



# **THE STATUS OF THE CARPATHIANS**

A report developed as a part of  
The Carpathian Ecoregion Initiative  
November 2001



## The Carpathian Ecoregion



The Carpathian mountains are Europe's largest mountain range and a natural treasure of global significance. From alpine regions, to vast tracts of natural forest and rolling meadows grazed by cattle and sheep, they support a wealth of natural diversity which is unparalleled in Europe; and a rich cultural heritage reflecting centuries of human settlement and history. Yet in a time of profound social and political change, this region now faces unprecedented challenges.

The Carpathian Ecoregion Initiative is a partnership of more than 50 organisations committed to promoting conservation and sustainable development in the Carpathians. Launched in 1999 by the conservation organisation WWF, the Initiative has support at all levels, from local community groups to the World Bank and UN agencies. As a result of an intensive two-year data gathering process (illustrated by maps throughout this document), it is now possible for the first time to

demonstrate the true value of this region; a value that must not be lost for the future.

*This document draws together data gathered in the Carpathian ecoregion between July 1999 and September 2001.*

*Detailed scientific reports and interactive maps are available on the attached CD-ROM.*

**Cover photos © Popp & Hackner / WWF-A**

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WWF has identified the Danube Delta and the Carpathian Mountains as two of the 'Global 200,' the most significant natural areas left on this planet and therefore vital priorities for the worldwide conservation effort. The Carpathian Mountains extend some 1500 km across seven countries and are the second largest chain of mountains in Europe. They support Europe's largest remaining area of virgin forest, many endemic species of plants and significant populations of brown bears, wolves and lynx.

In 1999, WWF brought together representatives from directly interested groups in the region to form the Carpathian Ecoregion Initiative, which now includes 50 organisations. Over a period of two years a team of experts collected biodiversity and social data about the whole Carpathian region, which identified 30 'Priority Areas' for conservation.

In April 2001, Presidents and Ministers from countries in Central and Eastern Europe, came together in Bucharest to announce their support for the conservation of the natural environment in the Danube river basin and the Carpathian Mountain region and to give prominence to the findings of the Carpathian Ecoregion Initiative.

'The Status of the Carpathians' draws together all the relevant data collected by this Initiative. This great body of evidence proves the true conservation value of this vast region and I hope it will become the 'blueprint' for a comprehensive effort to ensure the long-term survival of the Carpathian Ecoregion.

**HRH The Duke of  
Edinburgh**

A handwritten signature in black ink, which appears to read 'Philip', written in a cursive style.

# THE CARPATHIANS:

## the green backbone of Central and Eastern Europe

Over the last 100 years, humans have had a profound impact on Europe's natural environment. Deforestation, intensification of farming practices, draining of wetlands, urbanisation - these and many other factors have altered the landscape almost beyond recognition, damaging forests, meadows and rivers. In such an environment, one region remains where traditional landscapes and natural forests still flourish - a region where people have lived for more than 2000 years. Yet this region now faces a challenge like never before; how to survive in the modern world whilst still retaining the values of the old.

Covering an area of 209 256 square kilometres (equivalent to nearly five times the size of Switzerland) the Carpathian mountains extend over seven European countries; from Romania in the south, through Ukraine, Poland, Slovakia and Hungary to the Czech Republic and Austria in the north. Crossing the largest area of any mountain chain in Europe, this unique region is home to a wide array of wildlife, diverse nationalities and a rich cultural heritage.

The natural diversity supported by the Carpathians is of vital importance for Europe. On a continent where 56% of forest cover has been lost and only 2% of the remaining natural forest is protected, the Carpathians support Europe's most extensive tracts of montane forest (between the heights of 950 and



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1350 metres above sea level), the continent's largest remaining natural mountain beech and beech/ fir forest ecosystems and the largest area of virgin forest left in Europe. Together with semi-natural habitats such as montane pastures and hay meadows, which are the result of centuries of traditional management of the land, the Carpathians harbour a richness of natural diversity that is unsurpassed in Europe. No less than one-third of all European vascular plant species can be found in this region - 3988 plant species, 481 of which are found only in the Carpathians. The mountains form a 'bridge' between Europe's northern forests and those in the south and west, and as such are a vital corridor for the dispersal of plants and animals throughout Europe.

The Carpathians are most celebrated as the last region in Europe to support viable populations of Europe's greatest mammals. Brown bear, wolf and lynx can all be found

*Glacial lakes are just one of the many natural habitats found in the high, rocky mountains of the Carpathians.*

in Carpathian forests. Threatened bird species, including the Imperial eagle, Ural owl and the Corncrake have also found a sanctuary here. For centuries, the Carpathians have provided a home to diverse nationalities and ethnic groups - people separated by different languages, dialects and traditions, but bound together by a highland way of life and a sense of shared hardships. The Carpathians have a turbulent history, yet it is only now that the region faces severe threat. In the aftermath of the fall of Communism, profound political changes are occurring - economic development, social upheaval and accession to the EU present this region with major challenges; and major opportunities for the future.

## The Carpathians: a region of change

In the past ten years, Central and Eastern Europe has experienced political changes as dramatic as anywhere in the world. But change is nothing new in the region. The Carpathians' position in Europe has made them a historical 'melting pot' for different tribes, ethnic groups and nationalities. This has produced a rich and original culture with a broad awareness in the region of 'common Carpathian roots' and distinct highland traditions.

### A brief history of the Carpathians

#### Pre-history

In some parts of the Carpathians, there are archaeological records of man's influence from the Mesolithic

*Traditional dress is still worn for celebrations and special occasions in the Carpathian highlands. The dress reflects the particular 'mountain-based consciousness' which draws the people of the region together.*

age. Long-term changes can be seen in the vegetation record which indicate that, even at this time, man was harvesting some wood from the region. The name for the Carpathians comes from the ancient 'Geto-Dacian tribes' ('Karpát-Heros' in Greek) which inhabited the South Carpathians nearly 2000 years ago.



#### 2<sup>nd</sup> - 16<sup>th</sup> Century

Waves of migrating and colonising people moved through the Carpathian region - Romans, Goths, Avars, Slavs and Magyars (Hungarians) to name but a few. In the 16<sup>th</sup> Century, Walachs and Ruthenians (inhabitants of the South and Eastern Carpathians) migrated north, having a major impact on the culture of the mountain communities, that can still be seen across the region today.

#### 19<sup>th</sup> - 20<sup>th</sup> Century

By the turn of the 19<sup>th</sup> Century, the vast majority of the Carpathians belonged to the Austro-Hungarian Empire. After the collapse of the Empire at the end of World War I, the boundaries were redrawn with a structure similar to that which we know today.

*In the Carpathian foothills traditional land management techniques have created a landscape that is distinctive for the region.*





## Post World War II : the Communist era

With the support of the USSR, Communist governments gained power in all of the Carpathian countries except Austria.

## 1989 : the fall of Communism

A wave of events, starting in Poland and including the 'velvet revolution' in Czechoslovakia caused the end of the Communist regimes. Since then, changes have been rapid - re-privatisation of state-owned land, dramatic alterations in rural systems and incomes, the introduction of market systems and recession are just a few of the changes which have buffeted the region.

## 200? : integration with Western Europe

Five countries of the region (Czech Republic, Slovak Republic, Hungary, Poland and Romania) are 'accession countries' - that is, they have joined a process to become members of the European Union in the coming years. The application of EU subsidies and regulations in the accession countries will have major impacts on land-use, which will have both positive and negative implications for the environment.

*Production-oriented subsidies and increasing economic growth elsewhere in Europe have resulted in land degradation and the loss of biodiversity. With increasing integration with Western Europe, can the high natural value of the Carpathians be protected?*



© A. Zedrosser / WWF-A

**The Carpathian region has undergone many changes. If we are to secure sustainable economic benefits for the peoples of the region whilst conserving the unique diversity of the Carpathians's biological and cultural heritage, then now is the time to face the coming challenges and create a VISION FOR THE FUTURE.**

The many architectural traditions in the Carpathians reflect the diverse history of the region. Ornate building designs in Maramures and Orava, severe architectural traditions on the Ukrainian/ Polish border; castles, churches and houses all reflect a rich cultural heritage.



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## The Carpathian challenge: facing the future in a changing region

**Traditional lifestyles:** For centuries, the Carpathians have shaped the lives of the diverse peoples who live there. The region now provides home to an estimated 16 to 18 million people, living in many different environments - from traditional villages to urban centres such as Brasov and Kosice. The social, economic and cultural structure of highland communities especially is deeply intertwined with the landscape. Several thousand years of human habitation have created traditional landscapes of a tremendous value for nature.

**The influence of Communism:** In the decades after World War II great emphasis was placed on production and exploitation of natural resources, resulting in extreme localised environmental damage; chemical waste from mining contaminated soils and air pollutants from factories damaged forests. Extensive damage to trees in areas like Beskidy illustrate the continuing effects of these policies today.

Yet despite these 'black spots,' conversely the land was also protected from heavy development pressure. Whilst in Western Europe farming systems were intensified in response to EU subsidies and market pressure, under Communism changes in the agricultural system were by no means universal. The policy of 'collectivisation' of land was not always effectively implemented; particularly in marginal areas like the Carpathians,

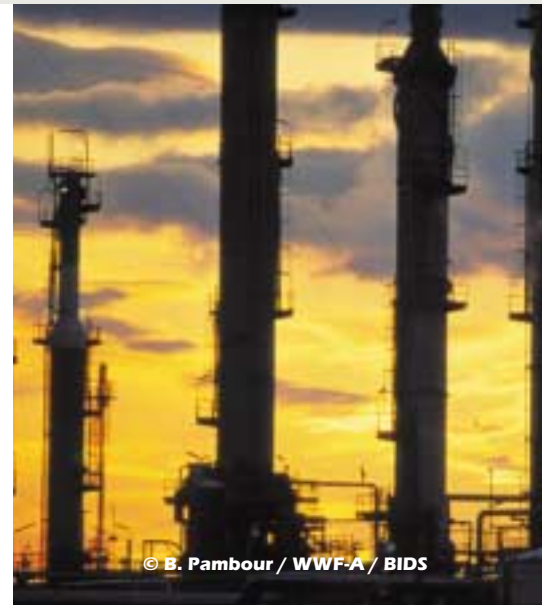
traditional rural lifestyles and landscapes persisted. It is only now that the threats facing the Carpathian region have become urgent. The challenge is to take advantage of the many opportunities arising in the coming years, without losing the great natural value of the region.

### Challenges facing the Carpathian landscape today:

**Radical change:** The transition to a market economy, development of civil society, increasing integration with Western Europe and accession to the EU mean profound changes for rural landscapes. Unemployment and poverty have accelerated rural decline in many areas. Traditional forms of forestry and agriculture are being replaced by more intensive methods.

**Land reform:** Land seized by the State during the Communist era is being returned to private hands. This is resulting in a highly fragmented land-ownership structure and is encouraging short-term forms of exploitation, such as excessive logging, heavy grazing at high altitudes and cropping on unstable slopes.

**New development:** With increasing outside investment coming into the region, political decentralisation and planning systems unable to cope with the new demands, the chances of inappropriate development are high.



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*The Communist system created pollution 'black spots'*

More barriers means more problems: Major new road programmes, crossing and dividing the Carpathians, are being planned. Until now, animals have been able to cross the region relatively freely. More fences and more roads, unless planned with nature in mind, could isolate and fragment populations of migrating animals.

### Gaining the capacity to act:

It is little more than a decade since Communism in Central and Eastern Europe ended; yet environmental and political change had proceeded rapidly in that time. The legacy of Communist systems and attitudes, based on political centralisation and a 'top-down' control system, have exacerbated problems by disempowering individuals from controlling change. Civil society, people and the environment must be put at the forefront of the many decisions to be made if these changes are going to work for the environment and for the people of the region.



# THE CARPATHIAN ECOREGION INITIATIVE:

## a sustainable future

In 1999, the conservation organisation WWF realised that a major international effort would be needed if the rich wildlife and culture of the Carpathians were to survive into the future. In response to this challenge, the Carpathian Ecoregion Initiative was launched, with the aim of steering the region's future development in a sustainable direction.

The Carpathian Ecoregion Initiative is a new approach to development planning; one that brings people together in Central and Eastern Europe to secure conservation and sustainable development across the seven countries of the Carpathians. It aims to work with the many opportunities that exist and are presently emerging in the region as it goes through a period of rapid change.

The Carpathian Ecoregion Initiative is a unique international partnership achieving conservation of nature in the Carpathian mountains and at the same time, supporting local economy and culture for the lasting benefit of people living in the heart of Europe. Facilitated by WWF, more than 50 organisations from seven countries are working together to make this vision reality.

### Innovative approach for people and the environment

The unique approach of the Carpathian Ecoregion Initiative can be summarised in three words: participatory; large-scale; and visionary.

Built on the idea of maximising stakeholder participation, the Initiative consists of an international partnership - an alliance of governments, Non-Governmental Organisations (NGOs), academic institutions, local communities, intergovernmental agencies, donors and businesses. It is based in part on enlisting local people in caring for and maintaining the region's special qualities, whilst also ensuring local people benefit. Partnerships at the national and international level mean the Initiative can influence major policy decisions and secure the highest level political support and funding. The approach goes beyond mere participation but aims to foster co-ownership of the process at the local and national level. Gaining this broad societal support and building on the emerging civil society is essential for the Initiative to achieve its aims.



*50+ partners from the region are working together under the umbrella of the Carpathian Ecoregion Initiative*



*Participants discuss techniques at a workshop. The Carpathian Ecoregion Initiative is bringing together stakeholders from seven countries in order to achieve its aims.*

The Initiative is unique in its large-scale ecoregional approach. An ecoregion is a large unit of land with a characteristic set of species, communities, dynamics and environmental conditions. By working across the entire natural unit of the Carpathians, the Initiative unites people, development and conservation efforts across political and social boundaries. It is only by working on this scale, the scale that nature and natural processes use, that it can succeed in its aims of achieving nature conservation and sustainable development in the Carpathians.

The Carpathian Ecoregion Initiative is visionary in that it aims to positively influence the development of the region over the next 50+ years. It asks the question: what will this region look like in 10, 20, even

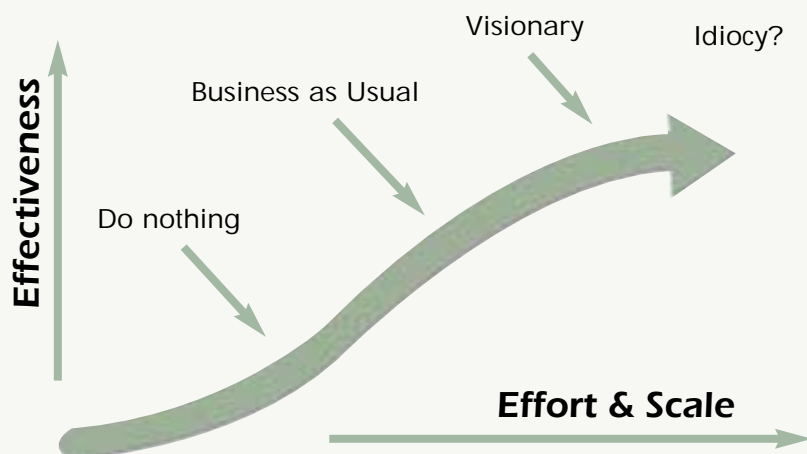
50 years, given likely development trends? What will be lost and what can be done to prevent this? Together the Initiative has agreed a long-term vision for conserving, and working in harmony with, the region's natural environment (see p.44). But at the same time it is a vision which facilitates development in order to achieve material benefits for local people. Never before has a project of this magnitude been attempted in the Carpathians.

It considers the influence of social, economic and biological factors, emphasising the fact that the Carpathians are a cultural landscape, where people live and work and nature and culture are strongly intertwined. Future activities must take account of this and ensure both people and the environment benefit.

Ecoregion conservation is about seeing the bigger picture. Conservation efforts in the past have shown that simply conserving individual sites and species is not sufficient; a broader approach is necessary if accelerating global biodiversity losses are to be stemmed. The Carpathian Ecoregion Initiative provides a framework to co-ordinate and supplement the host of projects taking place in the region.

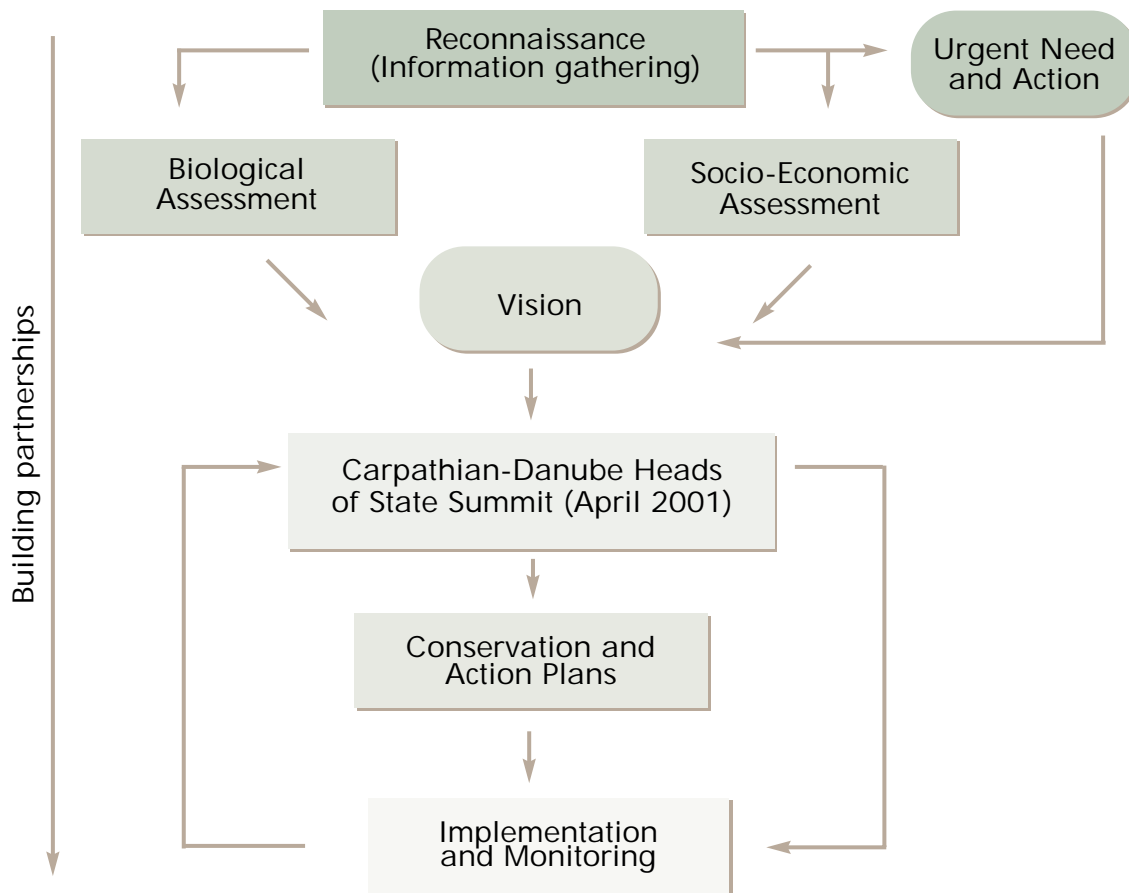
The Carpathian Ecoregion Initiative is part of an ambitious global vision to sustain life on the planet: WWF's Global 200. The Global 200 aims to conserve the most outstanding ecosystems in the world, by identifying the top 200+ ecoregions, representing every major habitat in the world. The Carpathians have been identified as one of these regions. By conserving the Global 200, conservation of the broadest range of the world's species and the most endangered wildlife, as well as ecological and evolutionary processes, can be achieved.

