

Berchtesgaden National Park

Michael Vogel

Keywords: protected areas, conservation, biological diversity, legal framework, ecological corridors, environmental education

Abstract

The only German national park in the Alps, Berchtesgaden National Park (NP) was founded in 1978. With its 210 km² of protected area, the park is home to great biological diversity and hosts many rare or even endangered species. Nestling in the Berchtesgaden basin, the park covers a great variety of geology and hydrology in three deep valleys surrounded by mountain massifs predominantly shaped by two rock formations – Triassic Dachstein and Ramsau dolomite. The great diversity of the area within a relatively small spatial scale allows for numerous research opportunities but also creates problems when it comes to absorbing the great numbers of tourists and locals seeking recreation in the park without compromising the primary goal of the NP, conservation. On this issue, the park not only seeks to educate the public about nature but also cooperates closely with other NPs in order to establish ecological cross-border corridors between protected areas to facilitate natural movement patterns for various biocoenoses.

Profile

Protected Area

Berchtesgaden National Park

Mountain range

Alps

Country

Germany

History and zoning

Berchtesgaden National Park (NP) is the only Alpine national park in Germany, situated in south-eastern Bavaria on the border with Austria. As early as 1910, an area of 8600 hectares in the south-eastern part of today's NP was declared *Plant Protection District Berchtesgaden Alps*. At the time, this was predominantly aimed at stemming the trade in Alpine plants. In March 1921, the protected area was expanded to ca. 20400 hectares under the designation *Nature Protection Area Königssee*. When ideas were aired to build a cable car up mount Watzmann in 1953, the *Deutscher Naturschutzring* launched a request to create a national park. This idea was revived in the European Year of Conservation 1970 and led to a decision by the Bavarian state council on 13 July 1972 to establish a Bavarian Alpine Park in the conservation area at lake Königssee. On 1 August 1978, the act regulating *Berchtesgaden Alpine and National Park* with a total area of 20808 hectares came into force. Berchtesgaden NP is an IUCN Category II protected area. Currently, 66.6% of the total area is core zone dedicated to natural development, the permanent management zone takes up 23.5% (maintenance of the cultural landscape, active management measures) and the temporary management zone is 9.9%. In 1991, the national park and its surroundings became a biosphere reserve (BR) recognized by UNESCO, extended in 2010 to include the entire district of Berchtesgadener Land.

Functions

Berchtesgaden NP is a large, relatively coherent, protected area without any technical infrastructure, where ecosystems are meant to develop in their full complex-



Mount Watzmann reflected in rainwater. © Berchtesgaden National Park (NP)

ity and in the totality of their processes. The aim is not to preserve earlier or current states or to save *good* and combat *bad* animal and plant species. Rather, humans should not intervene to control or maintain or use any of it. We should protect nature as it is and not how we would like it to be. The NP takes on the role of Noah's Ark in this endeavour and contributes to preserving natural biodiversity. This makes Berchtesgaden NP an important node in a network of protected areas, nationally (as one of Germany's 13 national parks) and internationally (as one of 14 national parks within the Alpine Space as defined by the Alpine Convention). A national park enjoys the highest general protection status in Germany and Berchtesgaden NP has been designated as a large protected area.

Biological diversity

We do not yet know all plant and animal species that exist in the park. So far, scientists have recorded 15 species of fish, 8 species of amphibians, 7 reptile species, ca. 100 species of brooding birds, plus 40 species



Königsee and mount Watzmann. © Berchtesgaden NP

of migrating birds, 55 species of mammals as well as 4700 species of insects. Of the known animal species (of all kinds), 113 are included in the Red List of Germany and / or Bavaria.

Of the plants, 2000 species of fungi, 640 species of lichen, 400 species of mosses and more than 1200 species of vascular plants have been recorded to date. 108 species of these vascular plants are protected and 69 of them are included in the Red List of Germany and / or Bavaria. 20 of these species are potentially endangered.

