

LANDSCAPE AND NATURE PROTECTION IN THE CZECH- -GERMAN-POLISH MINING AND INDUSTRIAL BORDER REGION—DEVELOPMENT AND PERSPECTIVES

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Abstract. The countryside in the Czech-German-Polish Triangle at the beginning of the 1990s was seriously damaged by a high concentration of mining and industry sites (dumps, mine shafts, extensive erosion from surface mining) as well as suffering from one of the highest emission densities in Europe. The consequences for nature were severe (forest damages, water contamination etc.). In view of these problems, cross-border development concepts were drawn up, helping to significantly improve the environmental situation. The IOER is currently evaluating the development of the environmental situation from 1990 to 2006, looking at such issues as landscape and nature protection and the effects of the cross-border collaboration. Some results are presented in this article.

Keywords: Czech-German-Polish Triangle, “Black Triangle”, landscape and nature protection in the “Black Triangle”

INTRODUCTION

Problem outline: At the beginning of the 1990s the environmental situation in the so-called “Black Triangle”, Northern Bohemia (CZ), the southern part of Saxony (DE), and the south-western part of Lower Silesia (PL), was highly strained. Life in this German-Polish-Czech border region was dominated by the activities of mining and heavy industry, with local people afflicted by smog, contaminated water, dying forests and other damage to the countryside. The consequences for animal and plant life were severe. Owing to these dreadful environmental problems and urgent challenges in renewal of energy supply top politicians in these three neighbouring countries felt impelled to initiate clean-up and rehabilitation measures, turning

to international development programmes to try to support these disadvantaged areas. In July of 1991 the environmental ministers of Germany, Poland and the Czech Republic laid the groundwork for a cross-border framework plan to improve the environmental situation, leading to the creation of a plan entitled “Regional Plan Black Triangle”. The cross-border development concepts contained therein incorporated goals, guidelines and models drawn up by expert teams, supported by concrete projects and measures, as well as joint implementation strategies.

The IOER Project “Green Border Triangle”: Under the auspices of the Leibniz Institute for Ecological and Regional Development (IOER), Czech, German and Polish scientists are currently carrying out research to evaluate the development process and the meeting of objectives determined by the initial agreements. Based on relevant documents from the three countries, expert discussions and workshops, it is asked for successes, deficits, development barriers and perspectives. The survey covers the period from 1990 to 2006. A further aim is to identify potential pathways to continued development and to derive recommendations for the successful employment of spatial instruments in this and similar border regions. The first task of this project was to analyse and illustrate the changing environmental quality, and ascertain the degree to which the concepts and goals of development and rehabilitation from the early 1990s have contributed to these environmental improvements. This current paper describes the initial results of the working group made up of the scientists Gazmend Zeneli, Jan Slavík, Jiří Moravec, Juliane Mathey, Katarzyna Knippschild, Kristýna Rybová, Patrycja Bielawska-Roepke, Sabine Witschas, Sylke Stutzriemer and Vera Slánská. The following discussion focuses on the development of air quality and the state of the woodland in the entire border triangle, as well as the development and protection of the countryside in the Euroregion “Erzgebirge-Krušnohoří”.

The countryside of the border triangle: The geography and natural features of the Czech-Polish-German border region are highly heterogeneous. Stretching from the Vogtland/Ore Mountains (Erzgebirge) in the west, crossing the Elbsandstein Mountains to the Ostsudeten region, it includes such diverse habitats as low range



Figure 1. View of the Neißer (Photo: R. Bendner)



Figure 2. Rock formation in the Elbsandstein Mountains (Photo: S. Stutzriemer)



Figure 3. Countryside in Upper Lusatia (Photo: R. Bendner)

mountains, foreland, lowland and river landscapes (Elbe, Neiße) (Figure 1). These can be classified as belonging to the geographic units Vogtland, Ore Mountains, Elbsandstein Mountains (Figure 2), Sudetische Mountains, Westsudetisches foreland, Upper Lusatia (Figure 3), Silesian-Lusatian lowland and Bohemian Basin.

