

The UNESCO Biosphere Reserve “Biosphärenpark^a Wienerwald” (Vienna Woods) – a Long History of Conservation

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Abstract

Due to its high diversity and the considerable number of rare and endangered species and habitats, the Wienerwald region (Vienna Woods) has been integrated into various protected area programmes (landscape conservation areas, nature conservation areas, natural monuments, nature parks as defined by national law, the Flora Fauna Habitat Directive of the European Union, including the nomination of large parts for the NATURA 2000 Network). The designation of the Wienerwald as a biosphere reserve within UNESCO’s World Network of Biosphere Reserves provides an ideal framework for all ongoing conservation activities. The basic idea of biosphere reserves to link conservation with sustainable use is well suited to the specific situation of the Wienerwald and its extraordinary ecosystem.

Profile

Biosphere Reserve

Wienerwald

Mountain range

Alps

Country

Austria

High biodiversity within a limited area

The Wienerwald is a remarkable biodiversity hot spot in Central Europe. In its territory several biogeographical regions come together. Various geological conditions, a considerable altitudinal range (from approx. 160 m to almost 900 m), different climatic zones, and last but not least human impact have led to the emergence of a great variety of habitats. The Wienerwald region boasts the most extensive area of beech forests in Europe (Loiskandl & Lackner 2007). This forest type dominates the Wienerwald but is only one of 26 forest communities in the area. Of special interest are the sub-Mediterranean pine forests with the endemic Austrian pine (*Pinus nigra*), as well as forests of downy oak (*Quercus pubescens*). By establishing the core zones of the biosphere reserve, 22 of the 26 forest communities were put under the strictest nature protection available in Lower Austria.

Other internationally remarkable features are the openland habitats of the cultural landscape. Extensive meadows and pastures, which are the result of centuries of cultivation, alternate with woodlands and dominate major parts of the landscape. Traditionally managed semi-natural dry grasslands are another characteristic of the region. Old-growth vineyards and orchards, fields (cereals, potatoes), a dense system of rivers and watercourses, small landscape elements such as hedgerows or solitary big trees crisscross or dot the landscape and contribute to the outstanding ecological diversity including a high diversity of species and stable populations of rare and endangered European species (BR Wienerwald Management 2005).

From the wide range of plants of national and international importance only a few are listed here as repre-



View from Peilstein, Austrian pine forest. © Kovacs

sentative examples: true service tree (*Sorbus domestica*), bug orchid (*Orchis coriophora*), grasses such as the alpine oatgrass (*Danthonia alpina*) and wetland moorgrass (*Sesleria uliginosa*), Pannonic pea (*Lathyrus pannonicus*), fringed pink (*Dianthus superbus*), late spider-orchid (*Ophrys fuciflora*), Adriatic lizard orchid (*Himantoglossum adriaticum*) and Austrian dragon’s head (*Dracocephalum austriacum*, with only two populations within Austria). The Wienerwald region is home to 120 breeding bird species, like black woodpecker (*Dryocopus martius*) or corncrake (*Crex crex*), rare mammals, such as the European ground squirrel (*Citellus citellus*) on dry meadows, a population of chamois (*Rupicapra rupicapra*) on the mountains or other vertebrates such as the yellow-bellied toad (*Bombina variegata*) or the alpine crested newt (*Triturus carnifex*).

^a The term “Biosphärenpark” is the Austrian equivalent of the international UNESCO designation “biosphere reserve (BR)”



Austrian pine on limestone rock.

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History of protection

For centuries the Wienerwald has been caught between conservation efforts and increasing pressure from overuse.

