

**Rural Development
and Land Use**

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Mountains and Tundra

Landscapes of Beauty and Wilderness

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The Two Large Mountain Systems of the Baltic Sea Region

Borders of the Baltic Basin

The Baltic Basin is limited in the north, south and west by large mountain chains and in the east by plains. The mountains – often forested and, especially in the north, wetland-rich parts of our region – account for an important part of the surface area and as well essential cultural economic and biological opportunities which need to be considered when discussing rural development.

In the northwest the Scandinavian Mountains at the border between Sweden and Norway form parts of the Baltic Sea region, with a very special nature, culture and economy. It is an important recreation area of Europe with many thousands of visitors every day.

At the very far north this formation continues east into mountain tundra, reaching 400-800 meters, called *tuturi* in Sami, into northern Finland and Russia. (The word *tundra* is related to *tuturi*.)

Also in the southern parts of the Baltic Sea region we find beautiful and dramatic mountain ranges. The Carpathians is a large mountain range extending all the way from Czech Republic, Slovakia and the Polish-Ukrainian border to Romania and Serbia. The Carpathians form the water divide between the Baltic Sea and the Black Sea. Again we see an extensive and beautiful mountain-landscape with its special biology, culture and economy. In contrast to the Scandinavian Mountains large parts of the Carpathians are well populated.

The Carpathians extends to the west and northwest into the so-called Sudeten Mountains which covers parts of Czech Republic (Bohemia and northern Moravia) bordering on Poland and further to the border to Germany. To the west of River Odra are the Silesian parts of these mountains with extensive mining industry also here with its special culture and economy.



Figure 5.1. Tatra mountain landscape in Southern Poland bordering the Slovak Republic. Photo: Lars Rydén.

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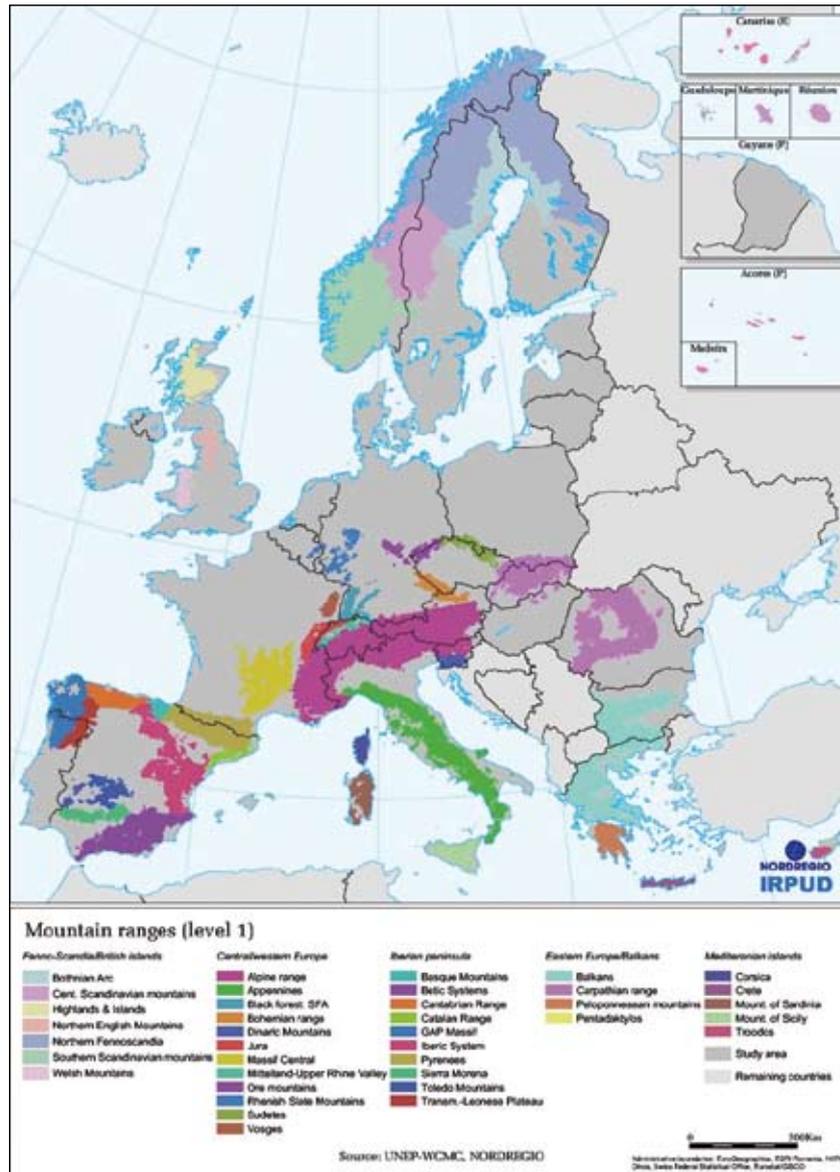