DEVELOPMENT OF AIR QUALITY IN THE BORDER TRIANGLE

The high concentration of mining facilities, power stations and heavy industry caused one of Europe's highest emission densities. The primary responsibility for air pollution lies with the large power stations of northern Bohemia, as well as the power stations of Poland, Saxony and Brandenburg (IfS 1995). The sulphur-rich brown coal burned by some plants was the main source of SO₂ pollution, while the dangerous emissions of particulate matter came mainly from transportation, industrial facilities and smaller energy consumers (ČHMÚ et al. 2004). The situation required urgent action, and so in September 1996 the three partner countries signed the trilateral Pro-

tolcol on Air Quality Data Exchange in the “Black Triangle”, facilitating an effective exchange of data. The Joint Air Monitoring System (JAMS), a network of measuring stations to monitor pollution levels was installed. The JAMS activities are supported by a trilateral Working Group, which evaluates the measuring data from the JAMS network, checks its quality according to EU requirements and is responsible for the “Joint Report on Air Quality in the Black Triangle region” (ČHMÚ et al. 2004).

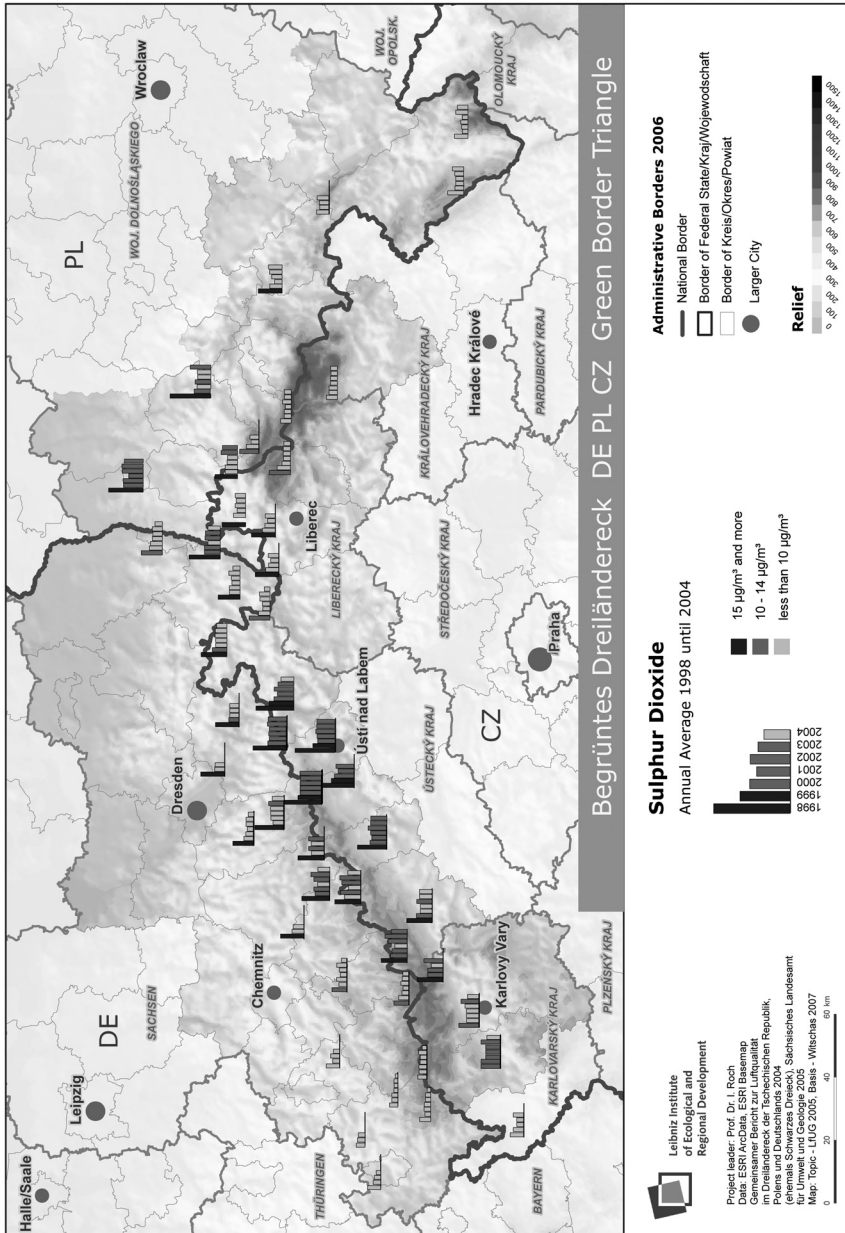


Figure 4. Map illustrating the drop in sulphur dioxide levels (SO₂) in the border triangle from 1998 to 2004 (Map: S. Witschas)

