

Tatry Biosphere Reserve, Slovakia

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Key Messages/Lessons learnt

- The conservation function of the Tatry Biosphere Reserve remains overall very strong. Conservation management of valuable habitats is impossible at larger scale without involvement of local inhabitants. In this way, conservation and sustainable development in the Tatry BR are interlinked very closely.
- Currently recreation and tourism, construction industry, health care, forest management and agriculture to some extent dominate among economic activities in the SK Tatra Biosphere Reserve. Municipalities in the SK Tatra BR improved public infrastructure with assistance from the Village Renewal Program and implemented measures for adaptation to climate change.

Biosphere Reserve description

Called in national language Tatra or Tatry (the Tatras), the topmost ranges of the Western Carpathians, are covered by three national parks: two in Slovak Republic, one in Poland. Ever since their establishment, these national parks play an influential role in preservation of both the natural biomes and related cultural values. Also, for many years, these large-scale protected areas were involved in activities which complied with the UNESCOs Man and Biosphere Programme.

Tatras are the only mountains of Alpine type in the whole Carpathian Mountain range and they are often called "the smallest alpine mountains in Europe".

The Tatry Biosphere Reserve includes portions of both the Tatry high - mountains and the adjacent lowlands: to the south, part of the Podtatranská Basin, and to the north, part of the Podtatranská Trough. The Chočské hills and Spišská magura hills form the western and eastern boundaries.

From an environmental point of view, the most valuable part of TANAP is the Tatry mountains, which are about 60 km long and 17 km wide. They include two geomorphologically different ridges - the West Tatry and East Tatry mountains. In terms of their landscape, this region and the adjacent lowlands are generally

representative of the Carpathians. Nevertheless, the High Tatras Mts. are also the highest mountains of Slovakia, and the entire 1500-km-long Carpathian arc. They are also a symbol of national identity and of independence of the indigenous Slavonic people who settled in the West Carpathian basins many centuries ago.

The territory of the transboundary Tatry Biosphere Reserve covers two national parks on either side of the political boundary between Poland and Slovakia. The Slovak side of the Tatry Biosphere Reserve is made up of the Tatry National Park – Tatranský národný park (TANAP) and the Polish side is made up of the current Tatry National Park – Tatrański Park Narodowy (TPN).

The selfhood and quaintness of the natural conditions of the Tatry BR lies above all in their high mountain character. This is reflected in the distinctive landscape differentiation, which depends mainly on the orographic layout, massiveness, extent and height of the mountain range. The complex geological development, the extremely rugged surface, and the changing climatic conditions made it possible to preserve the immediately following postglacial processes and condition in the Tatra Mountains on the largest surface today.

The Tatry BR encompasses the three mountain ranges of the region, the High Tatras, the Western Tatras and the

Belianske Tatras. It has a special position within a Carpathians Arch due to its outstanding attributes including:

- Unique high mountain relief with distinct features of former glacial activity
- Numerous glacial lakes (tarns)
- Numerous endemic plant and animal species (Carpathian endemics)
- Largest alpine zone in Slovakia
- Outstanding alpine *Larix decidua* and *Pinus cembra* forests
- Well preserved natural forests in spruce forest zone.

The manifold color of the territory is enhanced by preserved features of traditional folk culture. The folk culture and folklore of this region have many things in common, but they also differ significantly from neighbouring regions in Poland and Slovakia. These differences are manifested in folk costumes, folk clothing, music, dancing and singing.



Photo 1: Gerlachovský štít, the highest peak of Tatra National Park, as well as Slovak Republic



Photo 2: High-mountain lakes in Tatras have glacial origin

BR challenges

Biosphere reserve includes the Tatra National Park that overlaps with the Core Area and the Buffer Zone and 28 national nature reserves, 24 nature reserve and 1 nature monument overlapping with all the three zones. In 2004 Slovakia joined the EU and legislation for nature conservation was significantly strengthened. Conservation value of the SK Tatra BR is also confirmed by high level of overlapping of the sites that according to very strong scientific site selection criteria qualify for inclusion to protected area network of the EU known as NATURA 2000.

