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STEERING COMMITTEE FOR THE CONSERVATION AND MANAGEMENT
OF THE ENVIRONMENT AND NATURAL HABITATS

Committee of experts - protected areas

WURZACHER RIED
(Federal Republic of Germany)

Category A

On-the-spot appraisal
by
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1. Introduction

On the spot appraisal : 7 and 8 October 1987.

2. Description

The Wurzacher Ried covers an area of approximately 1.660 ha, 8 km long with a maximum width of 3.5 km. It therefore represents the largest coherent domed bog area of central Europe, with a quite unspoiled inner core. It is therefore of international importance in view of its size.

Apart from this, the qualitative aspect of its inner diversity is of considerable importance. The Wurzacher Ried complex comprises several parts which differ

- according to zoning : an inner bog core and an exterior bog edge (though there are variations from this - the high-quality bog area partly extends into the present nature reserve)
- according to topography : north-south, west-east
- according to condition : intact, used, regenerating, disturbed)

2.1

	Type of vegetation/area	Size of area	% of area in WLR	
Central zone	Bog	1.660 ha	-	
WLF	Wildlife reserve	1.387 ha	100%	
Intact at present	Intact raised bog (including those peat-cutting areas in the south-west of the Haidgauer marsh which have since regenerated)	650 ha	46.8%	
	transition bog/fen	150 ha	10.8%	
	carr forests, succession forests/ bog-fringed forests in various localities	295 ha	21.1%	78.7%
Regenerated	Secondary forests/carr forests in the area of rural peat-cutting	170 ha	12.3%	
	raised bog areas disturbed by earlier industrial peat cutting	25 ha	1.8%	14.1%
Still in use today	Wet meadows in the widlife reserve	80 ha	5.7%	
	cultivated marsh meadows in the central zone (including small woodland areas) (outside the wildlife reserve)	270 ha	-	5.7%
Disturbed	Bog areas disturbed by present exploitation of peat for bathing purposes (derogation from the WLR statut)	20 ha	1.4%	1.4%
				99.9%

3. Peculiaraties, Characteristics, Uniqueness

The size of the bog complex and the calcareous brooks in the acid bog.

The combination of Atlantic raised bog in the treeless area and continental forest raised bog types in the surrounding pinewoods.

The strange cleft hollows (Rissschlenken) in the raised bog centre and the spring pools (Quelltöpfe) where both brooks rise.

4. Flora

The diversity of the various habitats explains the unusually large number of plant species :

477 flowering plants
14 ferns
133 mosses

624 plant species in all.

The fens are richest in species and especially in orchids. Moreover, the species include 230 arctic-boreal glacial relicts, because of the topography (cold-air basin). About 120 species from Germany's "Red List" are represented in the Wurzacher Ried ; three of these are endangered throughout Europe (the bush-birch and two orchids).

5. Fauna

The Wurzacher Ried complex, with its varied biotopes, not only contains a variety of plant species but also an extremely rich fauna ; it serves as a refuge for rare and threatened animal species and for species requiring plenty of space, such as Black grouse, Curlew, Snipe, Meadow pipit, as well as many fugitives from cultivated areas (Kulturflüchtlinge).

There is also a rich fauna of reptiles and amphibians (although the fish stock is still impoverished). Among the insects, glacial relicts are frequent. There are 97 butterflies, chiefly found in the fens, and 37 species of dragonfly.

6. State of conservation

A survey of the area made by the Tübingen authorities shows that most areas are intact, as follows :

intact	78.7%
already regenerated	14.1%
still in use	5.7%
destroyed	1.4%

Consequently Williams, Dierssen (1979) criteria regarding the worth of peatlands are fully satisfied.

- presence of typical communities - because of their peculiarities, characteristics and uniqueness
- diversity of living space - because of its complexity and varied biotopes
- significance as a gene bank - because of its arctic-boreal ice-age relicts
- fluctuations in the surrounding landscape - because of water reservoirs
- usefulness as a recreation area

Despite the intact state of the area, harmful influences, mostly the result of past interference, although greatly decreased, should not be overlooked. These include

- peat-cutting
- changes in the water regime caused by drainage
- fertilisers and herbicides from the surrounding agricultural area
- visitors

These originate

- from Wurzach, and extend chiefly to the south-western part and to the southern fringe of the bog
- from Dietmanns in the north-east, extending over Dietmannser marsh
- throughout the whole area from the surrounding pastures.