By 2004 the level of pollution had dropped to such an extent that this dense network was no longer required and the air quality data will no longer be presented in a joint report on air quality, but in accordance with the Framework Directive on Air Quality 96/62/EC in a short web-based form (ČHMÚ et al. 2004). Since the beginning of the 1990s till 2004 air pollution levels have decreased significantly. A decrease in emissions of sulphur dioxide (SO₂, 93%), nitrogen oxides (78%) and solid particles (97%) could be observed in the whole Tri-border Region (ČHMÚ et al. 2002, 2004; Slavík et al. 2007a). Figure 4 shows the fall in pollution levels from 1998 to 2004 for selected areas, using the example of sulphur dioxide. This has been due to the restructuring of energy sources, the closure of power stations and the technical retrofitting of polluters. The European Air Quality Framework Directives (RL 96/62/EG), introduced in 1997, have also had a considerable impact by fixing maximum upper levels of pollutants such as nitrogen dioxide, nitrogen oxide, lead, benzene, carbon monoxide, ozone and particulate matter (ČHMÚ et al. 2002, 2004).

On the other hand road traffic represents a major and still increasing source category of NO_x emissions. Nitrogen oxides emissions increased slightly in 2004 (ČHMÚ et al. 2004). Due to increasing traffic densities ozone levels are still rising as well. In particular, not only have target levels to protect human health been exceeded several times over the past years at higher altitudes in the Ore Mountains, but also the more lax target levels meant to protect native vegetation (BMU 1997b). An annual rise of around 3% is currently observed, and this will in future damage new areas of woodland while raising ozone levels to a dangerous degree in summer (IfS 1995). Concluding: Sulphur dioxide (SO₂), carbon monoxide, benzene and lead concentrations are below the relevant limit values and do not pose a problem at the moment, but ozone, particulate matter (PM₁₀), heavy metals (except lead) and BaP showed a noticeable stagnation or an increase in concentrations (ČHMÚ et al. 2004).

DEVELOPMENT OF FORESTRY CONDITIONS IN THE BORDER TRIANGLE

From the 1950s to the beginning of the 1990s the long-term effects of air pollution had damaged forests to such an extent as to limit forest productivity. About 10–20% of woodlands had been completely destroyed. The German-Czech-Polish border region, and in particular the Ore Mountains and Isergebirge and Riesengebirge ranges, were home to some of Europe's most severely damaged forest zones. Indigenous forests had only been able to survive in small patches in a few protected areas. While it is true that from 1959 to 1991, 1,636 ha of former mining land was reforested, the former fir and beech mixed forests were largely replaced by fast-growing commercial woodland with a much higher proportion of conifers (IfS 1995). In the past air pollution with SO₂ gas was directly responsible for "classical forest damage"; the contaminated rain acidified the forest floor as well as speeding up the loss of essential nutrients. Although emissions have now decreased, so-called "new forest

damage” has begun to appear since the beginning of the 1990s, caused by photo-oxidative chemicals and hydrocarbons, as well as by a shift in the balance of nutrients in the topsoil. The acidification of the soil, exacerbated by acid rain, is still a major problem, while high concentrations of nitrogen pollution can also be detected (IfS 1995).

Rehabilitation measures and framework conditions: Numerous rehabilitation measures introduced by the Free State of Saxony have considerably improved the health of forests. Since the beginning of the 1990s these have included, alongside measures to improve air quality, an ecological programme to transform the forests in step with climate change, treatments with lime to reduce soil acidity, as well as a series of smaller projects to boost forest cover. The basis for the rehabilitation work and an ecological transformation of forests in the Saxon part of the border triangle is provided by the legal provision known as the Saxon Waldgesetz (SächsWaldG, Forest Law). One special category in this legal framework is the “Emission Damaged Forest” which designates areas urgently requiring rehabilitation. The foreseen pollution zone (§ 32 SächsWaldG) defines those severely damaged woodland areas in which forestry restoration measures are to be implemented. Based on the results of environmental monitoring of forests, including the data collected on forests conditions from 1991 to 2003, it proved possible to carry out the zoning of forest damage as stipulated by § 32 SächsWaldG from an ecological perspective. Current zoning focuses on those woodland areas which still require effective medium and long-term programmes of forest rehabilitation (SMUL 2006). This ensures that woodland rehabilitation measures are placed on a firm ecological basis, in which the indirect long-term effects of contamination in the woodland ecosystems are not neglected (SMUL 2006).