With a large variety of climates, rock formations, the richness of its animal and plant life and diversity of habitats, the Wienerwald is a significant area for conservation, culture, recreation and the regional economy. However, in the second half of the 19th century it was seriously threatened by large-scale deforestation. Due to lost wars against Prussia and Italy and thus severe budgetary problems, the Austrian Empire sold large parts of its state forest to private lumber companies (BR Wienerwald Management 2005, Purkersdorf Online 2009). However, the courageous efforts of Josef Schöffel, the so-called “rescuer of the Wienerwald”, led to the revocation of several forest regulations in 1873 and so preserved the Wienerwald for future generations (Mrkvicka 2007). After that, for a period of more than 100 years, large parts of the Wienerwald were protected. In 1905 a law defining a protective green belt of forest and meadow around Vienna was adopted by the municipal council of Vienna. The Lainzer Tiergarten, too, a former imperial hunting ground and now Nature 2000 area, has enjoyed protection for decades and in Lower Austria large areas of the Wienerwald have been protected as a nature park (BR Wienerwald Management 2005, Lehmann et al. 2005). Today human pressure increases the demand for a comprehensive protection and development concept to maintain the high value of the Wienerwald for the future.

The “Wienerwald Declaration”

In 2002, one thousand years after the Wienerwald was first mentioned in a written document, the federal states of Vienna and Lower Austria decided to protect it even further and announced the “Wienerwald De-

claration”. This declaration is a catalogue of conservation and development aims, dedicated to preserving the Wienerwald as a natural and recreation area for future generations. At the same time the region should become more attractive for the population as an area of high-quality economic opportunities and living conditions.

The feasibility study

A feasibility study, which was jointly financed by the federal states of Lower Austria and Vienna and published in autumn 2002, gave a clear, qualified recommendation for a comprehensive conservation and development concept for the Wienerwald. The modern “biosphere reserve (BR) concept” of UNESCO’s “Man and the Biosphere” (MAB) programme was recognized as the ideal tool to conserve the exceptional natural resources while allowing sustainable economic development. In 2003 a planning body was set up by the federal states of Lower Austria and Vienna, which started the extensive planning process that was necessary to gain UNESCO recognition. All work was carried out in close cooperation with the relevant regional departments of Vienna and Lower Austria.

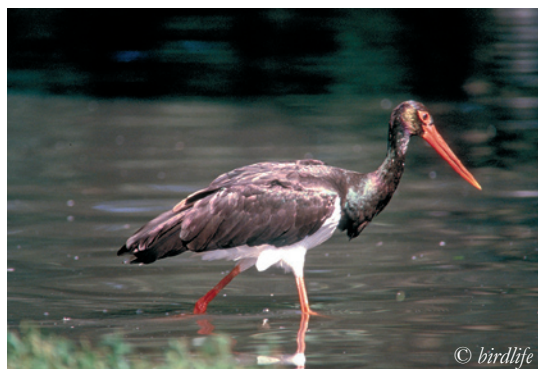
The nomination

By the end of 2004, the MAB national committee of the Austrian Academy of Sciences, responsible for submitting new biosphere reserve nominations to UNESCO as well as enforcing the UNESCO standards, analysed the draft application and gave a positive feedback on the planning. In spring 2005 the application for international recognition of the Wienerwald as a biosphere reserve was submitted to UNESCO by the MAB national committee. And finally, in June 2005, after an intense three-year preparation and planning phase, the Wienerwald was accepted by UNESCO as another link in the world-wide network of biosphere reserves (Lackner & Loiskandl 2007).

This international recognition, which is conferred only on internationally significant cultural landscapes of high natural value, clearly shows that in the Wienerwald region it has been possible to integrate long-term



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European ground squirrel (Citellus citellus). Black stork (Ciconia nigra). Black woodpecker (Dryocopus martius).

human use with economic, ecological and cultural development.

The current management situation

Nowadays the BR Wienerwald has the joint support of the federal states of Lower Austria and Vienna. The legal basis for the biosphere reserve is an agreement to create and run the BR Wienerwald, which was adopted by the governor of Lower Austria and the mayor of Vienna in August 2006. The relevant laws of Vienna and Lower Austria govern the harmonized legal implementation of the biosphere reserve. The BR Wienerwald was established in law in a special act for each of the federal states of Lower Austria and Vienna and in the decrees based on them. The cooperation between Lower Austria and Vienna is regulated in an agreement under Article 15a of the Federal Constitutional Law.

