



as nature intended

**BEST PRACTICE EXAMPLES OF WILDERNESS MANAGEMENT
IN THE NATURA 2000 NETWORK**



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contents	2
summary	4
foreword	5
european wilderness	8
wilderness as a protected area category	10
approaches of wilderness management	12
collection of best practice examples	14
ensuring local support for wilderness management OULANKA NATIONAL PARK, FINLAND	16
preserving and promoting raised bog ecosystem SOOMAA NATIONAL PARK, ESTONIA	18
marine wilderness for visitors ARCHIPELAGO NATIONAL PARK, FINLAND	20
zonation for and interpretation of non-intervention management FULUFJÄLLET NATIONAL PARK, SWEDEN	22
challenge of reducing fragmentation CENTRAL BALKAN NATIONAL PARK, BULGARIA	24
initiatives supporting wilderness protection MAJELLA NATIONAL PARK, ITALY	26
monitoring natural processes in wilderness KALKALPEN NATIONAL PARK, AUSTRIA	28
mainstreaming non-intervention management SWISS NATIONAL PARK, SWITZERLAND	30
the role of NGOs and the public in wilderness protection TATRA NATIONAL PARK, SLOVAKIA	32

strategical support for wilderness	34
BAVARIAN FOREST NATIONAL PARK, GERMANY	
forest wilderness without borders	36
TRANSBOUNDARY NATIONAL PARKS: BAVARIAN FOREST NATIONAL PARK, GERMANY AND SUMAVA NATIONAL PARK, CZECH REPUBLIC	
conclusion	38



In addition to its ecological significance, wilderness in Europe provides strong and sustainable economic, social, cultural and spiritual benefits. Being of such a high importance, its protection requires special focus on our densely populated continent. Going beyond their most crucial roles of preserving ecological values and conserving biodiversity on a continuing basis, wilderness areas not only represent a solid source for long-term research with the opportunity to learn about natural ecosystem dynamics, but also offer a great venue for visitors to gain first-hand experience about natural processes.

Natura 2000, this unique system of protected areas, offers an excellent framework for wilderness protection. Its key requirement of maintaining favourable conservation status of habitats and species is met by the objectives of wilderness conservation, which is to protect natural ecological processes. Thus, the conservation of European wilderness, as one of the most effective tools in protecting natural habitat types and species of Community interest, is an integral part of Natura 2000. The two initiatives go well together in the protection of ecological dynamics and of species dependent on these dynamics.

The 11 best practice examples of various European national parks collected in this publication describe different aspects of wilderness management in various habitat types also defined by Natura 2000 codes. Through this collection we demonstrate that wilderness management approaches and techniques such as non-intervention management may play a crucial role in the management of protected areas in Europe, and that they are applicable approaches in those areas of the Natura 2000 network, where the major objective is to protect ecosystem dynamics.

As was made obvious in one example of nearly one hundred years' experience with non-intervention management; careful planning and

a systematic approach, along with a well-constructed compensation system, may guarantee sustainable long-term implementation of non-intervention management. Zonation, with clearly defined and steadily implemented rules for each different zone is another effective tool in wilderness management. Furthermore, establishing sound cooperation with local stakeholders and developing co-management of wilderness areas will also greatly contribute to conservation efforts. Finally, we have seen excellent examples of how strict wilderness conservation may be combined with sustainable tourism in a way that ensures the protection of fragile natural values but at the same time offers meaningful ways for humans to enjoy wilderness.

With these and many more examples, this publication is intended to serve as a useful source of information for policy makers of the European Commission and national institutions, and at the same time wishes to offer feasible non-intervention management techniques for protected area managers directly. We hope that the examples collected will encourage them to consider the application of this versatile management approach in order to enhance and strengthen wilderness protection in Europe.

As for the legal background, the current legislation and the nature conservation opportunities offered by Natura 2000 in particular provide a good basis for the conservation of Europe's wilderness. Therefore PAN Parks Foundation does not suggest the development of new legislation on a European level. What we consider crucial, however, is to offer substantial technical guidance to Natura 2000 site managers in the implementation of wilderness protection methods.



PLACING WILDERNESS IN FOCUS

by **Ladislav Miko**

Director for Nature, DG Environment,
European Commission – former Environment
Minister of the Czech Republic

Even though being one of the most densely populated continents, Europe is at the forefront of nature conservation. Recent years have seen an increasing public interest in the protection of our natural heritage, and especially of the precious areas where wilderness in Europe still exists. Accordingly, it is environmental professionals' and policy-makers' key responsibility to promote recognition and fulfillment of nature's needs today, so that wild landscapes and habitats can continue to amaze coming generations in their most natural possible form.

Establishing the Natura 2000 network on the basis of the Bird and Habitat Directives was a major step towards that objective. This unique network of protected areas across Europe undoubtedly serves as a basis for the continuing fight to halt biodiversity loss and act towards the proper protection and possible extension of the last wilderness areas of Europe. The original objective of stopping biodiversity loss by 2010 has not been fulfilled, but with increased efforts the ambitious biodiversity targets set for the post-2010 period can still be attained.

I am also very happy to have seen a number of important events in the past year in the field

of wilderness protection. The adoption of the European Parliament's Report on Wilderness in Europe, the subsequent conference in Prague, organised to take up the challenges set out by that report, or the declaration of the message from Prague, 'Poselství', listing 24 recommendations on the way forward to the implementation of wilderness protection and restoration – these were all milestones on the path towards the successful preservation of Europe's wilderness values.

The European Commission is fully supportive of all initiatives intent on biodiversity and wilderness protection. Therefore, I warmly welcome this publication by the PAN Parks Foundation, which provides an excellent collection of best practice examples for non-intervention in areas belonging to the Natura 2000 network. This publication will certainly help the European Commission develop special management guidelines for site managers facing challenges in relation to wilderness management. Furthermore, I believe this publication will be an invaluable document not only for policy makers but also for site managers, and will contribute to achieving our goal of placing wilderness in the focus of the new European vision for nature conservation.



NON-INTERVENTION: A VERSATILE APPROACH

By Zoltan Kun
Executive Director
PAN Parks Foundation

PAN Parks Foundation has always been dedicated to promoting wilderness management practices that we strongly believe will contribute to the protection of Europe's natural heritage, with special regards to the unique values large unfragmented wilderness areas may offer. Made possible by a core grant support received from the European Commission's DG Environment, we are now proud to present this collection of best practice examples, providing invaluable information on non-intervention management employed in various areas of the Natura 2000 network and also some certified PAN Parks throughout Europe. We truly hope that these example cases will serve as encouragement and motivation for a more widespread use of this versatile method, thus contributing to improved management of Europe's remaining wilderness areas.

The countless benefits of non-intervention management are becoming more and more apparent in a variety of different habitats across Europe, as well as the amount of work required for the proper implementation of this approach.

The cases described in this document all add various aspects of how this special method can and should be implemented so that it eventually leads to more natural ecosystems in the wilderness zones of Natura 2000 sites.

In addition to saving Europe's untouched areas, which is estimated to be a mere 1 % of the continent, the restoration of nearly wild areas, is a high priority of protected area managers within the Natura 2000 network.

Constant monitoring and research provides invaluable feedback on the benefits of wilderness, the most exciting of them, in my view, being that wilderness areas may prove to be much better tools in mitigating the effects of climate change than managed landscapes are.

Creating a supportive social environment is another major task related to non-intervention management. Smooth cooperation and efficient law enforcement are key elements in setting up protected areas where no human intervention is allowed.

Last but not least, I would like to highlight the importance of visitor management and interpretation services. Also, in my life, I have at times experienced that a visit to true wilderness can radically change people's mindset. An old growth forest, for example, when untouched, is the best "tool" to demonstrate nature's importance for our increasingly urbanised society, and a well-managed tour of a wilderness area will transmit our conservation message much more effectively than any number of presentations in conferences.

The above aspects of non-intervention management are there only to give you a taste of the range of tasks and also of opportunities wilderness management may involve. In the best practice examples collected here, you will read about all these and much more. I hope this publication will provide both politicians and environmental experts with useful insight and strong evidence on the feasibility of this approach, and eventually lead to a more widespread adoption of non-intervention management in protected areas around Europe.



USEFUL IDEAS AND NEW PERSPECTIVES

by **Nela Rachevitz**

Director

Central Balkan National Park, Bulgaria

Central Balkan National Park in Bulgaria has great potential in terms of natural wilderness values; however, conservation of its natural habitats and species faces considerable challenges due to the current fragmented nature of the area as well as certain legislative backgrounds.

Nine strict nature reserves of pristine wilderness areas make up the core reserve zone of the national park. These zones of IUCN category 1b all contain strictly protected wilderness areas, which are presently not connected to each other. As fragmentation is a serious barrier to the successful long-term protection of natural ecological processes, the park management's objective is to create one or more larger, compact wildlife territory of strictly protected status through connecting the different reserves via ecological corridors.

However, such an ambitious plan involves challenging managerial tasks. First of all, to make local residents understand and accept the need to shift traditional uses of natural resources such as summer alpine livestock grazing, or gathering

berries from existing places and switching to other suitable areas is going to be quite challenging, as the current legislation and the EU subsidy system do not support these initiatives. Secondly, one might misinterpret the two relevant directives for Natura 2000 sites so that maintenance of the favourable conservation status of natural habitats and species under the Natura 2000 network requires active management. Such interpretation would create a conflict with our approach of non-intervention management applied until now in a vast swathe of the park's territory. Within the framework of our updated Management Plan for the 2012 - 2021 period, we will still strive to achieve the formation of a wilderness territory in Central Balkan National Park, employing primarily non-intervention management techniques. Therefore I am convinced of the usefulness of this publication as a contribution to the National Park's attempts at achieving its objectives.

I am hopeful that upon reading these case studies, policy-makers at the European Commission will become as convinced of the usefulness and applicability of non-intervention management as we park managers are. Having clear guidelines for Natura 2000 sites on the priority of non-intervention management in contrast with other methods would provide us with the necessary legal grounds for establishing a less fragmented wilderness area within our parks. Secondly, these best practice examples help practitioners by describing a variety of solutions in different habitats around Europe. Learning about other parks' experiences provides us with useful ideas and new perspectives in the implementation of this excellent management method. I warmly welcome PAN Park Foundation's initiative as an instrumental way to offer an exchange of experience and accumulated expertise.

WILDERNESS IN EUROPE

Wilderness in Europe is a concept many do not recognise. As invisible as it may seem, wilderness does survive on our continent, even in the face of the centuries-long effort to tame nature around us. Wilderness is present not only in virgin forests, but also along rivers and marshlands, in high mountains or caves, and under the sea – unquestionably there waiting to be discovered, appreciated and better protected.