Development of forest damage: During the last 20 years the quality of forests in all parts of the investigated area has improved considerably, although healthy trees are still rarely found on the Polish side (Slavík et al. 2007b; SMUL 2004, 2006). The general improvements can be attributed to a reduction in air pollution, ecological forest restoration with alternative tree species, as well as legal provisions. Clear reductions in pollutant levels have been observed in forest ecosystems over the past two decades. The formerly high levels of sulphur compounds have sunk to a level comparable to other European regions, so that the focus is now turning to nitrogen pollution (SMUL 2006). By the middle of the 1990s the effects of the reduction in SO₂ levels could be clearly seen. However, the accumulated store of sulphur in the forest floor from the long years of pollution is now leaching out of the ground to cause further damage. The continuously high nitrogen levels mean that long-term eco-friendly critical loads are being exceeded. One further problem is the extensive planting of spruce as monocultural woodland (SMUL 2006). This non-native species only serves to weaken the forest ecosystem. Despite the lower levels of pollutants, measures to treat the forest floor of the woodland ecosystems in the Ore Mountains with lime will be necessary in the future to counteract the worsening acidification of the soil (SMUL 2006).

COUNTRYSIDE DEVELOPMENT AND PROTECTION IN THE EUROREGION ERZGEBIRGE-KRUŠNOHOŘÍ

The geography of Saxony's Ore Mountains is primarily characterised by a gradual incline from north to south along the northern declivity of a south-facing ridge (between 800 and 1000 m above sea level). Here the Saxon range appears more like a low mountain range, showing many deep clefts and valleys rather than any striking summits (Pommer 2005). On the Bohemian side the ridge has a very steep drop and descends into the Bohemian Basin. Despite the mining of raw materials and intensive agriculture and forestry, the countryside and natural features of the Ore Mountains, with their great potential for leisure and relaxation, can be said to be one of this area's strengths. The development potential for ecologically-friendly tourism is considerable (Pommer 2005).

Landscapes affected by mining in the Euroregion Erzgebirge-Krušnohoří: Saxony's Ore Mountains contain deposits of raw materials such as non-ferrous ores (of copper, lead, zinc and silver) and radioactive elements (uranium, thorium and potassium as well as their radioactive derivatives). Together with the deposits of brown coal in the Bohemian Basin, these resources have always been significant economic factors for the Euroregion Erzgebirge/Krušnohoří. Since the Middle Ages mining has shaped the face of the region, leaving behind visible traces such as a greatly transformed geographic relief and ground cover. In the various mining districts of the Ore Mountains one can find waste heaps, mining shafts, collapsed tunnels and entry holes, largely created by underground mining and the dumping of excavated rock (IfS 1995; Pommer 2005), as well as wide-scale devastation through mining pits sunk to reach brown coal deposits in the north Bohemian Basin (IfS 1995). Radioactive pollution is also a serious problem in the Ore Mountains (radon pollution of the air and within buildings, radionuclides in the soil), this being a legacy of the uranium mining carried out from 1945 by the Soviet corporation SAS (later the Soviet-German corporation SDAG) Wismut in the western and central Ore Mountains. The risk this contamination presents to human health and the environment is difficult to quantify (IfS 1995; Pommer 2005). Also the ecological repercussions of brown coal mining have left wide-spread devastation throughout the Bohemian Basin. The originally shallow Eger Basin underwent considerable morphological transformation of its topography due to the numerous cavities and waste heaps left by mining activities (the latter often rising up to 400 m above the surrounding landscape). By 1995 more than 25,000 ha of land had been devastated by brown coal mining, constituting around 10% of the total area of the districts of Chomutov, Most and Teplice (Pommer 2005). At the beginning of the 1990s this part of the German-Czech-Polish border triangle was in dire need of rehabilitation work as well as measures to secure dangerous sites (IfS 1995).

Instruments, rehabilitation measures and development: To try to remedy or at least reduce the severity of these problems, the Saxon government introduced the instrument "Remediation Area" to its Land Planning Code. This has been employed in

