# European Wilderness Quality Standard Audit

NATIONALPARK KALKALPEN

EUROPEAN WILDERNESS SOCIETY

2016

Let's get Wild!

# European Wilderness Quality Standard Audit


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- Michael Huber, ECO Klagenfurt

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Includes maps of the Nationalpark Kalkalpen

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# WILDERNESS CERTIFICATE

*The European Wilderness Society certifies that the*

## KALKALPEN WILDERNESS

AUSTRIA

*with 13.034 ha is complying with the PLATINUM European Wilderness Quality Standard and is registered in the European Wilderness Preservation System*

valid until 01.10.2025

EUROPEAN WILDERNESS QUALITY
PLATINUM
EUROPEAN WILDERNESS SOCIETY

Max A.E. Rossberg
*Chairman*

Vlado Vančura
*Director Wilderness Development*

# European Wilderness Quality Standard and Audit System Report

**EWQA Version: 1.8**

**July 2015**

## PARK INFORMATION

| | |
|---|---|
| Protected area's name: | Nationalpark Hohe Tauern, Salzburg |
| Country(s): | Austria |
| Geographical position: | 47°47'24"N 14°22'25"E |
| IUCN classification: | II |
| Main ecological classification: | Karstic and forested wilderness |
| Number of visitors per year: | <1000 |
| Size of wilderness | 13.034 ha |
| Size of protected area (without buffer zone): | 20,820 ha |
| Year Special Protected Area established: | July 25, 1997 |

## PARK MANAGEMENT INFORMATION

| | |
|---|---|
| Address: | Nationalpark Kalkalpen, Nationalpark Allee 1, 4591 Molln, Austria |
| Telephone: | + 43 7584 3651 |
| E-mail: | nationalpark@kalkalpen.at |
| Web-site: | www.kalkalpen.at |
| Director: | Erich Mayrhofer |
| Contact person: | Erich Mayrhofer, Director |
| Telephone: | + 43 7584 3651 |
| E-mail: | nationalpark@kalkalpen.at |

## AUDIT RESULT:

| | |
|---|---|
| Certification Level: | Platinum |
| Valid until: | 2025 |
| Intermediate Audit: | 2020 |

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**Max A E Rossberg, Chairman**

**Approved by:**

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# 1. Executive summary

Wilderness represents a vital part of Europe's natural and cultural heritage. In addition to its intrinsic value, they offer the opportunity for people to experience the spiritual quality of nature in the widest experiential sense – beyond mere physical and visual attributes and in particular its psychological impact. Wilderness also provides important economic, social and environmental benefits, including ecosystem services.

The European Wilderness Society as a pan-European, wilderness and environmental advocacy organization has developed a standardized wilderness norm, European Wilderness Quality Standard and Audit System (European Wilderness Quality Standard and Audit System). This norm is a tool to identify, designate, manage and promote European wilderness in order to support wilderness long-term existence and its further development and restoration.

The European Wilderness Quality Standard and Audit System serves as a basis for effective wilderness protection, designation, restoration, and promotion of wilderness across a range of geographical and political regions in Europe. It provides an easily understood, unambiguous and practical wilderness benchmark system that can mobilize the necessary interest and support among practitioners across the key sector of society.

The European Wilderness Quality Standard and Audit System is a mechanism which was used to assess quality of wilderness within the Nationalpark Kalkalpen. The establishment of a wilderness within the Nationalpark Kalkalpen is in response to a new Nationalpark strategy for Austria which aims to strengthen the wilderness character of their core areas.

# 2. European Wilderness Quality Standard and Audit System

*This European Wilderness Quality Standard and Audit System in the scientific context of current wilderness research chapter was written by Michael Huber & Michael Jungmeier (E.C.O. Institute of Ecology/University of Klagenfurt) February 2016.*

## 2.1. Introduction

Wilderness is a vital part of Europe's natural heritage. This is underpinned by an ongoing trend towards the designation of wilderness in Europe (e.g. the UNESCO World Heritage Site Primeval Beech Forests of the Carpathians and the Ancient Beech Forests of Germany (since 2011) or recent initiatives to promote wilderness (e.g. Wild Europe Initiative, European Wilderness Society, PANParks etc., Martin et al. 2008).

The trend towards wilderness conservation and promotion raises certain questions about what the term wilderness actually means in a European context. In Central European countries, no legislation comparable to the US Wilderness Act exists, which clearly defines wilderness as of a minimum area size, and designates places exclusively as such (Lupp et al. 2011). Although the term wilderness has long existed in various European languages, it is a rather new concept as a concept for nature conservation in Central Europe (Hintermann et al., 1995; Zunino, 2007). The German term Wildnis (wilderness) also has an associated meaning as something looking messy and untidy giving wilderness a rather negative meaning (Lupp et al. 2011). As no clear definition for this term seems to exist, misunderstandings may occur (Lupp et al. 2011). Murray (1968) even assumes that "Wilderness is what men think it is".