Being highly developed and densely populated, with intensive agriculture and heavy industry, Europe rarely evokes visions of expansive, unbroken wild and wilderness areas. Nonetheless, pockets of wild and wilderness areas have persisted throughout the continent with wilderness dependent animals ranging from the brown bear to wolves, lynx and chamois.

According to statistics, IUCN categories for wild and wilderness areas in Europe (marked Ia and Ib) constitute 1,7% and 4% respectively of the total protected area surface. In comparison to the global percentages of 23,4% IUCN for category Ia and 12,7% for category Ib, these figures are extremely low, which can only partly be explained by the high population density on our continent.¹

Eurobarometer opinion polls reveal that the public sees nature protection as a high priority. On the other hand, nature legislation is considered too restrictive, inflexible, and a hindrance to development and competitiveness. Most discussions addressing this issue raise the following questions: 'What kind of nature do we Europeans want? Does our vision of nature's future include wild, wilderness and non-intervention areas?'

BENEFITS OF WILDERNESS AREAS

It is without doubt that wilderness provides several benefits also in Europe. European wilderness provides ecological values:

- a refuge for endangered species and a home to undiscovered species;
- habitats with highly adapted fauna and flora, which would be lost forever if these areas disappeared;
- reference laboratories where the natural process of evolution still continues;
- restoration of natural dynamics after natural disturbances.

Wilderness also offers strong, sustainable economic, social, cultural and spiritual benefits:

- nature-based tourism opportunities supporting local rural development;
- places of inspiration, renewal or recreation far from the bustle and pressure of modern life;
- potential to help tackle important city issues such as youth development and healthcare;
- addressing climate change through carbon sequestration and flood mitigation.

As recent researches revealed, old-growth forests play a crucial part in long-lasting carbon sequestration. Wild, wilderness and non-intervention areas are the most effective tool to protect old-growth forests and reduce the pressure of commercial forestry on this valuable asset, and their continued destruction and degradation is literally a climate disaster in the making.²

Since climate change inevitably brings fundamental changes in the natural attributes driving ecosystems and habitats, as well as the distribution of biotic natural features, it is of great importance that we focus the international community's attention on the role wild and wilderness areas can play in preventing such changes.

1. Nicola Cimini, *Wilderness Parks: The Economy of Nature*, 2008

2. Old-growth forests as global carbon sinks, Sebastiaan Luyssaert, E. -Detlef Schulze, Annett Börner, Alexander Knohl, Dominik Hessenmöller, Beverly E. Law, Philippe Ciais & John Grace, *NATURE*, Vol 455, 11 September 2008, doi:10.1038/nature07276

CHALLENGES OF AND OPPORTUNITIES OFFERED BY WILDERNESS AREAS

Although the benefits of wilderness areas are many fold, their protection and preservation faces several challenges. General risk factors include forestry activities, intensification of agriculture, mining, development of infrastructure (causing fragmentation), unsustainable tourism and the pressure of climate change.

Europe being divided into many different landscapes and seascapes creates further challenges, as well as people's strong historical bias for cultural landscape over wild and wilderness areas. Moreover, there is a need to overwrite the prevailing disbelief that non-intervention management cannot be a suitable tool for Europe as there are hardly any wild or wilderness areas on our continent.

To face these challenges, combat these threats and fully utilise the benefits of wilderness areas, many actions should be carried out. Key target groups who need to be familiarised with the benefits of wilderness or non-intervention areas are primarily conservation staff working in the field, as well as politicians, local stakeholders, decision makers, visitors, and the tourism sector. Initiatives promoting wilderness or non-intervention management should get more support in disseminating expertise on non-intervention management as protected areas' capacity to combat threats and promote opportunities could then be increased.

Alongside the need for improved protection, there is also a growing need for the large-scale restoration of habitats, ideally resulting in a network of wilderness or natural habitats linked by ecological corridors. There is great potential for creating an integrated strategy in order to take full advantage of protection opportunities and the restoration of wild natural habitats.

In addition to recognising the landscape and biodiversity values of wilderness areas, in the past few years there has been a growing appreciation of the wider economic, social and

environmental benefits of wilderness areas.

This movement provides an excellent opportunity to develop a coordinated strategy for the protection and restoration of wild and nearly wild areas across the European Union, with the aim of bringing together policy makers, academics, civil societies and other interested groups and individual experts.

WILDERNESS AREAS AND NATURA 2000

The Natura 2000 network's objective of halting biodiversity loss may well go hand in hand with wilderness protection. The appearance of large undisturbed areas can, for instance, facilitate the conservation and/or recovery of populations of large mammals (e.g. wolves, bears). What is more, the protection of large natural areas and/or the improvement of interconnectivity of protected areas could become an effective tool in our fight against the dangers of climate change through enabling animals whose climate space has shifted to migrate easily.

In spite of its great potentials, however, wilderness protection in itself is not a clear and explicit objective of most international nature protection conventions and the EC Directives at the moment, even though the European Parliament's Report on Wilderness in Europe, accepted in 2009, states that "Big part of European wilderness is protected under the Natura 2000. (...) so it is highly recommended to give a special role and extra protection for Wilderness zones inside Natura 2000. That's why European Commission should develop appropriate recommendations that provide guidance to the EU Member States on best ways of ensuring the protection of present and potential wilderness or wildlands and their natural processes, which are likely covered by the Natura 2000."

By collecting and relating the experience of protected area managers from 10 European countries of a wide spectrum of habitat types, it is our aim to clarify and demonstrate the potential of non-intervention management

wilderness as a protected area category

in wilderness areas and wilderness restoration in the Natura 2000 network. We are confident that these examples will provide support for member states, protected area managers, NGOs and individuals in working out their own ways of implementing non-intervention management and thus protecting the wild and wilderness areas of Europe.

DEFINITIONS OF WILDERNESS

Wilderness is best understood as a multidimensional concept, consisting of biological and social elements. In practice, however, both globally and in a European context, the term is often used essentially as a biological descriptor, bearing no indication to an area's status of being protected or having specific social and legal characteristics.

Due to the lack of consensus on its use and implications, wilderness is quite a difficult word to define. Generally speaking, wilderness areas can be described as large territories without major human interference, the lack of which allows for natural processes to occur and wildlife

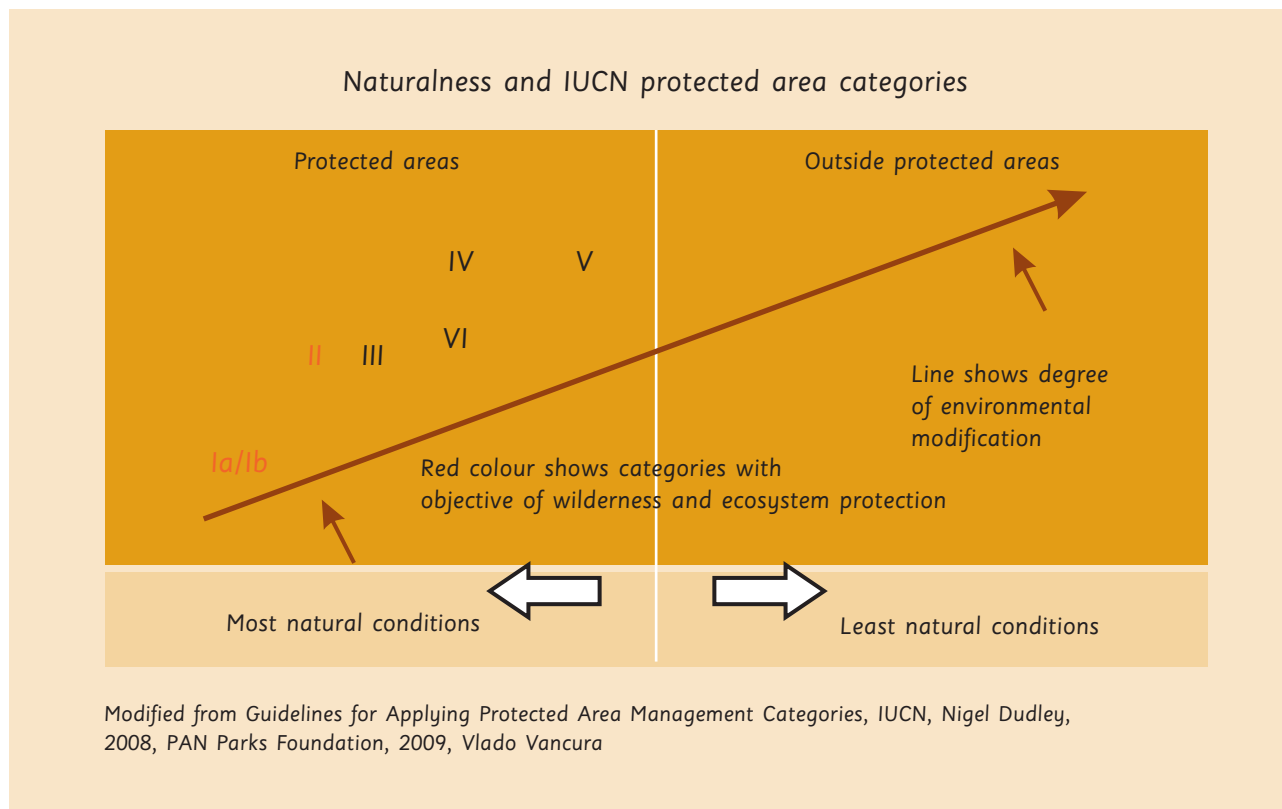
to thrive in their natural ecological state.

WILDERNESS AND THE IUCN CATEGORIES

Through the World Commission on Protected Areas (WCPA) IUCN offers international guidance on the interpretation of wilderness under the umbrella of the IUCN category system. Within the six IUCN categories the majority of wilderness areas in Europe fall into one of the following three categories, the objectives of which are in line with wilderness management objectives: (1) Ia - Strict nature reserve, (2) Ib - Wilderness area, or (3) II - National park (see below). Besides these, however, it is important to note that the core of other protected areas, listed mainly under Category V (Protected landscape/seascape) may also qualify as a wilderness area.

WILDERNESS IN THE INTERNATIONAL CONTEXT

An increasing number of countries with varying cultures – from Japan to the Ukraine and Iceland to Mexico – are choosing to create a special



protected area classification for wilderness.