the Ore Mountains, even though it was previously untested as regards cross-border development. The rehabilitation of devastated areas has followed diverse aims, often depending on previously successful integration measures in the landscape (Pommer 2005). The recultivation work in the brown coal areas of the Bohemian Basin initially focused on extensive reforestation projects using pioneer tree species besides concrete determination of land use pattern in the area of Most (Štýs and Helešicová 1992). Only more recently has a wider spectrum of recultivation forms been developed to foster alternative economic use (agriculture and forestry) and for leisure and relaxation (technical monuments, leisure areas, artificial lakes on former mining sites), as well as re-greening measures with the goal of developing new biotopes (partly with natural succession) (Pommer 2005; Slavik et al. 2007b). In the Ore Mountains there still exist some old unsecured mining facilities and sites. Fissuring and deformation of the land surface remains a potential problem. Today stone rather than ore is being mined in these areas, with activities currently focussed on seven different locations. All these quarries consume land, and this is a potential source of conflict with nature and landscape protection. Most sites are located near settlements, or nearby/within landscape and nature preservation areas (Pommer 2005). In connection to uranium mining, in 1991 the corporation SDAG Wismut was transformed into Wismut GmbH, with the new aim of closing and rehabilitating former mining facilities. Also since 1991 a radiation advisory committee has regulated the remediation of former uranium mining sites by setting conditions which must be met before a piece of land can be classified as clean (Pommer 2005). With only a few exceptions, most of the uranium waste heaps in the west and central Ore Mountains have now been rehabilitated and reforested. Measures to protect the soil include restrictions on the use of land in areas which still show wide-spread contamination. So-called “soil protection areas” are designated in Saxony, with restrictions subsequently changing to adapt to the current situation. These areas exist in parallel to nature and landscape protected sites, as well as sites where the ground and surface waters are protected (Pommer 2005).

LANDSCAPE AND NATURE PROTECTION IN THE EUROREGION ERZGEBIRGE-KRUŠNOHOŘÍ

Biotope in the Euroregion Erzgebirge-Krušnohoří: The Euroregion Erzgebirge-Krušnohoří is characterised by valuable countryside and natural features which, although severely contaminated in some areas, are certainly worthy of protection. They represent valuable biotope structures of open countryside and woodland (Figure 5), and contribute to the strengths of the Ore Mountains biotopic environment. Characteristic for this region are near-natural highland spruce woodland, beech (mixed) woodland on acidic soil, moorland forests, highland ridge-top moors (Figure 6), stone dykes and hedges, mountain meadows (Figure 7), mat grassland,

near-natural low mountain streams which stay cold in summer, open natural and near-natural rock biotopes, boulder and shingle waste heaps, shafts from older mines (Pommer 2005) and near-natural springs. Specific measures are necessary to preserve these various habitats formed by human hand (mountain meadows, mat grassland, stone dykes, etc). These measure must look to historic agricultural techniques for suitable methods, and these biotopes can frequently only be maintained by means of legal protection and an intensive programme of care (Pommer 2005).



Figure 5. Alternating forest and open land with typical settlement forms (Photo: R. Bendner)



Figure 6. Highland moor at Zinnwald-Georgenfeld (Photo: S. Stutzriemer)

With the exception of the highland spruce forests and beech (mixed) forests on acidic soil the mentioned biotope types enjoy special protection under Saxony's legal provisions for selected biotypes (§ 26 SächsNatSchG), while also being included in Saxony's Red List of endangered biotypes. After the large scale destruction of the Ore Mountains' woodland from the 13th to the beginning of the 19th centuries (mining, over-use, woodland cleared for pasture, effects of war), the former fir and beech mixed woodland has been replaced in a relatively short period by quick-growing mono-cultural non-native spruce forests. Today spruce makes up about

80% of woodland stocks, with wide ranging ecological consequences. According to the Forestry Report of 2004, the condition of Saxony's woodland has generally improved over the last few years, while only in the Ore Mountains where the spruce is dominant do 14% of stocks show clear damage (SMUL 2004). However, the redevelopment and reforestation of woodland offers, and will continue to offer, new economic possibilities for forests, thereby increasing their value as protected sites (Pommer 2005). The Ore Mountains' highland meadows are unique in their extent and size as an eastern example of this form of biotope. The rich variety of flowers and the diversity of location mean that they are highly valuable habitats. However, intensive agriculture (fertilisers, herbicides, intensive pasture) and other forms of human exploitation, such as forestation or the construction of settlements, have led to the destruction of such meadows (Pommer 2005). This is likely to continue in the future, even though care and protection of the meadows will benefit not only these unique habitats, but also the region's farmers and the tourist industry.



