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COUNCIL OF EUROPE

CONSEIL DE L'EUROPE

Strasbourg, 30 octobre 1989
[PEZP90.28A]

PE-ZP (90) 28

STEERING COMMITTEE FOR THE CONSERVATION AND MANAGEMENT
OF THE ENVIRONMENT AND NATURAL HABITATS
(CDPE)

Committee of experts - protected areas

Hautes Fagnes Nature Reserve
(Belgium)

On-the-spot appraisal

REPORT

by:

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with Secretariat comments

Forty years
Council of Europe
Quarante ans
Conseil de l'Europe

1. INTRODUCTION

The Hautes Fagnes Nature Reserve was established in 1957. It was the first one to be awarded the European Diploma for the Conservation of Nature (category A), together with the Camargue Nature Reserve (France) and the Peak District National Park (UK), in 1966.

The Diploma is awarded for a period of five years and successively renewed in 1971, 1976, 1981 and 1986. In view of its renewal in 1991, I was invited by the General Secretariat of the Council of Europe to carry out a new on the spot appraisal. The objective of this appraisal is to describe the state and development of the reserve since the previous renewal of the Diploma, taking into consideration the recommendations attached to the renewal of the Diploma in 1986, and to recommend, if possible and necessary, measurements for the coming period.
The following recommendations were attached to the last renewal:
1. A management plan should be drawn up up on the basis of an inventory of the present state of biotopes; this plan should define management and maintenance methods designed above all to preserve the characteristic plant varieties as they exist in the Hautes Fagnes;
2. Steps should be taken to exploit the historical and cultural assets of the Hautes Fagnes area by means of management and interpretation measures.

Following an introductory evening meeting, the Hautes Fagnes Nature Reserve was visited April 4 and 5, 1989, in the company of Mr. J-P. Ribaut, representing the Directory of the Environment of the Council of Europe, and Mr . M. Letocart and P. Noe (ICPS), J. Renault (Rech. Agron.), C. Pankert and J. Stein (Cons. de la Nature), J-C. Ruwet (Comm. Cons. de Gestion) and Dr. R. Schumacker (Université de Liege / Station Scientifique des Hautes Fagnes, Mont Rigi), and the chief forestry engineers of the cantons concerned.

The present appraisal is based on excursions to the most illustrative parts of the reserve, discussions on various relevant topics with my companions, information in documents such as the annual reports submitted to the Council of Europe, and previous visits to the reserve during the period 1978-1982.

2. GENERAL SITUATION

2.1 The Hautes Fagnes

The plateau of the Hautes Fagnes forms the northern part of the Ardennes. It is part of the Belgo-German Hautes Fagnes - Eifel Nature Park.

The original climax vegetation of this geologically very ancient and highest area of Belgium is deciduous forest, with the partial exception of raised bog. Owing to deforestation, extensive exploitation and natural processes it developed early in history into heath and peatland, the latter including minerotrophic transitional mires, spring marshes and raised bog. These were exploited by mowing, grazing, and peat cutting.

The traditional use belongs now to the past. In the middle of the last century, afforestation started, concentrating on coniferous forest, mainly Picea, and continuing far into the present time. In the first

half of this century, large scale drainage works were carried out in an attempt to cultivate the wettest parts for agriculture and sylviculture. These attempts failed, but the drainage remained.

The area is rich in historical and cultural assets, such as old roads and paths like the Via Mansuerisca, and displays an impressive scenery. It offers ample attraction to recreational visits and activities throughout the year, which became very extended in the recent past.

2.2 The Hautes Fagnes Nature Reserve

The Hautes Fagnes Nature Reserve embraces the spread remnants of the formerly vast expanse of open and extensively exploited, but nowadays largely afforestated plateau. The Reserve comprises a number of individual peatland and heath areas of varying extension. These are, owing to drainage, partly degraded to grassland dominated by Molinia. For another part they are, owing to drainage and abandonment of historic agricultural use, invaded by expanding forest (Betula, Salix, Picea, Pinus).

The different parts of the Reserve cover together over 4000 hectares, largely owened by the State. The surrounding forests are owned by the State, in part also by the municipalities in the area.

3. THREATS

The major threats to the characteristic organisms, communities and scenery of the Nature Reserve are dessication owing to drainage, (sub)spontaneous forest expansion, disturbance by recreation, air pollution and fires.

3.1 Dessiccation

The dessiccation results from peat cutting, but on the whole especially from vain attempts for drainage for agricultural and sylvicultural cultivation and from afforestation as such. In many places the intensive systems of ditches show a natural tendency to widen and deepen by erosion, increasing the drainage. With the growth of the trees, their evapotranspiration intensifies and thus also the draining influence of the forest increases. The dessication, with subsequent eutrophication due to increasing mineralization of the organic soil material, has a detrimental effect on the characteristic peatland and wet heathland. This phenomenon favours (sub)spontaneous forest expansion, which again increases dessication.