## Approaches to Biodiversity Conservation



*In the past, conservation efforts have often concentrated on small-scale and immediate actions ('business as usual'). Ecoregion conservation uses a 'visionary approach'; thinking long-term and large-scale and seeking strong political and grassroots support for conservation activities. It should also be remembered that what may seem 'idiotic' now may be achievable in the future!*

## The Carpathian Ecoregion Initiative in action: how does it work?



The plan being undertaken in the Carpathians comprises four distinct elements:

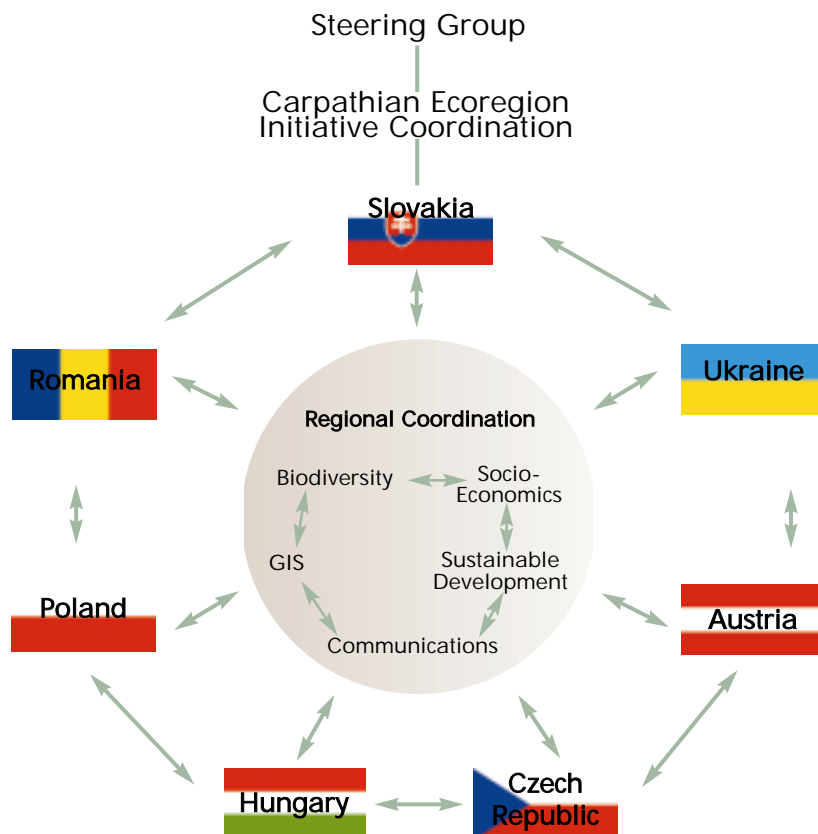
**Reconnaissance:** a quick, multidisciplinary review of the region was undertaken in the second half of 1999.

**Detailed Assessments:** a 1.5 year data gathering exercise involving teams of local experts in each country identified the key stakeholders, assessed the status of biodiversity and the important social and economic factors affecting it, and highlighted the key challenges and opportunities affecting the region.

**Vision:** long-term goals for conservation and sustainable development have been agreed by the partners (see p.44).

**Action Plans:** a comprehensive strategy to be implemented by the Carpathian Ecoregion Initiative and others. Medium-term 15 year objectives working towards the Carpathian vision have been established. Detailed five and ten year actions will be developed during 2002.





## The Carpathian Ecoregion Initiative Team

Each country team consists of a Country Co-ordinator responsible for building up a national network of experts from biodiversity, socio-economic, GIS (Geographical Information Systems) and communication backgrounds. In addition, a sustainable development team works to develop local model strategies for linking conservation and development.

## Working together : from data gathering to vision mapping

To fully implement ecoregion conservation, it is important that all the stakeholders have a say in what is happening in their region and what they would like to see happen in the future. To facilitate this, the Initiative set up multi-disciplinary teams in each country (see diagram above).

Agreement on the actions of the Initiative has been achieved through a series of participatory meetings: 25 international workshops have been organised by the Initiative since it started. Biodiversity and

socio-economic workshops held in 2000 identified developed strategies for data gathering, and identified data 'sectors':

**Biodiversity :** Vascular plants, plant communities, large carnivores, other mammals, birds, amphibians and reptiles, invertebrates, fish and rivers. For each sector general biodiversity information and data on focal species were collected. Focal species were selected according to the following criteria: species endemic to the Carpathians, threats to or significance of species on a regional or global scale (see Appendix A).

**Socio-economics :** Agriculture, industry, forestry, tourism, water,

transport. For each sector data was collected on selected Carpathian-wide social and economic indicators (see Appendix B).

A key workshop held in the Slovakian Carpathians (February 2001) brought together the Initiative's partners along with additional national experts and international consultants to agree and map the Carpathian vision. In the participatory workshop, GIS technology was used to analyse the massive Carpathian data sets that had been collected, along with CORINE and ESRI databases (see Appendix C). The resulting series of maps were checked against local expert opinion to produce the series of 'Vision Maps' which are presented in this document (see p.45).

## Achievements of the Initiative: for environment, economy and society

The 50 partner organisations of the Initiative have achieved success in a wide range of activities, from action at the local community scale through to securing high level international commitment for the whole ecoregion.

### Visionary planning and action

- ▶ Key stakeholders from seven countries brought together to agree long-term goals for conservation and sustainable development.
- ▶ First overall view of the Carpathians: identification of the key habitats, species and processes along with the socio-economic factors affecting them.
- ▶ 30 'Priority Areas for Biodiversity' identified across the region.
- ▶ Vision maps identifying future



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### Lobbying for the Carpathians

- ▶ Series of Carpathian reports published e.g. 'Independent NGO Evaluation of SAPARD'; 'Status of the Carnivores in the Carpathian Ecoregion.'
- ▶ Comprehensive range of communication materials developed to bring international attention to the significance of, and opportunities for, this vulnerable region. (see [www.carpathians.org](http://www.carpathians.org)).
- ▶ High profile media and lobbying events e.g. WWF's EU Accession Week.

development conflict areas, allowing assessment of the relevancy of the conflicts on a Carpathian scale.

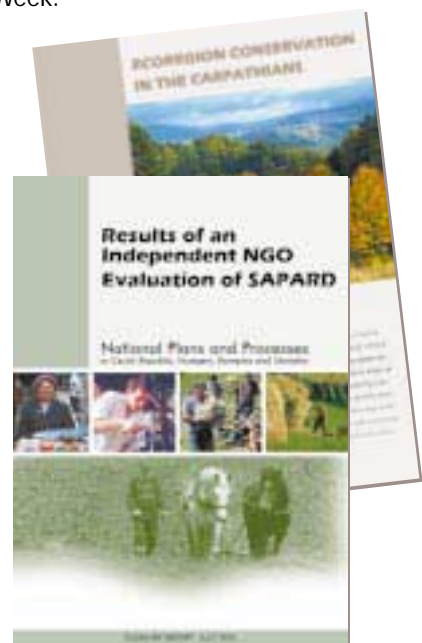
- ▶ First steps towards designing conservation landscapes in the Carpathians.
- ▶ Agreement on themes for a detailed Action Plan for the region.
- ▶ Work towards a pan-Carpathian Large Carnivore conservation and management plan.

### Working with local people for sustainable development

- ▶ Four Model Project Areas, demonstrating the benefits of combining sustainable development and conservation on a local scale.
- ▶ Community funding mechanisms, bringing together and supporting diverse micro projects to form a coherent force for sustainable development.
- ▶ Small Grants programmes, funding local cross-border development projects in the Czech Republic, Hungary, Poland, Romania, the Slovak Republic and Ukraine.
- ▶ Work with local communities to identify win-win situations where environment and people benefit.



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## High-level commitment for the Carpathians: the Carpathian-Danube Heads of State Summit – Bucharest, April/ May 2001

The activities of the Carpathian Ecoregion Initiative formed a major part of the Summit on Environment and Sustainable Development in the Carpathian and Danube Region, which took place between April 29 - 30, 2001 and was co-hosted by the Romanian government and WWF. Attended by nine Heads of State and high level officials from five other countries, the conference was co-chaired by the President of Romania and HRH The Duke of Edinburgh. Eight Environment Ministers as well as high-level representatives from the World Bank, UNECE, UNDP, UNEP, European Commission, EU-Presidency, Stability Pact and OECD also participated in the Summit and the preceding Meeting of Ministers.

Through this Summit, national and international efforts in conservation and sustainable development of the Carpathian region and Danube River entered a new phase of co-ordination and co-operation. The work of the Carpathian Ecoregion Initiative was presented and a 'Declaration on Environment and Sustainable Development' in the Carpathian-Danube region was adopted by 14 Heads of State or their representatives. This document pledges the countries to regional co-operation on the issues of environment and sustainable development.

Attended by over 400 participants and 380 journalists, the Summit also brought international attention



*Heads of State and high level representatives pledged their support for conservation of the Carpathian region at the Summit - a major step which must be built upon.*

to the region. Funders such as UNEP, EU, UNECE, World Bank, EBRD and UNDP expressed their willingness to support projects in the region. In this context, the Carpathian Ecoregion Initiative is lobbying for the development of a Pan-Carpathian funding mechanism.

Following on from the Summit, the Romanian National Forest Administration made a major commitment to certifying one million hectares of forest according to the principles of the Forest Stewardship Council (FSC). This is an extremely significant step forward for the forests of the Carpathian region (see p. 34 for details).

### A legal instrument for the Carpathians

Crucially for the future of the Carpathian region, a proposal was made by the Ukrainian delegation for a Convention for the Carpathians - a legal mechanism which will support the regional protection and sustainable development of the Carpathian region. Learning from the experience of the Alpine Convention (the only Convention dedicated to the protection of mountains currently in effect), a legal mechanism for conservation and sustainable development of the Carpathians is being developed in the context of the 2002 United Nations 'International Year of the Mountains.' Facilitated by UNEP, with WWF as a partner in the process, negotiations on the mechanism have now begun between the Carpathian countries.

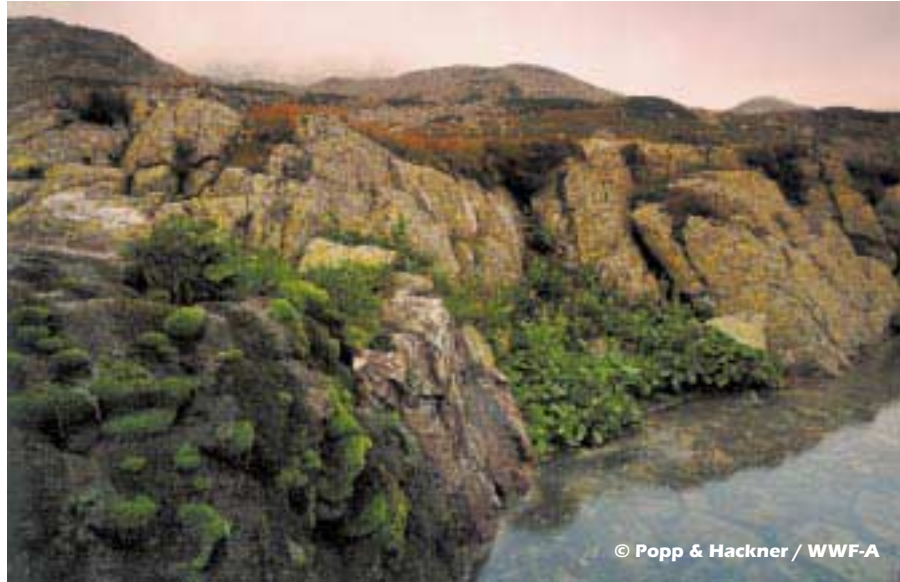


# PROTECTING THE CARPATHIANS

Conservation of the land through protected areas has a long and distinguished history in the Carpathian region. The first Protected Areas were established as early as 1895 in 'Dobrotsky primeval forest' and 'Salkovsky les' forest, in what is now the Slovak Republic. In the West Carpathians, a system of Protected Areas was established after World War I and in 1932 Europe's first ever 'transboundary' national park was established at Pieniny on the Polish-Slovak border.

In the present day Carpathians, there are seven National Parks in the Slovak Republic, six in Poland, three in Hungary, five National Parks and one reserve in Ukraine and 12 National Parks in Romania. In addition there are also a myriad of smaller reserves, including 13 Protected Landscape Areas and more than 580 Reserves in the Slovak Republic, and three Protected Landscape Areas in the Czech Republic.

The Protected Area network is denser and more effectively implemented in the north-west of the Carpathians than the south-east; in the Slovak Republic, for example, which has only 17% of the Carpathian land area, there are presently seven effectively protected National Parks. In the Czech Republic, almost all of its Carpathian territory is protected through 'Protected Landscape Areas' (Beskidy, the White Carpathians and Palava). In comparison, in Romania



(which covers 55% of the Carpathians) only two National Parks have any full-time staff (Retezat and Piatra Craiului). Many of the protected areas in the country are known as 'paper parks;' that is, they are protected on paper but in reality the protection legislation is not effectively implemented.

In the wake of the changes in 1989, all the Carpathian countries went through a review of national legislation, including nature conservation and land-use related legislation, and in many cases new protected areas were established. The transition period caused some problems as political powers shifted and management styles changed.

Despite this, only 16% of the land of the Carpathian region is currently under some form of large-scale protection. The areas also do not provide universal protection; factors such as illegal hunting and forest felling remain a significant problem. Human influences such as tourism

*The beautiful Tatra Mountains, situated in northern Slovakia and Poland, are protected through three National Parks as well as being an internationally recognised Biosphere Reserve.*

have a potential for large-scale damaging effects, particularly in the context of increasing market pressures. For example, the proposed Winter Olympic games at the Tatra National Park and Biosphere Reserve has the potential for profound impacts on biodiversity. In the context of change and development pressures facing this region, the present protected area system is not sufficient to protect the valuable biodiversity of the Carpathians.

**Note : Detailed information on the Protected Areas of the Carpathians is also available in the attached CD-ROM**

## GEOLOGY OF THE CARPATHIANS

Formed during the early Tertiary period, the Carpathians are relatively 'young' mountains. With altitudes varying from 300 to 2655 metres above sea level, they are also of moderate height for a mountain system; only 5% of the Carpathians extends beyond the tree line.

The highest peak is Gerlach in Slovakia, which at 2665 metres is a part of the Tatras on the Slovak-Polish border, one of the most beautiful and famous parts of the region. The Tatras are situated in the West Carpathians (covering the Slovak Republic, Poland, Hungary and the Czech Republic). The two other regions in the Carpathian arch are the Eastern Carpathians (covering the Slovak Republic, Poland, Ukraine and Romania) and the Southern Carpathians (entirely in Romania).

*The mountain landscape was formed by millions of years of rock movement, erosion and glacial processes.*

The mountains are composed mainly of sequences of sandy rocks, known as 'flysch formations,' formed of layers of alternating sandstone and shale. Other parts of the Carpathians are formed of limestone, or, as in the case of the Tatras, magmatic rock such as granite. While the region's valleys owe their creation to rivers, former glaciers have carved out beautiful lakes at the highest points - there are 110 such lakes in the High Tatras alone.



### Carpathian facts and figures:

Total area	209 256 km <sup>2</sup>
Dimensions	1500 km long, up to 350 km wide
Highest peak	2665m, Gerlach in High Tatras, Slovakia
Carpathian countries (% of Carpathians)	Romania (55%), Slovakia (17%), Ukraine (11%), Poland (10%), Hungary (4%), Czech Republic (3%), Austria (<1%)
Source of major rivers	Vistula, Dnister, Prut, Aluta and numerous Danube tributaries (e.g. Tisza, Vag)
Key wildlife	8000 brown bears, 4000 wolves, 3000 lynx
Geology	Carpathian Flysch, with small areas of limestone and granite
Population	ca. 16-18 million
Main economic sectors	Agriculture, forestry, tourism, local industry, mineral exploitation
Area under protection	16% is under some form of protection

# BIODIVERSITY OF THE CARPATHIANS

The term 'biodiversity' - short for biological diversity - describes the richness and variety of the natural world, from the diversity of habitats such as forests and meadows, to plants and animal populations, even down to the genetic diversity found within those populations.

The Carpathians' position as a bridge linking the north and south of Europe and a refuge for species during the ice-age has also had a huge impact on its biodiversity over the centuries. As a result, the region supports an incredibly high natural diversity of species, with many endemics (species that are unique to the region). Today, the mountains pro-

vide a vital link between the northern and southern forests of Europe, allowing species like Brown bear and the wolf to migrate and re-populate unoccupied territories.

Although the region cannot compete with tropical countries in terms of wealth of flora and fauna, the diversity of habitats also emphasise the extraordinary value of its territory with regard to biodiversity. From the rolling patchwork landscape of the White Carpathians, with its orchards, fields, forests and flowering meadows, to the alpine zone high in the Retezat mountains, the region supports an enormous diversity of habitats.

Probably the most important of these in the European context are the natural Carpathian forests. More than half of the Carpathians are covered by forest. Crucially, on a continent where less than 10% of forest cover is even semi-natural, a high proportion of these forests remain in their natural state, unaltered by any human interference. Open and semi-natural habitats also support an incredible richness and diversity of plant and animal species. According to some estimates, nearly half the species diversity of the Carpathians is dependent on human activity for its survival.

## A. PLANTS AND HABITATS

### The Carpathian forests: a unique resource

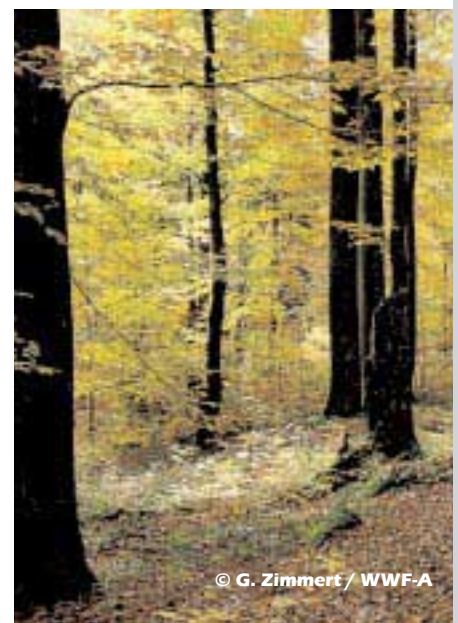
In Western Europe, large areas of truly natural forest which display natural forest dynamics are by now almost completely unknown. Presently, it is estimated that nearly 300 000 hectares of such forests exist in the Carpathians - including the largest tracts of virgin forests in Europe.

From low mountain oak forests, through beech - oak mixtures to beech, beech - conifer mixtures to conifer woodland, the forests show an incredible natural diversity, sheltering a large number of plant and animal species. The elusive lynx, a wolf and bear population that is

unsurpassed in Europe, an untold number of insect species as well as more than 40 varieties of shrubs and trees are just a few of the species harboured there.

Forest cover is distributed unequally between the Carpathian countries - from 29.5% cover in Hungary to almost 60% in Romania. Virgin forests (those whose development has not been influenced by man) are found throughout the Carpathians, generally at higher elevations, where they have escaped the depredations of the human population. The Carpathians also harbour 20 000 hectares of primary beech forest -

some of the last ancient beech stands remaining in Europe (see box).

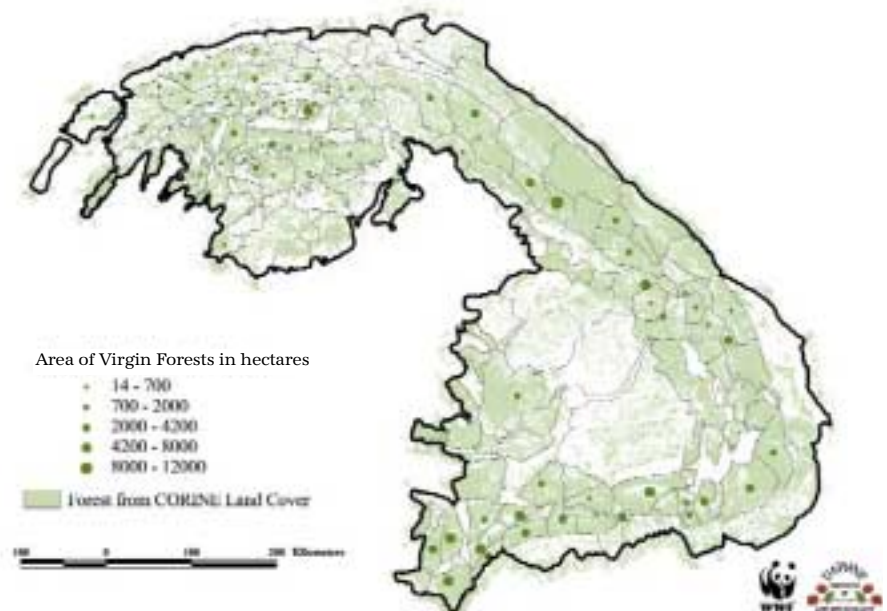




## Threats and opportunities: protecting the Carpathian forests

Despite the fact that about 225 virgin forests with areas larger than ten hectares have been identified across the Carpathian Mountains, many of them do not enjoy adequate protection. A variety of factors, such as poor management, pollution, tourism, over-hunting, grazing or illegal felling represent serious threats.

