

The Carpathian Ecoregion: A New Initiative for Conservation and Sustainable Development

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Abstract Cross-border cooperation over the region's ecological problems has greatly increased over the past decade and the EU 'Natura 2000' programme will eventually produce a coordinated system of protected areas. But there is also a case for biodiversity conservation on a wider scale through 'ecoregion-based conservation' linked with the sustainable development of large land units that are biologically coherent in terms of species, communities and environmental conditions. Such an approach is now being taken by the World Wide Fund for Nature's 'Carpathian Ecoregion Initiative' (CEI) with the aim of facilitating a process of collaboration enabling NGOs and key stakeholders to collaborate to secure both conservation and sustainable development across the region. Detailed biodiversity and socio-economic assessment has been undertaken to provide the basis for a long term biodiversity 'vision' for core areas, complemented by a range of specific local projects aiming at sustainable forms of rural diversification.

Cross-border Cooperation on Environment Management

In communist Eastern Europe movement across state borders was generally difficult. V. Szekely (1995 pp.16-9) uses the concept of circular cumulative causation to emphasise the negative effects of a closed frontier on the economic development of border regions, with limited employment prospects prompting selective out-migration and population decline. On the other hand border regions suffered relatively few threats to their biodiversity resources, despite the severe environmental problems encountered in the 'Black Triangle'. By contrast, the transition has seen massive strides towards European integration and additional border crossings are now providing the 'missing links' essential to a well-rounded European transport network (Maggi & Nijkamp 1992). More

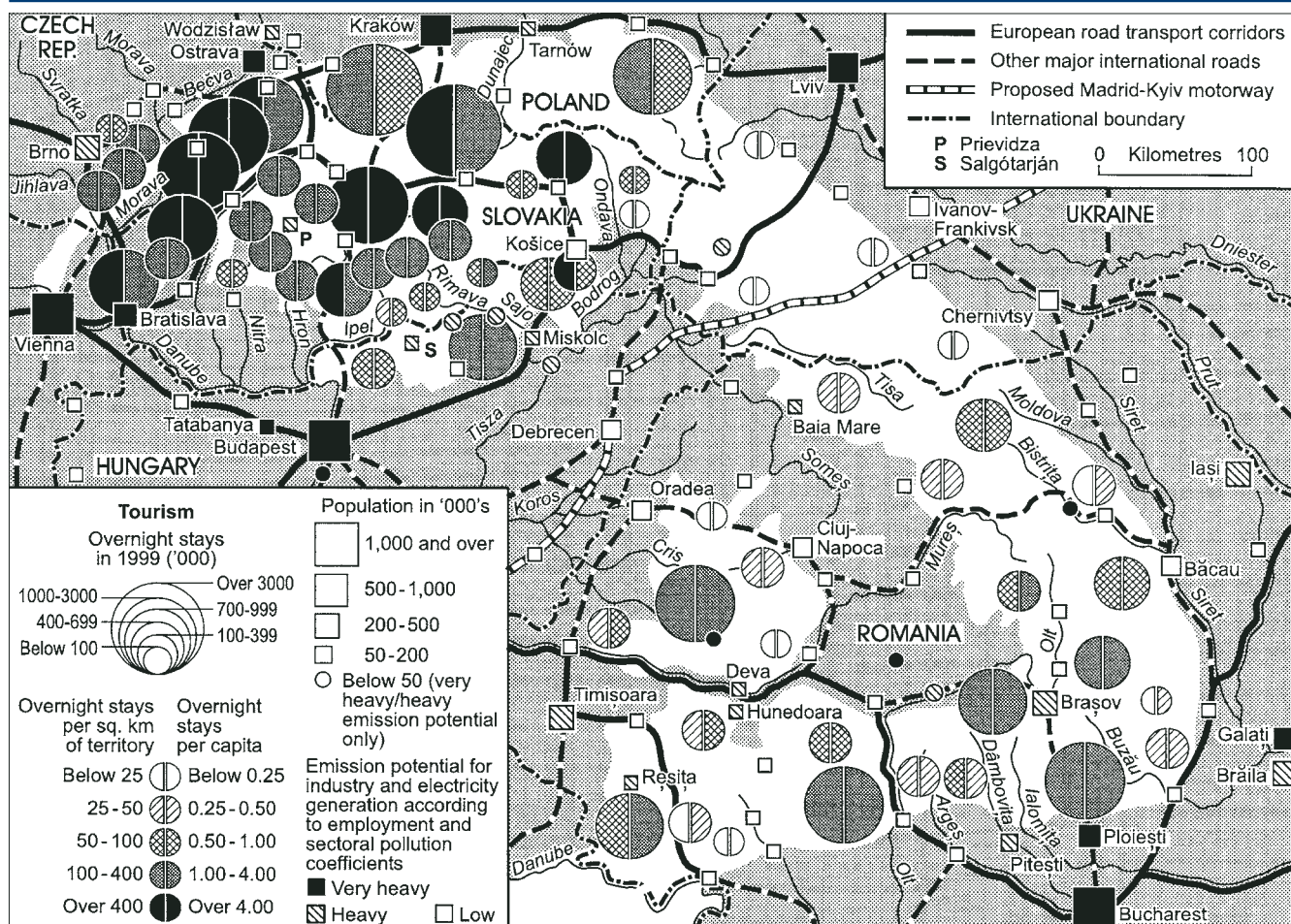
permeable borders are making for greatly increased economic and social interaction and it is likely that wider European Union (EU) membership will bring investment to formerly-isolated border districts. This is all the more likely in view of the scope to enhanced cohesion in frontier areas deriving from the 'Euroregion' formula which has already been widely adopted by the transition economies of East Central Europe (Strykowski 1998; Suli-Zakar 1999). This poses a threat to biodiversity; yet at the same time international cooperation may be used as a vehicle for the better coordination of programmes for biodiversity conservation.