Figure 7. Meadow of orchids in Geising (Photo: S. Stutzriemer)



Figure 8. Habitat of the black grouse in the East-ern Ore Mountains (Photo: S. Stutzriemer)

The Ore Mountains is home to many plant and animal species characteristically found in the previously mentioned important biotopes. Some species have a wider significance even outside Saxony's borders, such as the Arctic-Alpine plants found around the Fichtelberg, or the varieties of serpentinite flora growing in the central Ore Mountains. The capercaillie and the black grouse have also found refuge (Figure 8) in this region. Most of these plants and animals have been included in Saxony's Red Lists of endangered species (Pommer 2005).

PROTECTION OF NATURE AND LANDSCAPE IN THE EUROREGION ERZGEBIRGE-KRUŠNOHŮŘÍ

Measures of landscape and nature protection mainly target characteristic, typical landscape elements such as large continuous woodland areas, near-natural mountain forests, flood plain areas, open rock areas, lake areas, hedges and mountain meadows (Figure 7), as well as high moors (Figure 6) in the ridges of the Ore Mountains (Pommer 2005).

Numerous protected areas have been, and will continue to be, designated in order to preserve particularly valuable or typical landscape types or important species. The development of the Euroregion's network of protected sites from 1993 to 2005 is clearly shown in Figure 9.

In the *Bohemian segment of the Euroregion* at the beginning of the 1990s there were two landscape protection areas (LPA) and 26 nature protection areas (NPA). The aims of protection could only be partially achieved in four of the nature protection areas due to forest damage. It was planned to designate a further six protected areas (IfS 1995). Today (data from: 2004/2005) there are two LPAs and 29 NPAs (Slavík et al. 2007c). In the *Saxon segment of the Euroregion* at the beginning of the 1990s there were 27 LPAs, 45 legally designated NPAs as well as numerous natural monuments. In addition, countless biotopes typical for such countryside enjoy special legal protection (§ 26 SächsNatSchG). The aim of preservation could be realised in 11 nature protection areas, while 25 showed some signs of damage. In seven areas the aims of protection had to be abandoned. In addition, the Saxon segment of the region includes five international bird reserves (IBAs, Important Bird Areas), which offer characteristic breeding habitats and refuges for the two most important east German low mountain colonies of black grouse (IfS 1995). Today (data from: 2004/2005) there are currently nine designated and four planned LPAs, 26 designated and one secured NPA, around 750 natural monuments as well as the nature reserve "Ore Mountains/Vogtland" (Pommer 2005; Uhlig 2005). The "Ore Mountain/Vogtland" nature reserve has been a protected area since February 2002, and offers the region opportunities for development as well as the obligation to ensure that the creation of leisure sites and tourist infrastructure does not exceed the area's natural capacity. In the Chemnitz-Ore Mountain region the reserve encompasses