Figure 5.2. Mountain ranges in Europe. Source: UNEP-WCMC, Nordregio. European Commission, 2004.

The Scandinavian Mountains

The Scandinavian Mountains or the Scandes, also called *Fjells* (*Fjällen* in Swedish) is a mountain range that runs from the southern border between Norway and Sweden to the Arctic Sea along the Scandinavian Peninsula. The western sides of the mountains go all the way to the

North Sea where they form the fjords on the Norwegian Atlantic coast; on the northeastern tip they reach up to northern-most Finland. The crest of the Scandinavian Mountains forms the western water divide of the Baltic Sea, and the border between Norway and Sweden. The entire length extends 1,700 km making them the long-

est mountain range in Europe. The widest part in mid Norway is about 370 km. They reach their highest points at about 2,000 m at the Arctic Circle. Galdhøpiggen, the highest peak in Norway, is 2,469 meter while Kenekaise, the highest peak on the Swedish side, is 2,104 meter. At their tip in northwestern Finland, called the North Cape, they are rather hills.

The mountains are thus not very high. This is the results of several hundred million years of erosion and weathering. Their estimated height when they were formed some 450 million years ago was about 5 times their present, that is close to 10,000 meters. The Scandinavian Mountains are one of the oldest mountains in the world. Some of the rocks are vestiges of the Karelid Mountains formed close to 2,000 million years.

In the north the mountains have many ice fields and glaciers, some quite dramatic in shape, making it possible to ski year around. But these are at present getting smaller every year – a development caused by global warming. Thus the heights given above are already several meters too large and authorities are today making new maps for the mountain climbers.

As in all mountains the Scandinavian Mountains have a very special ecosystem. The vegetation above the tree line is dominated by grassland with some dwarf birch (*Betula nana*) and bushes (*Salix sp.*). Below the tree line there is birch forest and further down mostly spruce. Here we also find much water in small and large lakes, rivers and creeks, and vast wetlands. The fauna and flora is special, in an ecosystem now threatened by increased temperatures. The characteristic reindeers barely exist as wild as they all belong to reindeer herding Sami families. Large areas have been protected as National parks. The two most well-known are Sarek National Park (with 8 peaks above 2,000 m), the second national park in Europe from 1909, and Stora Sjöfallet national park, both in Sweden.

The Carpathian Mountains

The Carpathians form a chain of mountains or mountain systems which stretch in an arc from the Czech Republic in the northwest to Romania in the south. The largest part is in the south, but extensive parts, the so-called Western and Central Carpathians (traditionally called the Beskids) are found in Czech Republic, Slovakia, Poland, Hungary

and Ukraine. It is also here we find its highest section, called the Tatra Mountains, and the highest peak of 2,655 m the Gerlachovsky stit (peak) in Slovakia. The total length of the Carpathians is about 1,500 km; at its widest it is 500 km (in Romania), and the total area is estimated to 190,000 km².

The Carpathians is almost completely covered by forest – no part is above the tree line. There is no eternal snow, glaciers, dramatic waterfalls or large lakes. The very rich flora is similar to the one of the Alps and the fauna is interesting with important populations of e.g. brown bear. We also find extensive areas of virgin forests in this mountain system.

