secretariat will work to support the launch of test partnerships within one year of the study's completion.

IMPRESSUM

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Supported by the German Federal Agency for Nature Conservation (BfN) with funds of the German Federal Ministry for the Enviroment, Nature Conservation and Nuclear Safety (BMU).