Perhaps the greatest challenge lies in consequences of the 'restitution process;' the return of land seized in the 1940s to their original owners (see p. 32) In order to conserve this valuable resource for the future, it is vital that the virgin forests are mapped and recorded; something which has not yet been achieved for forests outside



nature reserves. A concerted effort is needed in the near future if the virgin forests of the Carpathians are to be conserved for future generations.

*Forest cover and amount of untouched 'virgin' forests in different orographical units of the Carpathians.*

## Community case study - Beech forests in the Carpathians

The Carpathian beech forests are of immense importance for European nature. Along with the oak (*Quercus* spp.), the beech (*Fagus sylvatica* spp.) historically dominated Central and Western European forests, covering 80 - 90 % of the continent's land area. Intense pressure from humans has now reduced the forest cover to a mere fraction of what it was. The Carpathians now support the last remaining stands of montane primary beech forest, covering a total of about 20 000 hectares. Europe's largest area of montane beech forest is found in the Eastern Carpathians, where the borders of Poland, the Slovak Republic and

Ukraine meet.

A cool climate species, beech forests generally need a slightly humid environment and relatively mild winter climate. In the Carpathians, the beech stratum is found from 600 to 1200 or 1300 metres above sea level, on the northern slopes of the Southern Carpathians (in the montane regions). The beech is associated with different species at different levels - the oak (*Quercus* spp.) up to 900 metres and fir (*Abies alba*) up to 1300 metres. The forest harbours about 100 bird species, including the Pied flycatcher, Red-breasted flycatcher, White-backed

woodpecker and Eagle owl, all of which are identified as endangered throughout large parts of their ranges in Europe.

Beech are very vulnerable to impacts from clear-cutting as they are what is known as a 'shadow species' - that is, the saplings regenerate better under the cover of larger, older trees. If an area is clear-cut it is therefore very difficult for the forest to regenerate. With this in mind, it is imperative that the Carpathian beech forest is adequately protected for the future.

## Open and semi-natural habitats: historical landscapes under threat

It is not just the forests which support valuable biodiversity - just under a third of the Carpathians are covered by open and semi-natural habitats, predominantly grassland. Though they cover a smaller area than the forests, these habitats show a massive diversity. Of the 133 habitat types identified by the Carpathian Ecoregion Initiative, no less than 76% are open habitats, many created by the activities of man over the centuries.

Open habitats include the calcareous grasslands, fens maintained by traditional farming methods and the valuable and rare 'poloniny' meadows. Poloniny meadows support a wide diversity of species including the globally threatened Corncrake (*Crex crex*), the Tatra pine vole (*Pitymyus tatricus*); and invertebrates such as the High mountain bumblebee (*Bombus pyrenaicus*). Occurring naturally at high altitudes, this unique grassland was also partly formed by human activity, where grazing cattle have destroyed the dwarf pine vegetation and forests. Grasslands such as the calcareous mountain grasslands in Slovensky Raj National Park in the Slovak Republic are also incredibly rich in species. In this example, the 'small-scale' species diversity is one of the highest in the world, reaching a maximum of 75 species per metre squared.

Over the generations, traditional shepherding systems in the Carpathians have created open



plant communities such as those found on the gentle summer pastures of the Beskidy region; the grazing meadows in the valleys and mountain foothills; and the semi-open bush-meadow habitats created from grazing livestock in the forests.

Natural open habitats above the tree line are very limited in the Carpathians, the subalpine and alpine zones showing a typical 'stepping stone' pattern through the high altitude parts of the region. They are, however, very important, supporting an unusually high number of endemic species.

### Changes in management: the future of open habitats in the Carpathians

Whilst the extensive pastoral culture which supports these habitats is still a vital part of life in Ukraine and

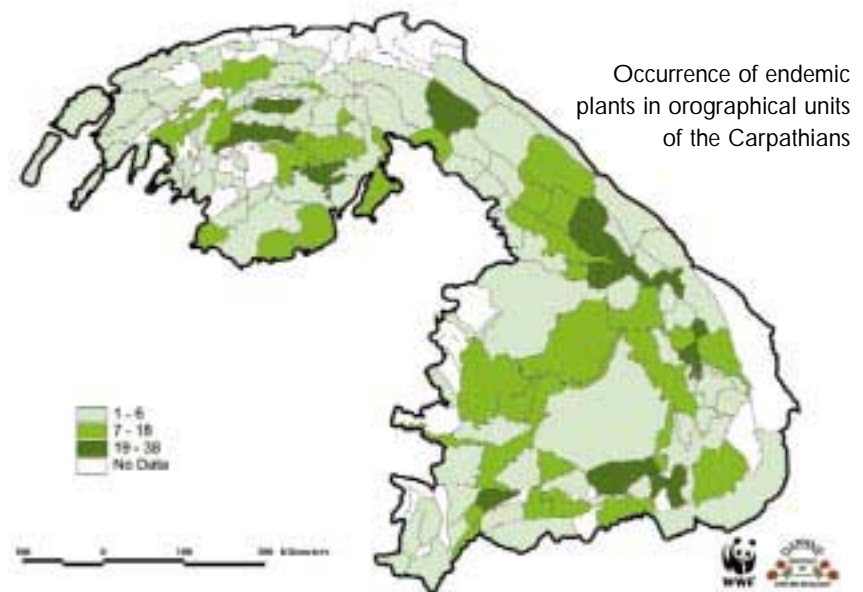
*Traditional farming methods have shaped the landscape of the Carpathians and created a unique pattern of habitats, supporting a diverse variety of plant and animal species.*

Romania, changing lifestyles pose a threat to their future in the Western Carpathians. A reduction in agricultural subsidies, increasing economic costs and the transfer to a market economy has caused the abandonment of less productive or barely accessible grasslands. As a result, a trend towards forest communities is occurring and the majority of this unique ecosystem is being degraded. A lack of local interest in managing the land and additional intense pressure from the state forestry administration for large-scale afforestation of meadows, means that the open landscapes of the Western Carpathians are fast disappearing.

## The plants of the Carpathians: unique, rich and threatened

The Carpathians are situated on the north-eastern tip of the mountain system of south and central Europe. This is of great significance for the flora and fauna of the Carpathian region - in the Pleistocene geological age (about one to two million years ago), a massive expanse of ice (known as the 'Fenno-Scandinavian Ice Sheet') stretched from what is now Scandinavia to the northern foothills of the Western Carpathians. During this period mountain ranges like the Carpathians were the only refuges for plants and animals, and the descendants of these species can still be found in the Carpathians today. The Carpathians also functioned as a 'bridge' for the mountain species of southern Europe and the tundra and taiga species of the north.

As a result, the Carpathians support



an incredibly rich plant species diversity. Beautiful species such as the East Carpathian lilac (*Syringa josikaea*) and Pieniny's chrysanthemum (*Dendranthema zawadzkii*) are among the numerous plants found only in the Carpathians.

Today, in Europe's fragmented natural

environment, the Carpathians continue to link the mountain forests, providing a link between north and south Europe. This allows the plant and animal species, which otherwise would be genetically isolated, to migrate. With climate change and increasing threats from human activity, this may prove to be vital to their survival.

### Case Study - The Slovak laurel : an ancient witness under threat

According to ancient Greek legend, the nymph Daphne was chased by the god Apollo until she hid by changing herself into a beautiful bush with sweet smelling flowers. The result is the Slovak laurel (*Daphne arbuscula* Celak), an ever-green dwarf shrub with bright coral-red shoots. It is found only in a very small region of the Western Carpathians in the Slovak Republic.

The Slovak laurel is an ancient endemic species - one of the very few that evolved about 25 million years ago, before the Carpathians had

even arisen. Of the 481 endemic plant species in the Carpathians, a tiny proportion (about 20) are of such extreme scientific value, 'witnesses' of the formation of the mountains.

Morphologically and genetically, the species is therefore very isolated from other plants in the region, and extremely sensitive to environmental destruction and climate change.

Though protected by national and international law, the Slovak laurel is highly threatened - by trampling from tourists, collectors, attack by

fungi and environmental change.

Where will Daphne arbuscula hide once her habitat has been destroyed by man? This vital question is being posed by the Slovak conservation organisation 'Daphne' (named after the famous plant) - one of the key partners of the Carpathian Ecoregion Initiative.





## B. THE ANIMALS OF THE CARPATHIANS

### The carnivores: Europe's greatest population

The Carpathians' role as a refuge for large carnivores is perhaps one of the most important aspects of its biodiversity. As the last area in Europe to support viable populations of large carnivores, harbouring perhaps 10 to 20 times more individuals than the Alps, the significance of this can hardly be overestimated.



About 8000 Brown bears (*Ursus arctos*), 4000 wolves (*Canis lupus*), 3000 lynx (*Lynx lynx*) and numerous wildcats still roam the Carpathian region. In fact, almost a complete megafauna (set of large mammals) survives in the region, with only the extinct auroch (an ancient species of cow) and tarpan (a forest horse) missing from the ecosystem. The Carpathian forests - the vital link between the forests of the north and

those of the west and south-west - are the main source for large carnivores in Europe and probably the only corridor for genetic exchange for the its wolf populations (see box).

Why is the Carpathian region so unique? Elsewhere in Europe, Protected Areas are often too small to support populations of large predators, which require large,

*Exterminated in nearly all Western and Central European countries, the Grey wolf is found in significant numbers in the Romanian Carpathians.*

coherent blocks of habitat and abundant prey in order to survive. On a continent where more than 40% of mammals are under threat of extinction the population of carnivores in the Carpathians are of immeasurable value.

### Case Study - The wolf : bridging the gap

The Carpathians are the last remaining stronghold in Europe for the Grey wolf (*Canis lupus*). In total, the wolf population amounts to more than 4000 individuals (45% of Europe's population) and the Carpathians provide the only link between Europe's northern and southern populations.

Wolves play an essential role in the life of the region, controlling numbers of prey species like Red deer and acting as an 'indicator' for the presence of these species. Hunting the wolf and protecting sheep has

shaped the lives of highland communities for centuries. Yet the wolf's role as a hunter still brings them into conflict with local people. As shepherds in some parts of the region respond to a drop in rural incomes by increasing livestock numbers, this can only increase.

The strong tradition of hunting wolves in the region continues today and protective legislation remains somewhat contradictory. In the 1950s and 60s, an 'anti-wolf' campaign in Romania dram-

atically reduced their numbers; only the remoteness of the mountains saved them from further decline. As this unique population attracts increasing international attention, awareness of the need to conserve the wolf is growing in Central and Eastern Europe.

***'For the average citizen of our country, it is hard to realise the reasons why the wolf should be protected.'***

Polish conservation  
NGO 'WOLF'

## Conserving large carnivores: towards a Pan-Carpathian Conservation and Management Strategy

In parts of the Carpathians, numbers of some carnivore species (notably the Brown bear and wolf populations in Romania) are flourishing. Despite this, it is important to ensure that they are effectively protected; many are still game species and even amongst those that are protected, poaching is often a significant problem. In the context of threats posed to property and even lives, attitudes amongst local people are often negative. The validity of their concerns needs to be recognised; between 1990 and 1999 18 people were killed in incidents involving bears in Romania alone.

It is therefore crucial to base conservation of the large carnivores on the vital role they play in the life of the region and their importance on a European and even global scale. Threats, such as those arising from the development of road networks which divide up and fragment large-scale habitats and migration routes, must be assessed (see p. 38).

In such a context, conservation needs to be based on sound scientific knowledge of these populations. With this in mind, the Carpathian Ecoregion Initiative has undertaken an assessment of the status of large carnivores in the region, using information from a wide range of sources: national authorities, scientific and government institutions, scientists and NGOs.

The study particularly highlighted the need to use a regional approach in

*Gathering and communicating information on the distribution and behaviour of large carnivores is essential if they are to be protected.*

the conservation of large carnivores, reaching across artificial political boundaries. At the moment a species protected in one country may be heavily hunted just across the border.

The development of a Pan-Carpathian Conservation and Management Strategy is therefore a necessity. The Carpathian Ecoregion Initiative is calling for :

- ▶ Region-wide censuses of carnivore species using compatible methodologies, to gain an accurate picture of populations;
- ▶ Development and adoption of National Management Plans for the Carpathian carnivores;
- ▶ The clarification of legislation protecting large carnivores, with the involvement of NGOs who are presently working towards this aim;



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- ▶ Support for research projects examining the ecology and population dynamics of the carnivores; priority should be given to 'trans-boundary' projects; population dynamics need to be monitored on a regional level;
- ▶ Development of compensation schemes to mitigate the effect of conflict with large carnivores for local communities and reduce poaching (a significant factor in carnivore mortality);
- ▶ Support for field projects which demonstrate the considerable positive economic benefits available from the large carnivores, for example through eco-tourism.



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## Large herbivores, small carnivores: other Carpathian mammals

The charismatic carnivores are not the only mammal species sheltered by the Carpathians. Other populations include a reintroduced bison population; a strictly protected population of chamois; marmots, beavers, down to tiny species like the Alpine shrew. These species are not, however, evenly distributed along the Carpathian range; some, for example the chamois (*Rupicapra rupicapra*) and the Tatra pine vole (*Pitymys taticus*), are only able to survive in specific high montane habitats and therefore exist in isolated patches scattered throughout the region. Others are dependent on different habitats; for instance the beaver (*Castor fiber*) is restricted to regions where it has access to water and woody vegetation.

As with large carnivore species, human influence continues to

threaten the survival of mammal species; the Carpathian Ecoregion Initiative identifying 68 of them as rare, endangered or extinct. Major threats include habitat loss, connected with development encroaching up the mountain valleys, and forestry practices which involve clear-cuts and the planting of spruce monocultures. Habitat fragmentation, due to increasing density and development of the road and railway system, seems to be the main obstacle to gene exchange between populations; locally, massive poaching is also a problem for many species.

The most important and urgent requirement for the protection and sustainable management of those species is the introduction of an information exchange and monitoring system for all the countries of



Scattered populations of the rare alpine chamois exist in the Romanian Carpathians, the High Tatras of Poland and the Slovak Republic.

the region, which could provide the basis of a joint conservation action plan. Amongst other effects, this would harmonise the legal status of particular species (currently often subject to completely different legislation in neighbouring countries), and impose a united approach to their protection and management over the whole home range of a population, irrespective of administrative borders.

### Case study - Introducing the past : the European bison

Descended from the great Long-horned bison, which went extinct in Europe at the same time as the Woolly mammoth, Rhinoceros and Cave bear, the European bison is a relict of ancient times. Historically, the European bison ranged throughout Europe - intense hunting pressure has reduced this to only 30 populations in the wild. The Carpathian population, reintroduced after being eradicated 200 years ago, is the only one inhabiting Europe's mountains. Small herds now range across the Polish

Bieszczady Mountains (about 160 individuals) and the Ukrainian Carpathians (about 220). Despite being under strict protection, separate, isolated herds are threatened by inbreeding and further loss of genetic variability; fragmentation of habitats blocking natural gene exchange among herds. Whilst the bison population in the Carpathians is much to be valued, its present restricted numbers do not guarantee the future viability of the population.





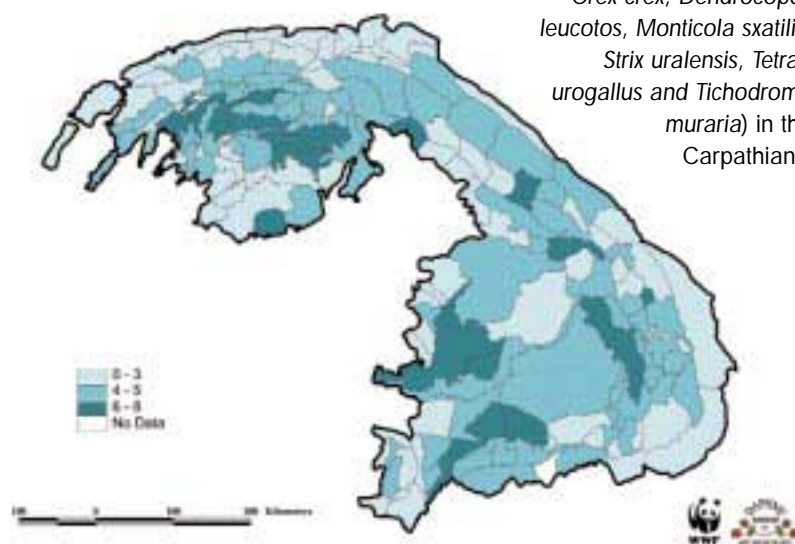
## The birds of the Carpathians

The diverse habitats in the Carpathians support a wide variety of bird species, using the region for nesting, migrating and wintering. Overall, more than 300 species are found here, a region which has been described as a 'birdwatchers' paradise.' The dense deciduous and mixed forests provide a home for species such as the White-backed woodpecker (*Dendrocopos leucotos*), Black stork (*Ciconia nigra*) and Ural owl (*Strix uralensis*). The numbers supported highlight the real importance of the region - 30% of the entire European population of the White-backed woodpecker (threatened throughout large parts of its range in Europe); 20 - 45% of the European population of the globally threatened Imperial eagle (*Aquila heliaca*) and 40% of the European population of the Lesser spotted eagle (*Aquila pomarina*) to name but a few. Typical mountain species found

here also include the Alpine accentor (*Prunella collaris*) and Wallcreeper (*Tichodroma muraria*).

But it is not only the forests and mountains which provide a valuable habitat for birds; the Corncrake (*Crex crex*), a species which has been in steep and continuing population decline in Western Europe for the last 20 years, is found in significant numbers in the Carpathian agricultural meadows. Land management practices provide many other species with habitat for nesting and foraging and agricultural and improved grassland habitats support an important number of rare bird species. They are, as a consequence, vulnerable to many pressures resulting from the intensification of agriculture; increases in pesticides and fertiliser use, habitat fragmentation, removal of field boundaries, increasing grazing pressure and the spread of monocultures.

Occurrence of 8 focal Bird species (*Aquila pomarina*, *Crex crex*, *Dendrocopos leucotos*, *Monticola saxatilis*, *Strix uralensis*, *Tetrao urogallus* and *Tichodroma muraria*) in the Carpathians.



20% of the European population of the Ural Owl (*Strix uralensis*) is found in the Carpathians.

Threats to Carpathian bird species come mainly from habitat destruction and forest management practices, which have a particular impact on species sensitive to disturbance (such as Capercaillie (*Tetrao urogallus*) and some eagles) or species dependent on old growth forests such as the White-backed woodpecker. 'Bird crime,' including nest robbery by falconers is also very significant in some areas for birds of prey. Data available on nest robbery since 1965 in the Slovak Republic show that almost 1000 chicks were stolen from nests by falconers during this period. However, measures can be implemented to counteract this; guarding of nests by volunteers since 1990 resulted in decrease of stolen chicks and eggs by 70%.

Top predators, such as birds of prey, are especially vulnerable to the effects of pollution as certain pollutants are gathered in the food chain and build up in their systems. Larger bird species are also threatened by electricity poles, which annually result in the death of thousands of birds.

## Amphibians and reptiles of the Carpathians

Amphibians are found mainly in the forested regions of the Carpathians, developing in small streams and seasonal water reserves. The beech forests harbour the endemic newt species Carpathians' newt (*Triturus montandini*) as well as the Alpine newt (*Triturus alpestris*). More common species such as the Moor frog (*Rana arvalis*) are also found in the region. Amphibians are threatened by activities such as water regulation and flood prevention, which deprive them of their habitat. As warm-weather animals, reptiles



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are found only in the lower altitudes and foothills of the Carpathians, in open or semi-open vegetation. The Carpathians harbour species such as the critically endangered Aesculapian snake (*Elaphe longissima*), found on the south and west slopes of the Carpathians. This

Carpathians' newt (*Triturus montandini*)

snake - the third longest in Europe - inhabits sun-exposed landscapes such as forest margins, rocky slopes and orchards.

## Invertebrates of the Carpathians

The importance of invertebrates is easily ignored, yet they make an enormous contribution to the region's diversity; there are 35 - 40 000 species of insects in the Carpathians. A significant number

of these are specific to certain regions - in the Polish Carpathians alone (a very small part of the mountain range), there are an estimated 200 unique insect species. These species are also

influenced by environmental change; for instance the Long horn beetle (*Rosalia alpina*), which makes its habitat in decaying beech trees, is only to be found in natural forests.

### Case study - The Apollo butterfly : a lesson in restoration

The rehabilitation of the population of the Apollo Butterfly (*Parnassius apollo*) in the Pieniny Mountains of Poland is seen as a key example in the conservation and restoration of invertebrates. At the beginning of the 1990s, this beautiful white butterfly existed in the Carpathian mountains in only a few isolated populations - the result of a 60-year persistent population decline.