The mountains are fairly well populated and there are many important cities in or at the foothills of the not so high areas of the Carpathians. On the Slovak side there is Bratislava just south of the mountains, and Kosice, Banska Bystrica and Zilina in the hilly area. In Poland Krakow and smaller Przemysl on the Ukrainian border lies just north of the mountain, while the smaller cities of Nowy Sacz and Tarnow are in the mountains. In Ukraine Ivano-Frankivsk is in the mountains while the large city of Lviv is on its northern side.

The Silesian and Moravian Mountain Chains

In southwest Poland to the west of River Odra we find the Silesian parts of the Central European mountain system. These areas have considerable coal mining as well as mining for some metals such as zinc, copper and lead, and have developed a large heavy industry, coal mining, coke works, iron works, mostly using imported iron ore. Best known steel work may be Nowa Huta at Krakow, but other important centers are found in Katowice, Gliwice and Sosnowiec. The area is densely populated and almost forms a continuous urban district.

The Silesian area of Poland has an important German speaking minority and once had its own language. Further to the northwest the Sorbian (Slavic) minority represent another very special culture also connected to mining.

In the south and west of this area we find the Moravian Mountains on the Czech border, and the Sudeten Mountains on the German border, close to the most important city of Wroclaw (in German Bratislava) where the Odra River passes. These mountains are better known for their magnificent tourist sites rather than mining.

Life and Economic Activities in the Mountains

The Sami and Reindeer Herding

The Sami (Saami) is the indigenous population in the far north of Norway, Sweden, Finland and all the way to the Kola peninsula of Russia, an area called *Sapmi* in Sami languages. The original area of Sami people was considerably larger and extended further south, estimated to almost 400,000 km², but with time the Sami has been pushed north and become a minority in their own area, as the main (Germanic) population of the countries have moved north. Today there is a total of some 80,000 Sami still conserving their original livelihood in the four countries. Most of these live in Norway (about 50,000-60,000), while there is about 20,000 in Sweden. A very large part of the population with Sami roots has moved south and is found in the large cities, in particular Oslo and Stockholm or has been urbanized in the North.

The traditional economy of the Sami was the semi-nomadic reindeer herding. Today only a minor part, about 10%, of the Sami works with reindeers. Other important parts of the economy are fishing, hunting and handicrafts. More recently tourism has become an important source of income, as well as art and music. To an extent the Sami in the Nordic countries have been granted some legal rights to execute their traditional livelihood, while other rights, e.g. exclusive rights to fishing and hunting, have been lost. Legal processes for access to reindeer grazing and calving areas is still treated by the courts as conflicts with other land users is common and likely to increase due to the warming.

Since some time there is a Sami parliament in Sweden and radio broadcasts in the Finno-Ugric Sami languages. In the political struggle for their rights the Sami has protested against mining, against the Swedish government on a planned very large onshore wind farm, including 1,000 wind turbines to built in a reindeer winter grazing area, and against logging plans in Finland threatening the lichens, essential winter food for the reindeers. The Sami was badly hit by the Chernobyl disasters fallout as radioactive cesium was efficiently accumulated by the reindeers making the meat unfit for human consumption.



Figure 5.3. During the winter the reindeer gather at the farm and the reindeer herdsman feed them on pellets and hay. Photo: Heather Sunderland (Rukakuusamu).

Mountain Tourism

Mountain tourism is an activity on the increase. In Sweden a 2002 study reports that 25% of the adult population (1,4 million persons) visits the mountains every year. Over a 5 year period almost half of the population has visited the mountains, 85% of them for leisure and during vacation time (Fredman, 2003). The larger parts of the visits occur in the winter period for skiing and scooter driving. During summer touring in the fjell (mountains) is dominating followed by fishing and canoeing. People spend time photographing, bird watching and in general enjoying outdoor life. 67% of the visitors use a commercial facility for living, and meals.

It is obvious that tourism constitutes a considerable part of the economy of these areas. Employment is created in restaurants, cafés, hotels and hostels. During winter it is slalom slopes and lifts, leasing of skis and other equipment, which creates economy; during summer it is fishing cards, canoes etc.