The growing need to use the term wilderness as a label for a particular kind of protected area was answered, among others, by the establishment of the Wilderness Specialist Group under the auspices of the World Commission for Protected Areas (WCPA) of the International Union for the Conservation of Nature (IUCN). The objectives of the group include promoting research and discussion on the importance of wilderness, integrating wilderness into the WCPA publications and serving as a liaison between IUCN-WCPA and the World Wilderness Congress.

Parallel attempts at protecting key wilderness habitats have been made by the United Nations as well. Agreements such as the Convention on Biological Diversity have been drawn, and a number of sites including the UNESCO Natural World Heritage sites, the UNESCO Man and the Biosphere reserves and Ramsar sites have been created to this end. Another major step in the process of recognising and appreciating the significance of wilderness was the acceptance of the European Parliament Report on Wilderness in Europe in February 2009 and the organization of the Conference on Wilderness and Large Natural Habitat Areas in Prague, in May 2009.

PAN PARKS WILDERNESS

With its attempt to redefine and develop a concept of wilderness conservation, PAN Parks occupies a unique position among nature

conservation movements. It applies a truly integrated approach combining wilderness protection and sustainable tourism development in Europe; one of the most highly developed areas of the world. Member parks of this network of large, well-managed protected areas – all with significant wilderness at their core – offer an unparalleled nature experience for visitors, as well as numerous benefits for local communities.

PAN Parks Foundation interprets wilderness along the lines of three major criteria. “The protected area has an ecologically unfragmented¹ wilderness area of at least 10,000 hectares² where no extractive uses³ are permitted and where the only management interventions are those aimed at maintaining or restoring natural ecological processes and ecological integrity.”

PAN Parks Foundation has developed an effective third-party certification system for protected areas under WCPA (World Commission on Protected Areas) Framework for Management Effectiveness. The certification is based on verification carried out by independent experts in accordance with PAN Parks quality standards. Quality standards are specified in the form of five PAN Parks principles covering relevant wilderness protection as well as social, economic and cultural considerations, all of which are there to ensure high standards of management, for both conservation and sustainable development.

1. This criterion allows for the wilderness area to be divided into more than one area as long as it is not fragmented ecologically. If the wilderness is in one area, but is ecologically fragmented by a fence, road or other infrastructure, the area does not meet this criterion. Verifiers will use their professional judgement during evaluation. The PAN Parks Foundation prefers to identify road-less wilderness areas; however an old, existing road is allowed within the wilderness area as long as clear rules and strict limits of use are applied, e.g. emergency use only, restoration, low key maintenance without vehicles etc.

2. The wilderness area can meet the size criterion even if part of it is under an ecosystem rehabilitation process which requires long-term active restoration management due to the lack of critical segments of ecosystems dynamics, resulting, for instance, from extinction and/or replacement by semi-natural components. To fully meet this criterion, the management must have a clear goal with a defined rehabilitation/restoration schedule including deadlines. Verifiers will use their professional judgement during evaluation.

3. The following human activities are not accepted in the wilderness area, even if they have been traditionally pursued there: hunting/culling, fishing, collection of animals and (parts of) plants, of rocks and minerals, mining, logging, livestock grazing, grass cutting. Fencing, road maintenance, road and building construction, motorised transportation, large-scale cultural and sporting events, etc, are also prohibited. Immediate consumption is not considered as extractive use. Obsolete infrastructure should be removed. Verifiers will use their professional judgement during evaluation.

PAN Parks Principles and Criteria, 2007

approaches of wilderness management

WHAT IS NON-INTERVENTION MANAGEMENT?

Protected areas play a crucial role in the preservation of nature, biodiversity and cultural landscape. Conservation and sustainable development, major aims of most of these areas are guaranteed by the application of recognised management objectives, which in turn determine the choice of one particular management approach over many others available.

Protecting wilderness requires special approaches in conservation and protected area management. Non-intervention management is based on the idea that the process of natural rewilding is accepted, together with natural dynamics being respected. Even though natural rewilding is sometimes considered a threat to the protection of a particular succession stage, nature conservation professionals must be encouraged to realise what a huge opportunity it is to learn from the cycle of natural processes running the ecosystem. In protected areas where the main management objective is the protection of natural processes, ecosystem dynamics and biodiversity, non-intervention management offers itself as the most logical management approach.

The application of non-intervention management, i.e. letting Mother Nature do the job, however, is a highly complex and difficult issue in the European context, where for millennia, people have been altering the landscape and nature by taking active measures; such as logging and grazing. Such deeply rooted traditional practices make the idea of non-intervention management quite difficult to spread. No wonder it is only a relatively small number of wild and wilderness area managers that currently consider this approach as their fundamental management tool. Preliminary research of PAN Parks Foundation reveals that there is currently less than 0,4% of European territory achieving PAN Parks wilderness quality standard (minimum 10,000 ha an ecologically unfragmented and no extractive uses) and less than 1% (usually much smaller) treated in accordance with the guidelines of non-intervention management, even though

almost 10% could be suitable for this management approach.

There are a number of issues that make non-intervention management a provocative approach, all of which may, however, be easily addressed and solved. One major problem is that park managers' instinctive reaction to non-intervention management may be: "What are we here for then?", and that nature-loving visitors may feel justified to ask: "How will this area be controlled if something 'bad' happens, for example a windstorm or an outbreak of insects?" Park managers will have to be trained that non-intervention management, on the one hand, does exclude active measures in the field, yet, on the other hand, it requires them to do several important supporting activities ranging from education, interpretation and important community work: plus research, monitoring and lobbying. This type of management approach, just like any other method, should be actively planned and included in the management plan of any protected area.

Nature lovers' doubts will be eased by explaining how nature disturbances like a windstorm or an outbreak of insects is an integral part of ecosystem dynamics. In forest ecosystems, for example, the life of many species depends on the different phases of forest dynamics. It has been observed that the terminal – disintegration – phase of a forest's life is biologically the richest phase, and if our management measures exclude this phase, many species will be lost. What this means is that the practice of allowing for ecosystem dynamics to prevail without human intervention is a fundamental element of biodiversity conservation.

In spite of its numerous advantages, non-intervention management is obviously not a universal tool suitable for all park managers. It is rather a specific, tailor-made approach, which, if consistently interpreted and applied, is acceptable only in a limited number of protected areas. In those areas, however, as experience has proven, it is not only legitimate

but also cheaper than other management techniques. A growing knowledge of non-intervention management, resulting from first-hand experience, more than justifies the feasibility of this approach.

The challenge of this ongoing discussion regarding management techniques is for non-intervention management to get wider support and understanding, particularly with respect to the issues of biodiversity richness and ecosystem dynamics.

WILDERNESS RESTORATION

Rewilding, a major tool in wilderness restoration, occurs both naturally and with human assistance throughout Europe. Examples of the former include wolves crossing from Poland into Germany, with at least 30 of them inhabiting Saxony now, or the migration of the European lynx, a growing population of which has become part of the gene pool of the Czech Republic and Germany. Rewilding with human assistance is an ongoing process as well: under one of the first most successful projects “Trees for Life”, an ancient Caledonian forest was restored in Scotland.

The implementation of active restoration measures is another approach applied in wilderness protection. Depending on the history of the protected area, intervention may be needed only for a limited time in order to undo past damage, as in the case of some old-growth forests where the elimination of pressure due to logging and grazing, will suffice: or in certain mountain plant communities where the main task is to reduce pressure from trampling. In the case of areas where more profound changes have taken place such as the disappearance of an ecological component, continued, long-term intervention may be necessary. In addition to the re-introduction of extinct species, other measures may be the removal of non-native species, the control or removal of invasive species, prescribed burning, replanting to hasten forest regeneration, seedling selection or thinning.

Following the IUCN policy, protected area categories are primarily applied with respect to management objectives. They also relate to the aims of management rather than the current status, so several categories can be subject to wilderness restoration. However, in practice, restoration will not necessarily result in a wilderness or nearly wild area. For example, wilderness restoration is not usually appropriate for an area that will require active management intervention for an indefinite period to maintain certain specifically defined biodiversity values. Areas which can be subject to wilderness restoration, might be re-categorised as category 1a or 1b.

WILDERNESS: AN INTEGRAL PART OF NATURA 2000

Natura 2000 is an EU-wide network of nature protection areas established with the aim of protecting the most seriously threatened habitats and species across Europe. The establishment of this protected network also fulfills a Community obligation set forth by the UN Convention on Biological Diversity. The biggest challenge Natura 2000 faces stems from the dynamic nature of habitats. Wilderness conservation, through its major aim of protecting natural ecological processes, greatly contributes to the protection of ecological dynamism and of species dependent on this dynamism. Thus, the conservation of European wilderness, as one of the most effective tools in protecting natural habitat types and species of Community interest is already an integral part of the Natura 2000 network.

The key requirement of Natura 2000 is to maintain a favourable conservation status. While it is more than evident that non-intervention management is not a suitable tool for all Natura 2000 sites, its employment may yield great results in sites where the objective is to protect ecosystem dynamics. In protected areas where the current species diversity is in part determined by previous, active management methods, a conflict might occur between management tools required for the protection

of those species, and the approach needed to conserve ecosystem dynamics. However, if the objective is clearly defined, the framework of Natura 2000 provides enough flexibility to implement non-intervention management techniques even in such areas. Through the best practice examples of the Natura 2000 network presented in this document, we hereby provide evidence that non-intervention approach, always staying in line with existing EU regulations, is in many cases the best method to support the above-mentioned objectives of Natura 2000.

THE BEST PRACTICE EXAMPLES

The following chapter contains best practice examples of wilderness management in protected areas, mostly different Natura 2000 sites. Despite not being a Natura 2000 site, the example of Swiss National Park is included as it is one of the best examples in Europe of a national park applying non-intervention management successfully in its entire territory for almost a century. The areas included provide great examples of how non-intervention management is applied. Different aspects of this management tool are described in each case, including supporting activities such as research and interpretation. Through the best practice examples we would like to demonstrate that non-intervention management areas constitute a valuable asset in wilderness conservation. Going beyond their most crucial roles of preserving ecological values and conserving biodiversity on a continuing basis, they do not only represent a solid source for long-term research with the opportunity to learn about natural ecosystem dynamics, but also offer a great venue for visitors to gain first-hand experience about natural processes.

All the best practice examples presented follow the same structure, starting with a section describing the technical data of the specific area. The size of the territory where non-intervention management is applied is characteristic as it is essential for a wilderness area to provide large spaces for the wildlife population to thrive, as well as for visitors to experience wilderness and natural processes.