There is much evidence of this approach since Langer (1990) demonstrated the many opportunities to safeguard Europe's 'ecological bricks' through cross-border cooperation. Poland's 'green lungs' in the northeast of the country are being drawn into a wider international conception, while the Morava floodplain is now being conserved through Austrian, Czech and Slovak cooperation and the Stability Pact in the Balkans has attracted Swiss funding for cooperative management in up to five biodiversity-rich transfrontier areas. In this paper the emphasis is placed on the Carpathians, a mountain area which extends over six countries (Figure 1 and Table 1). Much of the region consists of border districts where coordination has been impeded in the past by closed frontiers. This legacy is now being overcome by closer cooperation between national park organisations which share common frontiers. There



■ **Plate 1.** The Carpathians at Toplet in the lower Cerna valley, very close to the Danube at Orsova. The landscape includes the full range of environments from the high pastures through the forest zone to a low level 'microlandscape' of woodlands, orchards, pastures and crops (along with a tree nursery in the foreground). Both main road and railway follow the valley which is part of the Timis-Cerna Corridor linking Banat with Oltenia.

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■ **Figure 1.** The Carpathians: urban-industrial development, tourist pressure and major transport corridors (Source: Nefedova 1992).

is also a trilateral initiative to protect rare ecosystems with the help of charitable foundations and the Global Environmental Facility (GEF) to focus on the linkages of habitat fragments. NGOs are also getting together under such organisations as Carpathian Bridge ('Priashév'): an international association of public ecological organisations combining the Ukrainian 'Carpathian School' (Lviv) with 'Pcola' from Slovakia (Stara Lubovna) and the Foundation of Support of Ecological Initiatives from Poland (Krakow).