3.2 Forest expansion

(Sub)spontaneous forest expansion endangers the basal hydrological conditions for the natural values of the Reserve, directly substitutes characteristic biotopes and affects the historical scenery. The effect of replacement of characteristic raised bog and heathland biotopes is the more radical where non-indigenous tree species are involved.

3.3 Recreation

Intensive recreational use has a negative impact on peatlands and heaths by disturbance of the characteristic fauna (e.g. black grouse,

Tetrao tetrix), on the flora (trampling of peatmoss carpets, etc.) and locally on the hydrology by initiating erosion resulting in drainage and dessiccation. Especially during the last decades recreation has grown enormously, during summer as well as during winter (skiing).

3.4 Air pollution

The air pollution on the plateau of the Hautes Fagnes is considered to be at least as serious as elsewhere in Belgium, especially during periods with mists and southwestern winds. So far the impact seems to be limited. Some influence is suspected on surface waters, as indicated by its acidity, the virtual absence of macrophytes and the dominance of the diatom Eunotia exigua. The influence on the behaviour of heavy metals is in study.

3.5 Fires

The occurrence of uncontrolled fires is a consequence of the natural conditions in combination with in particular the accessibility of the area to visitors, including the forests, and the dessiccation of the peatland and wet heath. The effect on species, communities and scenery is initially disastrous, and leaves scars that heal but slowly.

4. CONSERVATION

4.1 Communities

a. Description

The Hautes Fagnes Reserve is characterized by peatlands, very poor raised bogs as well as somewhat richer bogs in valleys, and moist to dry heaths.

The moist to wet ecosystems depend basically on the hydrology as governed by the balance between the input by precipitation and the loss by discharge and evaporation. Thus, conservation primarily concerns the drainage conditions. Measures to reduce the drainage by damming the existing and eroding ditches are in progress. The first general effects indicate a slowing down of the up to recently progressive negative developments. In addition, the hydrological impact of spontaneous, progressive expansion and maturing of forest is counteracted by clearing, which is done very carefully and successfully. Considering the results up till now and the plans for the near future, the expectations for halting dessiccation and subsequent restoration are hopeful and in some places already materializing.

The subspontaneous succession of dry to moist heathland to forest and grassland is counteracted by mowing, which concentrates on sites of special importance for black grouse (Tetrao tetrix).

b. Conclusion

The state of the characteristic communities of the Reserve is since 1984/86 in my opinion well preserved, and the management is progressively promising.

4.2 Species

a. Description

The flora and fauna characteristic of conditions as prevailing in the Reserve are poor in species and numbers. A relatively large part of the species is characteristic of internal abiotic gradients and especially peripheral microclimatic and biotic gradients in transitional zones from heath and peatland to adjacent forest, grassland and brook-valley marshes.

Highly characteristic of and indicative for the quality of the state of the Hautes Fagnes Natural Reserve is the black grouse (Tetrao tetrix). Although the lowland heath population of this bird species shows since tens of years a steady and alarming decline all over western Europe, the present population in the Reserve fluctuates since about 1980 around a number of appr. 40 cocks - with the largest subpopulation counting steadily about a dozen cocks. Increasing risk of disturbance by the public and decreasing quality of the environment are considered the main threats, interacting with natural weather fluctuations. The population is especially vulnerable for disturbance not only the reproduction period, but also in the winter when their areas are increasinly used for skiing. Measures are taken and additional ones are in consideration to repel disturbance, and important sites threatened by forest expansion are being cleared. As regards the entomofauna, see 6.

b. Conclusion

The preceding, supplemented by information about other organisms, indicates in my opinion that since 1984/86 the state of the characteristic species of the Reserve is well preserved. The considered closing of black grouse winter areas for skiing should be carried out.

4.3 Landscape

a. Description

An important feature of the Nature Reserve of the Hautes Fagnes is the characteristic beautiful scenery of the vast stretches of more or less undulating open peatland and heath with their ever changing, subtile nuances of pastel colours, surrounded by forests. This also places the situation in a dilemma: this is what attracts the public - to its own detriment. On the other hand, the actions to halt and repel dessiccation and forest expansion, which otherwise would result in monotonous Molinia fields and forest, and to regulate recreational use in view of conservation of nature, thus also favour the conservation of the scenery.

b. Conclusion

See the preceding paragraphs.