Close cooperation between departments from both states under the overall control of BR Wienerwald Management was of course vital for the success of the planning process. At the end of 2006, BR Wienerwald Management was established as an independent limited company which represents the BR Wienerwald, coordinates its development and supports the region on its way towards becoming a model for sustainable living. BR Wienerwald Management currently employs seven people and has been based in Purkersdorf since January 2007. By 2012 the biosphere reserve should boast a visitor centre in the heart of the Wienerwald.

Involving stakeholders

Close cooperation, open discussions and a clear information policy for all stakeholders were essential for the public acceptance of the biosphere concept. In contrast to normal nature conservation with state regulations, the aims of UNESCO envisage individual landowners or farmers in the biosphere reserve to be able to decide for themselves if they want to back the aims of the biosphere reserve voluntarily. Thus it was crucial to convince the forest owners to cooperate with the goals of the biosphere reserve. All protective measures and the implementation of programs through civil law contracts with the landowners should take place on a voluntary basis. In several “consultation forums” the affected forest owners, farmers and other lobbies in the Wienerwald were kept informed and had the opportunity to discuss any issues, to express their concerns and to present their wishes and ideas. The forest area put forward was assessed by experts and, where suitable, designated as a core zone. Planning of future core zones in the forest was carried out jointly with the landowners, while their recommendations were assessed in parallel with the conservation recommendations and were discussed in detail on site.

By 2004 the use of the future biosphere reserve had become clear, as the first core forestry zones were put

out of use in a forward-thinking move, which was also essential for recognition as a biosphere reserve. Civil law agreements on foregoing the use of the core zones were completed in 2006/07. Most landowners, who had nominated suitable areas for incorporation into the core zones during the planning phase, now made parts of their land available. For the first time with a project of this size in Austria, agreements with the landowners about the core zones were entered into during the planning phase. The landowners received financial compensation according to specialist evaluation for the so-called “moratorium” – a voluntary abandonment of use for two years in the 5 000 hectares of core zones (Januskovecz 2007). The major moratorium in the planning process was undoubtedly decisive for the acceptance of the project by the landowners.

Based on the UNESCO guidelines and the agreements between Lower Austria and Vienna, several advisory boards were formed, such as the scientific council and a regional council (formed by the mayors of all 51 Lower Austrian municipalities and the heads of the seven districts of Vienna). Another forum is the participation council for non-governmental and other stakeholders. In addition, working groups or task forces to address pressing problems will be established as needed.

Infobox

How does a Biosphere Reserve work?

The list of expectations from a biosphere reserve is impressive. It should preserve habitats, continue to serve as a research base for people/environment relationships and allow coordinated observation of environmental changes worldwide. In addition, biosphere reserves are meant to strengthen public awareness and responsibility for the consequences of human activities. At the same time they should translate the abstract principle of sustainability into practical steps – with innovative approaches and with the participation of as many regional partners as possible. It is a task worthy of Sisyphus, who could not roll his stone up the slope, no matter how hard he tried. To begin to do justice to their many functions, biosphere reserves are structured into three zones with different emphases in realizing the biosphere reserve targets:

Core Zones aim for classic conservation, similar to National Parks. Their goal is preserving habitats as near-natural as possible, human intervention is only permitted on a very limited scale, the core zone must be defined in law by national conservation regulations.

In the **Buffer Zone**, ecologically sustainable activities and considerate practices of land use are allowed and necessary to conserve habitats and biodiversity. This includes breeding livestock, agriculture, forestry, tourism and environmental education.

The **Development Zone** is an area for the public to manage, live and recuperate in. It expressly includes settlements and serves as a “test site” for sustainable economic systems. Innovative pilot projects will be started as an example to the entire region.