Safeguarding the Carpathians

Arguably, the Carpathians need a more coordinated approach in the light of the United Nations Conference on Environment & Development UNCED in Rio 1992 and the concept of 'fragile environments' reflected in Chapter 13 of Agenda 21: 'sustainable mountain development' (Messerli & Ives 1997; Mountain Institute 1995). Such an approach could be justified on economic and social grounds in the light of the attempt

by the Council of Europe (CoE) to win special status for mountain regions and their fragile communities. But it is also very necessary for ecological reasons given the value of the scenic resources as well as the flora and fauna. Particular importance attaches to large carnivores (bears, wolves and lynxes) which require large territories and use the Carpathian 'bridge' to connect habitats in the northern and southern parts of the continent (Plate 1). Over the past decades, attempts to conserve the region's biodiversity have focused mainly on ensuring that the most valuable sites are formally protected, and about six per cent of the region's total area is now secure, though there is much more in the north than the south, especially in view of the fact that most of Romania's national parks do not yet have management systems in place (Voloscuk 1999). But there is a wider problem in that these protected areas do not safeguard all threatened species and in any case retention of threatened species within small 'island' reserves does not eliminate the possibility of extinction. Hence the case for safeguarding biodiversity conservation on a wider scale through 'ecoregion-based conservation' (ERBC) linked with the sustainable development of large land units that are biologically coherent in terms of species, communities and environmental conditions.

■ **Table 1** The Carpathians*

Country	Area (sq.kms)	Carpathian		Protected Areas ha	
		sq.kms	A	B	Category 1Category 2
Czech Rep	78,864	6,708	8.5	3.6	204,810-
Hungary	93,030	7,735	8.3	4.1	244,16267,201
Poland	312,685	19,716	6.3	10.4	886,57581,508
Romania	238,391	95,566*	40.1	50.4	423,184396,761
Slovakia	49,035	38,150	77.8	20.1	848,875243,219
Ukraine	603,700	21,700	3.6	11.4	239,964206,860
Total	1375,705	189,575	13.8	100.0	2847,570995,549

A Carpathians as a percentage of each national area; B Percentage of Carpathian territory falling to each state.

* Some definitions of the Carpathians include the Transylvanian Plateau but this area is excluded from these calculations which cover only the main Carpathian ranges, the Subcarpathians and contact areas where communities make use of mountain grazings.

Such strategic projects can realistically cope with immediate threats in the context of the socio-economic conditions and safeguard the future through a clear vision of the conservation goals and the participation required by stakeholders, working in partnership at all levels from international agencies to local communities - and with input from all relevant disciplines, for an adaptive programme of coordinated management interventions.

The Carpathians are confronted by a mix of threats, summarised in Figure 1 in terms of urban-industrial development with significant levels of pollution (especially on account of coal-burning thermal power stations and chemical and metallurgical industries), tourist pressure (including hunting) and transport flows along the main European corridors (Plates 2-3). However, there is a contrast between the northwest, characterised by a 'virtuous circle', where civil society and political stability attract investment to reinforce attractiveness, and the southeast with a 'vicious circle' arising out of low investment, reduced spending power and greater instability. Development threats are generally stronger in the northwest, while air pollution damage to forests is most