5. MANAGEMENT

5.1 Management plan

a. Description

The renewal of the European Diploma in 1986 went with the recommendation to draw up a management plan. The responsible Belgian authorities commissioned this task to the "Station Scientifique des Hautes Fagnes" of the Université de Liege at Mont Rigi. The plan should also include the second recommendation (see: 1. Introduction).

The plan has now been completed. Its main objectives are:
1. to check the regression of the active raised bogs (fagne Wallonne, Misten, Clefaye) and to restore these and the more degraded ones (fagne Potales, Deux-Séries) by measures comprising their entire impluvium; to undertake for that purpose the necessary management-impact studies;
2. to restore, maintain and enlarge moist and dry heathland in order to preserve genetically viable areas of these environments and of their characteristic plant and animal populations (notably black grouse);
3. to limit forest expansion in certain sites, in particular potential raised bog sites (fagne de Deux-Séries, Misten, Clefaye, fagne Wallonne, Potales, Tros Broli, Nesselo ..), for historical and scenic reasons as well as for favouring the avifauna;
4. to canalize the public on tracks with respect to the fragility and tranquillity of the environment during winter as well as during summer; the maintenance of these provisions should require minimal costs and attention should be paid to adequate information and surveillance;
5. to provide the different parts of the Reserve with a buffer zone to maintain and benefit spatial ecological relations with the surroundings, especially as regards hydrology and fauna, esthetically integrated in the scenery;
6. to eliminate non-indigenous species from the Reserve (especially Picea, but also other tree species).

The management plan specifies the measures to be taken to realize these objectives, including procedures for implementation, specific measures for fire prevention and special management measures concerning individual, characteristic species. It also covers historical, cultural and scenic aspects and research activities.

The management plan is based on extensive inventories and other material and worked out in a series of plans for the different parts of the Reserve.

b. Conclusion

The objectives of the management plan are in my opinion most appropriate. The plan itself is of a professionally high standard and adequate.

5.2 Execution

a. Description

The management plan is positively received. In fact, part of the proposed measures are already in execution. This refers to the objectives 1, 2, 3/6, and is done deliberately and admirably carefully. As regards objective 4 measures are in discussion and preparation. Concer-

ning objective 5, the establishment of buffer zones around the reserve parts (amelioration of the landscape, hydrology, and faunistic conditions), careful studies are worked out to implement the concept. Meanwhile, a Consultative Commission for the Management of the Reserve is established, in which the responsible authorities (Eaux et Forêts), scientists and associations of volunteers are represented.

b. Conclusion

The staff and authorities are well aware of the threats and problems, and keen to develop countermeasures where possible. In fact, they did start to take action in line with the management plan already in a very early stage of its preparation.

c. Recommendation

The implementation of the management plan deserves all possible push. It should be provided with the necessary management-impact studies, as proposed in the management plan, including the development of a control system by working out an efficient monitoring program for relevant bioindicators and abiotic phenomena; such a system should also cover the possible impact of recreation, air pollution and fires.

5.3 Hydrology, forest expansion, vegetation and fauna

See 5.1 (management objectives sub a) et seq. and the two preceding chapters.

5.4 Air pollution

The nature and intensity of immission of atmospheric pollutants are imperfectly known and not directly manageable by a management plan. The immission, its possible impact and the effectiveness of countermeasures require close attention by monitoring as recommended in 5.2 sub c.

5.5 Recreation and visitors

a. General

The Hautes Fagnes are increasingly popular by the public which visits the area in large numbers all year round. The adverse pressure on the Nature Reserve requires that the behaviour of the public be regulated (1) by education through offering adequate information and (2) by limiting accessibility through offering carefully selected authorized tracks (including "caillebotis"), and prohibition of access in combination with a diverting zonation of the surrounding areas, without denying the public the view of the scenery. This is pursued with increasing intensity, but a more adequate approach needs support by a better understanding of the motives of the public for its behaviour and its willingness to adapt that behaviour. There is an extra urge for this as a considerable part of the management efforts (budget, manpower) is needed for provisions for the public rather than available for the primary objectives of the management of the Reserve.

b. Recommendation

The present policy to consider the Nature Reserve as a strict reserve should, in view of its delicate nature and other threats, be supported: access is prohibited, unless it is undoubtedly harmless, instead of access is free, provided that is harmless. The fourth objective of the management plan (5.1 sub a) should be carefully worked out on the basis of a socio-economic recreation study, including the interests and cooperation of the local inhabitants.

5.6 Fire prevention

Measures to prevent fire include restoration of the hydrology, information of the public and additional regulation of the accessibility during dangerous periods, maintainance of fire lanes and of a road system for fire-brigades, some light terrain fire engines and surveillance including the use of walkie-talkie-equipped landrovers.