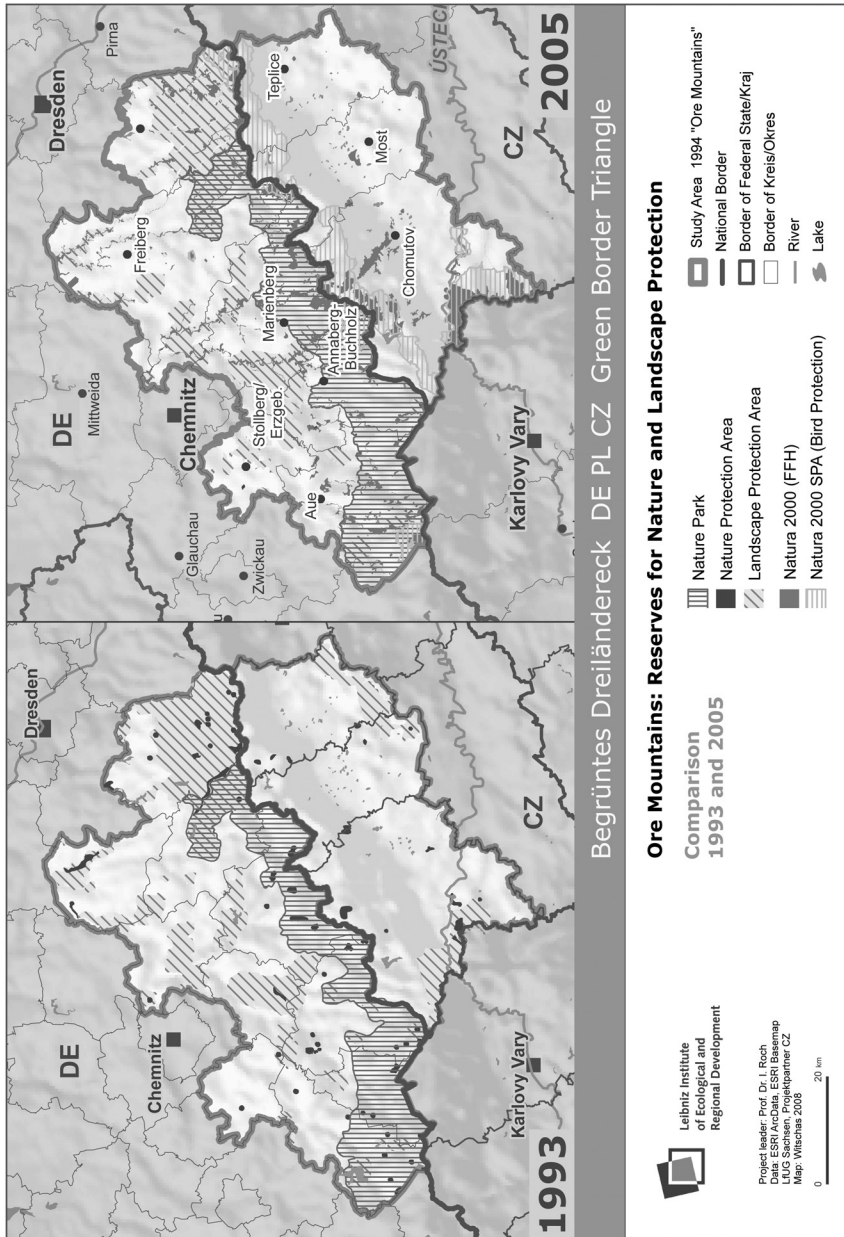


Figure 9. Map of nature and landscape protected areas in the Erzgebirge-Krušnohoří, comparison between 1993 and 2005 (Map: S. Witschas)

the most precious areas in terms of leisure and tourism possibilities, landscape variety as well as spectrum of biotopes and plant/animal species, especially in higher altitudes. These should form the basis of important projects (the care of mountain meadows, the renaturalization of moorland, the development of an extensive ski trail) which will support the balanced development of this mountainous region. Due to its location it seems sensible to develop the nature reserve

“Ore Mountains/Vogtland” to a large cross-border protected site. The most extensive highland areas and numerous highland moors are located across the German border in Bohemia (Pommer 2005; Uhlig 2005).

Connected system of biotopes: a territorial system to ensure ecological stability (called USES) is planned for the Bohemian section of the Euroregion, and this foresees the development of bio-centres and bio-corridors. One basic requirement here is the preservation and development of the natural varieties of deciduous and mixed woodland. The discussed system basically constitutes a regional system of connected biotopes (Slavík et al. 2007c). Saxony’s State Development Plan also stipulates the development of an “ecological system of connected preservation areas”. Regional plans foresee the designation of priority and secondary areas in the network of small-scale biotopes (SMI 2003).

European Network NATURA 2000: The creation of the European ecological network entitled NATURA 2000 led to the introduction of new categories to the Czech and German segments of the Euroregion. These are FHH areas (corresponding to the Fauna-Flora-Habitat EU guidelines, RL 92/43/EWG) and SBA areas (Special Bird Areas according to the European Bird Protection Guidelines, RL 79/409/EWG). For example, one “habitat of European importance”, as stipulated in Appendix I of the FHH Guidelines, would be the high hay meadows of the Ore Mountains (Uhlig 2005). At the end of 2006 proposals for the FFH areas in the Bohemian segment were discussed together with the European Commission. In terms of territory, the current proposals are largely identical to currently designated protection areas. A larger newly proposed FFH area is the Ore Mountain plateau in the west of the mountain range, as well as the Kopisty waste heap lying between the towns of Most and Litvínov in the heart of the Bohemian Basin (Slavík et al. 2007c). On the Saxon side 86 sites of inter-regional importance, according to the FFH Guidelines, have been proposed for the Ore Mountains area. These are supplemented by four SPA areas. The process of FFH designation was completed for Saxony in 2004 (Pommer 2005). Many protected sites in the Euroregion were affected by air pollution over long periods, leading to changes in the flora and fauna, particularly in woodland. Measures to restore and improve these sites over the short and medium term are particularly promising in moorland (stabilisation of the water balance), as well as in areas which are badly affected by the repercussions of excessive winter sports and other leisure activities. These measures can be supported by zoning and planning concepts for tourist use, though in the current case these still have to be drawn up.