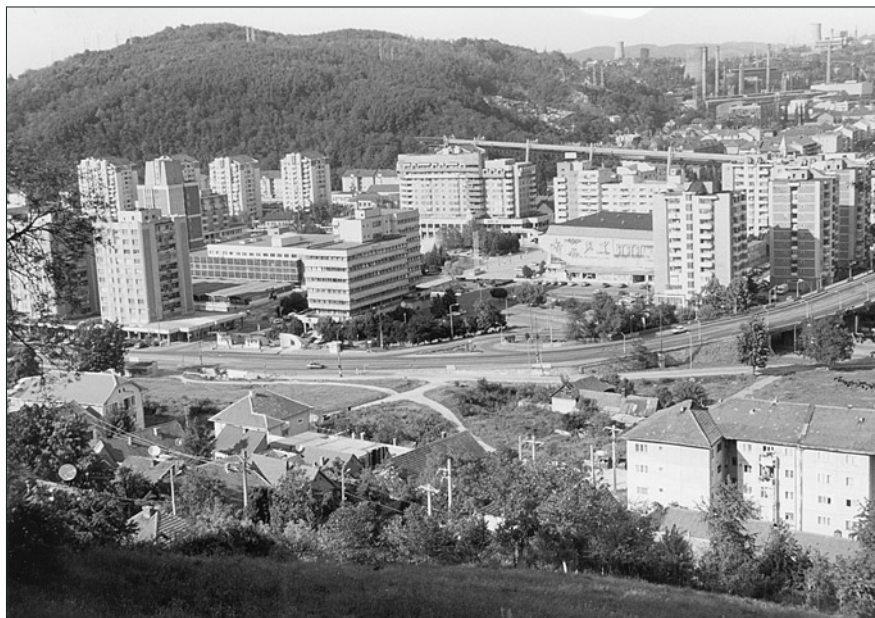


Plate 2 The industrial city of Resita lying on the edge of the Semenic Mountains is a centre of steel production and engineering (top right of the picture) based on the iron ore, coal and limestone available in the area (though only limestone is currently worked - and carried by the funicular crossing the city in the middle distance). Most of the waste land is now under woodland but there is continuing air and water pollution while inadequate waste management creates problems especially in the Moroasa district.

evident in the Beskidy of Poland, mass tourism exists in the Tatra, road projects are very likely to be implemented and the demand for electricity may increase the need to proceed with the potentially-damaging hydropower plants on rivers like the Dunajec in Poland (Voloscuk 1998). Meanwhile, development pressures in the south are weaker, yet rural economies are less sustainable than before, given the illegal cutting of restituted forests and heavy grazing pressure by peasant farmers whose main source of income arises from the sale of livestock. Privatised logging companies in Ukraine have been able to use their own contacts to negotiate very favourable leasing arrangements - encouraging wasteful use of timber - whereas open timber auctions would produce more realistic prices and stimulate efficiency.

Much has been done to improve management of the landscape and its resources.

Working from the concept of territorial systems of ecological stability developed in the former Czechoslovakia, the 1994 Slovak Act on Nature and Landscape Protection provided for five levels of territorial protection and specific flora and fauna, minerals and fossils: working from the national level, through protected landscape areas with characteristic landscape or historical settlement forms; national parks where natural heritage protection carries overriding priority; small protected sites comprising biocorridors or biocentres of local or regional importance; and finally nature reserves and monuments of nature. Other countries are working along roughly

similar lines in setting out conservation programmes and forestry codes. Romania is also playing a key role with regard to a 'Carpathian Large Carnivore Project' (CLCP), while Ukraine already has a 'Programme for Developing a National Econetwork 2000-2015', which will contribute to a future European Ecological Network, and a multi-functional forestry code. But the zoned areas still do not protect all endangered species, enforcement levels are low and illegal hunting is particularly serious. Public dialogue over conservation is still at a formative stage, but it is evident that good ideas appreciated by local government and conservation groups often lack the financial and legislative support required to carry them through.

These various initiatives are now being combined into a strategy which can apply across the Carpathians as a whole. Given strong commitment from the six countries, the World Wide Fund for Nature (WWF) has drafted a mission statement to initiate and facilitate a process through which key stakeholders collaborate to secure conservation and sustainable development across the region. Reconnaissance in 1999 took account of all relevant expertise and involved contact with selected stakeholders and key actors in order to assess the biodiversity of the Carpathians in the light of current threats and conservation efforts. This work has established that while there are challenges which require urgent attention there is also a high level of commitment to achieve worthwhile objectives. During 2000-2001, detailed biodiversity and socioeconomic assessment has been undertaken, lead-



Plate 3. While some Carpathian roads negotiate passes at altitudes exceeding 1000m there are much lower routes available in the case of the Jiu and Olt valleys. The picture features the Jiu defile at Lainici where completion of the railway in the 1940s was a major engineering achievement. Building of the Calafat-Vidin bridge over the Danube will increase the volume of road traffic and boost the economic prospects of the depressed Petrosani coalfield.