Secondly, a list of the most dominant Natura 2000 habitat types found in these wilderness areas is indicated for each national park in order to provide a good overview of the variety of habitat types found in areas experienced in the application of non-intervention management. Currently, non-intervention management is most widespread in the case of forest habitats, but some of the examples testify to the fact that this approach is also suitable in many other habitat types such as alpine meadows, freshwater or marine habitats. The wilderness areas introduced in the example cases all include habitats categorised by Natura 2000 codes. In addition to the above data, it is essential to understand the legal background for wilderness management as well. The more specific a country's national laws are with regards to nature protection, the easier it is for park management to develop a well-focused management plan in cooperation with various stakeholders, which will then provide a solid background for the application of wilderness protection. The collection of 11 cases provides examples of some highly efficient solutions as well as some challenges in this respect.

Finally, the major body of each best practice example comprises of two parts. Firstly, a list of key wilderness values present in each wilderness area, primarily as a result of the specific management style employed. Secondly, there are general as well as specific examples of the implementation of the non-intervention approach in habitats such as forests, peat bogs or marine areas, describing the various aspects of park management responsibilities ranging from interpretation, research and monitoring, to the creation of a socially supportive environment.



OULANKA NATIONAL PARK, FINLAND

Size of national park: 29,000 ha

Size of wilderness area: 13,000 ha
(certified PAN Parks Wilderness¹)

Dominant habitat types of wilderness area (Natura 2000 habitat code):

9010 Western taiga

7310 Aapa mires

7240 Alkaline fens

9050 Fennoscandian herb-rich forests with *Picea abies*

3210 Fennoscandian natural rivers

LEGAL BACKGROUND OF OVERALL PROTECTION

Since its 1956 establishment based on a specific act in accordance with Finland's Nature Conservation Act, Oulanka National Park has been extended both in 1982 and 1989. The current management plan, forming the legal basis for daily management and governance of the park, was approved by the Ministry of Environment in 2003.

The main management objective is to protect biodiversity, preserve valuable species and their habitats. Its priority goals also include protecting cultural heritage, providing environmental education and nature-oriented tourism as Oulanka NP was established for people to enjoy and admire the aesthetic beauty of its landscapes and sceneries.

LEGAL BACKGROUND OF WILDERNESS MANAGEMENT

Wilderness protection in Oulanka is based on the zonation system, which is currently being revised along newly defined criteria. The amended system will be incorporated in the new management plan.

Objectives include the protection of natural ecological processes of ecosystems by cutting edge non-intervention management measures. In the core section of the wilderness area camping is only allowed in designated sites, the use of motorboats and fishing in rivers have been outlawed, and it is prohibited to collect natural products, except for edible mushrooms and berries.

KEY WILDERNESS VALUES

In addition to its diverse wild river water systems and a rich variety of land forms, there are numerous sites preserved in their natural state, as well as endemic and rare flora inhabiting a remarkable array of wild habitats and landscapes ranging from aapa mires to canyons. The park harbours specimen of all large Northern European carnivores: wolf, brown bear, wolverine and lynx. The area's uniqueness lies in the fact that Oulanka NP and its transboundary sister park, Paanajärvi NP in Russia, constitute over 130,000 ha of territory of western taiga forest with true wilderness character.

BEST PRACTICE EXAMPLE: ENSURING LOCAL SUPPORT FOR WILDERNESS MANAGEMENT

The management of protected areas, and of wilderness areas in particular, requires a broad-minded holistic approach, taking into account such important aspects as the provision and security of ecosystem services, the understanding of an ecosystem approach, the creation of ecological connections within the area and the integration of protected areas into the surrounding society. Oulanka NP has found an exemplary way to create a socially supportive environment for efficient wilderness protection.

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Building local cooperation: The greatest challenge park authorities face is to mainstream their non-intervention policies and the protected area agenda into wider policies of the surrounding society and sectors in order to preserve wilderness. Meeting this challenge requires close cooperation with important stakeholders and other sectors dealing with land use issues and natural resources. In Oulanka, a large part of this responsibility belongs to the park director and the management team. However, to provide a strongly supportive environment, there is a need for a co-management approach and for this the national park created an advisory body, the Oulanka cooperation group.

Currently this functions as an effective forum to discuss important park and management related issues. This group, representing all relevant stakeholders, is responsible for working out plans for and circulating information about ongoing actions and projects of Oulanka NP. It also acts as a Local PAN Parks group, with members representing the administration of Oulanka National Park, municipalities of nearby towns or regions (chair position), conservation NGOs, local residents, tourism associations and entrepreneurs of the region. Meeting twice a year, the group continues to be a great forum for the national park to create a solid environment for reaching its objectives.



To provide a strongly supportive environment for wilderness management, there is a need for a co-management approach and for this the national park created an advisory body, the Oulanka cooperation group – Photo: Kimmo Salminen

SOOMAA NATIONAL PARK, ESTONIA

Size of national park: 39,640 ha

Size of wilderness area: 11,530 ha
(certified PAN Parks Wilderness¹)

Dominant habitat types of wilderness area (Natura 2000 habitat codes):

3160 Natural dystrophic lakes and ponds

7110 Active raised bogs

7140 Transition mires and quaking bogs

91D0 Bog woodland

LEGAL BACKGROUND OF OVERALL PROTECTION

The national park, situated in South-Western Estonia, was established in 1993 with the aim of preserving the area's natural values on landscape scale. From the very beginning, the main management objective has been the protection of the territory's countless species, and the conservation of the undisturbed forests, bogs and floodplains of the area, along with their cultural heritage.

LEGAL BACKGROUND OF WILDERNESS MANAGEMENT

The core wilderness of the national park as we know it today was being sustained through non-extractive management starting as early as the establishment of the mire conservation areas in 1981. Later on, when the national park was created, these areas were divided into special non-intervention management zones, the management aim of which, and of Kuresoo special management zone in particular, is to preserve the ecological character of bogs, protect the natural dynamics of bog, forest and river habitats, as well as all protected species dependent on these ecosystems.

KEY WILDERNESS VALUES

Currently there are 11,530 ha of large unfragmented raised bog in Soomaa NP that has preserved its wilderness character. The presence of wilderness on landscape scale is verified by many species living in and around Soomaa NP such as wolves, bears, lynx, elk and roe deer. The floodplain meadows of the park feed both greater and lesser spotted eagles, corncrakes and great snipes, and in the wilderness area there is also enough space for disturbance alert species like the black stork, golden eagle or capercaillie. Furthermore, going deeper into the wilderness areas, visitors of the raised bogs may come across all kinds of bog waders from golden plover and wood sandpiper to whimbrel and curlew.

BEST PRACTICE EXAMPLE: PRESERVING AND PROMOTING RAISED BOG ECOSYSTEMS

The management method applied in Soomaa provides a great example of how zonation, as a management tool, helps avoid conflict between intervention and non-intervention management. Their combined use makes it possible to simultaneously serve two purposes: organising public access to the park and sensitive area conservation. This, along with Soomaa management's ways to control visitor impact have created a good balance between their two-fold aim of preservation and promotion.

Bog wilderness for visitors: Soomaa NP has established a specially designated infrastructure for the general public to visit and experience wilderness. Boardwalks of different lengths have been installed, leading to various parts of the bogs and forests of the national park. However, as many tour operators realized, it is relatively

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hard to experience wilderness by walking in line on a boardwalk, a new and inventive way of getting into closer contact with nature has been developed. Some operators organise tours off the designated routes and into the bogs using snowshoes. Snowshoes are a perfect solution as they make it possible to walk over the bog hollows that otherwise would swallow anyone daring to step on them but at the same time they do not damage the fragile vegetation of the bogs.

Negative impact of visitors on bog ecosystem reduced: The management's efforts provide a great example of finding innovative ways to reduce negative visitor impact. They have observed that bog waders will tolerate the boardwalk and continue to breed about 500 m away, so as long as visitors stay on the boardwalks, their presence does not interfere with the life of bog waders. Experience has also

shown that waders prefer to breed in pools and hollow rich areas where they are safely hidden from their natural predators. The management system of Soomaa NP reduces human disturbance by controlling access to such areas during the breeding season, when the breeding success of waders could be in danger.

Snowshoe tours in Soomaa are strictly controlled and are only provided by a limited number of local tour operators, all working in cooperation with the National Environmental Board, keeping preservation of Soomaa's wilderness values in the focus of their attention. What this means in practice is that even without any written regulations, business partners offering these tours have developed alternate snowshoeing routes for May and June, the bog waders' breeding time, thus avoiding sensitive territories where they may disturb the breeding process.



Soomaa NP has established a specially designated infrastructure for the general public to visit and experience wilderness – Photo: Arne Ader

ARCHIPELAGO NATIONAL PARK, FINLAND

Size of national park: 50,219 ha

Size of wilderness area: 10,600 ha
(certified PAN Parks Wilderness¹)

Dominant habitat types of wilderness area (Natura 2000 habitat code):

1620 Boreal Baltic islets and islands in outer archipelago and open sea zones

Further habitats of relatively small size:

1230 Vegetated sea cliffs of the Atlantic and Baltic coasts

1630 Boreal Baltic coastal meadows

1640 Boreal Baltic sand beaches with perennial vegetation

4030 European dry heaths

LEGAL BACKGROUND OF OVERALL PROTECTION

The park was established on January 1, 1983 by the Act on the Archipelago National Park (645/1982). The Act was updated in 1991 (130/91). The management plan, approved by the Ministry of Environment in 1999, serves as the legal basis for daily administration. The main objectives are to protect natural and cultural values of the Archipelago Sea, to safeguard traditional ways of utilizing nature and to maintain a living community in the archipelago.

LEGAL BACKGROUND OF WILDERNESS MANAGEMENT

The wilderness area within Archipelago NP is protected by the Act on the Archipelago National Park (645/1982). Access to the wilderness area is restricted by the park's regulations, which came into force on April 16, 2001. Prohibiting access to the wilderness area

resulted in the exclusion of all kinds of human intervention. The main objective is to minimize all human intervention and give space for nature's own processes to thrive.

KEY WILDERNESS VALUES

Despite being located in the outskirts of Archipelago NP, the water in the wilderness area is relatively shallow, allowing for high productivity. This, accompanied with the lack of human intervention, renders the area an ideal resting site for species like the highly vulnerable Baltic ringed seal or grey seal. The wilderness area also offers breeding sites for birds such as the white-tailed eagle or marine waterfowl.

BEST PRACTICE EXAMPLE: MARINE WILDERNESS FOR VISITORS

The park provides solutions for the challenge of providing visitors with the possibility to experience marine wilderness in an excellent way by establishing a non-intervention wilderness zone and a wilderness-like zone for visitors.