More than 60 % of the BR area is covered by forests. Major challenge in forestry are extreme climate events resulting in large scale calamities. Climate driven calamities are often followed by the bark beetle infestations. Accidental logging affects significantly on forest habitats. Calamities have negative impact not only on the environment but also on economy of forest entities. Status of some forests have improved, *inter alia*, because of better cooperation between the NP/BR Administration with land owners. However,

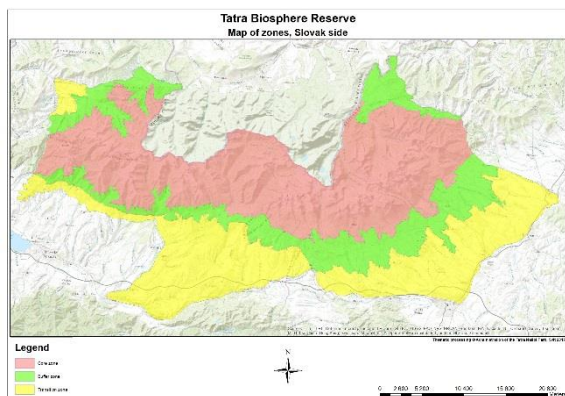


Figure 1: Map of the Tatra Biosphere Reserve, Slovak side



Figure 2: Position of Tatra Biosphere Reserve within Slovakia

close to nature forest management practices are rare and need to be promoted in the future. Adaptation to climate change is imperative.

The vast majority of non-forest habitats in the territory of the Tatry Biosphere Reserve lies above the forest's upper limit, where only limited human activities that do not directly affect the biota occur in the past and nowadays. This territory can be classified as preserved, to a large extent the original and the status of these habitats as favorable. The partial exception is the subalpine stage, where historically there has been an interference with the original expansion of the *Pinus mugo*. In this part of the territory, since the TANAP declaration, grazing has been excluded, which is the activity that caused the greatest interference, with the biota gradually regenerating and returning to the original state. The habitats of the mountain range – predominantly biotopes of meadows and peat bogs are under the greatest anthropic influence. The meadows have undergone significant changes in the 60s to 80s of the last century during the intensification of agricultural production. The meadows near the forest stands and the forest area were used as wood storage, which negatively reflected on the species composition of these areas. Fens are most negatively affected by gradual ingress and disruption of the water regime.

Remnants of both meadow and fen communities, which were not directly destroyed, are currently threatened mainly by secondary succession due to the absence of extensive management (mowing, grazing).

Some 20% of the BR area is managed for agriculture. The area of arable land does not change fundamentally. Most of it is permanent grasslands. Agricultural activity is mainly focused on grazing sheep and cattle. There is a slight decline in this activity (decreasing the number of sheep and cattle). Rye, oat, wheat and potatoes are grown on arable land. Agriculture is largely influenced by the EU's agricultural subsidy policy. Agricultural activity is important for

conservation of semi-natural grasslands in a favourable status.