■ **Plate 4:** *The commercial exploitation of the forests has done much to open up the Carpathians to visitors during the last two centuries. Conventionally sawmills were located on the railway lines where local catchments could be exploited (though the example in the photograph - Oituz near Bretcu, Covasna - has only road access. However excessive pressure on the more accessible forests has resulted in variations in age structure while clear felling on an excessive scale has increased flood risk. Sustainable forestry is now a priority*

ing to a long term biodiversity 'vision' and the initiation of specific projects. There will also be work on preparing a 10-15 year ecoregional conservation plan and an action programme for the next five years. A steering group will consist informally of a core team involved in practical decision-making about the project and other participants whose role is of a more 'ambassadorial' nature, while regional coordinators and country contacts will form the core of the biodiversity, socio-economic and GIS working groups. While biodiversity lies at the core of the initiative, a socio-economic perspective is needed to identify threats (such as World Bank projects and national development plans) in the context of natural resources decision making and institutional frameworks.

The Carpathian Ecoregion Initiative (CEI) does not stand in isolation and there are substantial opportunities for synergistic actions. The EU dimension is of the greatest relevance, given the 'Natura 2000' conception of a European system of protected areas and work inspired by the CoE and the United Nations Environment Programme (UNEP) to establish a Pan-European Ecological Network (Bennett 1998). The Council of Europe's 'Euromontana' organisation is associated with the World Conservation Union (IUCN) through a European Mountain Forum a local 'Carpathians Mountain Forum' now operates within IUCN Slovakia (Backmeroff et al. 1996). And a large number of NGOs are also available for inclusion in conservation networks. Mention should be made of

other WWF actions such as the 'Endangered Species Campaign' and various policy and lobbying projects on agriculture, rural and regional development. Highly relevant also is a World Bank/WWF project on the 'Implications of Land Restitution Programmes in Eastern Europe and Central Asia' and the WWF initiative ('Human Footprint on the Biodiversity of Europe') which aims to secure EU 'Fifth Framework' funding to develop a methodology to value to biodiversity (in the context of conservation goals) alongside economic development in order to define critical thresholds.

The Vision for the Carpathian Ecoregion Initiative (CEI)

CEI is innovative: never before has such a large-scale long-term or visionary approach been attempted in the region. As a unique international partnership committed to conserving the key ecosystem in the heart of Europe it has the prospect of funding through a Green Carpathian Fund with contributions from governments (some outside the region, with Carpathian interests) and international donor agencies like World Bank GEF, United Nations Development Programme, the EU Presidency and the European Commission. The summit in Bucharest in April 2001 secured the agreement of the six governments involved (along with others concerned with complementary Danubian initiatives). The

work will develop in two directions. There is first of all a need for agreed conservation programmes in a range of priority areas with high biodiversity resources and without excessive socioeconomic pressures. Research has built up from Focal Species Group Areas - identified for habitats (48), plants (27), large carnivores and other mammals (15), amphibians and reptiles (10), and birds (6) - to arrive at a set of priority Biodiversity Important Areas (BDIAs) (Figure 2). In the process particular weighting was given to habitats because of their importance in finding centres of Carpathian endemism and also because of the good data coverage. These core areas are in many cases already protected in some way but where this is not the case then there will be particular urgency in providing safeguards.

At the same time, it is not possible to protect the entire mountain system.