A ten-year restoration programme, launched in Pieniny National Park in 1991, has involved restoration of the butterfly habitat, research and

captive breeding. Co-operation from the Slovak part of the Park was initiated in 1994 and local people, students, teachers and national park rangers have learnt from the lessons of its conservation in a community-based monitoring programme. There is much to learn from - the isolated population of 20 butterflies in the park has grown to more than 1000 individuals in linked populations. This is a true example of the successful conservation of an invertebrate species.



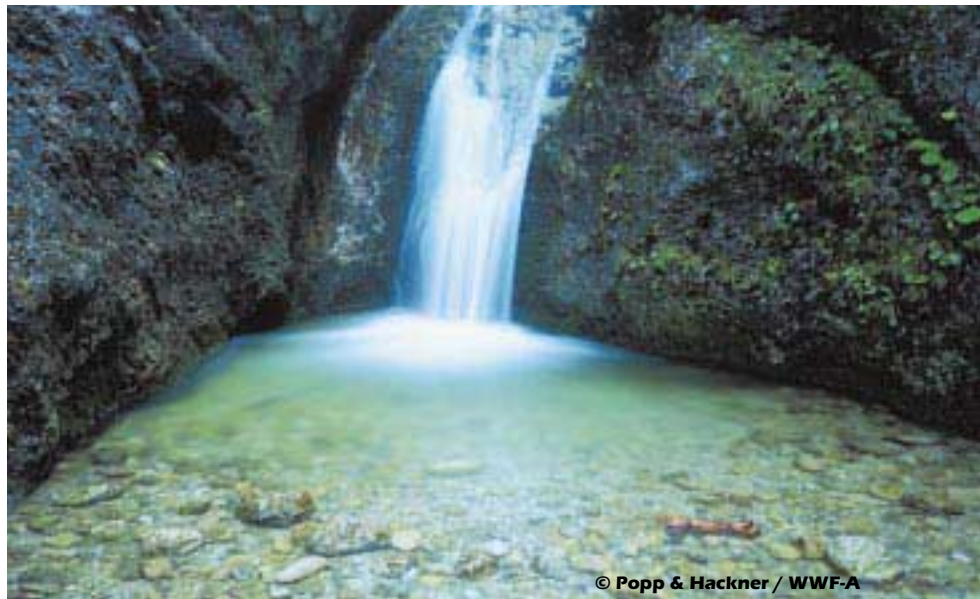
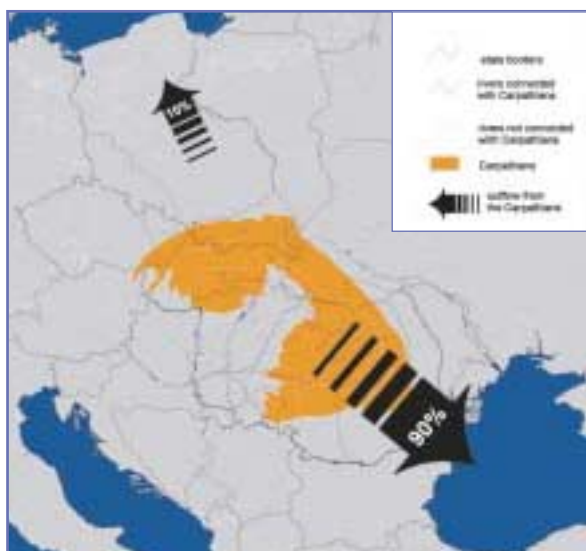
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## C. RIVERS AND WATERS OF THE CARPATHIANS

With a dense river network supporting a wide diversity of mammal, fish, invertebrate, plant and microbial species, beautiful glacial lakes in the highland regions and an annual rainfall that is twice as high as in the surrounding region, the aquatic environment of the Carpathians is of great importance for European nature and people.

Perhaps most importantly, the Carpathians are also a major source of freshwater; as much as one third of the water outflow of the Vistula river originates from the Carpathians and the region is the source of more than 80% of Romania's water reserves (excluding the Danube). As an important major freshwater reserve the Carpathians

*The Carpathians as a source of freshwater. Ultimately, 90% of Carpathian waters flow into the Black Sea and 10% flow into the Baltic.*



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provide clean drinking water. Major rivers are sourced here - the Vistula starts its journey of more than a thousand kilometres in these mountains, the Olt river originates in the Eastern Carpathians, and the forested Carpathians of Ukraine provide a source for the Siret, to name but a few.

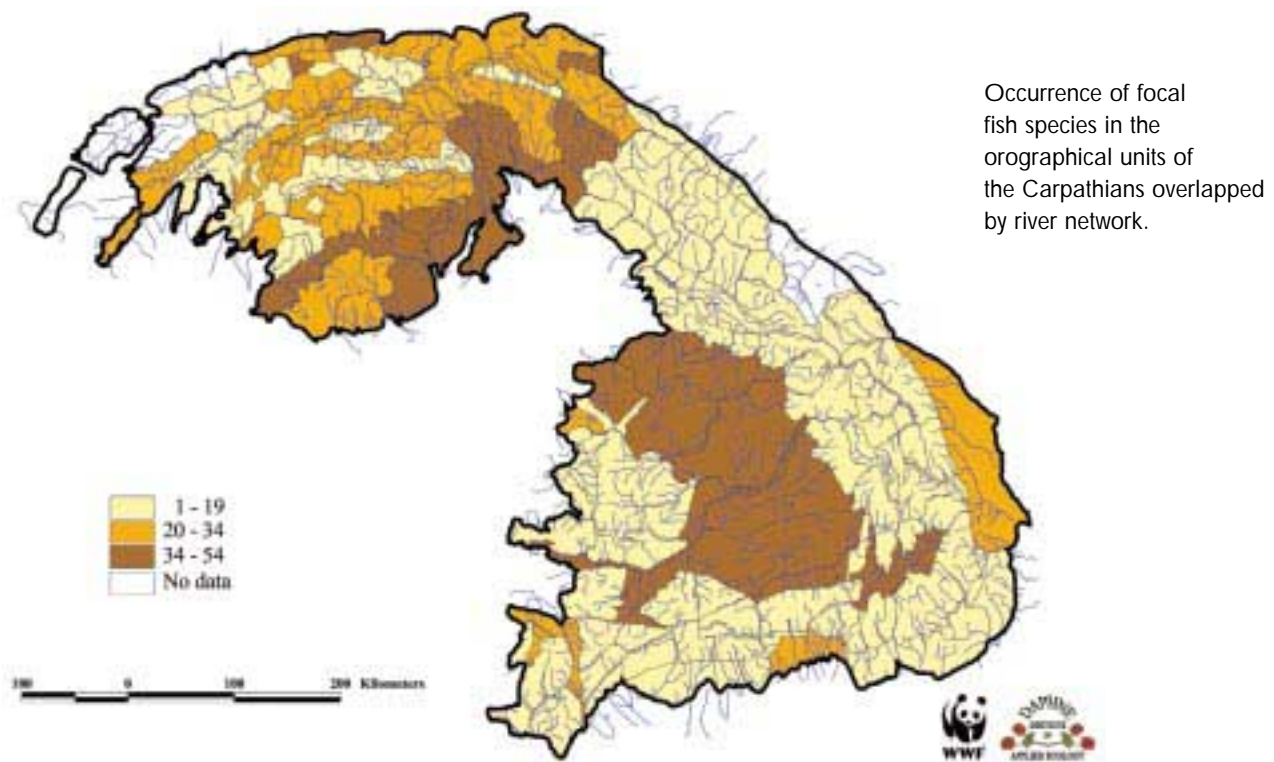
It is, however, the smaller rivers which provide much of the Carpathians' aquatic biodiversity. Whilst the lowland rivers, such as the river Vah, have in many cases been straightened, regulated and controlled, the smaller water courses remain mostly in their natural state - the small Carpathian rivers are amongst the cleanest in Europe. One of the most well-known inhabitants of the Carpathian rivers is the otter (*Lutra lutra*) - a species which is only found in clear, unpolluted water environ-

*In the High Tatras region in the Western Carpathians there are more than 110 glacial lakes, formed millions of years ago.*

ments. Internationally classified as 'vulnerable to extinction,' this charismatic river carnivore is a common sight in nearly all the Carpathian countries and found in densities as high as one per 10 to 15 km of shore line in Ukraine. Species like the Brown trout (*Salmo trutta f. fario*) and the Lake trout (*Salmo trutta f. lacustris*), also indicators of clean water, are only found in the upper sections of Carpathian rivers and streams.

More than 100 fish and lamprey species live in the Carpathian rivers, of which 10 are considered to be endemic. The Carpathian lamprey (*Eudontomyzon danfordi*) is found only in tributaries of the Tisza and Timis rivers. The Asprete (*Romanichtys valsanicola*) is also virtually extinct in its native Romania, except in the Valsan, a Carpathian tributary of the Arges.





Freshwater reserves, both permanent and temporary, also provide a haven for other wildlife in the Carpathians. For instance, in Duna-Ipoly National Park in Hungary, small temporary alpine lakes, permanent marshes and water-storage lakes play a very important role in waterfowl migration. During the autumn and spring migration, huge masses of birds use the lakes as stepping stones in an 'ecological corridor.'

There are some 450 lakes in the Carpathians, mainly of very small size; their total surface area is barely 1.5 square miles. In the high mountains of Fagaras, Retezat, the Eastern Carpathians and the High Tatras, the beautiful glacial lakes can be found.

The rivers and waters of the Carpathians demonstrate the importance of taking an integrated approach to conservation. As a vital catchment area, both conservation

and economic activities in the Carpathians, such as deforestation on the mountain slopes, necessarily influence the natural value of the rivers that flow out of the region. Clear-cutting of forest highlands cannot be ruled out as a major factor in lowland flooding. Attention must be paid to the conservation of Carpathian rivers and lakes for their unique biodiversity as well as their vital importance to the people of the region.

**'In conserving Europe's major rivers, it is vital that we consider the interaction between catchment areas and rivers. About 20% of the waters of the Carpathians enter the Danube, so in seeking to conserve the Danube we must also consider management practices in the Carpathian Ecoregion.'**

Philip Weller, Director WWF International 'Danube-Carpathian Programme.'



# SOCIO-ECONOMIC ISSUES IN THE CARPATHIANS

The challenge facing the Carpathian region is a daunting one: how to increase material livelihoods of the population - in terms of development and quality of life - whilst at the same time conserving and sustainably managing the rich biodiversity and cultural heritage of the region. This document does not provide simple answers to this problem, but it delivers examples of possible solutions, using the basic premise that socio-economic development and nature conservation do not need to be opposing forces. Rather, each should be the underpinning foundation of the other.

Human use of the natural resources of the Carpathians has a long history. The following pages present some of the key trends, and offer some encouraging examples which point the way towards a future mutually beneficial relationship between economic development and conservation.

**'Seen from the above, the Carpathian mountain range reminds me of a question mark...The question mark seems to ask: what is the life in this region of the world like? How do we preserve its unique values? What do we do for the future?'**

-HE Rudolf Schuster, President of Slovak Republic; Bucharest, May 2001



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## A. RURAL ECONOMIES: PAST, PRESENT AND FUTURE **Agriculture: shaping the land**

From the high alpine meadows grazed by cattle and sheep, down to the narrow field strips in the valleys, agriculture and shepherding have shaped the landscape of the Carpathians. Historically, mountain shepherding has been one of the most important elements of Carpathian culture; creating typical landscape features such as the sheepfolds, stockyards and numerous paths beaten down by herds of animals. Man's impact on the landscape through farming can be detected as early as the 4<sup>th</sup> and 5<sup>th</sup> Centuries, when Prehistoric forests were affected by livestock grazing high up in the mountains. This led to an increase in soil erosion - a phenomenon which continues to this day and is a particular problem in steeply sloping regions. Severe deforestation has been experienced in the Carpathian foothills, where the

agricultural soil is more fertile; higher up in the mountains, pastoral farming has traditionally predominated.

The ancient methods of farming and managing the landscape, though



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buffeted by political and social change - for instance with a growth in human settlements in the Middle Ages - have survived for generations. More recently, sweeping changes were introduced to rural economies in the wake of World War II. Communist governments favoured 'collectivisation' of agriculture, either into huge state farms of more than a 1000 hectares, or 'co-operative farms' where resources were managed jointly. The centralised systems valued industrialisation and production and provided subsidies for more intensive agriculture: use of fertilisers, ploughing of meadows and drainage of wetlands.

Despite this massive upheaval, as a marginal area, the Carpathians avoided the worst of the effects: economically, they were not seen to be worth the level of investment required, and logistically, resettling people who lived in remote mountain villages was difficult. Private ownership remained the rule rather than the exception in the Carpathians; in Poland particularly, little or no collectivisation occurred. In many ways, this 'benign neglect' preserved marginal rural areas from the agricultural intensification which was devastating the nature of many other parts of Europe. It should be noted, however, that experience of the Communist system varied significantly from country to country.

In the aftermath of the fall of Communism in the early 1990s,



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support for the agricultural sector also collapsed. The removal of agricultural subsidies, introduction of competition through free market reforms and resulting recession in Carpathian countries has caused a massive reduction in agricultural employment. For example, in Hungary the share of GDP attributed to agriculture dropped from 12% in 1990 to 5% in 1998 whilst the number of people employed in the sector shrank from 955 000 to 288 000.

**'A country that has mountains with forests and grasslands is a fortunate country.'**

**If this country also has mountain farmers, it is twice as fortunate.'**

'Romanian Carpathians' Summit publication (Romanian Ministry of Agriculture, Food and Forests, 2001)



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## Agriculture today: changing systems, changing land

Responses to changing systems and increased poverty, and the impact this has on Carpathian nature, involve many different, often contradictory, patterns. A massive decline in rural incomes has raised the spectre of rural depopulation; migration of young people from rural areas in search of work, ageing of the rural population and decline of the traditional lifestyle in the Carpathians. Land abandonment undoubtedly poses one of the greatest threats to biodiversity, as scrub takes over the traditional pattern of biodiversity-rich mountain pastures. Conversely, in some regions of the Romanian highlands farmers have increased the numbers of sheep they graze in the highlands, as alternative forms of income in their villages have faded away. This has led to over-grazing of the mountain pastures, reducing the unique biodiversity of these

areas, and increased conflict with the carnivores of the forest.

Privatisation of land which was seized as State property after 1945 also has the potential to cause considerable damage to agricultural lands. As with the restitution of forested land, poverty encourages activities which maximise short-term monetary gain above all else; for example it has led to an increase in cropping on unstable slopes with

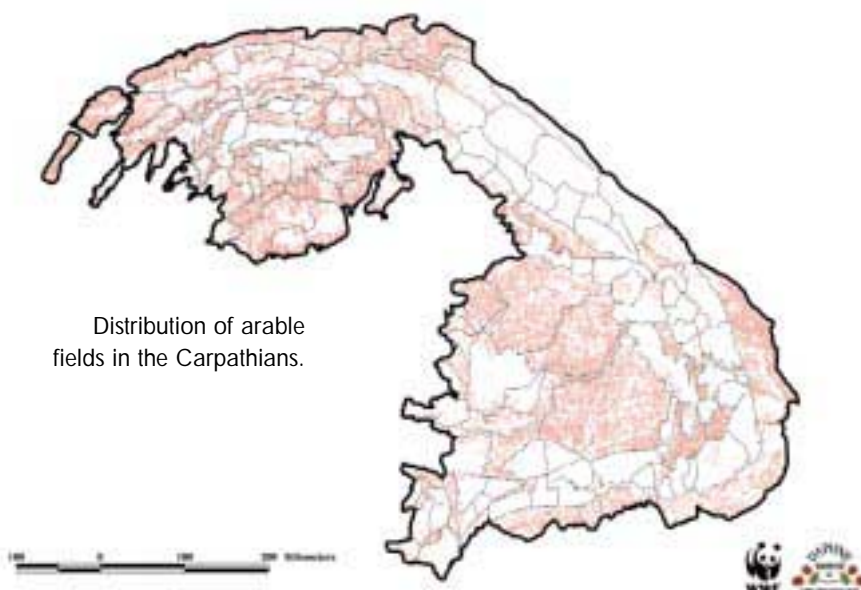
subsequent increases in soil erosion.

Perhaps more than any other sector, agriculture links the natural environment to economics and politics. Increasing integration and international trade is likely to encourage a 'production-oriented' mentality as farmers in Central and Eastern Europe are forced to compete with the intensive farms of Western Europe. EU subsidies, as they stand at the moment, favour large companies and intensive farming methods which have resulted in a dramatic decline in biodiversity in Western Europe.

Despite current problems with the agricultural sector, most people in the rural Carpathians still make their living from farming, though in a few areas this is now being supplemented by new sectors such as tourism. Covering such a vast region, it is often difficult to generalise about the effects of changes to political and economic systems. What is clear, however, is that the agricultural sector remains a vital part of life in the Carpathians.



© Dominika Zareba



## Looking to the future: diversifying local incomes

At present 'environmentally friendly' land-use systems in the Carpathians are limited to only a few percent of the agricultural area, but they have considerable potential. For example, in the White Carpathians on the border of the Czech and Slovak Republics, 15 000 hectares (37%) of agricultural land is managed according to organic principles, one of the greatest concentrations in either country.

As with many other parts of the region, the White Carpathians have felt the impact of increasing development and market competition; cheaper, mass-produced and chemically-treated imports of products such as fruit have undermined demand for local produce. As a result, local residents have less incentive to care for their orchards, and native species are disappearing. In addition, sheep, once a central feature of life in the northern reaches of the White Carpathians



and important for maintaining meadow ecosystems, have given way to competition from New Zealand.

In response to this, a broad coalition of NGOs, local communities, farmers, business-people, and government bodies in the White Carpathians are developing and marketing traditional crafts and goods made from local produce. These initiatives are strengthening the local economy; creating an economic rationale for preserving the area's natural and cultural heritage. The association has

produced and marketed juices, dry fruit, marmalade and other products, made from 250 varieties of fruit.

These initiatives, however, do not only exist by themselves; they are a part of a wider sustainable development strategy, which collectively provides a strong impetus for economic development in the region and a model for the rest of the Carpathians. The Carpathian Ecoregion Initiative is actively promoting this model for community sustainable development in the rest of the region.



**'Marketing of local products, based on natural and cultural heritage of the region, means support for the local people who farm the sheep, mow the meadows or plant new orchards. Trademark Traditions of White Carpathians helps us to support sustainable care for the landscape in the White Carpathians.'**

Radim Machu, Czech NGO  
'Veronika'(2001)



## Forestry and biodiversity: a sustainable harvest?

Wood harvesting and exploitation of the forests in the Carpathians have a long history. In the Western Carpathians, parts of the forest were cut down by the Romans in order to build fortified settlements on their northern borders. From the 9<sup>th</sup> to 14<sup>th</sup> Centuries, fire was used to clear areas of forest for village settlements, greatly increasing man's impact on the forest.

It was not until the railway age in the 19<sup>th</sup> Century, however, that the Carpathian forests were opened up to commercial exploitation. During this period, large areas of forest were clear-cut and reseeded, often with seed from foreign sources, which differ from native species. Even when indigenous species, such as spruce, were used, the forests were frequently replanted in single-

species 'monocultures'. The resulting forests are less stable than natural forests, offer poorer habitat for native species and are more vulnerable to natural hazards such as disease and storms.

### State or local ownership: the issue of forest restitution

For the latter part of the 20<sup>th</sup> Century, Carpathian forests were owned and managed by the State. The bias towards production under Communism meant that these forests were generally over-exploited, with the effects accentuated by waste in harvesting and in timber processing.

Forest exploitation in the Carpathian region, however, has never caused the same extent of damage that has been observed in Western Europe. Under the Communist system, the co-ordinated, centrally managed system had advantages in terms of forest management; advantages which are now being lost as State owned forests are returned to their original owners in the process of 'restitution.' This procedure, only a small part of a wider process of privatisation, has major implications for the future of Carpathian forests. Restitution, propelled by political rather than ecological imperatives, poses a challenge for the future of nature conservation in the Carpathians. Whereas small- and medium-sized forest properties used to be a part of the pattern of rural areas, this traditional pattern has in



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most cases by now been destroyed. Perhaps more importantly, more than fifty years of alienation from private property have cut the 'emotional ties' of owners with their land and resulted in a loss of basic skills and knowledge about how to manage forests. Under pressure from increasing rural poverty and lacking the skills for forest management, the temptation for the 'new' owners is to quickly clear the section of forest in order to make a rapid economic gain.