Wilderness for visitors: Non-intervention management is always more difficult to apply in a marine environment than in terrestrial areas as they are traditionally open to boating and restrictions need to be strongly argued for before implemented. Furthermore, considering that motor boats are a safer and faster means of transportation than canoes, banning them from certain, remote areas inhabited by local people is bound to make the life of those people very difficult. As this is against the objectives of Archipelago NP, a compromise has been worked out.

Upon the recommendation of PAN Parks verifiers, a further area has been added to the wilderness zone as a so-called "wilderness consideration

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zone” for visitors to experience marine wilderness in. The maintenance of a wilderness atmosphere in this special zone will be done through discouraging all fishing, and replacing motor boat traffic with sailing and canoeing. As an alternative to sailing boats and canoes, wildlife watching for visitors may be organized with solar-powered electric boats as well. One island in the area will be kept for “low key” infrastructure serving basic needs. At the same time, speed and noise restrictions are to be imposed within a reasonable radius of the zone, and special efforts are to be made to monitor the impact of these activities.

In order to achieve the goal of leaving the marine wilderness as intact as possible and making parts of it accessible to visitors at the same time, a well-worked out cooperation should be reached with locals and visitors alike. Open discussions and a proper exchange of information about management objectives with locals, as well as friendly guidance offered to visitors, will help park management implement objectives and provide services in a way that best serve the interests of the valuable marine environment of Archipelago NP.



The park provides visitors with the possibility to experience marine wilderness by establishing a non-intervention wilderness zone and a wilderness-like zone for visitors – Photo: ANP Archives

FULUFJÄLLET NATIONAL PARK, SWEDEN

Size of national park: 38,483 ha

Size of wilderness area: 22,140 ha
(certified PAN Parks Wilderness¹)

Dominant habitat types of wilderness area (Natura 2000 habitat code):

4060 Alpine and boreal heaths (13,951 ha)

6150 Siliceous alpine and boreal
grassland (4480 ha)

9040 Nordic subalpine/subarctic forest
with *Betula pubescens* (2663 ha)

9050 Fennoscandian herb-rich forest
with *Picea abies* (791 ha)

8110 Siliceous scree of the montane
to snow levels (780 ha)

7140 and 7310 wet meadows (90 ha)

LEGAL BACKGROUND OF OVERALL PROTECTION

Fulufjället NP was established in 2002 and is administered by the Dalarna County Administrative Board. The objective of the national park is to preserve the southern area of the Swedish mountains in an essentially unspoiled state, including its distinctive vegetation and other highly vulnerable natural features.

LEGAL BACKGROUND OF WILDERNESS MANAGEMENT

The park management plan – including non-intervention management for certain areas – was approved by the Swedish Environmental Protection Agency in 2002. The government states that in order to achieve the objectives, extractive operations and other activities potentially damaging the substrate and vegetation should be forbidden. The objectives are to be achieved partly by disallowing reindeer grazing within the park.

KEY WILDERNESS VALUES

Large, pristine area free from roads, snowmobiles, hunting and reindeer grazing. Wilderness species include the brown bear, lynx and Siberian jay. The latter species is sensitive to clear-felling and therefore finds a haven in the wilderness area. The gyrfalcon is another good example of wilderness species adding to the biodiversity value of the park.

BEST PRACTICE EXAMPLE: ZONATION FOR AND INTERPRETATION OF NON-INTERVENTION MANAGEMENT

Non-intervention as a fundamental management tool is an integral part of overall conservation strategy and visitor management in Fulufjället NP. The implementation of non-intervention management is supported by clear zonation, a highly effective method of protecting key natural features and processes, and at the same time providing opportunities for informal recreation and appreciation of nature.

Zonation: The park is divided into 4 zones, which provide clear distinctive areas where non-intervention management is applied. The largest such area is Zone I (23,000 ha unfragmented area), currently corresponding to the PAN Parks Wilderness area. The wilderness area is free from roads, snowmobiles, hunting, fishing and reindeer grazing. Zonation clearly separates areas where traditional activities like lake fishing or snowmobiling is allowed from the non-intervention areas' wilderness. The removal of the snowmobile track from the PAN Parks Wilderness area was just one of the examples of measures taken to ensure non-intervention management.

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As a result of this and other similar efforts, the international PAN Parks audit conducted in 2007 recommended only one small improvement and temporarily excluded an 860-hectare area from Zone 1, where small-scale traditional hunting of elk and small game is still present. Hunting is to be phased out in 10 years as part of the agreement drawn up when the two forested valleys were purchased at the time of establishing the park in 2002.

The path towards the establishment of the national park, and thereby the reduction of human impact, involved compromises. For example, the possibility of hunting birds in Zone 1 was banned, and instead, some hunting teams were offered alternative hunting grounds outside the proposed national park territory.

Non-intervention interpreted for visitors:

As part of the comprehensive and concise non-intervention management approach, Fulufjället NP is utilising the remnants of a natural disturbance event in Göljadalen Valley as a unique interpretation site. During the 1997 'centennial flood' an estimated 10,000 cubic metres of trees were felled by flash flooding. The management of the nature reserve (status of the area at that time) decided to leave the large amount of timber untouched after the dramatic erosion that followed the extreme downpour. Today the site, covered in dead wood decaying naturally, is one of the biggest attractions of the national park, equipped with interpretation boards for visitors to learn about natural processes.



The site left untouched after a dramatic flooding and thus covered in dead wood decaying naturally, is one of the biggest attractions of the national park, equipped with interpretation boards for visitors to learn about natural processes — Photo: Vitantonio Dell'Orto/exuviaphoto.com

CENTRAL BALKAN NATIONAL PARK, BULGARIA

Size of national park: 72,021 ha

Size of wilderness area: 21,019 ha
(certified PAN Parks Wilderness¹)

Dominant habitat types of wilderness area (Natura 2000 habitat code):

9130 Asperulo-Fagetum beech forests

91W0 Moesian beech forests

91BA Moesian silver fir forests

9150 Medio-European limestone beech forests
of the Cephalanthero-Fagion

9170 Galio-Carpinetum oak-hornbeam forests

LEGAL BACKGROUND OF OVERALL PROTECTION

Central Balkan NP was established as a so-called 'people's park' in 1991 and was recategorised as a national park in 1999. Management plan objectives include the lasting preservation of ecological processes as well as providing visitors with opportunities for aesthetic, educational and scientific endeavours in close contact with nature but in a manner that does not contravene with conservation efforts. An important element of this process is to gain the support of local citizens in carrying out park objectives.

LEGAL BACKGROUND OF WILDERNESS MANAGEMENT

The core wilderness area of the park is within nine reserves established in accordance with prevailing legislation. This Reserve zone, enjoying the highest level of protection, was designated as a PAN Parks Wilderness area. Management objectives range from preservation of genetic resources, natural habitats and populations of rare, endemic and relict species of protected

status to conducting scientific and educational activities and/or ecological monitoring.

KEY WILDERNESS VALUES

The major ecological value of the existing reserves lies in the large beech forests with European beech as the dominant species. The average age of the beech communities is 135 years. Typical within the beech belt are stands occupied by silver fir. Beech forests serve as habitat for a huge diversity of species and as such are of global conservation significance. The coniferous forests are fragmentary, and do not form a continuous belt inside the Park. Of particular interest are the forests of Macedonian pine, one of the Balkan Peninsula's endemic species, with the park being its northernmost stand in the world.

The park is home to a large number of wilderness-dependent mammals such as the brown bear, wolf or wild cat. A total of 220 bird species also adds to the biodiversity of the park, ranging from various mountain birds to the very rare boreal owl, pigmy owl, Ural owl or the southern sub-species of the white-backed woodpecker, inhabiting the old growth forests of the area.

BEST PRACTICE EXAMPLE: CHALLENGE OF REDUCING FRAGMENTATION

Non-intervention management is applied in the entire territory of the park's core wilderness area. In compliance with the PAN Parks principles, the only activities allowed are aimed at safeguarding natural values: visits for scientific and educational purposes are organised along passages of designated, clearly marked trails. It is fragmentation that causes a major challenge for the park administration.

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Reducing fragmentation: Following the international PAN Parks audit in 2003, which focused on the integrity of the core zone and the creation of a less fragmented wilderness area, plans were made for the gradual abandonment of high mountain grazing. However, park administration is now facing a major challenge in their efforts of trying to connect the forest reserves through the elimination of pasture fields: with Bulgaria joining the EU, more and more local land owners and shepherds are looking to increase the number of livestock on alpine meadows in return for EU subsidies. The second management plan, to be in effect between 2012-2021, will make an attempt at addressing this challenge of conflicting interests.

Finding a solution would inevitably take a more flexible approach of the EU subsidy system in that it should provide alternative support

for locals without encouraging them to revive economically ineffective activities, which at the same time prevent the park's administration from creating an unfragmented mountain wilderness in Bulgaria.

In order to meet management objectives, the park will also need support from the Ministry of Environment and Water in the development and validation of the wilderness area. In the process of preparing the new management plan, efforts are being made to update standards for density of livestock in order to achieve favourable conservation status of the habitat. Moreover, specific grazing areas will be appointed under a new rural development program, which will allow for a clear differentiation of areas free from grazing in the core zone, and thus decrease fragmentation of the wilderness area.



Beech forests forming the core of the wilderness area serve as habitat for a huge diversity of species and as such are of global conservation significance, however, decreasing fragmentation of the area would require a more flexible approach of the EU subsidy system and support of ministries

Photo: CBNP Archives

MAJELLA NATIONAL PARK, ITALY

Size of national park: 74,095 ha

Size of wilderness area: 17,000 ha
(certified PAN Parks Wilderness¹)

Dominant habitat types of wilderness area (Natura 2000 habitat code):

9210 Apennine beech forests with *Taxus* and *Ilex*
6230 Species-rich *Nardus* grasslands, on siliceous substrates in mountain areas

4070 Bushes with *Pinus mugo* and *Rhododendron hirsutum*

6170 Alpine and subalpine calcareous grasslands
8210 Calcareous rocky slopes with chasmophytic vegetation

LEGAL BACKGROUND OF OVERALL PROTECTION

Majella NP was established by a presidential decree on June 5, 1995. Its first regulations, set forth by the same decree, were replaced by the management plan approved by the relevant Abruzzo Region authorities on December 30, 2008 and published in the Official Gazette on July 17, 2009.

Management objectives include the conservation of the flora and fauna, of scenic and panoramic values, natural processes and ecological balances. In addition, special attention is paid to the enforcement of environmental management or restoration methods, and the promotion of educational activities, scientific research, and sustainable recreational activities.

LEGAL BACKGROUND OF WILDERNESS MANAGEMENT

The complete wilderness area within Majella NP is situated in the "A" Zone defined in the management plan as 'integral reserve' area.