There is a substantial rural population dependent on the natural resources and maintaining these fragile communities must be a complementary part of the vision. Any approach to conservation must recognise the universal demand for growth and higher living standards in all the countries involved (Perzanowski 1999). Hence the relevance of local projects for sustainable development in which NGOs (including those already networked through the Environmental Partnership for Central Europe: EPCE) will work with stakeholder groups within individual communities. A strong push is coming from the EU which takes the view that future pre-accession funding should reflect the status of agri-environmental schemes as a key policy instrument throughout the union (Gyulai 1998); following the 1996 Cork Declaration - seeking integrated programmes of sustainable rural development for each region - and the LEADER approach of targeted/tailored programmes for specific problems and areas (most recently spelt out under Article 33 of Regulation 1257/1999) (Baldock et al. 2001). The new EU rural funding programme for accession countries (SAPARD) should be contingent on grass-roots' participation and on connections with protected areas networks and Natura 2000 (Avis 2000).

Given the high habitat value of farmland in the Carpathians where traditional forms of land use have persisted, in contrast to the EU, there is much appreciation of the environmental and food quality benefits of organic farming, supported by enhanced 'capacity' through cultural change in institutions and appropriate training/advice for farmers. Steps are being taken in agriculture ministries in the accession countries (which include all the Carpathian states except Ukraine) and a number of projects are