Peat-cutting

In chronological order :

a. Hand-cutting of peat for fuel by the rural population, which mainly affected the Dietmannser marsh, which since then has been in a state of continual regeneration and

b. Industrial peat-cutting for a glass factory on the southern fringe. This was mainly done in the fen area, but other sources of energy are now used and regeneration is proceding (secondary forests, with sharp edges from former peat-cutting).

The former peat-cutting areas south-west of the Haidgauer are also in a state of complete and diverse regeneration, whereby the diversity of the raised bog complex has been increased by a series of successive stages (such as the Calluna heaths and the remaining raised bog "bars" between the cut areas (Hochmoorriegel)).

c. The present exploitation of peat for bathing for the spa at Bad Wurzach, the oldest peatland health resort of Baden-Württemberg.

From 10 to 12,000 m^3 of peat per year is still being cut at a plant (with rail transport). (1 cwt is required for a full bath.) A further 3-5000 km^3 is cut for gardens. The cutting is done on the southern edge of the bog and is at least partially a second stage of cutting of areas from which peat was removed earlier. The cutting rights are valid for all peat baths at Oberschwaben until 1995.

Used bathing peat is afterwards stored in "bog pockets" (ready-drained holes) also located on the southern edge - a sort of dumping ground for the waste peat.

The present peat-cutting areas are still within the wildlife reserve, and affect only a marginal part of the bog complex. Limiting it to the bordering fen areas seems completely acceptable as strongly decomposed sedge peat can be mainly looked upon as bathing peat (1976).

The present permit for cutting expires in 1995 - it should not be prolonged under any circumstances. Precautions should be taken sufficiently early to permit the working out of a concept on how to compensate for losses.

Another possibility is to consider falling back on other much degraded bogs, such as Reichert moss near Vogt, about 20 km away.

Several peat-cutting areas could - at least partially - be left as a cultural document.

Natural regeneration by means of reforestation with secondary growth is to be expected. The initial state is unlikely to be achieved without the passage of a very long period of time. A "second-hand" substitute seems extremely problematic.

Preparation for the cutting of peat resulted in other changes to the bog, eg the creation of free areas by cutting down the mountain pine, and drainage by the construction of cutting-ditches.

Drainage

In preparing for cutting, especially in the south-west of the Haidgauer marsh and the southern fringe areas, a row of drainage ditches were constructed, three systems in all.

i) parallel to the Haidgauer brook at the southern border, with a canal south of the brook straight through the fen and two artificial lakes, the Stuttgarter lake and the marsh lake and a canal north of the brook, from the south-west corner of the bog through the southern fen area, with cutting ditches into the south-west of the Haidgauer raised bog which lowered and finally drained the former Schwindel lake in the middle of the mountain pine forest.

ii) on the northern border outside the raised bog fringe from Wengen to Iggenau and then along the road into the Haidgauer brook

iii) the drainage area of the fen on the Dietmannser brook in the east, with ditches through the Dietmannser marsh and flooding the Dietmannser spring pools "Quelltöpfe" ; there is also the artificial "mill-canal" south of the Alberser marsh, continuing the former Alberser mill-brook (formerly with lime fens, but now completely overgrown).

The effects of drainage on the vegetation, caused by lowering the groundwater (on the edges from 10 to 20 cm) include

i) drying-up of the ground
ii) taking over of the land by heather (Calluna). To some extent, this can be considered as increasing the diversity
iii) some areas taken over by red pines.

The kind of "Stichwand" (boundary between the cutting area and the intact bog) may be of some importance. A perpendicular "Stichwand" allows a greater outflow of water than a sloping one.

Measures for the improvement of the water balance

- closure of drainage ditches by damming or filling, with a subsequent rise in the groundwater

- rewatering by reactivating the old brook courses (the Alberser mill-brook and the Wengener mill-brook) in a purified state or restoration of the old course of the straightened Dietmanns brooks ; this would not be without problems, in view of the events which have occurred in the meantime.

- improvement of the quality of the water by diminishing agriculture in the surrounding countryside.

In this context, the Calluna heathland which has developed after the draining and drying up of the once intact peatland poses a special problem. Although biologically a stage of degradation, such heathland means, in an aesthetic sense, an increase in the area's diversity. It is therefore of importance not only for the visitors' enjoyment of the landscape, but to encourage tourism in the surrounding villages as well.