The challenge is therefore to encourage good - and particularly co-ordinated - forest management amongst the new forest owners, to educate and provide them the capacity to implement good practices. For example, in Romania, the National Forest Administration is attempting to persuade owners to adopt good forest management. 'Private owner associations,' have been set up as a useful mechanism for encouraging co-ordinated management.



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## Controlling forestry in the Carpathians

In the context of a weak legislative structure, conservation and control measures are not easily implemented. Problems arise from a lack of resources or from corruption; just because regulations are created, does not mean that they will be enforced. Authorities promoting nature conservation and the sustainable use of forests therefore lack the capacity to act; through lack of financial resources, issues of corruption, or the inability to tackle cultural issues.

For example, forests - both privately and publicly owned - are often 'leased out' to companies. In theory, companies are obliged to seek special permits and conform to management rules in order to harvest wood. However, the permits are only valid for one year, and companies seeking to extend the arrangement have been able to use their close contacts with state forest agencies in order to negotiate easier deals.

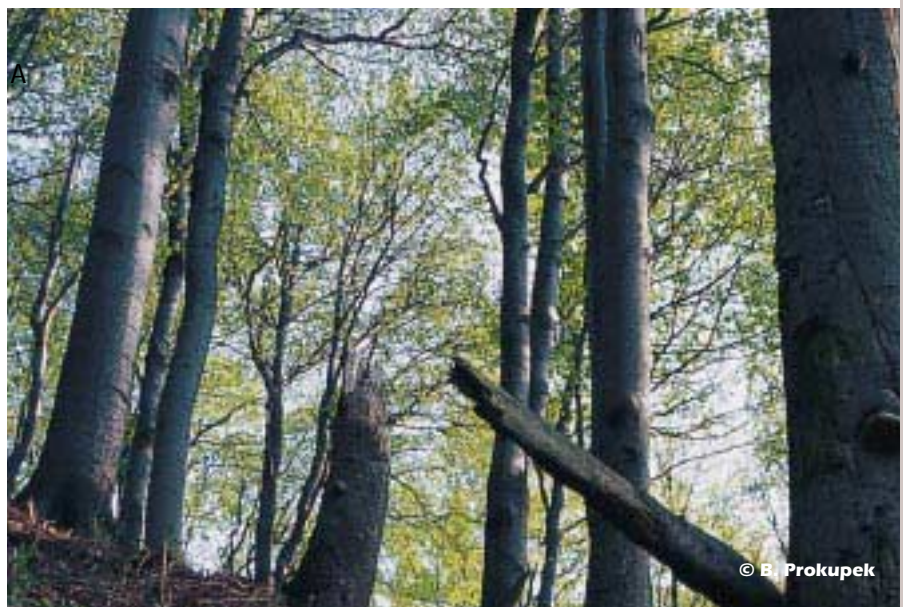
As awareness of the ecological value of forests grows, conflict is created between the demands of 'traditional forestry,' which sees forests as a resource for wood harvesting, and the 'holistic' view of forests as living entities with diverse functions - biodiversity, production of soil, stabilising water regimes and landscapes to name but a few. This political tug-of-war is well illustrated by the case of the Slovak NGO 'WOLF,' which in the year 2000 was fined for failing to cut wood on a



reserve established in the Cergov Mountains to preserve natural forest growth. WOLF aims to set aside one-fifth of all forests for non-timber producing functions, including buffers for streams and springs, whilst selectively logging the rest of the forest. Their forest management technique corresponds to international conservation treaties signed by the Slovak Republic. Yet according to national law, the fine was justified.

**'The point is not to keep people from making a living. Certain parts, those with particularly valuable natural features, like the present reserves, must be set aside. But in other areas, we can find a compromise of how to use the land without destroying it.'**

Rastislav Micanik, 'WOLF', in 'Felling our Future' (Beckmann, 2001).



## The Forest Stewardship Council in the Carpathians

As awareness grows in Western Europe of the value of managing forests for the future and not just the present, mechanisms to achieve this are also being developed. One such example – the most successful to date – is the Forest Stewardship Council (FSC), an alliance between forest owners, the timber industry and social and environmental groups. Founded in 1993, the FSC aims to promote 'environmentally appropriate, socially beneficial and economically viable management of the world's forests.'

This international non-governmental organisation has more than 440 members from 55 different countries. The FSC has adopted ten global principles and criteria for responsible forest management, examples of which are:

### Benefits from the forest

'Forest management shall encourage the efficient use of the forest's multiple products and services to ensure economic viability and a wide range of environmental and social benefits'

### Environmental impact

'Forest management shall conserve biological diversity and its associated values, water resources, soils, and unique and fragile ecosystems and landscapes, and, by so doing, maintain the ecological functions and the integrity of the forest.'

### Management plan

'A management plan - appropriate to the scale and intensity of the operations - shall be written, implemented, and kept up to date. The long term objectives of management, and the means of achieving them, shall be clearly stated.'

### Indigenous peoples' rights

'The legal and customary rights of indigenous peoples to own, use and manage their lands, territories, and resources shall be recognised and respected.'

The FSC aims to promote responsible forestry that respects ecological and social values, whilst promoting an economically viable trading system. Forests which are managed according to FSC criteria are 'certified' by FSC accredited companies and the wood products from the forest are sold under the FSC label.

A 'Chain of Custody' process traces the route of the wood products from forest to consumer, confirming that only those wood products from certified forests are sold under the FSC label. Almost 25 million hectares of forest in 45 countries have been certified by FSC since its foundation; a global success story driven by consumer concern with the rate of forest destruction world-wide, and faith in the FSC label.

### FSC in the Carpathians : Romania announces forest certification

The Carpathian Ecoregion Initiative has promoted the growth of the FSC in Eastern Europe through the provision of information and setting up of national working groups to develop standards for sustainable forest management. In a recent announcement, the Romanian National Forest Administration announced a commitment to certifying 1 million hectares of forest according to FSC criteria within the next two years.

This is a very significant step forward and a positive sign for Romania's forest, which covers more than 6 million hectares of land. As international wood trading companies increasingly turn their attention towards Eastern Europe, FSC provides a route by which Romanian forests of the Carpathians can be harvested sustainably, responsibly and with the long-term survival of natural resources in mind.



FSC Trademark © 1996  
Forest Stewardship Council A.C.  
FSC-SECR-0039

The FSC Logo identifies forests which have been certified in accordance with the rules of the Forest Stewardship Council.



## B. DEVELOPMENT PRESSURES : RURAL AND URBAN

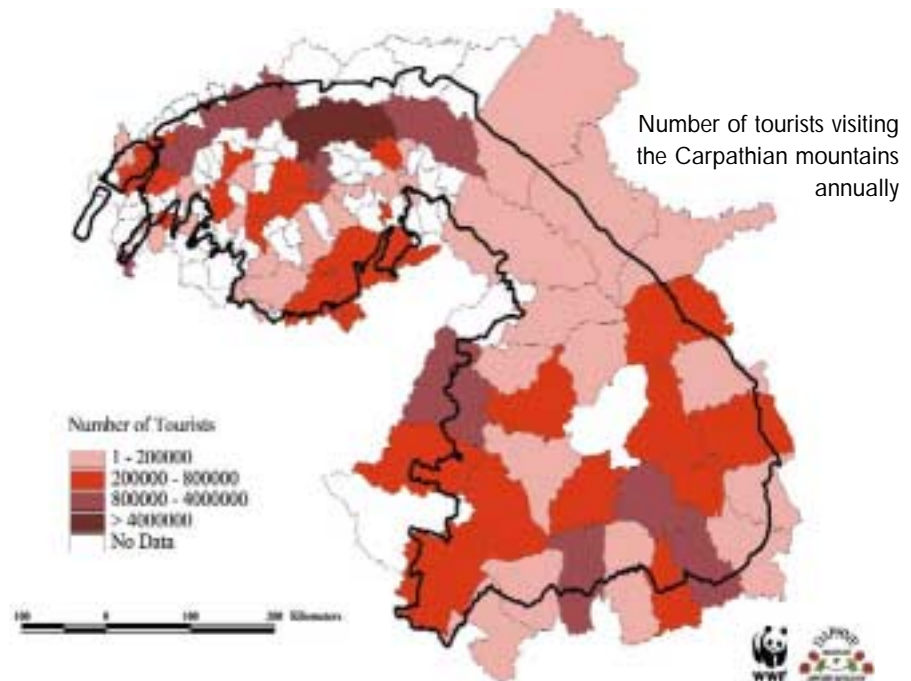
### Tourism in the Carpathians

The grandeur of the Carpathian mountains, their high natural value and the potential for recreational activities such as hiking, have encouraged increasing numbers of tourists to visit the area. In the Carpathian region, tourism thus represents both a significant challenge to the ecological integrity of 'hot-spot' areas like the High Tatras, and an important opportunity for future rural development in the region.

The Communist era saw a considerable expansion in international tourism, largely based on arrivals from other Socialist countries on subsidised State holidays. When the Communist system collapsed this market disappeared and a sharp decline in tourism occurred. Only a few of the most important areas, such as Beskidy in the Czech Republic and the High Tatras in Slovakia, continued to attract tourists in the early 1990s.

The Carpathian countries generally saw a massive rise in visits from foreign visitors after the fall of Communism; with tourism traffic from Western to Central and Eastern European countries increasing from about 20 million in 1980 to 34 million in 1990, but falling again to 27 million in 1992. Most of this tourism, however, was to non-Carpathian destinations; visitors to the Carpathians remained relatively low, except to a few hotspot destinations.

Tourism in the Carpathians is now



undergoing a significant shift as it responds to market forces and growing demand from international tourists from the West. Instead of the tightly controlled 'top-down' system of Communism, where most tourists arrived on state-sponsored group holidays, more individual tourists are now arriving, looking for smaller hotels and good quality services. Analysis of more recent trends in the Carpathians showed that international arrivals have now stabilised, but the time spent in the region by individual tourists is increasing.

#### **Sustainable tourism: a future for rural development**

Sustainable tourism has an enormous potential to bring together nature conservation and rural development. Small-scale community projects throughout the

*The Carpathian region has various 'hot-spot' areas for tourism which attract the vast majority of tourists visiting the region.*

Carpathians are demonstrating the benefits that can be achieved for both local people and their environment. One such example is the *Amber Trail Greenway Programme*, an international project which promotes cultural preservation and nature conservation by fostering potentially environmentally-friendly activities such as eco-tourism, marketing local products and raising local grassroots initiatives, along the heritage trail from Krakow in Poland to Budapest in Hungary. Projects include a cycle trail along the route, a fair demonstrating local and organic products, and a wolf-tracking initiative in the Beskidy Mountains.

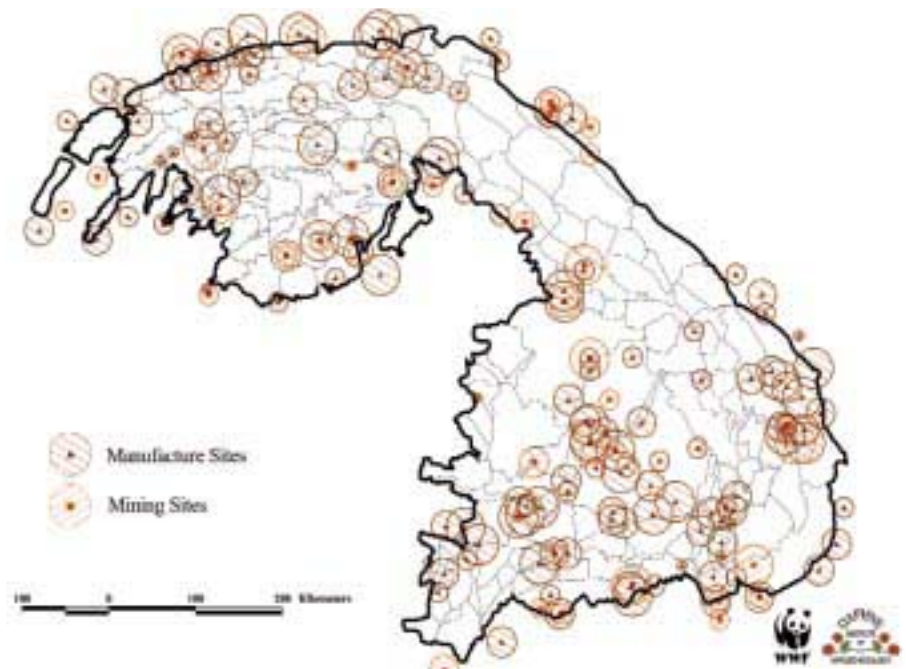


## Industry and water management

Industrialisation first came to the Carpathian region with the expansion of the Prussian and Habsburg empires in the 18<sup>th</sup> Century and expanded dramatically in the 19<sup>th</sup> Century. At this time the Carpathians were exploited for coal and metal mining (for instance in regions of the Banat Carpathians in Romania) and for minerals (Dashava in Ukraine and Ploiesti in Romania). Carpathian valleys, such as the Vah valley in Slovakia, were also heavily developed for industries such as wood processing.

It was in the latter half of the 20<sup>th</sup> Century, however, that industry came to have the strongest effect on the natural environment of the Carpathians. The emphasis on central production promoted under Communist systems was often to the detriment of the natural environment; as a result, air and water pollution have become major problems in parts of the region. Forests of incredible natural value, such as the upper montane forests in the Beskidy Mountains in the Western Carpathians, have been badly affected by sulphur emissions from nearby factories. Acid rain originating from factory pollution (both from within and outside the Carpathian region) continues to be a problem.

After the Communist systems ended there was a dramatic decrease in industrial production, with the result that there has been a reduction in emissions of pollutants. Many former industrial areas are now 'crisis



areas,' with high levels of unemployment, environmental degradation and pollution from industry. These areas are more evident in the north-west Carpathian region where the concentration of factories was greater; however, the collapse of industry took place over the whole Carpathian range. For instance, in Zarnesti, a town in Central Romania, most of the factories have closed in the last ten years, with the result that 50% of the active population is now not working.

Pollution in Carpathian rivers from industrial sources continues to be a problem; legislation of the accession countries draws step by step closer to the principles of water management set by the EU, though at varying rates. One recurring problem is that jurisdictions in water management are not always clear - for instance, in the Czech Republic

*Distribution of mining and manufacture sites and their influence on nature represented by a 'zone of influence' around the site.*

the Ministry of Agriculture controls maintenance of the rivers, whilst conservation of water and water ecosystems is controlled by the Ministry of Environment. Greater coordination at the Ministerial level is needed if this problem is to be adequately tackled.

Despite these problems, it must be recognised that much of the Carpathian river system remains relatively pristine - small Carpathian rivers are amongst the cleanest in Europe. Accidents such as the Baia Mare spill in Romania (see box) point to the continuing threat posed to these rivers by industrial activities, and the need to implement legislation to protect them.

## Case study - The Tisza cyanide spill : counting the cost

On 30th January, 2000, at the Baia Mare reprocessing plant in Romania, a dam encircling a tailings lagoon broke under pressure from rain and melted snow. About 100 000 cubic metres of water, contaminated with cyanide and heavy metals, was released into the river Tisza and other rivers in the Danube system. After the spill, a toxic 'plume' of cyanide polluted water floated down the river. Over 1200 tonnes of dead fish were hauled from the waters; other water life such as plankton were completely eradicated in some regions.

Thankfully, the largely natural river system showed a remarkable recovery. Social and economic impacts, including those to sectors such as fisheries, tourism, industry



and future investment, have lingered longer. In response to the spill at Baia Mare, the Baia Mare Task Force (BMTF), an international initiative including the United Nations, Hungarian and Romanian Governments and WWF, was set up by the European Commission to inspect the affected region. The

report of the BMTF warned that high risk sites with the potential to cause the same devastation, exist in many parts of the region, and elsewhere in Europe. This time the river system was able to recover; calling for increased safety standards, the report warned that 'next time we may not be so lucky.'



## Dams and hydroelectric power

There is a higher density of dams in the north-west of the Carpathians than in the south. Dams have been built in the Carpathian region to provide flood control, water supply and some limited hydropower. The prodigious demands for energy under the Communist central planning system meant that the development of hydroelectric power stations was highly favoured,

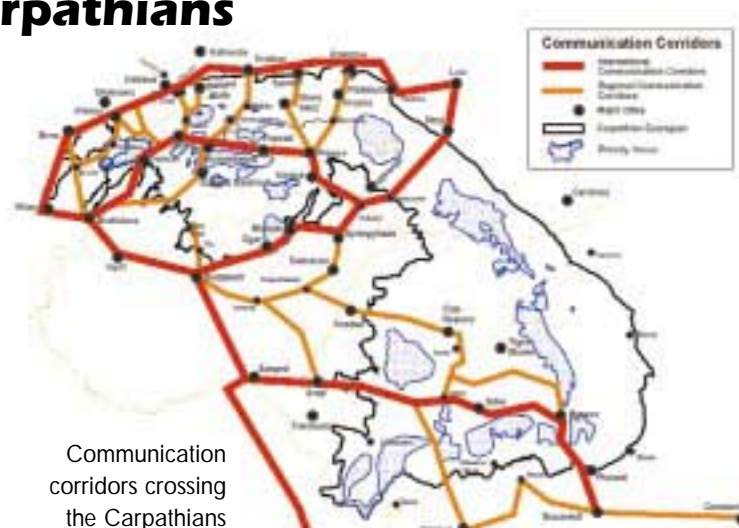
leading to a considerable loss of agricultural land and forest as well as some relocation of villages. A significant example is damage to the Retezat mountains following the Raul Mare-Retezat hydropower scheme. Despite these effects, however, dams remain relatively limited in the Carpathian rivers compared to those in Western Europe - in many Carpathian rivers natural processes, so important for living diversity, have been allowed to continue unhampered.

## Transport in the Carpathians

With increasing development, trade and integration with Western Europe, the increase in traffic in the Carpathian region over the last few years looks set to continue. The development of transport networks is a high priority in all the Carpathian countries and seen as immensely important for the economy of the region.

According to research carried out by the Carpathian Ecoregion Initiative, 'communication corridors' (roads and railways) fragment the ecoregion into four basic units. Roads disturb the migration patterns of animals and have the potential for dramatic effects on populations such as the wolf, who rely on the Carpathians as a migration route to southern Europe. If the 'bridge' concept of the Carpathian region is disrupted, much of its ecological value may be lost. Roads are also often accompanied by other barriers; for example electric power cables. Every year hundreds, and quite possibly thousands, of birds are killed by power cables and lines. The construction of a huge gas pipe-line is also planned, crossing from Russia to the Slovak Republic, which is likely to cut the Carpathians near the Dukla pass.

A blanket opposition to road-building and development is inappropriate in the context of the increasing development of Central and Eastern European countries. With rapid economic development and increasing trade and integration with the EU, development of a transport infrastructure is seen as essential in the Carpathian region. Lobbying for



Communication corridors crossing the Carpathians

'damage limitation' is often the best option, for example tunnels and overpasses which will allow migrating animals to pass through. It should also be remembered that minor roads built through the forest can in some cases be beneficial for conservation, as better access to the timber resource allows the use of more environmentally friendly harvesting techniques and prevents erosion of forest tracks.

Yet it should also not be forgotten that major road building plans have the potential for huge impacts on the Carpathians' biodiversity. An example is the proposed Madrid to Kiev Trans-European Network (TEN) Highway, funded by the EU, which would cross the Carpathians.

A balance must therefore be struck. All proposed transport development projects must be carefully designed in order not to have a negative impact on the unique Carpathian natural diversity. Roads must not be allowed to pass through or significantly impact upon sites of major importance to biodiversity. It is here that the Carpathian Ecoregion Initiative's 'mapping' approach can be used to identify possible threats to the future

*Present communication corridors, whilst fragmenting the ecoregion, do not appear to overlay any of the 'priority areas for biodiversity' identified by the Carpathian Ecoregion Initiative (see p.45). Planned road developments, however, must be observed carefully.*

of these amazing sites. In assessing impacts to biodiversity, Environmental Impact Assessment (EIA) procedures must be followed; alternatives must be proposed and assessed; and ideally a Strategic Environmental Assessment (SEA) should be carried out for transport network planning in the region as a whole.

In assessing the impacts of roads, it is also essential to consider the 'tightness of the barrier' to migration; that is, the traffic load that will be carried by the road. In this context, railways can be seen as less 'tight' barriers and therefore have a smaller impact on migration patterns. Future challenges from this sector must also be considered; at present, the Carpathians are not impacted by air transport. With an increase in tourism and development, this may become a major issue in the future.