Even though there is no difference between the wilderness area and integral reserve from a legal point of view, park policy requires the application of stricter criteria in the management of the former: besides the prohibition of any extractive use, intervention in the event of natural disturbances such as avalanches, landslides or pests, with the only exception of fire, is also avoided.

KEY WILDERNESS VALUES

The main wilderness-related value of Majella NP is the presence of a large and unfragmented territory of impenetrable bushes, vast open areas with grasslands and scree and endless views, the only sounds being natural. The wilderness area, taking up the southernmost part of the Alpine region in Europe, has value in terms of biodiversity as well. Its mountain pine forests, for example, constitute the largest vegetation formation in the Apennine Mountains, while the Beech forests hosts such wilderness species as the Marsican brown bear and the wolf, and the highest rocky peaks of the massif are home to the Apennine chamois. The bird fauna of the park is also impressive, with approximately 130 different species. The golden eagle, lanner falcon and the very rare dotterel all breed and nest in the park's wilderness area.

BEST PRACTICE EXAMPLE: INITIATIVES SUPPORTING WILDERNESS PROTECTION

Among the various approaches Majella NP applies in wilderness management, the three initiatives described below were adopted in order to protect existing and contribute to the creation of future wilderness areas.

Restoration initiatives: The reintroduction of Apennine chamois in the Majella range is a good example of how successful this method can be.

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With just a few hundred individuals remaining by the early 1990s, this invaluable species was one of the world's most endangered Ungulates.

Due to the lack of an ecological corridor between their refuge area in Abruzzo National Park and the Majella mountains (where chamois had long disappeared from), human intervention was unavoidable. Over a several-year period about 22 animals were transferred to Majella; today, their population has reached 500.

Land rental: The park administration has directly rented vast areas from local municipalities in order to protect them from intensive extractive uses, through the application of a diversified approach. On one hand, thousands of hectares of rented land is now left to natural development without any extractive use allowed. Yet, on the other, certain pastures are rented out to locals at favourable prices but under strict management and healthcare conditions. This is a highly effective way to prevent farmers from seeking pasture in

the wilderness areas or wherever livestock grazing could unfavourably affect the ecological demands of wildlife.

Managing water extraction: The main challenge to overcome in the management of the wilderness area in Majella NP was the extractive use of water. Even though new extractions have been prohibited inside the wilderness area, some smaller extraction points in wide and almost intact areas in the core of the mountain still exist. In order to keep these unique areas on the list of PAN Parks Wilderness zones, major desk and field studies were carried out in search of solutions. Based on the results, the park administration's clear and scientifically supported proposal is that any extraction points and connected works bearing a significant impact on the surrounding environment should be eliminated from the core zone. The only exceptions are extractions of minimal impact, where water would not run to the surface, and would be lost in the depth of the mountain.



Over a several-year period about 22 Apennine chamois were reintroduced in Majella; today, their population has reached 500 – Photo: MNP Archives

KALKALPEN NATIONAL PARK, AUSTRIA

Size of national park: 21,000 ha

Size of wilderness area: 15,000 ha

Dominant habitat types of wilderness area (Natura 2000 habitat code):

- 4070 Bushes with *Pinus mugo* and *Rhododendron hirsutum*
- 9130 *Asperulo-Fagetum* beech forests
- 9150 Medio-European limestone beech forests of the *Cephalanthero-Fagion*
- 9180 *Tilio-Acerion* forests of slopes, screes and ravines
- 9410 Acidophilous *Picea* forests of the montane to alpine levels

LEGAL BACKGROUND OF OVERALL PROTECTION

Kalkalpen National Park was established by the Upper Austrian government and the Austrian Ministry of Environment in 1997.

The management plan defines the park's zoning system, as well as protected area management rules. Their objectives include conservation of species, monitoring of natural processes, educational activities, scientific research and sustainable recreational activities in cooperation with the communities in the region.

LEGAL BACKGROUND OF WILDERNESS MANAGEMENT

In cooperation with the national state forestry, private land owners, NGOs and other experts, a development plan for forest wilderness was created and legally reinforced by the district administration authority and the general assembly of the national park administration. 75% of the park's area, situated in the heart of its territory, is reserved for natural processes without human interference.

KEY WILDERNESS VALUES

80% of the national park's total area is covered in forests of 30 different types; with fir, spruce and beech trees dominating the landscape. The large diversity of various natural habitats are home to certain animal and plant species that have become very rare or extinct elsewhere. The wilderness-dependent lynx, brown bear and golden eagle are just a few of the 30 mammal species and 80 breeding species of birds inhabiting the area.

BEST PRACTICE EXAMPLE: MONITORING NATURAL PROCESSES IN WILDERNESS

Kalkalpen NP has applied a systematic approach in creating its wilderness area. Taking the clear objective of protecting 75% of the area as wilderness as a starting point, the park's management rules now prohibit all human interference, and measures are being undertaken to decrease the existing fragmentation of the area: for instance, 310 km of roads have been closed to exclude motorised transport and because of natural road restoration. Professional monitoring of natural processes and the effects of natural disturbance events, one of the most crucial benefits of non-intervention wilderness areas, is also widely employed in the national park.

Monitoring natural processes:

Besides monitoring wilderness species such as the capercaillie, lynx or brown bear, the wilderness area offers an excellent opportunity for monitoring natural processes, including the effects of natural events and disturbances. The park's monitoring programmes enable experts to carry out long-term observations and to compile reports on how nature evolves without human interference. A special day-book of natural processes is kept to record and follow the dynamic change

of data on rain and snowfall, temperature, wind speed and the quality and quantity of dead wood.

Analyses of the consequences of natural disturbances such as bark beetle attacks, avalanches, windfall, natural succession and floods are also the focus of attention in the non-intervention area of the national park. Based on the sets of data collected, special maps and diagrams have been prepared to gain in-depth knowledge of ecosystem dynamics. This type of monitoring was made possible, for instance, after the February 2008 rainfall during the storms Kyril, Emma and Paula, when the amount of dead wood in the park sharply increased from 16 m³ to 25 m³/ha.

As monitoring revealed, the 80,000 m³ wood lying on the ground since then has greatly contributed to the appearance of 6 different species of rare woodpeckers in these forests.

Wilderness for visitors: In the new management plan, currently under development, special emphasis will be placed on visitor management and the interpretation of wilderness for visitors. The park conveys the clear message to visitors that wilderness, by showing nature as it really is, provides them with a wonderful opportunity to eye-witness ecosystem dynamics and learn about ways in which wilderness creates biodiversity, provides space for game, or saves invaluable biological and genetic resources.



Analyses of the consequences of natural disturbances such as bark beetle attacks, avalanches, windfall, natural succession and floods help us gain in-depth knowledge of ecosystem dynamics

Photo: Kalkalpen NP Archives

SWISS NATIONAL PARK, SWITZERLAND

Size of national park AND wilderness area: 21,000 ha

Dominant habitat types of wilderness area (Natura 2000 habitat code):

- 9420 Alpine *Larix decidua* and/or *Pinus cembra* forests
- 9430 Subalpine and montane *Pinus uncinata* forests
- 6170 Alpine and subalpine calcareous grasslands
- 8120 Calcareous and calcshist screes of the montane to alpine levels

LEGAL BACKGROUND FOR OVERALL PROTECTION AND WILDERNESS MANAGEMENT

The Swiss NP was founded on 1 August 1914. The managing park authority is the Swiss National Park Administration. Its governing laws, laid down in 1980, clearly define the purpose of the Park's existence, stating that "The Swiss National Park is a reserve in which the entire fauna and flora are protected from any human interference and are left to their natural development." The park has the twofold aim of letting nature run its natural courses, while at the same time making the natural evolution of its untouched territories observable. Accordingly, management objectives only allow for research, monitoring, surveying and providing information for visitors, but prohibit any human impact on or utilisation of the national park's area.

KEY WILDERNESS VALUES

Swiss NP is famous for its large variety of Alpine fauna and flora and its virtually intact natural landscape. It hosts a number of wilderness-related species such as the ibex, marmots, chamois, and golden eagle.

BEST PRACTICE EXAMPLE: MAINSTREAMING NON-INTERVENTION MANAGEMENT

Swiss National Park is an excellent example of a protected area that was established with the specific aim of preserving ecosystem dynamics without any human interference, a condition that has now been maintained for almost a century.

Systematic approach:

The uniqueness of Swiss National Park lies in its systematic approach of building up a system that has enabled wilderness management, from the day of establishment.

The initial decision to create a park with the objective of leaving nature to thrive on its own was followed by the development of a funding mechanism to ensure continuous expansion of the area. Based on a reliable compensation scheme supported by the Federal National Park Commission (the entity responsible for ensuring the running of the park), long-term land lease agreements were worked out with 5 municipalities. As a result, the territory of the Swiss NP has been expanding steadily over the years. The feasibility of such a system is proven by the fact that Swiss NP has been, and is still able to apply non-intervention management on an expanding territory, throughout its entire existence since 1914.

Wilderness – subject for research:

Nature protection, scientific research and providing information for the public are the three main aims Swiss NP sets out to achieve. Article 1 of the federal law governing the national park specifically states that "the National Park should be the object of continual scientific research."

Each year, up to 60 local and foreign research workers carry out scientific studies in the national park. In the focal point of the various projects coordinated by the research committee is one particular question

of special importance, namely, the examination of natural development in an area safeguarded from human interference. The wilderness area provides for a great scientific laboratory, and the long history of non-intervention management in the national park has offered invaluable opportunities for research projects to be conducted over prolonged periods. These projects facilitate the documentation of natural processes and as such, greatly contribute to our understanding of alterations occurring in habitats safe from human interference. Results obtained describe the natural development of animal populations and plant associations, as well as changes in the landscape. At present, research workers are involved in 78 different projects on issues such as fire succession, ungulates in alpine habitats, long-term forest ecosystem research, and population dynamics of the chamois.



The wilderness area provides for a great scientific laboratory – Photo: Swiss NP Archives



The initial decision to create a park with the objective of leaving nature to thrive on its own was followed by the development of a funding mechanism to ensure continuous expansion of the area based on a reliable compensation scheme – Photo: Swiss NP Archives

TATRA NATIONAL PARK, SLOVAKIA

Size of national park: 73,800 ha

Size of wilderness area: 25,000 ha

Dominant habitat types of wilderness area (Natura 2000 habitat code):

4070 Bushes with *Pinus mugo*

6150 Siliceous alpine and boreal grasslands

6230 Species-rich *Nardus* grasslands, on silicious substrates in mountain areas

9410 Acidophilous *Picea* forests of the montane to alpine levels

9420 Alpine *Larix decidua* and/or *Pinus cembra* forests

ecological stability, and preservation of the genetic diversity of critically endangered, vulnerable, rare and endemic species.