Measures for the prevention of human interference should also be considered :

- prevention of further advance of heathland as a result of the land drying out

- maintaining the area in its present state

- cautious regeneration of the raised bog by an increased water supply and the prevention of further eutrophication caused by the surrounding agriculture.

In any case, further human interference in the already disturbed biotopes remains problematic and should only be permitted if the utmost caution is exercised.

Fertilisers and herbicides

In contrast to the direct human interference of cutting peat, there is the indirect disturbance caused by agricultural use of the surrounding areas, where fertilisers and herbicides are applied and then carried into the bog by inflowing waters and wind.

Measures

Different ways of preventing fertilisers and herbicides reaching the bog should be considered :

- diminishing of the surrounding agriculture and
- limitation of the application of fertilisers and herbicides in the surrounding agricultural area, and above all, prevention of the infilitration of animal effluent

- cultivation of the surrounding pastures as strewn and wet meadows, poor in nutritious substances

- removal of nutrients by constant mowing and using the cut grass as compost elsewhere

- prevention of secondary undergrowth (birch grove)

- prohibition on turning pastures into arable land

- declaring the central area a protected landscape, thus creating a buffer zone between the marsh and the intensively farmed agricultural areas

- further purchase of land so that the above effective measures may be carried out, provided that single farms are resettled (as against additional purchases by expanding concerns).

Too many visitors

Because so many people visit the bog, the original vegetation has not only been mechanically impaired, but has also been changed by mineralisation and the release of nutrients (eg to Molinia grassland).

Measures

Bad Wurzach's character as a health resort, rather than an outright tourist resort, encourages visitors to explore the landscape in and around the bog. This could be guided as follows :

- guidance of visitors
- improvement of present and future routes
- restricting access to the less sensitive and already disturbed fringe areas
- closing the central bog sections (which are in any case apt to be dangerous because of some very deep holes)
- warning against poisonous snakes (the common viper).

Extension of the raised bog would in itself be an additional protection.

- provision of an information service with appropriate material at the begining of walks and construction of observation towers at the edge of the restricted area.

Legal status of the protected area

Declaring this area a nature reserve was an essential condition for the award of the European Diploma.

The first protection statute of 3.2.1959 set aside 466 ha as a wildlife reserve, plus a further 400 ha for landscape conservation.

The second statute, 23.3.1981, extended the wildlife reserve to 1,387 ha.

How effective are the present provisions ?

According to paragraph 4 of the latest Statute, all future harmful influence is forbidden. On the other hand, all the harmful influences mentioned in paragraph 5 remain practically untouched. This refers to hunting, fishing and the present use of pastures and woodland, the felling of Christmas trees, the making of broom faggots and the exploitation of peat.

Furthermore, according to paragraph 6, exemptions from the regulations may be granted.

There is no doubt that such provisions are incompatible with the European Diploma and must be changed. The main objective would be to acquire fishing and hunting rights, especially over recently acquired land. Obviously the most satisfactory way of doing this would be for as much as possible of the area to be acquired by the Land Baden/ Württemberg.

By 1981, 800 ha had been acquired for public ownership, rising to 950 ha in 1986.

Further acquisition of land should be carried out in four stages :

- point of major effort
- in the existing wildlife reserve
- in the marginal zone around the bog-centre ("Anmoor")
- in the fringe area of mineral soils.

Continued efforts should also be made to amend the present protection statute.

7. Partial units of the Wurzacher Ried complex

7.1 The central raised bog

A peculiarity of this is the so-called "Rissschlenken" (each about 20 m long and 1 wide) to the west of the centre of the Haidgauer bog area, probably formed by artesian waters.

The raised bog of the Wurzacher Ried is divided by two brooks - the Haidgauer and the Dietmanns - into three separate entities : the Haidgauer marsh, the Alberser marsh, the Dietmannser marsh. (It is uncertain whether an originally unified raised bog was divided by the brooks or whether the bog spread towards the fen areas of the brooks.)

The largest of the bogs, the Haidgauer marsh, has also been unnaturally divided by a federal road, 5.5 m wide and 2.1 km long going straight through the more or less intact bog. This has harmed the water regime and the noise disturbs the fauna. On both sides there is a secondary growth of wooded strips and on the west a ditch. The wooded strips hide the road and stand out on the bog expanse, but prevent an open view across the bog.