With regard to global environmental change, MAB Biosphere Reserves are excellent places for long-term monitoring and for studying adaptation and mitigation processes. (Lange 2005, Köck & Lange 2007, Schaaf 2007)



View from Schöppfl to the north, cultural landscape. Beech forest in a core zone. Urban sprawl at the edge of Vienna. © Kovacs

Challenges

Vienna and Lower Austria have jointly driven the planning and development of the biosphere reserve from the very beginning to ensure sustainable development of this area in the future. For Vienna the biosphere reserve guarantees the preservation the city's "green lungs" – ultimately the Wienerwald supplies the city with clean, cool air. It also offers the chance to cooperate more closely with Lower Austria in many areas, because problems and challenges concern both federal states and do not stop at their boundaries. Solutions can only be found if you involve the affected populations in Vienna and Lower Austria. Key challenges are for instance transport and climate protection. Transport is vital for Vienna – after all, on weekdays 100 000 people commute from the Wienerwald to Vienna for work or education, while the Viennese spend their weekends driving, cycling or hiking in the Wienerwald. Here, initiatives such as the Lower Austrian traffic reduction program "Verkehrsparen Wienerwald", cross-border cycle path concepts for "everyday cycle paths" and mountain bike routes, or the "Wienerwald bus" in Vienna make a valuable contribution.

Visitor management

An important issue in the vicinity of a major city is the pressure of recreational use. Here the main task of the BR management is to ensure the cooperation of stakeholders such as actors in tourism, landowners, conservationists and residents. The BR management tries to coordinate the different types of recreational use by ramblers, hikers, riders, mountain bikers, etc. by developing routes and rules for each group. A map of coordinated routes in the biosphere reserve will be available shortly. As regards visitor information in the vast area, a start will be made by putting up signs announcing and explaining the zoning of the biosphere reserve as well as information modules dotted across the area with adjusted amounts of information fitting for the site, be it a larger information centre or the start of a nature trail. In the core zones in particular, rangers will also engage in handling the visitors by giving information and guidance.

In a cooperation with the universities of Vienna, specialists are researching visitor pressure with the aim of improving the means of regulation and achieving visitor control through informing them and gaining their understanding, and not primarily by laws and bans.

Infobox

Biosphere Reserve (BR) Wienerwald

Designation as biosphere reserve in: 2005

Main type of ecosystem: temperate broad-leaf forest and woodlands

Major habitats & types of land cover:

Forests (63% of total area): natural montane, sub-montane and colline broad-leaf deciduous forest with beech (*Fagus sylvatica*), oak (*Quercus petraea*, *Quercus robur*, *Quercus pubescens*), hornbeam (*Carpinus betulus*), ash (*Fraxinus excelsior*), Austrian pine (*Pinus nigra*), etc.

Cultivated landscapes (24%): dominated by meadows, grassland, fields and vineyards.

Settlements (6%)

Bodies of water: numerous small streams

Location (latitude & longitude): 48°08'28" N, 16°04'56" E (Central Point)

Total size: 105 645 hectares

Total size of core areas: 5 576 hectares

Total size of buffer zones: 19 840 hectares

Total size of transition areas: 80 229 hectares

Altitudinal range (metres above sea level): 160 m to 893 m

Research activities

The Austrian MAB national committee advises and supports those responsible for the biosphere reserves by helping with scientific and technical issues and is the link to the MAB office in Paris (Köck & Lange 2007). For several years the national committee has focused its scientific activities on the needs of national biosphere reserves. The work should help the biosphere reserve managers in the implementation of their tasks, but also use the areas as objects for both basic and applied research. In the last five years, the national committee has financed eight research projects dedicated to the BR Wienerwald with a total budget of over EUR 430 000.

- Integrated sustainable wildlife management in the BR Wienerwald (F. Reimoser, University of Veterinary Medicine, Vienna)
- Monitoring of environmental pollutants (NO_x , SO_2 , heavy metals and PAH's) by bryophytes in the BR

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 - Sustainable suburbanization? Suburban development and instruments of spatial planning in the BR Wienerwald (R. Musil, H. Fassmann, ÖAW Institute of Urban and Regional Research, Vienna)
 - The efficient use of land in suburbia. Developing sustainable settlements through the efficient use of development areas in the BR Wienerwald (R. Musil, H. Fassmann, ÖAW Institute of Urban and Regional Research, Vienna)
 - Towards integrated ecological spatial planning on multiple scales for the BR Wienerwald and its functional environment: a new approach to the management of conflicts between humans and wildlife (F. Reimoser, University of Veterinary Medicine, Vienna)
 - Participation processes in biosphere reserves - development of an intervention theory, analysis of strategies and procedural ethics using the example of BRs Nockberge, Wienerwald and Großes Walsertal (E.C.O. Klagenfurt)