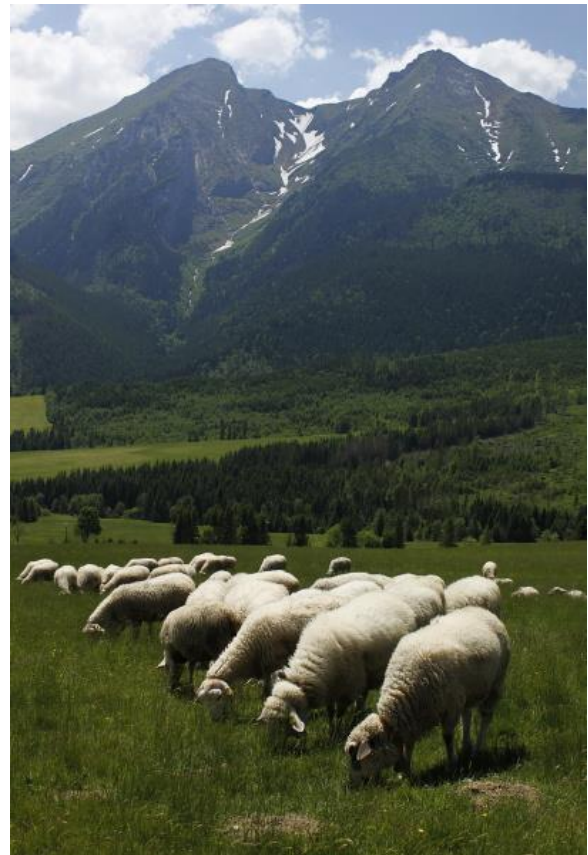


Photo 3: Traditional grazing sheep in distinctive village Ždiar

Conservation status of some species and habitats has improved in the reference period, due to concentrated management efforts and access to funding for specific projects. Recently Management plans for brown bear, lynx and wolf were adopted at the national level and will be implemented in the near future also in the SK Tatry BR. New zoning of the BR was agreed with the stakeholders and Management Plan for the Tatry National Park was drafted. Consensus based Action Plan for the Tatry Biosphere Reserve gives guidelines on activities for the near future.

Initiatives/Actions on SDG

15. The Biosphere Reserve thus contributes to the goals of SDG 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably

manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

15.4 By 2030, ensure the conservation of mountain ecosystems, including their biodiversity, to enhance their capacity to provide benefits which are essential for sustainable development

One of the most significant symbols of Tatra Biosphere Reserve and Tatra National Park is alpine marmot (*Marmota marmota latirostris*). It is a glacial relict and a rare endemic subspecies.

The alpine marmot is closely linked to alpine environment. It spends its life mainly on the open areas of alpine meadows and it avoids with the forest. It is the biggest alpine rodent on the territory of Slovakia. The marmot is a social animal that lives in family groups. The family consists of an adult male and female with youngs and sometimes the so-called subadults (individuals from previous litters that did not become independent after reaching sexual maturity). The members of the family group inhabit a common territory and during the winter they hibernate together in one burrow.

They are very careful and they signal each unusual event or danger with a warning whistle. They have well-developed eyesight and hearing. Especially a young and inexperienced individual is usually a prey of hungry foxes, lynx or eagles.

However, a man became an enemy as well. There are still people that believe to persisting superstition that fat of the marmot is a valuable and multi-purpose remedy. That is why a great number of the marmots were caught and killed in the past. Even in the first half of the last century, marmots were used for obtaining their fat and whole families were dug out of their burrows. Grazing and mechanical damage by cattle also had a negative effect. The enactment of the Tatra National Park and strict year-round protection stopped the decimation of the population.

In the territory of the Tatra Biosphere Reserve circa 1400 individuals of the marmot live nowadays. The Administration of the Tatra Biosphere Reserve figures out their

distribution and quantity in the spring months by recording winter excavations, determining the number of overwintered individuals, and directly observing the colonies. At the beginning of the new millennium, a significant reduction of the population was noticeable in some localities. The extinction of the population was confirmed in the Belianske Tatras during the first decade of the millennium. During the next years, the Administration the Tatra Biosphere Reserve was implementing a project of restitution - recovery of the marmot populations to the Belianske Tatras from viable localities in the Western Tatras (Žiarska, Smutná and Bystrá valley). They were caught in the spring months, shortly after hibernation. A total of 18 marmots were caught. The marmots have been released to places where they used to be in the past lived.

These marmots were transported by fast transport in special cages and taken to the alpine environment. During the next month they were constantly guarded and controlled. The marmots acclimatized quickly at new localities – they grazed and got acquainted with their new habitat during the next day. There were new pairs gradually formed and at the new localities and they reproduce successfully up to this day. Such a successful restitution was realized for the first time in Slovakia.



Photo 4: Returning of the marmots to the Belianske Tatras

Practical Outcomes/Achievements

Even though marmots live only in the protected areas and their protection is

ensured by law, it is still necessary to pay increased attention to them as well as the environment where they live.

The Tatry Biosphere Reserve is a real rarity throughout the Carpathian Mountains. It is characterized by a large species diversity of plants as well as fungi and animals. The most important representatives of the flora and fauna of the Tatras, which make this area so rare, undoubtedly include endemites (Tatra, West Carpathian, Carpathian), subendemites and glacial relics.

The high-mountain character of the area has ensured that the Tatras have considerably greater natural diversity than other regions of the country. The geological structure, relief, climate, and water relations in this area have influenced the richness of a specific vegetation and fauna. The high natural diversity of the Tatras has been a product of both natural variation and changes brought about by centuries of human intervention with nature in the area.



Photo 5 and 6: Young marmots

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