According to the US Wilderness Act (1964) wilderness, are "areas where the Earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain" (US Wilderness Act, 1964). It reflects a holistic approach, as well as preserving the capacity of the landscape to experience what the country was like when the first European settlers arrived (Lupp et al. 2011). The current definition for IUCN Category Ib (Wilderness Areas), defines wilderness as "usually large unmodified or slightly modified areas, retaining their natural character and influence, without permanent or significant human habitation, which are protected and managed so as to preserve their natural condition." (Dudley 2008). This definition of IUCN is strongly relying on the definition of the US Wilderness Act (Vicenzotti 2010).

However, after thousands of years of shaping European landscapes, this primeval imagination of wilderness is hardly achievable. It soon became apparent, that an individual definition of wilderness as a conservation concept in Europe was required to reflect the current natural and spatial conditions and the cultural context. Numerous authors acknowledge the difficulties in finding an appropriate definition as next to a conservation concept and a historic concept, wilderness is above all a cultural concept. Trommer (1997) calls the European wilderness mainly a cultural phenomenon being a contrast to civilization.

One man's wilderness is another's roadside picnic ground (Nash, 1982, P.1).

Lupp et al. (2011) observed that the wilderness discussion in Central Europe lacks a common physical and spatial definition and that this is also an indication for strong ethical and religious, educational and cultural motifs in the demand for wilderness. Thus, they conclude that wilderness more is a state of mind (Nash, 2001) or a mental construct (Vincenzotti and Trepl, 2009) (Lupp et al. 2011).

## The European Wilderness Quality Standard and Audit System definition

As a reaction to the lack of a common European definition of wilderness, the Wilderness Working Group of the Wild Europe Initiative developed and generated the definition of European Wilderness and Wild Areas (Wild Europe Initiative 2013), which builds on the definition of the existing IUCN Category IB. According to the definition, wilderness and wild areas are defined as follows:

> *"A wilderness is an area governed by natural processes. It is composed of native habitats and species, and large enough for the effective ecological functioning of natural processes. It is unmodified or only slightly modified and without intrusive or extractive human activity, settlements, infrastructure or visual disturbance."*

> *"Wild areas have a high level of predominance of natural process and natural habitat. They tend to be individually smaller and more fragmented than wilderness, although they often cover extensive tracts. The condition of their natural habitat, processes and relevant species is however often partially or substantially modified by human activities such as livestock herding, hunting, fishing, forestry, sport activities or general imprint of human artefacts."*

The definition of wilderness by the Wild Europe Initiative is used for the European Guidelines on Management of Wilderness and Wild Areas in the Natura 2000 Network (European Commision, Kun European Wilderness Society 2013) and in the European Commission Wilderness Register.

The understanding of wilderness as a basis for the European Wilderness Quality Standard and Audit System is rather close to the definition as provided by the US Wilderness Act (1964). It shares the same understanding of wilderness, but accepts a certain extent of modification. The introduction of so called wild areas can be considered as a concession to a European context. However, the definition does not address the issue of wilderness as a state

of mind (Nash 1982, Nash 2001) or as a cultural concept (Stremlow & Sidler, 2002, Trommer 1997; Vicenzotti & Trepl 2009).

Hoheisel et al. (2010) claims that wilderness is not a feature that can be described in natural scientific terms only, but needs a more sociocultural approach. As not only the European Wilderness Initiative and the European Wilderness Society, but also the European Commission adopted this definition in their guideline, this could be as well a first step towards a shared set of common features of wilderness and thus building a foundation for a common European understanding of wilderness.

According to the definition, the European Wilderness Quality Standard and Audit System is based on the following key issues describing wilderness:

- **Governed by natural processes:** This is considered a basic principle and is in line with the understanding of wilderness as proposed by IUCN Cat Ia or Ib, to a certain extent even with IUCN Cat II. Nationalparks which have the priority objective to allow for dynamic processes on a large scale (Dudley 2008). It is also congruent with the US American definition of wilderness.

- **The presence of native habitats and species.** This explicitly includes species and habitats that are native to a certain place, which excludes (heavily) degraded habitats and neobiota species.

- **Sufficient size to ensure the effective functioning of natural processes:** This acknowledges that a certain size is needed to allow for undisturbed and dynamic natural processes. However, minimum sizes are hard to define and depend on the type of habitats.

- **Unmodified or slightly modified area:** This focuses on areas, which have been mostly exempt from human modification in the past. This also means that heavily modified areas cannot be considered wilderness at least on a medium perspective. However, a definition of slightly modified is yet to be provided.

- **Exempt from intrusive or extractive human activity or impact**: This clearly defines wilderness as areas, where no current human activity or impact occurs irrespectively of the time since it has been exempt from any use.

- **Visual disturbance:** This relates to a specific impact of humans by means of a built environment and infrastructures which disturb the unspoilt character of a wilderness. However, this closely relates to the recreational aspect of wilderness, as it might be people who consider a disturbance a disturbance.