KEY WILDERNESS VALUES

The Tatra Mountains give home to a complete range of large wilderness-dependent predators such as the bear, lynx, marten and wolf. The park boasts some of the vastest territories of semi-wild mountain forests in Europe. The co-existence of several significant ecological communities make the national park an important area in terms of biodiversity on a European and worldwide level as well.

LEGAL BACKGROUND FOR OVERALL PROTECTION

Tatra National Park was established on 1 January 1949 by the Slovakian Government. The current management plan was approved in 1991, with the government resolution defining nature protection objectives primarily to safeguard the biodiversity and ecosystem stability by continuous nature-oriented management and conservation of the area.

LEGAL BACKGROUND FOR WILDERNESS MANAGEMENT

Both strategic planning and daily management of the park was based on small strict reserves in the early years and larger core zones established later, with a non-intervention approach implemented. From the early 1990s on, the zoning system became the prevailing tool for protecting the wilderness character of the core area and non-intervention management is currently applied in network of strictly protected reserves. The objectives of wilderness protection include preservation of existing self-regulation, self-reproduction and self-regeneration capabilities of natural systems, conservation of their functional utility and

BEST PRACTICE EXAMPLE: THE ROLE OF NGOS AND THE PUBLIC IN WILDERNESS PROTECTION

The current management plan, along with the park's zoning system, provides legal background for the protection of the wilderness area. The new management plan, promoting more advanced zoning on an extended non-intervention area, has not been approved yet due to lack of political will. However, there are examples of local NGOs' successful initiatives to protect wilderness in the park.

NGO role in wilderness protection:

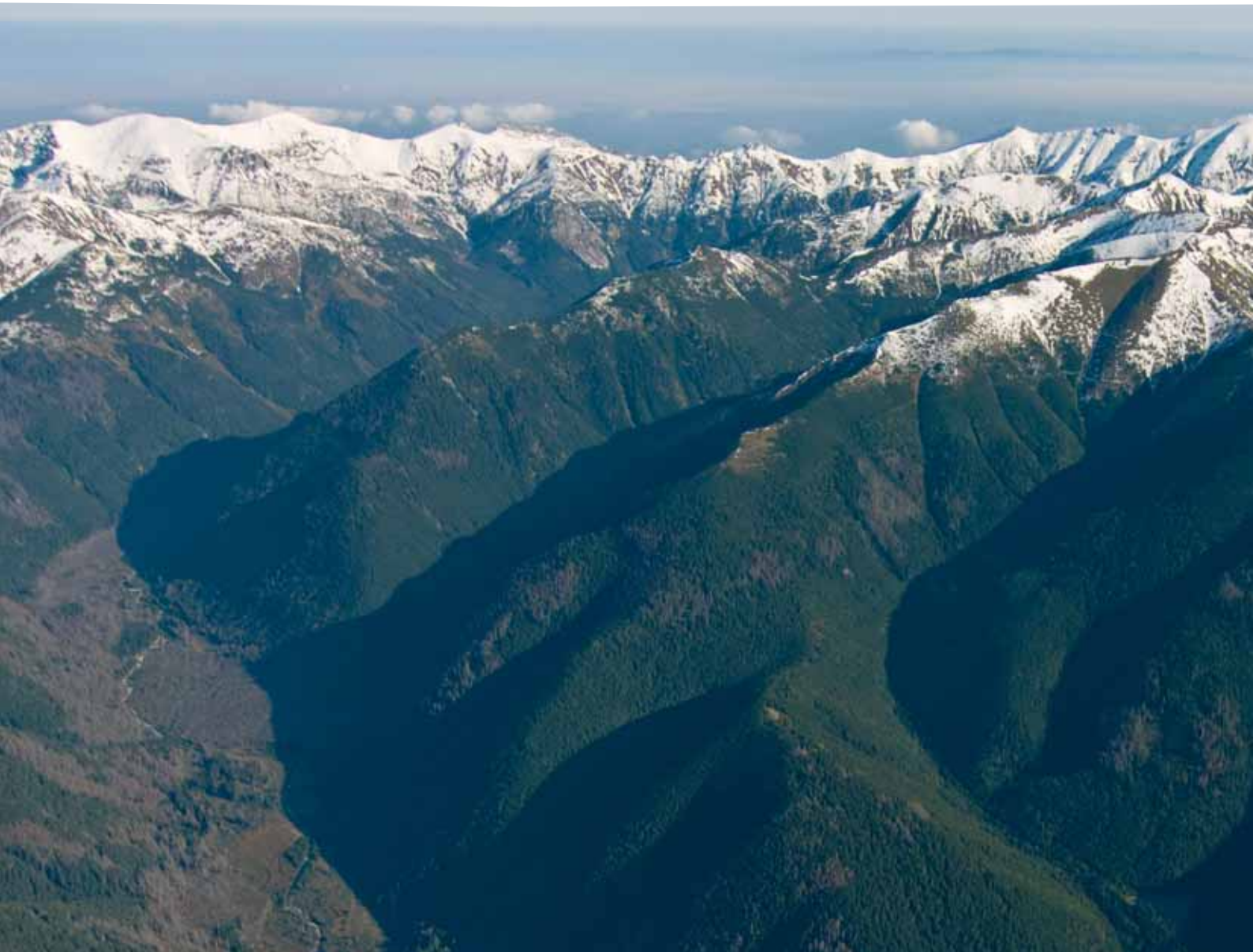
In the heart of Tatra National Park, there are two hidden wilderness areas of a total of 8500 ha: Tichá ("Silent") Valley and its smaller sister, Kôprová Valley. In the 1950s, trees in one third of the two valleys were chopped down, and some 1800 cattle were grazing in the area. As a result, wolves disappeared completely from Tatra NP and only two brown bears survived. Today, after almost 60 years of rewilding, the same area is home to more than 40 brown bears, one pack of wolves and many other old-growth forest species re-occupying their original homeland. In line with the main objective of this

strictly protected area, the application of non-intervention methods greatly contributes to the protection of intact native ecosystems.

However, a series of legal exceptions approved by relevant ministries often make these areas subject to so-called sanitary forestry intervention after extensive wind storm, bark beetle or snow calamities. For example, in Tichá Valley in 2007, a sanitary forestry operation was planned inside the wilderness area to prevent bark beetle infection after a large wind storm.

The large-scale public protest organized by NGO Wolf with support from other NGOs and

hundreds of individuals was one of the most crucial moments when the decision of park managers and local foresters was successfully influenced and active intervention was prevented from happening. This incident proved the importance of involvement and support of NGOs, the wider public and the media in wilderness protection. As a result, Tichá and Kôprová Valleys remain the largest unfragmented non-intervention area in Slovakia, in spite of continuous attempts of intervention e.g. sanitary logging.



BAVARIAN FOREST NATIONAL PARK, GERMANY

Size of national park: 25,000 ha

Size of wilderness area: 6,291 ha

Dominant habitat types of wilderness area (Natura 2000 habitat code):

9410 Acidophilous *Picea* forests of the montane to alpine levels

7110 Active raised bogs

91D0 Bog woodlands

6230 Species-rich *Nardus* grasslands, on silicious substrates in mountain areas

LEGAL BACKGROUND FOR OVERALL PROTECTION

Bavarian Forest National Park was established in 1970 and enlarged to its current size in 1997. The park's long-term objective is to manage 75% of its area as wilderness.

LEGAL BACKGROUND FOR WILDERNESS MANAGEMENT

Bavarian Forest NP's strategy to protect wilderness is based on clear zoning. Its core wilderness area belongs to 'nature zone' (strictly protected area), where the objective is to let natural processes evolve without any human interference.

KEY WILDERNESS VALUES

Natural spruce forests on mountain crests and high-altitude plateaus are characteristic features of this landscape. Since the middle of the 1990s, these forests have been able to develop and regenerate in a region extending across almost 7,000 hectares without any human interference. Wilderness dependent species inhabiting the area include the lynx, European otter, Ural owl, Tengmalm's owl, Pygmy owl, capercaillie, hazel grouse, three-toed woodpecker and dipper.

BEST PRACTICE EXAMPLE: STRATEGICAL SUPPORT FOR WILDERNESS

Bavarian Forest National Park's more than 25-year history of acknowledging wilderness as a concept and applying a non-intervention approach provides an excellent example of wilderness management based on the philosophy: "let nature be nature."

Legal support for wilderness: Following a 1983 thunderstorm, which uprooted spruce trees on 175 hectares of the national park in the matter of a few minutes, a decision was made not to clear the affected areas but to leave them to their natural development without human interference. The establishment of this new concept of conservation placed dynamic processes in the focus of protection efforts. Moreover, both Germany and the State of Bavaria worked out a strategy on biodiversity protection with a special emphasis on wilderness, and committed to turning a minimum of 2 % of Germany's territory, by 2020, into areas where nature is left to develop according to its own laws.

The bark beetle cycle as part of ecosystem dynamics: As a result of the above described processes, a non-intervention strategy has been adopted in the spruce forests of Bavarian Forest NP. In accordance with this strategy, natural bark beetles cycles – which are as typical of these forests as wildfires are in the north – are not prevented or acted against. The rich forest regeneration, occurring naturally after old trees are killed by the bark beetle disproves all fears of critics worrying over the complete disappearance of forests in such areas. A myriad of spruce seedlings in fact use the large, natural stock of rotting wood as a germination bed, and grow into impressive trees, thus initiating the development of conditions similar to those of primeval forests. In addition, a number of species long gone from the area, have returned to this newly developing wilderness.



Rich forest regeneration occurring naturally after trees are killed by the bark beetle creates conditions similar to those of primeval forests with a number of species long gone from the area, now returning to this newly developing wilderness — Photo: Tamás Gerécsi/gt-photo.hu

TRANSBOUNDARY NATIONAL PARKS: BAVARIAN FOREST NATIONAL PARK, GERMANY AND SUMAVA NATIONAL PARK, CZECH REPUBLIC

Size of national park: 93,000 ha (Bavarian Forest 25,000 ha and Sumava 68,000 ha)

Size of wilderness area: 6,291 ha

Dominant habitat types of wilderness area (Natura 2000 habitat code):

9410 mountain spruce forests

7110 peat bogs

91D0 bog woodlands

6230 montane Nardus meadows

LEGAL BACKGROUND FOR WILDERNESS MANAGEMENT

The transboundary wilderness area of the Bavarian Forest and Sumava National Parks is managed under the Europe's Wild Heart project. Based on their own prevailing zoning systems, both parks have developed a clear strategy to protect wilderness.