5.7 Staff and budget

The staff and budget for the management of the Nature Reserve is limited. The management, the surveillance, and the guiding of the public rely to a considerable extent on volunteers. This is done admirably and with great dedication, but it should be obvious that successful implementation of the management plan and reliable use of volunteers require a solid formal basis and a careful consideration of the extent of staff and means.

6. THE AREA OF THE NATURE RESERVE

a. General

The Hautes Fagnes Nature Reserve embraces the areas which were, in view of contemporary developments and available knowledge at the time of its establishment, recognized as vanishing waste lands of great importance for nature conservation. Ecologically important transitional zones and less obviously threatened areas were not included.

b. Reconsideration of the present delimitation

The limits of the Reserve are thus not ecologically founded. The perspectives for realization of the management objectives therefore call in my opinion for an ecological and practical reconsideration of the limits of the present parts of the Reserve. In this context attention should be drawn to the importance of considering to include (future) buffer zones with gradual transitions from open peatland and heath to forest within the reserve limits.

c. Enlargement

The present Nature Reserve comprises only part of the area that today contains the highest, most characteristic and now much threatened nature values found in the Hautes Fagnes. It excludes for instance a series of other peatland and heath areas, remnants of the local original climax vegetation (deciduous forest), and in particular moist montane grassland and wet brook valley grassland.

The rough, moist, montane grassland (pasture) and wet brook valley grassland represent as regards flora, structure and pattern, very divers vegetation types, harbouring a rich and specific entomofauna. This counts for instance several Macrolepidoptera from the list of threathened species in Europe, such as Colias palaeno, Lycaena helle, Proclossiana eunomia, P. bistorta and Boloria aquilaris.

These butterflies may serve to illustrate the importance of spatial patterns in flora and vegetation for insect life. Thus the larvae of the very rare C. palaeno live on the bog plant Vaccinium uliginosum, whereas the flower dependent imago needs four days feeding in herb rich rough grassland adjacent to bogs. This species became extinct in the Hautes Fagnes around 1940 and two subsequent reintroduction attempts in the sixties failed - for now obvious reasons. L. helle, P. eunomia and P. bistorta are characteristic of oligrotrophic upper brook courses with superficial groundwater flow characterized by Polygonum bistorta. Their present strongholds are the upper course of the Helle and the Hoegne near Hockai. B. aquilonaris depends on Vaccinium oxycoccus and is found along the upper Helle in relatively peripheral, mineralogically richer (minerotrophic/rheotrophic) bog conditions somewhat richer in species and structure.

The moist rough pastures in the periphery of the bog area are very characteristic and of considerable international importance. These very rich grasslands represent a very fragile system which as a type is nowadays highly endangered in Europe (elsewhere, but different, in Scotland, Wales and the Vosges, and vanishing). They were concentrated in the southern part of the Hautes Fagnes plateau and are at present virtually lost due to afforestation especially since about 1970, agricultural abandonment followed by subspontaneous forest expansion, and agricultural amelioration. The importance and recent fate of the montane wet brook valley grassland is comparable.

d. Recommendation

In consequence I call to mind and emphasize the recommendation made by Mr. Broggi as a result of the previous on the spot appraisal, i.e. to reconsider revision of the delimitation of the Natural Reserve in such a way as to include other particularly precious areas and transitional zones. A guideline is meanwhile presented in the second edition of the synthetic report on the Management Plan, paragraph 12.1.2.2 sub d.

In this context special attention may be drawn to the valleys of the upper courses of the Schwalm and its tributaries in view of recent plans to extend the military training grounds at Elsenborn, and noting among others the recent (re)discovery of the European freshwater pearl mussel (M.margeritifera) in this brook.

7. Scientific research

a. General

Scientific research in the Reserve is important for the advancement of knowledge in general and for the benefit of the Reserve in particular. The research is concentrated in the "Station Scientifique des Hautes Fagnes" of the Université de Liege at Mont Rigi. It increasingly contributes to the management of the Reserve and there is growing under-

standing and cooperation between the management authorities and the researchers, as is shown by the recently drawn up management plan. The research projects and their main results are summarized in the annual report of the Reserve.

b. Recommendation

In my opinion the research aspects of the recommendation concerning management-impact studies, development of a monitoring system, and a socio-economic recreation study (see 5.2 and 5.5) are logical sequels to the management plan to such an extent that engagement of the Station Scientifique des Hautes Fagnes shoud be seriously considered.