Southern Poland's mountains areas bordering Poland, Czech Republic, Slovakia and Ukraine similarly have an important tourism industry. The main centre for visit to

Polish Tatra Mountains, Zakopane, is visited by 250,000 tourists every year, for touring, skiing and other activities. The Bieszczady mountains to the west shared with Czech Republic is similarly very popular as is the Karkonosze Mountains with winter sports centres Karpacz and Szklarska Poreba, while the Carpathians in Ukraine has a growing number of visitors, not the least because of the cheap prices. More to the west and closer to the German border the Sudeten Mountains have a large number of very popular resorts for visitors.

Another form of visitors' economy mainly in the Carpathian and Sudeten mountains, are the spas. Spas have a very long tradition from Medieval times. People go to spas for health and social reasons. Popular spas include Krynica, Zegiestow and Piwniczna in Beskid Sadecki.

Mining

Many mountains areas have considerable mineral deposits and developed mining industry. In North Sweden the Kiruna iron mine is the largest. Pit mining began at the site in 1898 and was followed by underground mining from 1960. Today it is the largest underground iron ore mine in the world. The state-owned mine is producing some 26 million tonnes of iron ore per year. Mining will continue for a considerable period as much is still left of the very large ore body of 4 kilometers length, 80-120 meters thickness and depth of up to 2 kilometers. The mining company LKAB is a main employer in the region. The Kiruna Iron mine is connected to the port of Narvik in Norway and Luleå in Sweden by railway, and to steel works further away.

The second largest mine in north Sweden in Boliden, closer to the Baltic Sea coast producing copper, zinc lead and most remarkable large amounts of gold, was closed in the 1960s. Further mines are found in the mountainous areas (Bergslagen) in mid Sweden. These mines were the most important in Europe for iron, copper and silver up to the 19th century. Some closed mines in these regions are presently reopened due to the increased world market prices of iron ore.

Slovakia had a very important mining industry in their part of the Carpathian Mountains. However in this case most mines are closed and historical. Classical and well known mining towns include Banská Bystrica once known for its abundant deposits of copper (and to a lesser



Figure 5.4. Gruvberget, close to Svappavaara, Sweden. Photo: Fredrik Alm. Source: LKAB.

extent of silver, gold, and iron) and Banská Štiavnica (today with a mining museum). During the communist period the Slovakian mining industry was still an important part of heavy industry and vital for the economy of the country. Today it is no longer competitive. The decline of the mining sector has significant social and economic implications. The three universities with mining specialties AGH (Academy of mining and metallurgy) in Krakow, Poland, the Technical University in Ostrava, Czech Republic and the Kosice Technical University, Slovakia, bear witness of the importance of the mining sector in the region.

The Mountains as Our Unique Nature Heritage

Mountain areas have ecosystems very different from the lower part of the landscape. The reasons are manifold, not the least strong winters with heavy snow cover, short summers with very intense light (in north of the region) and special nutrient conditions. Since the mountains were typically not heavily populated they were often left alone, were not significantly polluted, and rare species of the flora and fauna have survived. They often also constitute a refuge for large carnivores, such as wolves, bears, lynx, and wolverine, as well as many bird species, for exam-

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ple the large owls. They are also home to some unique animals such as the reindeer in the north and the Tatra chamois. In many cases the rivers, brooks and lakes are undestroyed and host several valuable fish species.

Since mountains were earlier considered of less economic interest it was easy to agree on protection status. The first national park was created in the Swedish fjell already in 1909. It has been followed by many protected areas in all of the countries in the Baltic Sea region. The mountains areas of the Baltic Sea region is thus biologi-

cally and environmentally of very high quality and by many considered a unique and common heritage to be protected and kept for us and future generations.

The number of people visiting the mountains for tracking, fishing, skiing, etc is today dramatically increasing every year. It is also clear that the visitors are increasingly coming from all of Europe and not only the closest countries. It seems that an important aspect of the development of the rural areas of our region is to protect and make our mountains available for us and coming generations.

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