## C. JOINING THE EU: THE POLICY CONTEXT

Entry into the European Union offers both challenges and opportunities for biodiversity and the rural economies of the Carpathian region. This process - known as 'accession' - requires countries to plan the transposition of European Union legislation into their national policy. This offers opportunities in the form of new, harmonised legislative frameworks, policies and especially funding instruments, which can be used to support both rural livelihoods and biodiversity conservation. Conversely, implementation of some European legislation, particularly the Common Agricultural Policy (CAP), combined with accelerating development pressures, pose a significant threat to the future of Carpathian nature.

The challenge is therefore to guide new developments and shape future patterns of investment and land-use in a way which utilises natural capital without undermining or destroying it. However, the accession process and in



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particular compliance to environmental legislation is not proceeding at the same rate throughout the region. The Czech Republic and Hungary have already agreed a timeline for transposing the environmental legislation; Poland, the Slovak Republic and in particular Romania are further behind in the process. Ukraine, though it is co-operating in certain fields and bound by international agreements and conventions such as the Danube River Protection Convention, has not applied for EU membership.

*A representative from the European Commission was amongst those discussing the future of the Carpathians at the Carpathian-Danube Summit, April 2001.*

It must therefore be expected that in the future the eastern boundary of the EU in Poland and the Slovak Republic will divide the Carpathians by political borders - a development which is likely to complicate and limit cross-border ecoregion and rural development activities.

Specifically, there are three policy sectors of prime importance for the Carpathians: nature conservation; agriculture and rural development; and water management.

*Major road developments cut through landscape and fragment wildlife habitats. It is vital that the needs of conservation are taken into account as the countries of the Carpathian region become more closely integrated with the European Union.*



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## Nature conservation in the European Union

The 'Natura 2000' network of Protected Areas, based on the European Community's Birds and Habitats Directives, is the key legislation tool for protecting nature within the European Union. This network of sites is based on the premise of conserving natural diversity at the European level, as well as promoting activities which will sustainably use the natural resources of the region. Mechanisms such as the EU LIFE Programme provide funding for activities, for example the extensification of agricultural practices, agri-environment programmes and rural tourism in and around protected sites.

The European Union has identified six 'biogeographical' regions from the Alpine to the tiny Macronesian islands, within which Natura 2000 sites are selected. The research showcased in this publication - showing the Carpathians as a distinct geographical territory, with high numbers of unique species not found anywhere else in Europe - indicates that there is a strong case for designating the Carpathians as a separate biogeographical region within the Natura 2000 process. This would overcome many potential problems by allowing countries joining the EU to plan together, making joint decisions over scientific methodologies and approaches. So far, no decision of this sort has been made, and the Carpathians are provisionally being treated as a part of the Alpine biogeographical region.

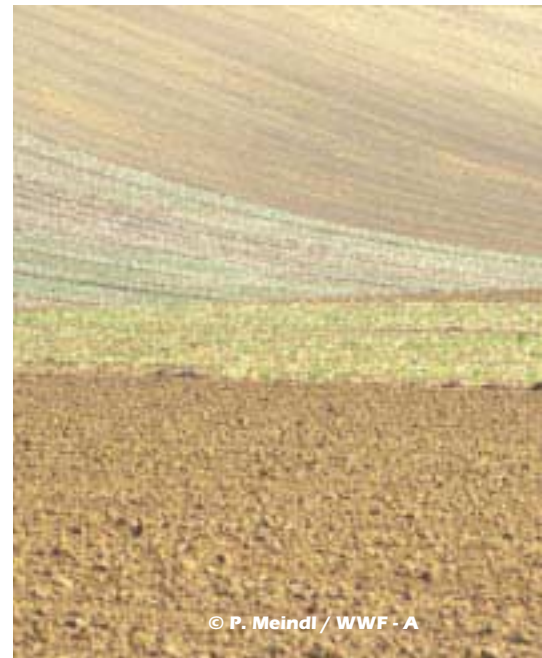


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Selection of Natura 2000 sites is based on the protection of habitats and species judged as being of European importance. It is vital that the identification of these habitats and species in the Carpathians follows a sound scientific approach and is made in consultation with all the organisations which have expertise, to ensure that the Directive covers the entire range of species and habitats in the Carpathians that requires protection.

NGOs in the Carpathians often have very well developed scientific capacity, expertise and knowledge. However, there is evidence that NGOs have not been significantly involved in this process at the national level, often lacking access to the appropriate information. This failure to engage a broader spectrum of interests seems short-sighted. It ignores rich sources of information and experience which will also be essential if successful protection of these vital sites is to be achieved.

*Valuable natural habitats in the Carpathians will be included within the European Union 'Natura 2000' network of Protected Areas.*



© P. Meindl / WWF - A

EU agricultural policies have had a devastating effect on the nature of Western Europe. It is crucial that Carpathian agriculture is not subject to the same pressure of 'production at all costs.'



## Agriculture and rural development policies

Reform and restructuring of the agricultural sector and rural economy in the Carpathians is a complex, economically necessary, and socially sensitive process - particularly in the context of processes like EU accession and global processes such as the negotiations of the World Trade Organisation. The challenge to protect the social fabric of rural areas from social upheaval and economic hardship is great, as is the need to avoid the costly and damaging mistakes of production-oriented subsidies as witnessed throughout the present day EU.

At the same time, environmental as well as social and economic benefits need to be promoted - in short, what is needed is an integrated policy for sustainable regional development. With agriculture the mainstay of the rural economy in the Carpathians, implementation of agricultural subsidies which reward production and intensification are likely to have large and negative effects upon biodiversity.

The whole process of transformation into EU Member States must therefore be seen in the context of reform of the CAP and of supporting subsidies and policies attached to the process of accession. The 'Special Accession Programme for Agriculture and Rural Development' (SAPARD) is one such financial support measure, aiming to support rural development in countries preparing to join the EU. This mechanism has a real potential to assist with targeted measures in



rural areas - but more money, more integration with other sectors (including nature conservation) and more public participation is needed in planning the programmes. A separate Carpathian Ecoregion Initiative report (see bibliography) presents the rather worrying results of a multi-country SAPARD analysis which suggests this opportunity is in danger of being missed.

### **Water management: integrating systems, reaching across boundaries**

Natural dynamics and ecological processes extend beyond political borders. Management of natural resources and nature conservation therefore also need to reach across boundaries. This is particularly true for water resources management and is reflected in the European Commission's new 'Water Framework Directive.' This innovative new system, currently under implementation, attempts to achieve 'integrated river basin management' across international boundaries, integrating land-use policies and water management programmes into a coherent whole. As a vital source of freshwater in Europe, this process is of great

*The European Union Water Framework Directive is the first European-wide regulation for sustainable use of water.*

importance for the Carpathian mountains.

With a focus on achieving 'good ecological status' of waters, the implementation of the Directive requires appropriate management of water catchment areas - the challenge for all concerned is therefore to meaningfully connect nature conservation, agricultural, forest and other sector planning and management to the wider issue of water quality.

With the involvement of all the Carpathian countries (including Ukraine) and a structure which legally obliges public participation in the process, the Water Framework Directive represents a significant opportunity. The Carpathian Ecoregion Initiative intends to broaden this debate, assisting in supporting public involvement, working with governmental and NGO partners throughout the region to contribute to the achievement of good ecological status for all Carpathian waters - including the Tisza, Odra, Vistula and Danube rivers.



## CONCLUSION: Challenges and opportunities in the Carpathian Ecoregion

The Carpathian region is undergoing a period of radical social, economic and political change. The origins of these changes range from the local to the global; from changing attitudes and increasing poverty in rural highland communities to the negotiations of the World Trade Organisation. In this context, the challenges for conservation are considerable - and sometimes unpredictable. Varying across the region, trends are often contradictory; yet, in order to find effective solutions, it is vital to see them in a regional context

### Introduction of a market economy and increase in development

The removal of the centrally-controlled, top-down Communist system affects all aspects of Carpathian life - from the negotiations of business down to the price of an apple. Development pressures, experienced most strongly in the north-west of the region, are also increasing at an unparalleled rate.

An extension of the transport infrastructure; a growth in tourism; in trade and attention from international business; these will have a massive effect on the life of the Carpathians. But they should not be viewed as purely 'negative' from a conservation perspective; any approach to conservation must recognise the universal demand for growth and higher living standards in all the countries involved. The money flooding into the region has great potential. The challenge is



to guide development along a sustainable route, to protect and value the unique natural assets of this area in the context of a changing world. Initiatives like the Forest Stewardship Council are of particular importance in guiding development in a way that values, rather than degrades, this unique natural area.

### Decline in rural economies

Combined with increasing opportunities for young people in the towns and the spread of 'consumer culture,' Carpathian rural areas are threatened by out-migration and the ageing of the local populations. These effects are most strongly felt in the south-east of the Carpathians, where poverty is greatest and investment is lowest. The challenge is to find ways to diversify rural incomes in the context of sustainable development. Initiatives involving eco-tourism and the promotion of local products and heritage offer hope for the future of Carpathian rural economies.

*Eco-tourism offers opportunities for increasing rural incomes in the Carpathians*

### EU integration

The accession of Carpathian countries to the EU; integration with the 'Natura 2000' system of Protected Areas and transposition of policy such as the EU Water Framework Directive offer considerable potential for nature conservation in the Carpathian region. Initiatives such as the SAPARD fund could potentially finance a rural reconnaissance - so long as it is targeted effectively, with sufficient involvement of stakeholders at a local level. At the moment this involvement is not taking place. Legislation, particularly the Common Agricultural Policy, poses a significant threat to biodiversity. Reform is a necessity in order for the accession process to take place. Whilst accession to the EU cuts down barriers, it also creates them; the Ukrainian Carpathians will still be outside the expanded EU and

therefore to a certain extent isolated.

## Restitution and the growth in civil society

Attitudes are changing in the Carpathians. The structures and culture of civil society is developing; land, long state-owned, is being returned to private hands. Evidence so far has shown that there are considerable dangers in the process: clear-felling of forest, fragmentation of animal habitats as new owners 'mark off' their land and a decline in co-ordinated land management are just a few.

The loss of private property in the latter part of the 20th Century and imposition of a 'top-down' culture that saw nearly all decisions as the purview of the state has eroded the notion that one could or even should care for the land. Yet, ultimately, the growth in civil society and increased involvement with the land can only be positive, both for natural resources and for the people of the region.

*Carpathian Ecoregion Initiative partners come together to learn about a local conservation initiative.*



## Local action: a force for change

In the context of the growing civil society, a number of innovative initiatives are springing up to counter rural decline at the local scale. These projects demonstrate the enormous benefits that can be achieved when local people come together to plan a sustainable future for their community.

The Environmental Partnership for Central Europe (EPCE), one of the key partners of the Carpathian Ecoregion Initiative, has been a catalyst for many of these projects: organising workshops where local people can discuss their ideas; following this up with advice, funding and partnership-building; and making connections between the diverse projects so that together they form a strong force for local development. The individual projects focus on one thing: people utilising their natural and cultural

heritage to boost the local economy, whilst at the same time preserving their environment and the rich social fabric of their towns and villages.

One emerging success story is taking place in the East Carpathians, a remote and often neglected area on the Polish-Slovak-Ukrainian border (a Carpathian Ecoregion Initiative model project area). The EPCE-organised 'Time for the Carpathians' initiative has injected a new sense of hope into local communities on all three sides of the border. Following the establishment of a small grants competition, local partners are working together to develop 'Greenway' trails linking the three countries - a real tool for encouraging tourism and marketing ventures. Similar projects are being nurtured in all four of the Carpathian Ecoregion Initiative's model project

areas: the White Carpathians on the Czech-Slovak border; Babia Gora/Hora on the Polish-Slovak border; Piatra Craiului in central Romania; and the East Carpathians. The Initiative is also promoting this approach in other 'Priority Areas' such as Retezat National Park in central Romania.

**'The point of stewardship is that you can't save any area, any land, if you exclude from it people and their activities. Nature is best protected not by nature conservation authorities but by the people who live on it.'**

Andrea Vicenikova, Daphne Institute of Applied Ecology; quoted from 'Caring for the Land' (EPCE, 2000).

## A Vision for the Carpathians

Through a two and a half year ecoregion planning process, the Carpathian Ecoregion Initiative has not only identified the most important biological features of the Carpathians, it has also gained a clear picture of the threats to the region and their root causes. This is the first and only overall view of the Carpathians.

Based on the information gathered through this process, the partners of the Carpathian Ecoregion Initiative have agreed on a short statement, representing their shared vision for the region (see box).

This short statement has been expanded to a longer sign-up vision statement to which more than 100 organisations have committed themselves (see Appendix D). As a result of the data-gathering process, a range of maps displaying biodiversity and socio-economic data has also been developed. Most important are the two maps identifying the Carpathian Ecoregion Initiative's 'Priority Areas' for conservation (see opposing page).

But how is the vision to be achieved? The Carpathian Ecoregion Initiative's mission can be split into three overarching themes, or medium-term aims:

### ► Strengthen institutional development

The structures and organisations conserving Carpathian nature need to maintain or increase 'the capacity to act.' In order to achieve this, legislation protecting Carpathian nature must be harmonised and strengthened, programmes need to be adequately financed and stakeholders at all levels need to be co-operatively involved in the processes of nature conservation.

### ► Develop a Carpathian ecological network

The protective area network should be strengthened to ensure that the biodiversity of the Carpathians is effectively conserved, and restored where appropriate. The network should support viable populations of species and maintain natural processes and evolutionary phenomena; perhaps most importantly, management of the network should be enhanced and integrated with the conservation of the region as a whole.

### ► Generate sustainable economic benefits for the people in the region

As the Carpathian countries adapt to a more market-oriented system, it is vital that sustainable use of the region's rich natural resources is promoted in a way that will benefit the people of the region. Initiatives such as eco-tourism programmes, renewable energy use and the marketing of local products should be developed to provide a truly sustainable future for the region.

### The vision statement:

**Our vision is to achieve the long-term conservation of the unique nature in the globally important Carpathian mountains and, at the same time, support the economy and culture for the lasting benefit of people through international partnership.**

### The next stage : developing the Pan-Carpathian Conservation and Action Plan

The Action Plan is a comprehensive strategy which will need to be implemented by the Carpathian Ecoregion Initiative, its partner organisations and other stakeholders, if conservation and sustainable development is to be achieved in the region. The next stage is the development of detailed five and ten year actions, which will be developed in 2002, with specific objectives, milestones and indicators for each of the components.





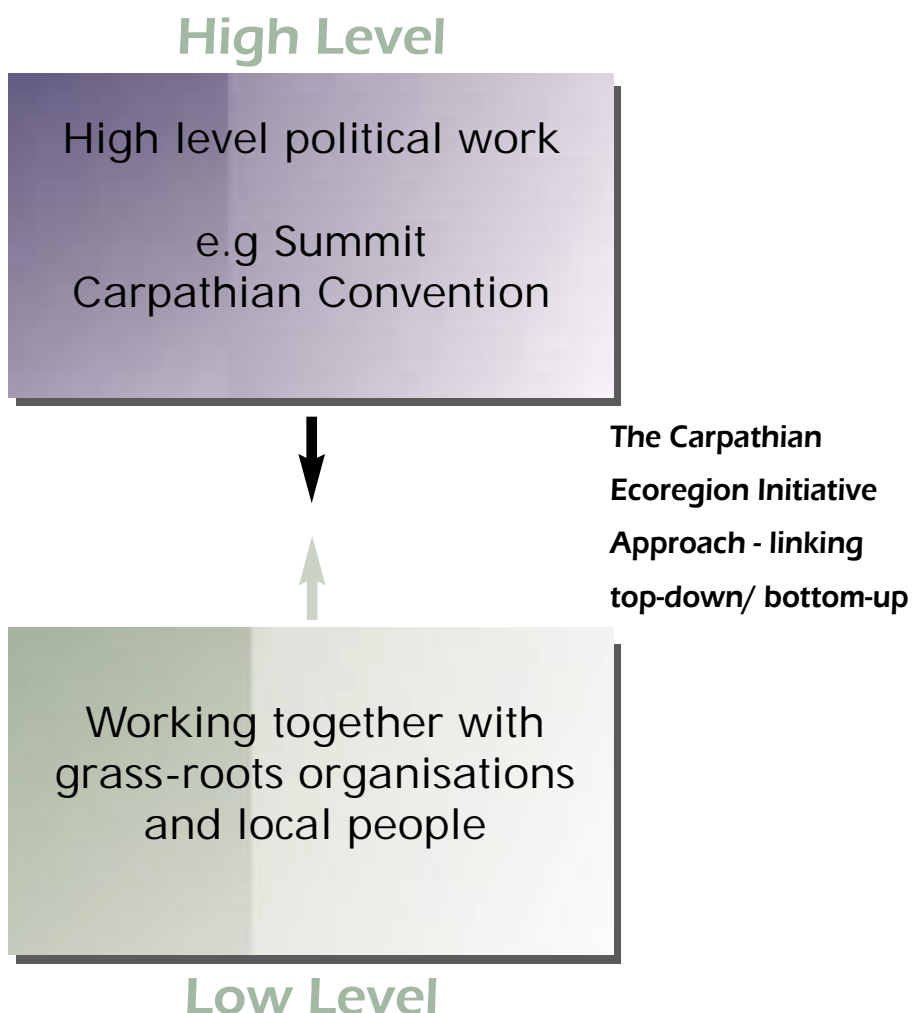
## Achieving the vision: bottom-up and top-down

For nature conservation to be effectively implemented in the Carpathians, actions have to be taken on all scales from the local to the global. The activities of the Carpathian Ecoregion Initiative aim to foster action for nature conservation on all levels of decision-making and facilitate co-operation in order to achieve change.

To achieve the vision, work is being undertaken at the international, regional, national and local levels, in order to: **strengthen institutional capacity**, **develop the Carpathian ecological network** and **promote sustainable development in the region**, whilst ensuring that these actions are interlinked, from the local to the international level (see diagram). Listed below are some examples of the work being undertaken to address these three themes:

### At the international level:

► As a part of the Carpathian Ecoregion Initiative's commitment to strengthening international frameworks, the Carpathian-Danube Summit in Bucharest was used as a forum to raise the profile of the Carpathians. In the resulting 'Declaration on Environment and Sustainable Development in the Carpathian-Danube region,' Heads of State in the region declared their willingness to co-operate and promote environmental protection and sustainable development in



the Carpathians.

► For the accession countries in the Carpathian region, transposition of the EU's 'Natura 2000' Protected Areas network offers a significant opportunity for nature conservation. The Carpathian Ecoregion Initiative will lobby to ensure that the 'Priority Areas for biodiversity conservation' are included in the regions to be protected by this mechanism.

► As the Carpathian region increasingly attracts investment from international business, the Carpathian

Ecoregion Initiative is working to guide development down sustainable routes and ensure that local communities benefit. An example of this is its promotion of sustainable forestry according to the standards of the FSC (Forest Stewardship Council).

### At the regional level:

► Following on from the Carpathian-Danube Summit, a new legal framework (Convention/Charter) is being developed for the region. This will strengthen legislation protecting the Carpathians; secure environmentally-

friendly natural resource-use; and increase regional co-operation between the governments. The Carpathian Ecoregion Initiative is working closely with the United Nations Environment Programme (UNEP), who are leading this work. Alongside this, the Initiative is working with large donors to create a large-scale pan-Carpathian funding mechanism. A donors conference will be held in the near future in order to develop this.

► The Carpathian Ecoregion Initiative is promoting the creation of new protected areas in their identified 'Priority Areas' for biodiversity conservation, as well as increased co-ordination between those already existing, in order to create a true Carpathian network of Protected Areas. As part of this, the Initiative is identifying potential ecological corridors linking the 'Priority Areas' and giving special emphasis to transboundary protected areas.

► The Carpathian Ecoregion Initiative is facilitating regional and cross-border co-operation on sustainable development issues e.g. through support and promotion of cross-border model project areas such as the White Carpathians on the Czech-Slovak border. It is also lobbying for a legal framework for co-operation.

### **At the national level:**

► The Carpathian Ecoregion Initiative is seeking to strengthen

national legislation with respect to nature conservation, through promoting flexible co-operation, strengthening environmental-friendly legislation and enhancing transparent governmental procedures. A particular problem which needs to be tackled is lack of co-ordination between Environmental and other Ministries within governments.