The breakdown of biotope types found in Berchtesgaden NP looks like this:

- 44.1 % forests;
- 21.0 % (oligotrophic) grassland communities;
- 19.3 % rock and scree;
- 12.4 % creeping pine and green alder shrub;
- 3.2 % lakes and glaciers.

Visitors

Berchtesgaden NP attracts ca. 1.5 million people every year. There is a delicate balance to be struck between conservation and recreation. Tourists and locals seeking recreation can have a negative effect on natural resources. Protected area management must tackle the issue of recreation vs. conservation, especially given the changing societal framework. National parks do need tourism to fulfil their educational tasks as defined by the National Park Act. The trend of seeking to experience nature and a yearning for 'intact nature' provides Berchtesgaden NP with an opportunity to

sharpen the still very vague understanding of nature in our society in the direction of a holistic awareness of nature and the environment and of a sustainability paradigm. To this end, we need to make and keep it possible for the visitors of the park to see and experience the processes of growth and decay in a natural cycle.

Legal basis

The legal basis and guidelines for developing Berchtesgaden NP include the conservation laws of the Federal Republic of Germany and the Bavarian Free State, a special national park regulation, European directives such as the *Habitats and the Birds Directive*, obligations set down in the Alpine Convention, international IUCN guidelines plus more specific agreements and / or obligations, such as the *Action Plan for Protected Areas in Europe*, the requirements of the *European Diploma of Protected Areas* (extended 2010–2020) or the ARGE-ALP resolution to establish and manage Alpine national parks.

For Berchtesgaden NP, three main groups of functions that go hand in hand with its zoning can be derived from this regulatory framework:

- protection of nature and landscape;
- recreation and education;
- research and environmental monitoring.

Special features

The region of Berchtesgaden NP is very special, certainly for the German part of the Alps. An almost closed hollow is surrounded by table mountains that rise into high mountain massifs. The greatly varied geology and hydrology of the area and the associated variation in climate on a relatively small spatial scale are being studied closely in long-term environmental monitoring projects and predictive research, both central to our work in the NP. Such research not only asks "What is?" but also tries to answer the question "What will be if...?". Berchtesgaden NP was one of the first of a handful of national parks worldwide in which the UNESCO MAB6 project (MAB = Man and the Biosphere) on high-mountain ecosystems was established and implemented. The article by Kraller elsewhere in this journal starts from such questions. Here I shall add a short introduction into the geology, geomorphology and hydrology of the Berchtesgaden mountains.

Geology and geomorphology

The Berchtesgaden Alps can be seen as a geomorphologic unit. The mountain ranges take the form of plateaus and ridges packed closely together. Dominant rock formations are Triassic Dachstein limestone and Ramsau dolomite, whereas Jurassic and Cretaceous rock series are also present. Alpine orogenic processes have produced the typical slope and inclined stratification of the existing rock formations (Fischer 2005;



Marmot between boulders. © Berchtesgaden NP



Capricorn in front of mount Watzmann. © Berchtesgaden NP

Langenscheidt 1994). The soluble limestone was exposed to karstification processes since the Alpine lift, which took place in different phases. Typical karst phenomena in the region are the presence of sinkholes, basins, dry stream beds, caves and furrows.

River hydrology

The rivers Klausbach and Wimbach and Königsseer Ache drain three parallel valleys running from south to north. The Klausbach is a sinking stream during low flow conditions and the Wimbach only emerges at a dam in the Wimbachtal that restrains the glacial deposits. The Königsseer Ache drains lake Königssee. There are nine lakes in the Berchtesgaden area: Königssee, Obersee, Hintersee, Funtensee, Grünsee, Schwarzensee and Seeleinsee. For a closer discussion of the hydrology of the mountain plateaus and ridges, see Kraller et al. elsewhere in this journal.