It would be impossible now to remove the road, but

- heavy traffic could be switched to a road on the west of the marsh (already partly completed) or to the east (where the existing road should be finished by now)
- the road could be narrowed and transformed into a cycle path
- the hard surface could be removed and replaced by logs

However, both sides of the wooded strip should be left untouched.

7.2 The fen

Along the edge of the bog and on both sides of both brooks in the south and east runs a more or less extensive strip of fen, characterised by an abundance of minerals from the brooks. These areas are being impaired by fertilisers and herbicides, as well as by the growth of bushes as a result of drainage.

These areas should be mown regularly and the cut material removed, while the fens could be used as meadows (as formerly). The growth of bushes should be prevented.

7.3 Brooks

These rise from calcareous spring pools, and are basically erosion furrows fed by moraine water rich in chalk and bordered by strips of lime fens. Dietmanns brook was straightened during drainage by the filling in of the old meanders. It would be somewhat problematic to return the brook to its original state, for the old course is now overgrown by the natural succession of vegetation.

7.4 Spring pools

Source of the Haidgauer and Dietmanns brooks. These are a unique feature of the Wurzacher Ried complex. The outflow of the Haidgauer was blocked, and the Dietmannser source filled with earth during the drainage measures mentioned above. Efforts must now be made to protect the pools against any further interference.

7.5 Bog-fringed woods

In the north-west, east and south-west, in the area of the fens, lie several bog-fringed woods with bushes of various kinds, up to carr and bog-birches. It might be desirable to remove the bushes and copses, even completely in some places, but each case must be considered on its merits and consideration given to the probable effects of such action.

7.6 Secondary forests

Once peat cutting is discontinued, secondary growth will come as natural regeneration - this could be considered favourably as it is certainly better than present practice. This is particularly valid where the Dietmanns marsh is concerned, where the straight paths left by the old rural peat cutting are preserved to this day.

as a result of the cutting of peat in small plots, the following can be noted :

- the different ages of single plots last cut after World War I
- different stages of almost natural regeneration with several small raised bog-"bars" ("Riegel") still preserved
- an unexpected mosaic of secondary vegetation, with (rare) raised fields with shrubs
- a rich fauna dependent on the variety of habitats.

The vegetation is the most important factor here for judging the biotopes. Although secondary, it is of extraordinary diversity with a remarkably rich fauna.. There are other species of birds than those in the mountain pine woods and on the raised bogs, and also small mammals (polecats, beech marten, badgers and foxes), plus a rich animal world.

No conservation measures should be recommended here ; the area is difficult to survey even for the laying-out of a study route ("Lehrpfad"). It should be left to itself and its further development studied scientifically. On the other hand, the compact fir reforestation in the north-east, and the isolated patch in the east, are already stunted on the mineral soil. They should on no account be allowed to penetrate the protected area, and if that happened, they should be removed at once.

8. SUMMARY OF CONCLUSIONS

It is presumed that the Diploma is awarded by the Council of Europe for outstanding landscape areas with a distinct ecological function, and that consideration is given to the subject's significance and to the harmful influences brought to bear on it.

Naturally, a landscape which has been inhabitated and cultivated for generations cannot be expected to remain in its natural, intact, state. Distinction must thus be made between intact areas, those disturbed by present human activities, and those which were disturbed in the past, but have either already regenerated or will do so in the future.

In the Wurzacher Ried, most of the harm was done in the past and can be repaired. Interference still taking place must be rectified by the use of recommendations and requests.

It should be noted that the Wurzacher Ried is already

- a legally protected nature reserve and protected landscape
- that it satisfies the criteria for a protected peatland area
- that it consists of a raised bog complex of international importance
- that, as such, it is undoubtedly part of the European landscape heritage.

It therefore complies with all the requirements for the award of the Diploma in Category A.

In view of the catastrophic decrease in European wetlands and the loss of almost all raised bogs in the Atlantic area of Europe, the award of the Diploma would help the efforts being made by the local authorities. It would give impetus to stronger action and help to cancel out present and past harmful human activities, besides encouraging the adoption of future measures.

9. RECOMMENDATIONS

These are mainly to be found in the body of the text. However, the two following points are essential :

i. The permit for cutting peat for bathing purposes expires in 1995. It must not be prolonged Peat cutting and the European Diploma are not compatible.

2. The wildlife decree must be strengthened so as to afford real protection for the whole of the Wurzacher Ried.

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