KEY WILDERNESS VALUES

Remnants of primeval mountain forests, glacial lakes, and mountain and valley raised bogs make the wilderness of these two national parks a unique 'gem'. Besides various communities of vegetation, the area is home to many wilderness-dependent animal species including the European lynx and lutra, as well as a great number of important bird species such as the white-tailed eagle, Ural owl, boreal owl, capercaillie, black stork, green woodpecker and kingfisher. The numerous peat bog communities have even enabled certain post-glacial period species to survive.

BEST PRACTICE EXAMPLE: FOREST WILDERNESS WITHOUT BORDERS

In the frame of Europe's Wild Heart project, transboundary Bavarian Forest and Sumava National Parks are cooperating in managing their common core zone with the same management regime.

Common management guidelines, timeline:

In managing their joint wilderness zone the two national parks follow the same guidelines. First and foremost, intervention and utilization of resources is not allowed, no game management is applied and the reproduction areas of endangered species are strictly protected. With regards to public access, guided tours are preferred, vehicle traffic is strictly limited and controlled, and tracks for new trails are to avoid sensitive biotopes.

In order to officially become the first and largest transboundary wilderness area in Europe, the management of the two parks have agreed on a common timeline, defined in their 'Vision 2020' plan. Objectives include the establishment of a common wilderness area of about 15,000 ha with harmonised management principles and joint information services and monitoring networks. Moreover, they aim to expand the core zone to 30% of the national park area until 2010 on the Czech side, and to 75% of the national park territory until 2027 on the German side, by a continuous and stepwise expansion of the "nature zone" of the latter. Further joint plans include the improvement of restoration, conservation and wildlife management measures, as well as the reinforcement of local economic development through supporting sustainable and environmentally-sensitive tourism and enhancing the condition and interconnectivity of public transport in the area.

Transboundary learning: Their cooperation provides the two national parks with great opportunities to garner invaluable experience. The Bavarian Forest, for example, implements a wilderness concept while also applying such restoration and rehabilitation activities as the removal of asphalt and gravel forest roads. In the past 10-15 years dozens of kilometers of roads have been restored, either by transforming asphalt into gravel or by giving gravel roads entirely back to nature through re-wilding. Methods like these set a great

example for their project partner, Sumava NP, as the success of one encourages the other to take similar measures. The notion of transboundary learning goes beyond the conservation aspect in the sense that it offers tourists the opportunity to experience wilderness without borders as well: the transboundary trail crossing through the joint wilderness area of the two parks enables visitors to marvel at the beauty of nature returning to its original – also borderless – state.



The transboundary parks cooperate in managing their common core zone with the same management regime and providing opportunity to experience wilderness without borders

Photo: BFP Archives

The eleven best practice examples of wilderness management described in this publication all attest to the applicability and appropriateness of non-intervention management in protected areas of Europe, and more specifically in territories belonging to the Natura 2000 network. Owing to the wide scope of different habitats and the variety of issues discussed in each best practice example, there is a wide spectrum of illuminating ideas and lessons to learn from with regards to the possibilities of wilderness management techniques.

LESSONS TO LEARN FROM

Swiss National Park's nearly one hundred years of experience in planning and implementing wilderness management testifies to the fact that non-intervention management is a valid approach that is sustainable for an extended period. Coupled with appropriate funding mechanisms to ensure continuous enlargement of the area as well as compensation for stakeholders, the national park in Switzerland is one of the most valuable and unique territories in the Alpine landscape, where both researchers and nature-loving visitors can enjoy and learn from Mother Nature.

Such a consistent approach is also strongly supported in Germany on a national level. The positive experiences **Bavarian Forest National Park** have had in wilderness management led the German government to set an objective of managing at least 2 % of its land as wilderness (nature developing without human interference) by 2020. This simple statement is a result of enormous behind-the-scenes efforts to mainstream non-intervention management in the country, and Bavarian Forest NP, with its highly committed park managers, plays a pioneering role in that process.

Zonation is an excellent tool to improve management effectiveness in protected areas and wilderness territories in particular. Having clearly defined and steadily implemented rules for each zone creates especially rewarding conditions

for nature conservation, as seen, for example, in **Fulufjället National Park** in Sweden. In addition, this national park's way of interpreting natural disturbances such as major flooding in the wilderness area not as a catastrophe, but as a natural occurrence offers an invaluable opportunity both for researchers and tourists to observe nature's evolution in its true form.

Monitoring of natural processes which should be considered as necessity is still not applied in every protected area. However, **Kalkalpen National Park** is a front-runner in systematic monitoring and research to study natural dynamics in a fragment of European wilderness. This provides valuable data not only for professionals but also information about wilderness and input for communications towards visitors, local communities or even politicians with the aim to raise support for wilderness conservation.

Turning to other aspects of wilderness management, it is ever more essential for wilderness area managers to build a holistic management approach, which includes communication and partnerships with all stakeholders in the protected area region. **Oulanka National Park** in Finland is unique in its tireless search for solutions to integrate protected areas and wilderness conservation into the surrounding community. Through setting up a cooperative group with local stakeholders they have worked out a co-management approach, which may become one of the cornerstones of effective wilderness management.

Another example emphasising the role of NGOs and the public in wilderness protection comes from **Tatra National Park**, Slovakia. The commitment of local NGOs in raising public interest for conservation plays a crucial part in the protection of wilderness areas. Public support may prevent legally approved but ecologically harmful intervention from happening, which is still characteristic in the area as a result of unclear interpretation of

certain laws. In addition, other national parks may gain invaluable inspiration from the park's impressive results in biodiversity conservation, the result of nearly 60 years of natural rewilding they have allowed to happen.

The publication also lists some more practical examples of best practices, such as the initiatives in **Majella National Park** in Italy. The park's answer to the challenge of creating and managing a wilderness area free from extractive uses was the development of a long-term leasing system of privately owned land. They have also carried out successful wilderness-indicative species reintroduction projects with Appennine chamois; healthy populations of which now inhabit this Mediterranean national park.

Tourism is always one of the greatest challenges in protected area management, and it is even more so in the case of wilderness areas. There are, however, well-worked solutions in this field as well. The example of **Archipelago National Park** in Finland, unique in the sense that it is a marine wilderness area, has proven that it is feasible to combine sustainable use of natural resources in a larger area with the designation and strict protection of large unfragmented marine nature reserves. By developing alternative territories for visitors to experience wilderness in, they are able to meet conservation requirements of the original wilderness area by designating it a no-go zone. Another excellent example of preserving while at the same time promoting wilderness is the management of raised bog ecosystems, old-growth forests and river habitats in **Soomaa National Park** in Estonia. Soomaa is a peerless example of a well-protected freshwater wilderness, demonstrating that there is a possibility to combine strict wilderness conservation with sustainable tourism, by means of carefully selected tourism facilities and equipment that provide attractive opportunities for visitors to experience the fragile ecosystems

of raised bog wilderness. An important condition of making such a model work is the establishment and maintenance of reliable partnerships with tour companies to secure the protection of such fragile natural values.

Alongside the successful initiatives described by these national parks, protected areas also have daily challenges to face and obstacles to overcome. The section about **Central Balkan National Park** in Bulgaria emphasises the importance of coordinating and consolidating various interests and objectives, such as traditional activities vs. biodiversity conservation or agricultural subsidy systems vs. wilderness protection, all of which can be highly challenging. Fragmentation is one of the most challenging issues of wilderness conservation in Europe and Central Balkan NP's example makes it obvious that de-fragmentation efforts require support on a regional, national as well as European Union level.

The increasing possibilities at EU-level, simultaneously create excellent opportunities for transboundary cooperation – a most welcome phenomenon in conservation as nature does not and should not know political borders. **Transboundary Bavarian Forest and Sumava National Parks** in Germany and the Czech Republic co-manage a project of transboundary wilderness - Europe's Wild Heart. In an unprecedented transboundary wilderness project the two parks manage their common wilderness area with the same management regime and their borderless nature is enjoyed by visitors as well.

The best practice examples included in this publication will all testify to the fact that there is ample wilderness in Europe, with numerous methods to protect, maintain, or enlarge. This is, however, not a complete selection of examples from European national parks where wilderness management is being fruitfully

1. (see page 40) based on Outline policy options, by Kees Bastmeijer, background document for Conference on Wilderness and Large Natural Habitat Areas in Europe

employed – there are many other areas in Europe that work along the lines of a non-intervention approach. What connects all European wilderness areas, whether or not included in this publication, is the invariable presence of strongly committed protected wilderness area managers, wilderness lovers and local stakeholders who care. By providing an endless source of inspiration and experience, they are key to the continuous protection of Europe's wilderness areas. On such a heavily developed, exploited and altered continent as Europe, it is especially important to preserve these precious wilderness areas, so that later generations may continue to enjoy the beauty and dynamics of Mother Nature in its true form.

THE WAY FORWARD

The Natura 2000 regime does not in itself guarantee wilderness protection, but there are many ways in which the implementation of Natura 2000 and the strengthening of wilderness protection may go hand in hand. The first argument pointing in that direction is that biodiversity conservation and wilderness protection share the objective of attempting to halt biodiversity loss. Secondly, wilderness protection does provide opportunities for humans to experience nature in its true form

– a responsibility that the Natura 2000 system highly values as well. Thirdly, the Natura 2000 regime, its guidelines, techniques and approaches are all suitable to protect both biodiversity and wilderness qualities.¹ (see page 39)

In order to ensure wilderness protection in Natura 2000 sites, explicit attention should be paid to wilderness qualities during designation of those areas as well as in setting and applying their conservation objectives. Similarly to this publication's ambitions, further examination of wilderness laws in various countries as well as private initiatives related to wilderness protection could provide more insight into the potential of wilderness protection in Natura 2000 sites.

As current legislation is suitable to serve as a basis for wilderness conservation, PAN Parks Foundation does not consider it necessary to develop new legislation on a European level. However, diversified and detailed guidance on wilderness management approaches for site managers would be essential to ensure a steady improvement of wilderness conservation in Europe. PAN Parks Foundation sincerely hopes this publication will also inspire EU member states to develop a wilderness vision for Europe, which can be included in the EU's post 2010 biodiversity strategy.

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PAN Parks works to protect Europe's wilderness, the continent's most undisturbed areas of nature. In these areas our knowledge and understanding is enhanced for the benefit of nature and humanity alike; people appreciate the pleasures offered by wilderness with the respect it deserves.



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