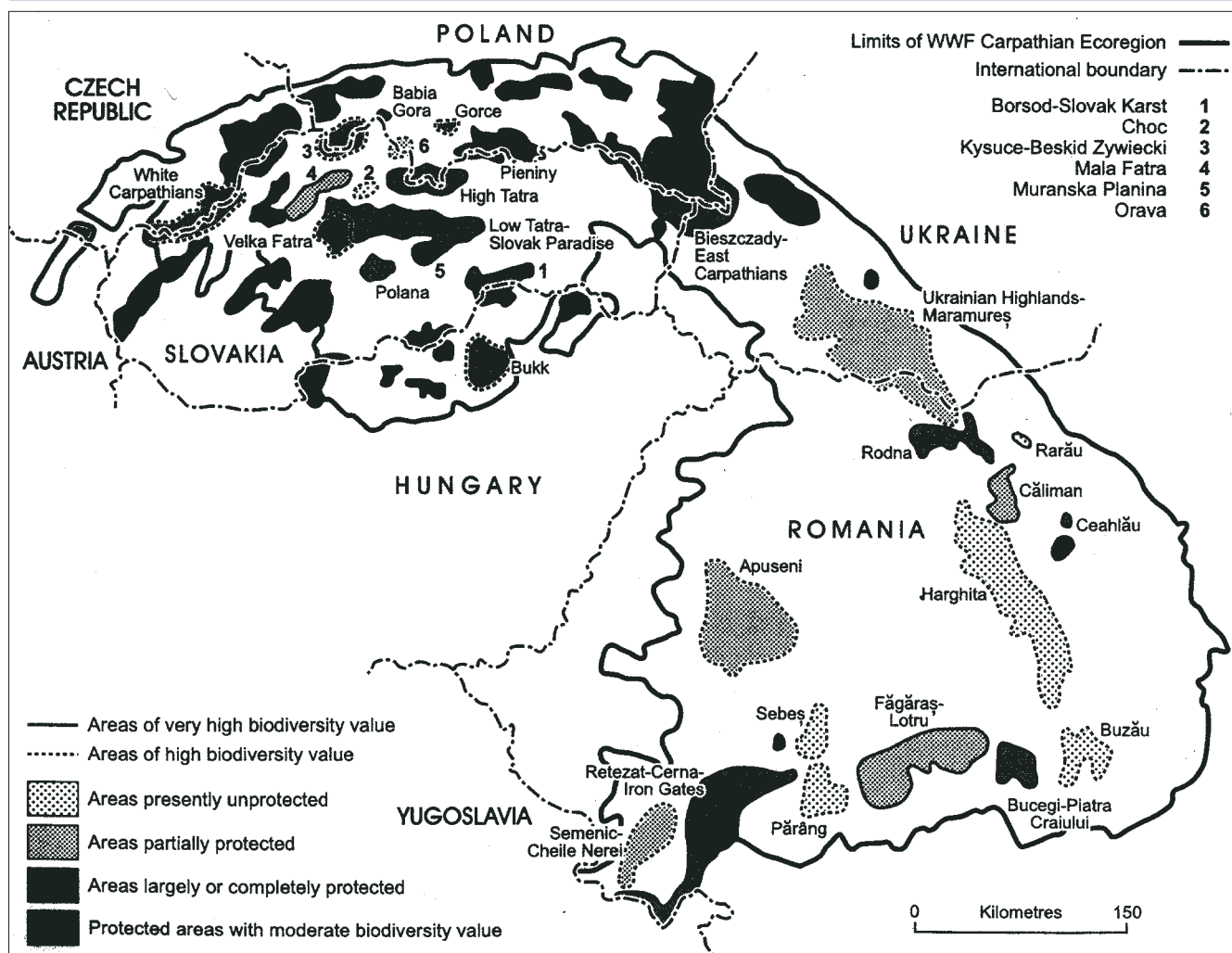


Figure 2: The Carpathian vision: priority conservation and their current status (Source: World Wide Fund for Nature)

now under way. Reference should also be made to the EPCE Stewardship Programme which seeks to promote sense of respect and custodianship towards natural ecosystems among both private and public landowners (Seraphin et al, 1998). Since 1992 there has been activity in the Biely Karpaty (White Carpathians), Izerskie Hory, Karkonosze and Tatra. In the first-named area Hostetin in Moravia stands as a model community for rural sustainable development based semi-natural beech woodland and organically-farmed species rich grassland. Boasting a rural development centre built by Veronica Ecological Institute, the community is sustaining a remarkably cohesive coalition which includes community groups, environmental organisations, farmers, business people, government agencies and local and international funders (Beckmann 2000). Meanwhile the Young Romanian Ecologists are working in two Carpathian pilot areas seeking combine conservation management of species-rich hay meadows with quality dairy products (including local trademarks) and support for cultural heritage. Work includes collection of environmental baseline data, designing management agreements and building administrative capacity.

However development of agriculture will not increase rural employment significantly, so 'what is needed in addition is an approach that promotes a whole range of grassroots orientated rural development programmes' (Lowe 2000 p.1). Forestry is important here but Beckmann (2001) highlights the conflict between 'rational' forest management with regular rotational felling and the modern ecological view accepting that forests have diverse functions apart from wood production (Plates 4-5). The political 'tug of war' is well illustrated by the celebrated case of Slovak environmental NGO 'Wolf' being fined for not cutting wood in a reserve established in the Cergov Mountains to preserve natural forest growth in accordance with legislation passed in 1998. 'Wolf' wants to set aside a fifth of all forests for non-timber producing functions (and literally left to rot), including buffers for streams and springs; leaving the rest for selective logging. Less timber would mean higher prices, but yield a net benefit through savings in costs arising from erosion, loss of biodiversity, disturbed water regimes and unstable landscapes.

The CEI already has a model project underway in the Eastern Carpathians involving sustainable forest development in the three countries based on the Tri-

lateral Biosphere Reserve (Poland, Slovakia and Ukraine). Management relates to remnants of beech and fir-beech virgin forest as well as mountain meadows with rich biodiversity including some rare and endangered species.

There is however the threat of further privatisation which will affect some forty percent of Romania's forests under restitution legislation approved in 2000. Owners will less than 10ha must follow a 'summary management plan' while larger areas require 'detailed management plans' drawn up by management planning companies or other authorised organisations in consultation with forest owners (Beckmann & Abrudan 2001). Even so the capacity of a forest inspectorate was (set up in 2000) will need to be developed while management in line with standards approved by the Forest Stewardship Council and improve access to timber markets (especially in Western Europe) which demand FSC certified timber. Community management of woodlands is another approach which could balance population and resources and ensure recognition of all forest functions.