Climate

Berchtesgaden is situated in the transition zone between atlantic and continental influences. Due to the great altitudinal range, the climate is typical for a high-mountain area. Annual mean temperatures range from +7° C to -2° C, average annual precipitation can reach between 1 500 and 2 600 mm.

The variability in climate produces clearly differentiated altitudinal vegetation zones. At lower elevations, submontane mixed beech forests dominate naturally, in the montane zone these are replaced by mixed forests of spruce, fir and beech. Today, as a result of earlier commercial forestry, these zones are richer in conifers than they would naturally be. In the subalpine zone, spruce forests and mixed forests of spruce and larch or larch and arolla pine dominate. The alpine zone is covered in shrubs of Alpine rose, creeping pine and green alder, also in grassland communities plus crevice and scree communities. A particularity of the Berchtesgaden Alps are numerous East-Alpine plant species only found in this part of the Bavarian part of the Alps, such as Christmas rose, *Aquilegia einseleana* or *Lomatogonium carinthiacum*.

The fauna of the NP reflects the rich variety of the terrain and the landscape as well as the impact of

human activities through the centuries. Extreme differences in altitude, plus a structured landscape have created a multitude of small habitats to support even highly specialized species. Up to about 1 200 m, typical pre-alpine species dominate, but upwards from just 800 m you find marmot, mountain hare, Alpine chough and Alpine salamander.

Ecological corridors – the forth dimension in alpine protection

The animals living in the Alps do not stop at borders in their travels, but road construction and agriculture often put a sudden halt to their instincts. Various projects at European level aim at reconnecting the traditional routes of wild animals.

Conservation is an investment into the future and an essential building block of sustainable development. It

Infobox

Location: Germany, south-eastern Bavaria, on the border with Austria

Administration: established as an authority directly reporting to the Bavarian State Ministry of the Environment and Public Health

Founded: 1 August 1978

Size: 210 km²

Landscape: high mountains; altitudinal range: Königssee 603 m, Watzmann 2713 m

Objectives: protection of nature in its entirety, research, environmental education, recreation

Proportion of core zone in the total area: 66.6%; permanent maintenance zone: 23.5%; temporary maintenance zone: 9.9%.

Visitors: about 1.3 million per year

Main information point: Nationalpark-Haus in Berchtesgaden (36 000 visitors in 2010). Information points throughout the area, with temporary exhibitions, at Hintersee, Engert, Kühroint, Wimbachbrücke, St. Bartholomä

Special features: the national park is core and maintenance zone of Berchtesgaden Biosphere Reserve; world-famous points of interest: mount Watzmann and lake Königssee.

Contact: Nationalpark Berchtesgaden, Doktorberg 6, 83471 Berchtesgaden, Germany. poststelle@npv-bgd.bayern.de – <http://www.nationalpark-berchtesgaden.bayern.de>

is likely to increase in significance as a local asset. Conservation is also a task for the whole of society and conservation objectives must be integrated into everyday land use. Conservation must thus be implemented as a separate claim to the total area (not just that of a national park) and as a goal for land use that protects natural assets such as plants and animals, water, soil and air. Conservation claims 100% of any area, with a scale of intensity for different parts.

Unfragmented spaces are of special significance here, both real existing ones and functional spaces such as Berchtesgaden NP. They provide the basis for ecological corridors, i.e. the spatial connection of habitats that enable the biocoenoses to expand and exchange with others. In addition, they support, directly and indirectly, the interdependencies between organisms and help avoid critical networking distances on the one hand and maintain viable populations on the other. The European Union tries to achieve this by creating a coherent ecological network of special protected areas, the NATURA 2000 network.

Future planning must take into account not just such horizontal links but also vertical ones, i.e. an altitudinal continuum. Horizontal and vertical links are necessary to maintain existing ecosystem services for society as a whole and for every one of us. In Berchtesgaden NP, strict protection applies from the valley floor to the highest peak.