8. CONCLUSIONS

Considering my field impression, additional information acquired during the visit and from other sources, and knowledge dating from around 1970 of the Nature Reserve of the Hautes Fagnes, I arrive at the conclusion

- that the importance of the Reserve maintains a high international status;
- that the condition of the reserve is satisfying and in some respects ameliorating;
- that the management of the reserve is of a high level;
- that the staff and authorities are well aware of the threats and problems, and keen to develop countermeasures where possible.

In consequence, I propose to renew the European Diploma (category A) for the nature reserve of the Hautes Fagnes.

9. RECOMMENDATIONS

In conclusion to my findings and proposal I like to summarize my recommendations.

1. To carry on the implementation of the management plan with all possible push and supplement the plan with management-impact studies, including a monitoring program.
2. To work out the present policy to consider the Nature Reserve as a strict reserve.
   a. Active and passive information and education of the public and supplementary prohibitive and conductive measures in the field should be founded on a better understanding of the public through a socio-economic recreation study.
   b. Skiing should be prohibited on the winter grounds of the black grouse.
3. To revise the delimitation of the Natural Reserve in such a way as to include other particularly precious areas and transitions to ecologically related biotopes. In this context special attention is drawn to the valleys of the upper courses of the Schwalm and its tributaries.

Observations by the Secretariat

The representative of the Secretariat, Mr Jean-Pierre RIBAUT, has very few comments to make on the expert's report. He would merely like to mention the following particular points:

- It must be realised that there is not just one nature reserve at Hautes-Fagnes but rather a patchwork of variably-sized islets within the Hautes-Fagnes-Eifel nature park. This intricate network constitutes a kind of buffer zone, more strictly regulated than the rest of the nature park.

- The management plan requested in 1986 has been adopted and is gradually being implemented. An especially important aspect is that visitors, viz walkers in summer and cross-country skiers in winter, are being channelled on to special tracks or even limited in number in order to prevent environmental overload. A great deal of pressure is being brought to bear by locally elected representatives and inhabitants, who are demanding that the economic impact of the park should be developed to the maximum. It is therefore vital that the environmentally sensitive areas be firmly and strictly protected. This is especially important since the raised bog sites are in constant retreat, particularly through degradation of their fringes (20% in 30 years), and they would seem very difficult to regenerate. Reconstitution and restoration experiments are in hand in the Federal Republic of Germany and Switzerland, but these are extremely expensive.

- The Botrange information centre, established at the initiative of the nature park, deserves a mention because of its design, which is exemplary from all points of view. It is extremely functional, enabling interested persons to learn in an enjoyable manner, and is deservedly very popular.

- The Rigi research station, which was rebuilt in 1975, is doing important work despite a certain loss of interest in academic circles (particularly among students) for on-the-spot research. Yet there is no lack of work: of the 40,000 species which the region's entomofauna must comprise, barely 5,000 are known! Groups of students, secondary school pupils and naturalist associations regularly visit this centre, which registers around 3,500 overnight stays per annum.

- The park directors enjoy the support of a large private association; "Les Amis de la Fagne": 30 voluntary workers who are trained as nature guides and equipped with walkie-talkies assist the permanent wardens during summer weekends.

Draft resolution

COUNCIL OF EUROPE

COMMITTEE OF MINISTERS
RESOLUTION (91) ...

on the renewal of the European Diploma awarded to the Hautes Fagnes Nature Reserve (Belgium)
(adopted by the Committee of Ministers ...)

The Committee of Ministers, under the terms of Article 15 (a) of the Statute of the Council of Europe,

Having regard to Resolution (65) 6 establishing the European Diploma,

Having regard to Resolution (66) 22 awarding the European Diploma to the Hautes Fagnes Nature Reserve,

Having regard to the proposals of the Steering Committee for Conservation and Management of the Environment and Natural Habitats (CDPE),

Renews until 28 March 1996 the European Diploma awarded in category A to the Hautes Fagnes Nature Reserve;

Accompanies the renewal with the following recommendations:

1. To persevere with the implementation of the management plan, having recourse to impact studies and developing a monitoring system.

2. To reinforce the Reserve's protection status.

2.1 Cross-country skiing should be prohibited in ecologically sensitive areas and in the wintering areas of the black grouse (Lyrurus tetrix),

2.2 A socio-economic study of recreational and tourist activities, including their environmental repercussions, should facilitate application of certain selective protection measures.

2.3 In general, information for visitors, and particularly for local inhabitants, should have top priority as a means of improving understanding of the need to conserve these landscapes.

2.4 To redraw the Nature Reserve's boundaries so as to include sites which are of obvious ecological interest or which might help rationalise the layout of the Reserve. Particular attention should be paid to the upper reaches of the Schwalm and its tributaries.