The MAB national committee works closely with the Austrian UNESCO commission (ÖUK), the national agency for UNESCO affairs in Austria. The ÖUK is primarily involved in the educational agenda of the biosphere reserves, advising regional offices as well as lobbying and PR work. An example: the school project “Life in the BR Wienerwald”, initiated by the BR Wienerwald Management and the ÖUK, was up and running in autumn 2005 for Vienna and Lower Austria. It offers solid learning materials for teaching sustainability at schools in the region.

Sustainable projects for the future

In addition to various research projects, the BR Wienerwald, in an effort to live up to its function as a model region for sustainable development, aims to implement the three integrated functions of conservation, economic and social development in their projects. Farmers, for instance, and their traditional, sustainable ways of farming must be strengthened to preserve and improve the biodiversity of meadows and pastures. This means sustainably grown products that provide the farmers with an income they can live on, so that they do not have to give up farming and earn their living in other ways. Unused meadows would be reclaimed by the forest very quickly. The image of the farmers in the general population and the marketing must be improved. The “Wienerwald Meadows Championship” or the “Wienerwald free-range beef”

are efforts in that direction. With the “Wienerwald free-range beef” not only the farmers but also the local butchers and restaurants benefit with a high-quality regional product that helps them to survive and improve their living standards. The biodiversity improves with sustainable use of meadows and pastures and the cattle is kept in appropriate conditions for the species: They spend more time outdoors and experience less stressful handling, transport and slaughter. The short regional distances are a model for reducing traffic and CO₂ emission.

Similar projects have been started for vineyards and winemakers as well as in sustainable forestry and wildlife management.

Working hard on improving the participation of the residents and their sustainable ways of living at the edge of the metropolis Vienna, the BR is on its way to becoming a true model region of sustainability.

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Infobox

At the north-eastern spur of the Alps most communities of the BR Wienerwald are alpine communities and therefore part of the alpine network of the Alpine Convention and its initiatives. The undulating landscape is in the transition area between the Northern Limestone Alps and the Pannonic Basins. Small hills dominate in the north. The offshoots of these hills are densely populated in parts within the range of the city of Vienna. Beneath the eastern slope of the Wienerwald is a geological rupture zone with thermal springs and impressive surge terraces of a former sea. The limestone Wienerwald is dominated by steep, rugged limestone and dolomite rock formations and sharply cut ravines. The limestone dissolves easily, so the precipitation permeates the bedrock and flows away below the ground, creating various features characteristic of karst.

Various geological conditions, diverse biogeographical areas, the proximity of several climatic areas and human activity have brought about different types of living spaces.

Specific to the Wienerwald is its proximity to the densely populated area of Vienna. Here the biosphere concept can be tested as an instrument for developing a model region for comprehensive sustainability in areas shaped by urban trends. The Lower Austrian municipalities and several parts of western Viennese city districts bordering on the green belt boast a high quality of life and living.

Within the biosphere reserve, the service sector dominates at 74%. The secondary sector has shrunk to 24% in recent years. In agriculture there is also a sharp overall decline in farms, while forestry is dominated by large enterprises. The Wienerwald region is among the most important local recreation areas for the densely populated urban space of Vienna and offers major wellness locations as well as viticultural areas with a tradition of tourism.

The BR Wienerwald covers the territory of 51 municipalities in Lower Austria and 7 districts of Vienna, at least in part. The residential population of these regional administrative bodies totals around 750 000.

The 37 core zones guarantee long-term protection and natural development of the forest area. The scattered distribution of the core zones protects representative sites of the different forest types. The individual core zones are significant as “stepping stones” in the protected area network, which they make up together.



View from Schöplf. BR Wienerwald and the city of Vienna, Austria.

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