Currently two large, pan-Alpine networking projects are under way. In both projects, Berchtesgaden NP and the adjacent protected areas in the Austrian province of Salzburg and in Bavaria form a so-called pilot region.

Environmental education, public relations and communication

All knowledge and research is and will remain useless if it is limited to experts. It can only become effective and influence action if it is brought to people through public relations work, environmental education and communication. The relationship between humans and nature needs to change. It must be clear that nature and the environment directly concern the most limited, personal aspect of every individual's life and that subjective processes, harmful to nature, which are always noticeable and ongoing, affect the entire existence of every individual in his or her interaction with nature. In our environmental education work, we apply and tailor the mechanisms and methods of dealing with this issue to all age groups, from children of pre-school age to adults of all ages. In our educational work we reach about 100 000 people a year through our park facilities, packages, guided tours and our children and family programmes.

References

- Fischer, K. 2005. Geomorphologie der Berchtesgadener Alpen. In: Nationalparkverwaltung Berchtesgaden (Hrsg.): *Forschungsbericht* 50.
- Hennig, S. & M. Künzl 2005. Toward a Guiding Principle "Recreational Use" The Protected Area Berchtesgaden National Park within the Region. In: *Conference Volume 3rd Symposium of the Hohe Tauern National Park for Reserach in Protected Areas* (September 15–17, 2005, Kaprun Castle). Kaprun.
- Hennig, S. 2005. Monitoring-System „Recreational Use“ – Das Beispiel Nationalpark Berchtesgaden. In: Schrenk, M. (Hrsg.), *Tagungsband CORP 2005*. Wien.
- Job, H., D. Metzler & L. Vogt 2003. Inwertsetzung alpiner Nationalparks. Eine regionalwirtschaftliche Analyse des Tourismus im Alpenpark Berchtesgaden. *Münchener Studien zur Sozial- und Wirtschaftsgeographie Münchener Studien zur Sozial- und Wirtschaftsgeographie* 43.
- Kraller, G. 2008. *Auswertung und Modellierung des Tracerexperiments am Hochkaltermassiv von 2001 im Nationalpark Berchtesgaden zur Bestimmung von hydraulischen Parametern des Grundwassersystems*. Masterarbeit am Institut der Limnologie der Technischen Universität München.
- Kraller, G., A. Lotz & H. Franz 2010. Climate Impact Research in Berchtesgaden National Park. Reflections on a workshop held on 18 and 19 February 2010. *eco.mont* 2 (2): 61–65.
- Langenscheidt, E. 1994. *Die Geologie der Berchtesgadener Berge*. Berchtesgaden: Berchtesgadener Anzeiger.
- Nationalparkplan 2001. StMLU Bayerisches Staatsministerium für Landesentwicklung und Umweltfragen (Hrsg.). Available at: <http://www.nationalpark-berchtesgaden.de> (accessed 1/3/2011)
- Vogel, M. 2003. 25 Jahre Nationalpark Berchtesgaden. In: Bormann, L. & G. Hohenester (Hrsg.), *Berg 2003, Alpenvereinsjahrbuch, „Zeitschrift“ Band 127*.
- Vogel, M. 2005. Objectives and strategies for nature conservation. In: Deutsches MAB-Nationalkomitee (Hrsg.), *Voller Leben. UNESCO-Biosphärenreservate – Modellregionen für eine Nachhaltige Entwicklung*.
- German MAB National Committee (ed.) 2005. *Full of life: UNESCO biosphere reserves – model regions for sustainable development*.

Author

Michael Vogel

studied geography and biology at Phillips University Marburg and specialized in the incorporation of animals into eco-systematic processes. After positions at ANL, the Bavarian Academy for Conservation and Landscape Protection, and the Bavarian State Ministry of the Environment and Public Health Environment, he assumed the position of Managing Director of Berchtesgaden NP in 2001. One of his key efforts in his position as president of ALPARC centres on promoting international cooperation between NPs.