Rural tourism has been much discussed as a sustainable business through the need to conserve local scenic and cultural resources in line with



■ **Plate 5** Forest exploitation has given rise to a range of local transport arrangements. Forest railways were built extensively in the late nineteenth and early twentieth centuries but only a few survive. One example is the Covasna-Comandau system which has significant heritage potential: the upper and lower levels - worked by locomotives - are connected by an incline plane operating by gravity, with the aid of a horse to manoeuvre the wagons into position.

the development of the business on a community as well as an individual household basis (Godde et al. 2000). In Poland's Podkarpacie Province the development strategy for 2000-2006 includes rural tourism in the Bieszczady Mountains linked with cultural attractions, ecological production, mineral waters and the opportunities for hunting and winter sports. The question is how to expand the business into other parts of the region. Writing on the Stuzhitsa area of the future Ushanski National Park in Ukraine, Slee (1999) sees rural cultural tourism as highly appropriate in an area of small-scale biological farming, following the decline of communist industry. EPCE is taking ecotourism initiatives that establish 'best practice' for sustainable development through ecological networks endowed with a system of 'Amber Trails' developed in a cross-border context. The scale of the business will probably be modest is much of the region, but with fiscal incentives and involvement by NGOs in training and advertising - like Romania's National Association for Rural and Ecological Tourism - there could be scope for increased rural incomes without threats to local culture or environment (Chauvin 1997) (Plate 6).

In the Piatra Craiului Mountains of Romania attempts are being made through the CLCP to demonstrate that large carnivores could benefit mountain communities through ecotourism and compensate for reduced agricultural pressure necessary if conflict between sheep farming and large carnivores is to be moderated (Kurek 1996). Large carnivores are a special attraction to peo-

ple for people visiting the Carpathians, so if money generated by the hunting business goes at least in part to the community and not just to the forest administration, large carnivores could benefit local people and increase support for their conservation. The Bran area already has a flourishing rural tourism business, although it is related to mountain scenery in general. But large carnivore-related tourist groups have been hosted from 1995 and special tourist programmes on 'Wolves Bears and Lynx in Transylvania' have developed in conjunction with facilities nearby in Zarnesti (Promberger 1999). More visitors could be accommodated through mountain activities (rock climbing and survival training) and a Large Carnivore Centre which would try and get around the problem that, apart from garbage dumps and bait sites, the animals are difficult to observe in their natural environment. Such a centre would also provide information about the animals and, more generally, inform Romanians about the value of a Carpathian ecosystem in an international context.

Conclusion

The CEI is a challenging project but it is fully in tune with the EU enlargement process as regards but the environmental threats and the range of the solutions. There is a need for a greatly improved supply of information to educate stakeholders and the public in general over the unique resources of the Carpathians and to research potential threats like woodland restitution. However, the priority areas have been care-

fully selected and have found agreement among scientists, while financial resources for the medium term are largely assured. Much will depend on the supporting role played by NGOs and there will inevitably be different rates of progress when the experience of well-established organisations like Daphne and Veronica is compared with smaller and younger groups with limited contacts and resources. However this will mean that good practice can be passed down the line to encourage more initiative where the building of institutions is relatively slow. The Hostetin model of sustainable development (including energy conservation and sewage treatment) is attracting a steady trickle of visitors from other parts of the region, while another CEI model project at Babia Gora on the Polish-Slovak border is a demonstrating how local governments, NGOs and other stakeholders can combine in a cross-border situation. It may well be that the vision combining regional perspectives with ample scope for local initiatives will offer the best chance of drawing in funding and expertise to cope with the diversity of the region and provide experience in rural development that can be applied more widely in an enlarging European Union.

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■ **Plate 6** *The village of Moeciu de Jos near Brasov between the Bucegi and Piatra Craiului Mountains has developed a successful agrotourism business linked with scenic and cultural resources in the vicinity.*

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