► A major aim of the Initiative is to attract funding to existing National Park networks and promote effective management of parks through education and capacity-building. Projects funded by the World Bank and GEF (Global Environment Facility) are already improving management in selected parks and working to create a management model for all the National Parks of Romania.

► It is imperative that countries of the Carpathian region create national strategies for sustainable development, for example sustainable tourism development. At the national level, the Carpathian Ecoregion Initiative is lobbying for the development of such strategies.

### **At the local level:**

► The Carpathian Ecoregion Initiative is building on the emerging civil society in the Carpathian countries by strengthening local NGOs and structures for community involvement. Initiatives such as the model project areas and community funding mechanisms seek to provide

examples of good practice for the future. It is only when people at a local level gain the capacity to act and control change that true sustainable development can be achieved.

► Local park administrations can only be effective if there are adequate finances and resources available. The Carpathian Ecoregion Initiative is seeking to secure direct funding in order to ensure appropriate management of protected areas.

► The Carpathian Ecoregion Initiative is supporting local projects which demonstrate the economic benefits of conservation and sustainable development (e.g. community-led eco-tourism projects), through funding and publicity via its extensive communication network. The Carpathian Large Carnivore Project in Romania is one such example. Here, the Initiative is working with the local inhabitants, the town council and the protected area administration to set up a local conservation and development fund. Promotion of such initiatives that facilitate co-operation between national parks and local communities is a fundamental part of the Carpathian Ecoregion Initiative's strategy at the local level.

For further information, see our website :

[www.carpathians.org](http://www.carpathians.org)



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## A : Focal Species of the Carpathian Ecoregion Initiative

### A.1 : Large carnivore species

#### Wolf (*Canis lupus*)

The second largest carnivore in Europe, after the brown bear and the polar bear. The species has a large distribution area and lives in a variety of habitats, and has a remarkably high phenotypic variation. Mainly concentrated in the Romanian Carpathians (3000 individuals); also present in Poland (250), Slovakia (300 - 450), Ukraine (350) with a few in Czech republic and Hungary. Threatened by poaching and habitat destruction.

#### Eurasian Lynx (*Lynx lynx*)

The Eurasian lynx is the largest of the six lynx species. It has a short body, long legs and large feet. Pelt colour varies within and between different parts of the species' wide range. There are an estimated 1500 lynx in Romania, 400 – 500 in Slovakia, 300 in Ukraine and 10 – 20 in Czech Republic and Hungary. Threatened by poaching and fragmentation of habitat.

#### Brown bear (*Ursus arctos*)

The most widespread bear in the world, occurring in Europe, Asia, and North America. Brown bears have a massive head with a short nose, rounded inconspicuous ears, small eyes, short tail, and a heavily built body with a prominent shoulder hump. 5500 individuals in Romania, 1000 in Slovakia, scattered in other Carpathian countries. Threatened by

poaching and habitat fragmentation; not considered threatened in Slovakia.

#### Wildcat (*Felis silvestris*)

Found in Europe, throughout Africa and south-west, south and central Asia. Present in deciduous forests. An opportunistic feeder. Some evidence of cross-breeding makes research into this species more difficult.

### A.2 : Other mammal species

#### European bison (*Bison bonasus*)

The largest wild representative of Bovidae family within the ecoregion. The Carpathians are the only mountain range in Europe hosting its free ranging population. This species was reintroduced to the Carpathians after being eradicated about 200 years ago. Total population numbers are estimated for about 160 in Bieszczady Mountains, Poland and about 220 in Ukrainian Carpathians. In both countries the species is under strict protection. Separate, isolated herds are threatened by inbreeding and further loss of genetic variability. Habitat fragmentation is the main obstacle for natural gene exchange among herds. Due to its habitat and spatial requirements this species may serve as an umbrella species for other endangered animals. Its present numbers do not guarantee the viability of a free ranging population.

#### Chamois

#### (*Rupicapra rupicapra*)

The only ungulate species occurring in the alpine zone of the highest part of the Carpathians – High Tatras on Polish and Slovak side. Its presence in the ecoregion is limited to that range only. This species is under strict protection in both countries. Chamois belonging to different subspecies occur in other European mountain ranges (e.g. Alps, Pyrenees, and Apennines). It is very sensitive to human related disturbance and the loss of natural refuges. The population in the Tatras remains without any contact with other populations and therefore is highly threatened by inbreeding. Total numbers estimated at present are about 200 individuals, with a decline occurring for a number of years.

#### Beaver (*Castor fiber*)

The largest European rodent. Reintroduced to the Carpathian ecoregion after its extinction several hundred years ago. At present it mostly occurs on the northern slopes of the range. Its numbers in the Carpathians do not exceed several hundred individuals. The species is under legal protection in all countries of the region. It is fairly common in the lowlands of Central and north-eastern Europe, especially in Scandinavia. Threatened by poaching and requiring careful nuisance control. The species is important for the maintenance of biodiversity due to its ability for active habitat transformation and creation of ecological niches for other animal and plant species.

### Otter (*Lutra lutra*)

The largest predatory mammal in European aquatic ecosystems. This species is recovering after a serious population decline; now fairly common in all non-polluted water-courses. However it is still listed as rare or endangered in the national Red Data Books of the Carpathian ecoregion. Its numbers are difficult to assess but at present seem to assure further viability of the population. An important species for the dynamics of beaver ponds. May serve as an indicator of quality of riparian ecosystems. Main threats for the species are habitat loss connected with water pollution and poaching.

### Marmot (*Marmota marmota*)

A large rodent, in the Carpathians occurring only in the alpine zone of the Tatras. Its population numbers do not exceed 200 individuals. Strictly protected in Poland and Slovakia. Much larger populations of this species inhabit the Alps and Pyrenees. In the Carpathians the endemic species is threatened by population decline, perhaps connected with isolation and in-breeding. Sudden loss or further disturbance of its natural habitat may cause the eradication of this species from the region. Numbers are very sensitive to poaching.

### Lesser horseshoe bat (*Rhinolophus hipposideros*)

Probably the only bat occurring all over the Carpathians. It therefore may serve as an indicator species

for local changes in environment quality and for monitoring conditions for bats in the whole ecoregion. It is very sensitive to human related disturbance.

### Alpine shrew (*Sorex alpinus*)

A rare insectivore occurring along the Carpathian range. It may serve as a sensitive indicator species.

### Tatra pine vole (*Pitymys tatricus*)

Endemic species, with occurrence limited to very small part of the western Carpathians. Its population numbers and trends are unknown.

## A.3 : Bird species

### Lesser spotted eagle (*Aquila pomarina*)

Typical of lowlands, wetlands and cultural steppes (Poland, Byelorussia, Ukraine, Baltics). Despite this, Romania holds some 20% of the European population of the Lesser spotted eagle, mainly breeding in mountain beech and coniferous forests. In Hungary and Romania the species is rare below 300 m. It is a typical bird of prey in these habitats. The population in Europe consists of 7500 pairs. Part of the population (about 1500 pairs) lives in the mountains and the Carpathians represent a very important region of its distribution (about 40% of European population)! Quite high densities of this eagle

were observed in Magurski National Park in Poland (Beskid Niski) - 2.1 pairs/10 km<sup>2</sup>.

### Imperial eagle (*Aquila heliaca*)

A more typical species for steppe habitats than mountains; nevertheless, in Europe it nests typically in the low and warmer mountains of the Carpathians (Male Karpaty, Povazsky Inovec, Tribec, Slovakian Karst, etc.). The European population is estimated to hold between 180 - 350 breeding pairs. A considerable part of Europe's population breeds in the Carpathian area - 20 - 45% (most of the pairs nest in Romania and Slovakia). A subject of bird crime and human persecution.

### Golden eagle (*Aquila chrysaetos*)

Nests in all the major mountains in Europe (Pyrenees, Alps, northern mountains) and in boreal zones, but also in lowlands. Its European population numbers around 5400 pairs; in the Carpathians there are 160 - 200 pairs. The species is valued also for falconry, and is therefore the subject of 'bird crime' (at least 14 pairs were robbed in Slovakia in 2000). In Central and Eastern Europe its typical range of distribution lies in the Carpathians.

### Saker (*Falco cherrug*)

Typical for steppes, agricultural land or pastures; rarely nests in forests. It is typical of open landscapes. Usually does not nest in the mountains although several

examples are known from the lower Carpathians (Male Karpaty, Slovakian Karst, Slanske Mountains, Povazsky Inovec, etc.). It is a subject of bird crime (very valued for falconry). From conservation and bio-indication point of views it is a very important bird of prey. Most of the Slovak population nests in artificial man-made nests. There are also pairs in the lower Morava River valley (Czech Republic) near Palava, nesting in artificial nests. About 18 - 30% of European population nests in the Carpathians, but the main distribution range lies in the Asian steppes.

### **Peregrine falcon** (*Falco peregrinus*)

In most cases it nests in rocky cliffs. From this point of view it is a characteristic species for the Carpathian mountains. It is important from bio-indication (prey consists of small and medium size bird species) and conservation point of views. It is a subject of bird crime. After serious decline in 1960s through 1980s, the population is increasing although it is still very endangered. The estimated number of pairs in Europe is 5800. The Carpathians hold a population of about 40 - 50 pairs. As a nesting species, it is still absent in the Moravian Carpathians.

### **Hazel grouse** (*Bonasa bonasia*)

A typical species of taiga but characteristic mountain grouse for the Carpathians, relatively common. Nevertheless, a decreasing trend of

populations in most of the Carpathian countries is typical for this game bird. It is no longer hunted in the Czech Republic and Hungary. A drastic decline since the middle of the 1990s is reported from Aggtelek-karst in Hungary, probably due to the population growth of wild boar.

### **Black grouse** (*Tetrao tetrix*)

A typical species of mountain peat bogs and wet meadows with Palearctic distribution range; it also nests also in the Alps. It is a typical game bird, showing a rapid decline of population numbers since the beginning of the 20<sup>th</sup> century. The population in Central and Eastern Europe is undergoing serious decline. In the Carpathians, it is extinct from the Moravian Carpathians, Hungary and the Ukrainian Carpathians. It is very sensitive to human disturbance. The species is not hunted in any Carpathian country (though it is hunted in non-Carpathian regions of the Czech Republic), and in Slovakia the Ministry of Environment can exceptionally give permission for hunting.

### **Capercaillie** (*Tetrao urogallus*)

Palearctic distribution range; nests also in the Alps. A characteristic large species of grouse for the Carpathians, and a very good bio-indicator. Capercaillie is a typical game bird that has been rapidly decreasing in numbers in all of

Europe. The only Romanian population (50 000) seems to be stable due to low level of hunting and inaccessibility of its habitats. In the Moravian Carpathians it only nests in Javorniky and Moravsko-slezske Beskydy (numbers: 5 - 10 males). It is extinct from Hungary. Very sensitive to human disturbance. The species is hunted in all countries where it occurs, except the Czech Republic and Poland.

### **Corncrake** (*Crex crex*)

In the past, common in lowlands, but recently it has become a typical species of highland meadows, threatened by agricultural practices.

### **Dotterel** (*Charadrius morinellus*)

Not a typical Carpathian species. A very rare glacial relict in Europe, nesting in alpine zones. In the Carpathians found only in the highest elevations of the Romanian Carpathians - Muntii Cindrel and in the Polish Tatra Mountains.

### **Pygmy owl** (*Glaucidium passerinum*)

A boreal 'taiga' species, also found in mountain coniferous forests. In Europe the distribution range is mainly in Sweden, Norway, Finland, and Northern Russia. A characteristic owl of the Carpathians.

### **Ural owl** (*Strix uralensis*)

Typical for mountain forests and boreal 'taiga'. As a top predator it is a good indicator of ecosystem balance. The Ural owl is sensitive to



habitat alteration and fragmentation. The Carpathians hold about 20% of its European population. The Carpathian population is stable or increasing in some countries (Hungary, Romania). The Carpathian population may be underestimated (especially for Romania) as it is hard to observe. Population density in Magurski National Park in Poland (Beskid Niski) was 4.96 pairs/ 10 km<sup>2</sup>. The population in this national park comprises about 20% of the total Polish population. It also occurs very densely (appr. 4 pairs/ 10 sq.km<sup>2</sup>) in the Bieszczady Mts., Gory Sanocko-Turczanskie, Beskid Sadecki and the Gorce Mts. It is an expanding species in the North Carpathian region but disappearing for example in the Mazurian region, north-east Poland.

### **Tengmalm's owl** **(*Aegolius funereus*)**

A species with a Circumpolar distribution range, found mostly in 'taiga' and mountain beech forests. The European strongholds in Europe are in Sweden and Finland. In the Carpathians it is a relict species; with increasing numbers or a stable population in all Carpathian countries. In the Ukrainian Carpathians the species is not well investigated, data about its distribution is very poor and total number of pairs might be underestimated.

### **Grey-headed woodpecker** **(*Picus canus*)**

A typical species of deciduous and mixed forests, distributed mainly in

Eastern Europe. Declining all over its breeding range, about 40% of its European population occur in the Carpathian Ecoregion. It is a good bioindicator of habitat alteration, as well as pollution.

### **White-backed woodpecker** **(*Dendrocopos leucotos*)**

A typical representative of woodpeckers in mountain beech forest and alder forest in the Carpathians. The White-backed woodpecker is threatened by habitat alteration and habitat fragmentation. The Carpathians hold about 30% of its European population (the majority in Romania).

### **Three-toed woodpecker** **(*Picoides tridactylus*)**

In Central Europe this is a glacial relict typical for boreal 'taiga,' where it is relatively common. A characteristic species of mountain coniferous forests of the Carpathians, which represent a very important distribution range of this species in Central and Eastern Europe (total of 4660 - 5340 pairs).

### **Water pipit** **(*Anthus spinoletta*)**

A species of alpine and sub-alpine habitats; this is a typical boreal and mountain bird confined to the alpine regions of the higher mountains of Europe and Asia. In the Carpathians, the Water pipit is not present in Hungary and only one pair nests in the Moravian Carpathians. Around 20% of the

European population occurs in the Carpathians, with the highest concentration in Romania.

### **Rock thrush** **(*Monticola saxatilis*)**

More characteristic of Mediterranean mountains but nests also in the Carpathians (High Tatras, Velka Fatra, Muntii Retezatului, and limestone rocks elsewhere in the Carpathians, etc.), the northernmost range of its distribution. Recently this species has rapidly declined in all areas of its range. This species is very important from a conservation point of view and is a characteristic and threatened bird species of the Carpathians. The Rock thrush is extinct in the Moravian Carpathians. Only 520 - 550 pairs nest in the Carpathians.

### **Alpine accentor** **(*Prunella collaris*)**

A typical alpine species nesting in the highest mountains within the Carpathian Ecoregion (Muntii Retezatului, High Tatras, Velka Fatra, etc.). The Alpine accentor is extinct from the Moravian Carpathians and it is missing in the Hungarian Carpathians.

### **Red-breasted flycatcher** **(*Ficedula parva*)**

A typical species of old deciduous forests, especially beech forests of higher elevation; the Palearctic range of distribution. Its distribution in Europe is mostly confined to the Carpathians and Balkans, and in the East to the Ural Mountains,

Caucasus and Northern Iran. It has been continuously spreading towards the west since the 19<sup>th</sup> Century.

#### **Collared flycatcher (*Ficedula albicollis*)**

A breeding species of deciduous (mainly beech and hornbeam) forests of the Carpathians. Its European distribution is mainly confined to the Carpathian region, although it breeds mostly in lowland areas. Missing from Northern and Western Europe, the European population is in decline. The Carpathians hold a large portion of the European population. The European population is estimated to hold 480 000 pairs. In the Carpathians the population is estimated at 338 400 - 417 400 pairs. Due to species habitat requirements, this estimation is probably too high.

#### **Wallcreeper (*Tichodroma muraria*)**

A typical species of the highest European and Asian mountains (Pyrenees, Alps, Balkans), so it is not only typical for the Carpathians, but characteristic for high elevations in the Carpathians and rocky habitats (e.g. Mala Fatra, High Tatras, Muntii Retezatului, Muntii Bucegi, etc). The Wallcreeper is missing in the Czech Republic (regularly observed during migration in Palava), Hungary (observed during migration), and Ukraine.

### **A.4 : Amphibians and reptiles**

#### **Aesculapian snake (*Elaphe longissima*)**

The longest Carpathian snake with a maximum length of 2 m. Head prolonged, elliptical, eye with round pupil and brownish iris. Body relatively slender, smooth, in old specimens slightly keeled. Back from olive to blackish, belly whitish, yellow to cream. This species mostly inhabits variable landscapes exposed to sun, forest margins, rocky bushy slopes, forest clearings, vineyards, orchards, old walls etc. Although mostly terrestrial, it climbs well. Hibernates in rocky crevices, in rodent burrows, manure, cellars of ruins etc. In most countries in the Carpathian region it is classified as a critically endangered species. It is protected by the EU Habitats Directive (Annex 4) and the Bern Convention (Annex 2).

#### **Carpathian newt (*Triturus montandonii*)**

A small newt species, reaching a length of 10 cm (usually smaller). The head is relatively flat and wide, with three grooves. Back varies from sand yellow to dark brown, sometimes greenish. The belly is always uniformly yellow to orange. Tail has pale streaks on the sides, with the lower edge orange with black spots. This newt is a Carpathian faunistic element, distributed in the Carpathian system and extending into neighbouring mountain areas. It

inhabits humid, shaded slopes in deciduous forest. It reproduces in small water systems near springs on wet meadows. The majority of time is spent under stones, woods and leaves. Because of its endemism it is not mentioned in the Habitats directive, but it is protected by the Bern convention (Annex 2). In most Carpathian countries it is protected as an endangered species.

#### **Green lizard (*Lacerta viridis*)**

Has a maximum length of 40 cm. Males are a brilliant green with black flecks. Females are brown with two to four longitudinal lines along their backs. Found between 125 – 600 metres in the Carpathians. There is an isolated population in north Germany and the Austrian Alps. Tends to be confined to wine-cultivating regions; problems include lack of landscape diversity, shortage of prey species, and agricultural chemicals.

#### **Moor frog (*Rena arvalis*)**

A rare brown frog found in winter and summer above 300 m in northern Europe. Shrinking habitat in Lower Austria. Threats include water regulation which limits food supplies, introduction of fish, and filling in of ponds.

#### **Fire-bellied toad (*Bombina variagata*)**

A blue toad with a yellow belly. Distribution in mid- and southern Europe 170 – 1468 m. Found in sunny, shallow ponds with limited

vegetation and in small, slow-flowing rivers. Threats include draining of meadows and filling in of ponds for agriculture. Protected under the Habitats directive (II/IV) and Bern Convention (II). No protection under CITES or IUCN.

### European tree frog (*Hyla arborea*)

A small, (35-80mm) bright green frog with large eyes, and fine grabbing hands. Black line along dorsal and ventral side. Distributed widely in central and southern Europe between 140 - 1620m. Prefers warm weather and still water. Threats include artificial chemicals and the draining of wetlands. Protected under Habitats directive (IV) Bern Convention (II). IUCN low-risk.

### Swamp turtle (*Emys orbicularis*)

A medium sized turtle. Head depressed, pointed, neck relatively long. Shell flattened, smooth and oval; coloured black, brownish to olive, often with yellow or whitish spots and stripes forming a radial pattern on the plate. A mostly aquatic species. Typical for wetlands. This turtle is an exception; it is not very typical for the Carpathians, but because the lowland habitats are mostly destroyed, can be found in submountainous wet habitats. Protected under the Habitats directive (II and IV), Bern Convention (II) and under CITES.

## A.5 : Invertebrates

### *Bielzia coerulans*

Systematic position: Mollusca, Gastropoda, Pulmonata, Limacidae (naked snail).

General distribution: Subendemic, Carpathians, Eastern Sudety Mts, north of the Carpathians (Polish Jura).

Description: Naked snail, living in medium (mesoalpine) horizontal zones in the Carpathians. Recorded in mountain forest zones (lower - mixed and upper-spruce zone) and in the dwarf pine (higher zone) in localities rich in humus and decaying wood. Not found in cultivated forests because of wood export and a lack of humid areas rich in humus.

### *Helix lutescens*

Systematic position: Mollusca, Gastropoda, Basommatophora, Helicidae (snail).

General distribution: Subendemic, Daco-Carpathian (amphicarpathian) distribution. Found only in the highlands surrounding the Carpathians and lower mountain chains (ranges) in the Carpathians. Found on both sides of the middle part of the Carpathian arch.

Description: Kserothermophilous; living in open habitats such as steppe or forest-steppe, particularly on calcareous soils. Since the turn of 19<sup>th</sup> Century its geographical distribution has been diminishing.