Landscape conservation and conflicts: Vital partners in landscape conservation are nature protection and landscape conservation associations, dedicated nature protection centres, diverse voluntary initiatives as well as the region’s committed farmers. As the conservation measures often entail large-scale activities, their success depends on securing the necessary financial support. The clear risk is that a lack of funding, or confusion regarding the source of funding, can leave the necessary measures for nature protection programmes and landscape conservation with insufficient financial backing (Pommer 2005). Cooperation between Czech and German

nature protection associations is particularly close when dealing with cross-border project applications for financial support (IfS 1995). Despite the great efforts made towards nature and landscape protection on both the Czech and German sides of the Euroregion, with the designation of many newly protected sites, there is still great potential for conflict. It is clear that the aims of nature protection are defeated by the construction of wind power stations, flood protection barriers, weirs in rivers and streams, and facilities for winter sports.

CONCLUSION AND OUTLOOK

The cross-border development concepts, new laws and planning instruments (e.g. European Air Quality Framework Directives, new categories “Emission Damaged Forest” and “Remediation Area” in the Saxon Land Planning Code, numerous protected areas, including NATURA 2000), concrete projects and various measures together with a series of other factors have, over the last fifteen years, resulted in a greatly improved environmental situation in the German-Polish-Czech border triangle, so that the name “green triangle” now seems rather more appropriate to describe this region.

In the rehabilitation of environmental damage it has proved of great advantage to seek cross-border cooperation, while placing the potentials of nature and landscape at the centre of planning. A German-Polish spatial commission has been in place since 1992, a Saxon-Czech working group on spatial development since May 2005. In addition to improving the available flow of information by exchanging planning documentation, the partners have found mutual support in the joint submission of applications while offering assistance to one another in their respective spatial plans. For example, issues such as maintaining air quality, flood prevention, the zoning of large retail parks, and the use of wind energy in border areas are jointly discussed. The experience gained by the Working Group members of the JAMS network, through long-term cooperation underlines the need for continued contact and active cooperation between them. More than 10 years of cooperation have resulted not only in substantial progress but most of all in mutual understanding and trust as well as broad knowledge of the partners’ work (ČHMÚ et al. 2004). Collaboration on nature protection generally takes the form of smaller groups focussing on particular problems. Cooperation at micro-regional level on cross-border issues is largely the work of city partnerships and networks. The exchange of information primarily takes place in the framework of workshops or other expert forums (Uhlig 2005).

Environmental quality and quality of life can help dismantle negative images (Roch 2004a, b). Thus, protection of the landscape and its vital natural features currently plays a large role in land use in this region. Many structures which shape the natural environment are offered protection, such as flood plains, as well as hedges and mountain meadow, all of which were originally created by agricultural activities.

On the other hand, there are also alarming developments, contrary to ecological aims: Ongoing building activities cause the loss and fragmentation of landscapes,

the ozone load increases with growing road traffic, new reforestation with spruces extends into the ridges, monocultures with renewable resources dominate, and other critical interventions take place (wind power stations, flood control reservoirs, barges in rivers, facilities for ski tourism). But the “green image” of the former “Black Triangle” is an important basis for the future quality of life and economic development, especially for sustainable nature-friendly tourism. So while there are still a lot of problems to be solved across borders, the challenge is to harmonise the competing requirements of settlements, forestry, agriculture and tourism with the aims of nature and landscape protection. For example, there are possibilities within reforestation to restore highly exploited forest areas or for an extensive maintenance of mountain meadows. The latter not only benefits the typical mountain meadows, but also the cultivating farmers and the tourist sector.

It is clear that cross-border cooperation is of great importance, and this will only grow in the future. However, cooperation processes are often sporadic, or fail to meet the high expectations placed on them. This often leads to disillusionment amongst affected actors (Knippschild 2008). At the same time the framework conditions for cooperation are better than ever. New collaborative possibilities were opened up when Poland and the Czech Republic acceded to the EU in 2004, such as the cross-border planning foreseen in Saxony’s Development Plan valid from 2004 (SMI 2003). In the new EU Structural Funds period 2007–2013, enormous funding is available for territorial cooperation and a new legal instrument (European Grouping for Territorial Cooperation) resolves the problem of a lacking legal framework (Knippschild 2008).

In view of the presented development trends it still makes sense to take a close and critical look at the effectiveness of spatial instruments for these and other cross-border areas. This is also an important aspect of the IOER project “Green Border Triangle”.

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