### *Fitzingeria platyura*

Systematic position: Annelida, Clitellata, Oligochaeta, Lumbricidae (earthworm).

General distribution: Mountain earthworm distributed around the Pannonian lowland (circumpannonian distribution).

Description: Found mainly in mountain forests (both zones) in soils where it digs deep corridors. One of the largest and rarest earthworm species. Sensitive to soil pollution; distribution limited to the least destroyed fragments of the Carpathians.

### *Branchinecta paludosa*

Systematic position: Arthropoda, Crustacea, Branchiopoda, Anostraca, Branchinectidae (pond crustacean).

General distribution: Circumpolar arctic-alpine species, mainly in northern tundra, also in the high mountain small lakes.

Description: Species lives in small ponds that freeze over in winter. A relict population in the Tatra Mts, restricted to two ponds, was probably exterminated as an effect of gradually increased winter temperatures.

### *Nesticus fodinarum*

Systematic position: Arthropoda, Chelicerata, Arachnida, Aranea, Nesticidae (spider).

General distribution: Endemic to the Southern Carpathians.

Description: Mountain cave species, known only from a few caves. Predator. Threatened by tourism and speleology.



**Clubiona alpicola**

Systematic position: Arthropoda, Chelicerata, Arachnida, Aranea, Clubionidae (spider).

General distribution: North pannonian high-mountain species

Description: Found only in the alpine zone of higher massifs.

Predator. Threatened by mass tourism in the higher parts of the Carpathians.

**Lithobius biunguiculatus**

Systematic position: Arthropoda, Eutracheata, Chilopoda,

Anamorpha, Lithobiidae (chilopod)

General distribution: Endemic to the Carpathians.

Description: Epigeic predator in montane forests, particularly in decaying wood. Threatened by forest management practices.

**Cordulegaster boltonii**

Systematic position: Arthropoda, Eutracheata, Insecta, Odonata, Anisoptera, Cordulegastriidae (dragonfly).

General distribution: South-East European species, recorded in Southern parts of the Carpathians.

Description: This species lives in mountain streams and ponds, in the lower mountain zone (mixed forests, and forest-steppe). Rapidly disappears in lower parts of its distribution, with some refuges, particularly in the Carpathians.

**Mantis religiosa**

Systematic position: Arthropoda, Eutracheata, Insecta, Mantodea, Mantidae (preying mantis).

General distribution: Palearctic, Oriental and Ethiopian distribution, characteristic for forest – steppe zone of the old world.

Description: In the Carpathians this is the only *Mantis* species. It occurs in isolated, small localities, limited by climatic and orographic conditions.

**Tibicina haematodes**

Systematic position: Arthropoda, Eutracheata, Insecta, Homoptera, Auchenorrhyncha, Cicadidae (cicada).

General distribution:

Mediterranean species.

Description: Living in the forest-steppe zone. Representative of an uncommon group of cicadas in the Carpathians. In the Carpathian foothills it is at the most northern end of its geographical distribution. In regression.

**Libelloides macaronius**

Systematic position: Arthropoda, Eutracheata, Insecta, Neuroptera, Ascalaphidae.

General distribution: Ponto (East Mediterranean) - Altai (mountains) distribution, the inner part of the Carpathian arch.

Description: Forest-steppe zone, xerothermophilous, in regression. The species reaches its northern limit in the inner part of the Carpathian arch.

**Carabus fabricii**

Systematic position: Arthropoda, Eutracheata, Insecta, Coleoptera carabidae (carabid beetle).

General distribution: The Eastern

Alps, the Western and Eastern Carpathians.

Description: High mountain species, known only from few isolated localities on high montane meadows (alpine meadows). Since the 19<sup>th</sup> Century, a gradual decrease has been recorded, as a presumed result of collecting and mass tourism.

**Carabus planicollis**

Systematic position: Arthropoda, Eutracheata, Insecta, Coleoptera carabidae (carabid beetle).

General distribution: Endemic to the Southern Carpathians.

Description: Recorded in isolated localities, mainly above the forest zone. Threatened by mass tourism.

**Carillia excellens**

Systematic position: Arthropoda, Eutracheata, Insecta, Coleoptera cerambycidae (long horn beetles).

General distribution: Endemic to the Carpathians.

Description: Monophagous xylophage, feeding on *Lonicera nigra* (shrub) in the mountain forest zones. One of the rarest species in Central Europe. Threatened by forestry practices.

**Rosalia alpina**

Systematic position: Arthropoda, Eutracheata, Insecta, Coleoptera Cerambycidae (long horn beetles).

General distribution: Western Palearctic but very local.

Description: Occurring mainly in old decaying beeches. In the Carpathians decreasing due to elimination of old decaying trees and collection of specimens.

**Bombus pyrenaicus**

Systematic position: Arthropoda, Eutracheata, Insecta, Hymenoptera, Aculeata, Apidae (bumblebee).

General distribution: High mountain European species.

Description: Meadows and glades in upper forest zone and in alpine meadows. In the Carpathians restricted to top zones of the highest peaks.

Threatened by mass summer tourism.

**Annitella chomiensis**

Systematic position: Arthropoda, Eutracheata, Insecta, Trichoptera, Limnephilidae (caddis fly).

General distribution: An Eastern Carpathian endemic species.

Description: Lives in streams, mainly in the forest zones. Outside nature reserves, the species is threatened by timber drifting in streams.

**Parnassius apollo**

Systematic position: Arthropoda, Eutracheata, Insecta, Lepidoptera, Papilionidae (butterfly).

General distribution: Distributed in the Western Palearctic, but mainly in isolated populations in the mountains.

Description: In Europe the species occurs in the mountains. In the Carpathians it is found on xerothermic meadows on southern slopes. The larvae live on the stonecrop (*Sedum* sp.). One of the most rapidly diminishing butterfly species in Europe. Threatened by forest succession and collection of specimens.

**Erebia sudetica**

Systematic position: Arthropoda, Eutracheata, Insecta, Lepidoptera, Nymphalidae (butterfly).

General distribution: Distribution of the species is not very well studied yet. While some orthodox taxonomists suggest that the species occurs exclusively in the Sudety Mts, the others claim that it is a 'montane European species.'

Description: Genus *Erebia* comprises montane and high montane

species of the Palearctic. In comparison with other species of this genus, *E. sudetica* is intermediate in terms of vertical distribution. It lives in and above the forest zone on mountain glades and alpine meadows. In many localities it is decreasing due to collection of specimens and mass tourism.

**Glacies canaliculata schwingenschussi**

Systematic position: Arthropoda, Eutracheata, Insecta, Lepidoptera, Geometridae (moth).

General distribution: Eualpine (= high montane) Carpathian endemic with uneven distribution in the Western and Southern Carpathians. Occurs in swards of alpine meadows and even higher zones.

Description: Biology poorly known. Threatened by mass tourism.

## B : Methodology and Approach for Activities of the Socio-Economic Working Group

### Objectives

The overall objectives of the Socio-Economic Group were outlined in the 'Working Strategy for Phase II' as ensuring adequate collation of necessary socio-economic data in order to:

1. Identify threats to biodiversity;
2. Identify and develop opportunities for conservation of biodiversity and sustainable development;
3. Contribute to the development of an appropriate conservation strategy; and
4. Aid decision-making regarding EU accession.

### Activities

To achieve these objectives, three main studies or information initiatives were carried out:

- ▶ Collection of sectoral, pan-Carpathian, socio-economic data;
- ▶ Stakeholder Analysis Study; and
- ▶ Evaluation of SAPARD national plans and processes.

For overall data collection and analysis a small network was created of interested individuals and organisations in each country, with each country taking responsibility for an identified priority sector for the whole Carpathian region. The work was co-ordinated by an informally appointed 'Regional Co-ordinator for 'Socio-Economics', a staff member of the WWF Danube-Carpathian Programme based in Budapest (Policy Officer: Charlie Avis). Socio-economic contact

persons for each country were therefore responsible for:

- ▶ Collection of requested sectoral information (national) and data for each priority sector, and provision to other contact persons; and
- ▶ Collation of six country sectoral information and data from other contact persons and incorporation into a pan-Carpathian sectoral report.

### Priority Sectors

In this way, a pan-Carpathian 'capacity' was developed for each sector, with one country or organisation collecting and storing and analysing all available information on a particular sector. The sectors and countries responsible were as follows:

- ▶ Agriculture: Ukraine
- ▶ Transport: Poland
- ▶ Industry: Hungary
- ▶ Water management: Czech Republic
- ▶ Tourism: Slovakia
- ▶ Forestry: Romania

### Approach

The main focus for the enormous task of data gathering was to provide usable and mappable information for developing the Carpathian Conservation and Action Plan. Thus, 'key indicators' were developed for each sector in order to narrow down the data needed and yet still provide meaningful and useful information for analysis of threats and the GIS work on identifying priority areas for conservation. All mappable information, plus any other readily

available mapped sources of socio-economic information, was integrated into the overall GIS system by the GIS co-ordinators - Daphne in Bratislava - in advance of the workshop in Smolenice in February 2001.

The key indicators for each sector were as follows:

- ▶ Agriculture: Composite of % land-cover used for agriculture plus fertilizer use (kg/ha);
- ▶ Transport: Mapped network of roads and railways (current and proposed) plus indication of usage (cars per hour or other weighting);
- ▶ Industry: Mapped location of industrial complexes;
- ▶ Water management: Mapped database on water quality classification of river stretches;
- ▶ Tourism: Mapped real data on annual overnight 'bed-nights' per km;
- ▶ Forestry: Proportion of illegal cutting as % of total.

It proved impossible to gather all information to a comparable standard for each sector and for each country. Shortage of time, limitation in human and financial resources available for this activity, and difficulties in accessing some types of data were all constraints to the gathering of a complete picture.



## C : Methodology used in developing the GIS database

Co-ordination of GIS work was extended because of the necessity of coordination of information flow and data compatibility from both sectors: biodiversity and socio-economic. Additionally the methodology was developed which fits with the data available. The development of the process was based on a defined scientific methodology, but at each stage decisions were checked against the expert opinion of participants from each country. The methodology was divided into 3 phases.:

### Phase A:

Evaluation of socio-economic impacts on Focal Species Group Areas (FSGAs) and prioritising of biodiversity importance and socio-economic impact on FSGAs

### Phase B:

Synthesis of biodiversity data based on FSGAs (incl. delineation of Biodiversity Important Areas (BDIAs) and designing of ecological corridors)

### Phase C:

Synthesis of BDIAs and threatened FSGAs

*Phase A: Evaluation of socio-economic impacts on Focal Species Group Areas (FSGAs) and prioritising of biodiversity importance and socio-economic impacts*

#### Step 1.

Delineating Focal Species Group Areas (FSGAs)  
FSGAs represent the important areas for each biological sector group. Participants divided into four biological sector groups (habitats; large carnivores and other mammals; birds; amphibians and reptiles) to delineate the FSGAs. Each sector developed their own criteria for selections. 48 FSGAs were identified and delineated for habitats; 27 for plants; 15 for large carnivores and other mammals; 10 for amphibians and reptiles and 6 for birds.

#### Step 2.

Evaluation of FSGAs according to threats  
In order to evaluate the threat posed to each FSGA by the identified socio-economic factors, participants, working in biological sector groups, overlaid each socio-economic map in turn on top of the delineated FSGA map. Using this method and also expert knowledge of the areas, an assessment was made of the level of threat posed to each FSGA by each socio-economic sector (agriculture, tourism, mining, manufacturing industry, road, rail plus any other key threats identified for particular

FSGAs). A rank (0-3) representing the level of threat from each socio-economic factor was assigned to each FSGA and the sum total of threat ranks for each FSGA was calculated.

Working in groups, each country expert checked the results by assessing whether each FSGA's total threat rank related to the situation on the ground e.g. was the FSGA with the highest rank really the most threatened area in reality? Discrepancies between results and reality were expected because different socio-economic factors have a different level of impact on each biological sector e.g. a new road crossing an FSGA can be considered to be a potentially greater threat to an important area for carnivores than to an important area for fish. To deal with this, each biological sector group assigned a weight to each socio-economic factor (on a scale of 1-5).

This approach allowed the group to take into consideration that not only does each socio-economic factor poses a different level of threat to each FSGA, but also, by weighting the threat ranks for each biological sector group, we were able to acknowledge that certain socio-economic factors result in a greater impact on a particular biological group than others. The results from each biological sector group were fed into the database and the resulting maps produced by Daphne overnight.

### Step 3.

Ranking matrix of FSGA according to biodiversity value and socio-economic impact

For each biological sector group, FSGAs were ranked according to biodiversity value (based on density of data). The workshop split into four groups to check rank values (habitats; mammals; birds; amphibians; reptiles). The plants sector was not analysed because of data limitations. When the individual ranking was complete, the list of FSGAs for each biological sector was divided into three ranks based on whether they were considered to be of higher, medium or lower biodiversity value. Similarly FSGAs were divided into three levels on the basis of low, medium or high threat level (using the earlier analysis of threats). The ranking matrix of each FSGA according to biodiversity value and socio-economic impact was then drawn up (see example).

From this matrix, the high biodiversity value – high threats zone was identified and marked for each biological sector group (size of this zone varied between groups). It was stated that this zone identified the priority FSGAs, ie those areas that would be used for further steps in the visioning process (at this stage). To address a point made by HS about the importance of adding site integrity into the analysis, the high biodiversity value-low threat zone was also identified.

Each group explained their rationale for selecting the size of the high bio-

		Threat (sum of threat ranks)					
		low	medium	high			
Biodiversity value	FSGA no.	1	2	3	3	6	9
Low	5	5	1	3	4	2	6
Medium	4						
High	2						
	1						
	6						
	3						

diversity value-high threat zone and sites located on the border of this zone were discussed in plenary. Differences of opinion over the most appropriate methodology were expressed but it was explained that other hotspots of biodiversity value would show up in later analyses of the biodiversity data.

*Phase B: Synthesis of biodiversity data based on Focal Species Groups (incl. delineation of Biodiversity Important Areas (BDIAs) and designing of Corridors)*

### Step 1 & 2.

Weighting of importance of Focal Species Groups (FSGs) & Computing of grid of biodiversity importance

### Next steps:

to compute the level of biodiversity importance using all available biodiversity data (based on concentration of data). To this end, each bio-

diversity map (habitats; birds; large mammals; amphibians/reptiles) was laid over the base map. To ensure a 'true' analysis of overall biodiversity importance, it was agreed that it may be necessary to weight each biological sector group (FSG). Much discussion followed on suitable weighting options, and the validity of different scales was tested against expert knowledge. A compromise agreement was accepted whereby habitats were given the highest weight, followed by mammals, then birds, amphibians/reptiles and lastly plants (Note: quality of data was also a significant consideration in deciding on ranks). It was argued the habitats weighting should be higher because of the importance of this layer in finding centres of Carpathian biodiversity and the good quality and coverage of this data, while other groups such as mammals would not be so useful in pin-pointing hotspots because their FSGAs are so large.

**Step 3.****Delineation of valuable biodiversity areas: Biodiversity Important Areas (BDIAs)**

The results of this stage were checked against expert knowledge and where necessary boundaries of the resulting BDIAs were adjusted. Also used in this analysis were maps of large-scale protected areas (> 1000m<sup>2</sup>) and virgin forests (point position and number of forests only as data on the exact size of forest areas was not available at the workshop).

**Step 4 & 5.****Labelling of BDIAs (Output: map of BDIAs) & Ranking of BDIAs**

In total, 30 BDIAs were selected and assigned names by national experts. It was decided that for the Vision Map, two categories of BDIA should be identified: 'High value' (rank=1) and 'Very high value' (rank=2). Boundaries were further checked by national experts.

**Step 6.****Designation of Ecological Corridors**

A small working group designed the corridors, using the BDIA map superimposed with forest cover and river layers. The following background maps were also used to design appropriate routes: settlements; roads/rail; industrial areas; large scale protected areas.

**New Protected Areas**

As part of the Vision document, it

		Threat (sum of threat ranks)					
		low	medium				High
			1	2	3	3	6
			5	1	3	4	2
Biodiversity value	BDIAs no.						
Low	5	○					
Medium	4				○		
	2					○	
	1		○				
	6						○
High	3			○			

was decided to prepare a proposal for new protected areas. It is based on the number of BDIAs that are currently not covered by any form of large-scale protection.

value, high threat zone was selected (in plenary) showing those hotspots requiring urgent action.

**Phase C: Synthesis of BDIAs and threatened FSGAs:****Step 1.****Overlaying the most threatened areas for each FSGA sector with the map of BDIAs**

As with FSGAs (Phase A, Step 2), level of threats posed to each BDIA was established (using a ranks 1-3, low, medium, high threat). To save time, decisions were taken in plenary. The map of threatened FSGAs was laid over the BDIA map; resulting map was presented to the workshop.

**Step 2:****Ranking matrix for BDIAs and their threats**

The ranking matrix showing level of bio-diversity importance against level of threat was produced (see example). As with FSGAs, the high



## D : Carpathian Ecoregion Initiative Sign-Up Vision Statement



The Carpathians are a natural treasure of global importance. In terms of biodiversity and endemic species, the region is unique in Europe. It harbours one of the continent's most extensive tracts of montane forests, including Europe's largest remaining area of virgin forest. The Carpathians are the last European stronghold of large mammals such as brown bear, wolf and lynx which have already been lost in most other parts of Europe. In recognition of this international importance, WWF has included the Carpathians in its 'Global 200' list of outstanding ecoregions. It is a treasure we cannot afford to lose.

In addition to the exceptional natural value of the Carpathians, the region is also home to a rich cultural heritage. Shepherd and forestry, beliefs and rituals, music and dance, architecture and art: all are a reflection of the long and intensive relationship of the region's peoples with their environment. Like the Carpathians' biodiversity, this centuries-old cultural heritage is also a treasure to be sustained.

Both of these irreplaceable assets are under serious pressure. The transition to a market economy, development of civil society, increasing integration with Western Europe and EU accession mean profound changes. But the very same processes that are responsible for this pressure also offer many opportunities to advance biodiversity conservation and sustainable de-

velopment in the region. Our task is to capitalise on these opportunities.

The Carpathian Ecoregion Initiative is a unique international partnership committed to conserving the key ecosystem in the heart of Europe and securing sustainable economic and cultural benefits for the peoples in the region. Co-ordinated by WWF, the alliance includes governmental representatives from the Carpathian countries, non-governmental organisations, scientific and academic institutions, international funders and independent experts.

As Carpathian Ecoregion Initiative partners, we are co-operating to work through collaborative ecoregional planning in order to conserve the Carpathian ecosystem and secure sustainable economic and cultural benefits for the peoples of the region. Specifically, through collaboration with the local, regional and international communities, we commit ourselves to:

### Shape vision and action by:

- ▶ developing a Carpathian Vision outlining long-term goals for biodiversity conservation and sustainable development
- ▶ developing and actively supporting the implementation of a Carpathian Conservation Plan with the goal of conserving the region's natural resources.

### Improve understanding by:

- ▶ providing the first overall view of the Carpathian ecoregion
- ▶ identifying the key habitats, species assemblages and abundances, natural processes and the socio-economic factors that affect biodiversity
- ▶ helping to share knowledge across borders in the region's common interest.

### Work with local people to foster sustainable development by:

- ▶ promoting conservation-friendly resource use across the region, including community-based projects to demonstrate the benefits to local people
- ▶ supporting existing projects that build on and co-ordinate relevant initiatives in the region.

### Promote the initiative within Europe by:

- ▶ aiming to incorporate the Carpathian Ecoregion Initiatives' objectives into European and national policies
- ▶ working to ensure the adoption and implementation of the EU environmental acquis in the accession countries
- ▶ raising awareness of the initiative with potential funders.

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*Database*

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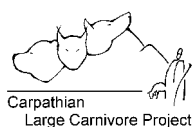
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## Logos of Carpathian Ecoregion Initiative Partners





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### **Disclaimer**

This document is a publication of the Carpathian Ecoregion Initiative. The views expressed do not reflect the policy of any one member organisation, or the views of any one individual. Every effort has been made to ensure the accuracy of the information in this report; however, if any inaccuracies can be detected please contact the Carpathian Ecoregion Initiative co-ordinator.

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The Carpathian Ecoregion Initiative is a unique international partnership achieving conservation of nature in the globally important Carpathian mountains and, at the same time, supporting local economy and culture for the lasting benefit of people living in the heart of Europe. Facilitated by WWF, more than 50 organisations from seven countries are working together to make this vision reality.

## How to get involved

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