This definition is the basis for the European Wilderness Quality Standard and Audit System, its principles, criteria and indicators, which are supposed to further specify the above mentioned aspects of wilderness. Additional thresholds and further specification of definitions

is part of the ongoing development of the European Wilderness Quality Standard and Audit System.

Similarly, as discussed in Aplet et al. (2000), there is a differentiation between wilderness, which has a strict and narrow definition, and so called wild areas (or wild lands in Aplet et al. 2000), which can be found in any landscape at any scale and have an intermediary character when referring to the Wilderness Continuum as proposed by Lesslie & Taylor (1985). Consequently, wilderness or wild areas can be found at the more natural and least developed end of an environmental modification spectrum. Thus, by including the definition of wild areas it is being acknowledged that there is not a fixed threshold which defines wilderness, but a continuum which changes over time. This is also acknowledged by Ceasu et al. (2015), who consider rewilding of abandoned farmland in order to create room for increased wilderness experiences and a more extensive and self-regulating ecosystem as a viable option within the wilderness discussion.

EQWA makes the claim to locate the current status on the Wilderness Continuum by assessing a number of criteria and indicators. However, Orsi et al. (2013) point out the problem to locate the point, along the continuum, beyond which there is wilderness as this decision is affected by individual perceptions. Comber et al. (2010) even assume that the majority of wildness studies still seem largely arbitrary, leading to results that reflect the viewpoint of a group of scientists and stakeholders (e.g. managers, NGOs). Some authors even argue that past landscape modifications by human populations and pervasive human impacts across scales make the idea of wilderness particularly in Europe inconsequential (Heckenberger et al. 2003).

This makes clear that the European Wilderness Quality Standard and Audit System operates in a rather dynamic new area, which demands absolute transparency and well defined criteria and thresholds, even more as there is most fundamental discussion going on and criteria and thresholds are not yet agreed on by the research community. The work of the European Wilderness Society thus constantly works on developing, defining and refining thresholds to test them in practice.

## Definition of natural processes

All definitions of wilderness somehow relate to so called natural processes. Thus, in order to assess wilderness, an appropriate definition of which processes are included is required. A comprehensive overview and definition has been prepared by Wild Europe (2012). This is particularly interesting as it allows for a more comprehensive understanding of the definition used by the European Wilderness Quality Standard and Audit System. According to Wild Europe (2012) natural processes comprise:

**Abiotic factors** (Wind, water, fire, avalanches, geology and climate)

**Biotic factors** are comprised of

- Wildlife (Trophic levels, population dynamics, migration, prey-predator relationships etc.).
- Habitats and flora (Natural succession, ecotone functioning, habitat mosaics, reproduction and population dynamics etc.).
- Natural cycles (Sequestration and storage, availability of biomass, nitrogen etc.).

Furthermore, scale plays a prominent role as it is necessary to allow the full range of processes with a special focus on space for abiotic processes and on metapopulations. Further key principles of Wild Europe (2012) for the functioning of natural processes refer to self-sustained processes, which are free from external influences and show the highest species variability and broadest age structure.

## 2.2. Assessment of wilderness – current approaches

Lupp et al. (2011) carried out a comprehensive analysis of the current state of wilderness research and concluded that, even quite theoretical work has been carried out so far in a European context, but that concrete, empirical research is still lacking. Theoretical research has not yet been fully tested the ground, makes it rather challenging to elaborate a system to assess the quality of a wilderness, but also makes the European Wilderness Quality Standard and Audit System one of the few efforts to standardize and put theoretical work in practice.

Even though, the conservation of wilderness is an objective target that is socially desired and a main task of protected areas (Machado 2004; Mittermeier et al. 2003), there is no generally applicable method for recording and assessing this value (Mayrhofer et al. 2015).

The following section provides a brief overview about the various efforts to structure, conceptualize and assess wilderness with a specific focus on a European context:

### The dimensions of wilderness

Ceausu et al. (2015) provide a comprehensive overview of current approaches. They consider wilderness a multidimensional concept that has developed from an aesthetic idea towards a science- based approach. According to them, a wilderness assessment should at least capture a subjective, human experience as well as an ecological dimension of minimally impacted ecosystems. Some of the main currently used conservation approaches regarding wilderness consider wilderness from a rather strict point of view focusing on the degree of human presence, biophysical aspects of natural processes, ecological communities and ecosystems that develop in the absence of human management (Brooks et al. 2006, Kalamandeen and Gillson 2007).

## The qualities of wilderness

When it comes to assess the quality of wilderness, the question raises, which qualities comprise wilderness. A number of approaches and definitions from the American context, such as a minimum size of 5000 acres (2000 ha), or the possibility to hike for several days without finding traces of human use are not very well suited for Central Europe. (Lupp et al. 2011). The European Commission (2013) requires that any evaluation of the effectiveness of protected areas for the conservation and development of wilderness needs to address the four qualities of wilderness: a) naturalness, b) undisturbedness, c) undevelopedness and d) scale. In varying terms with similar meanings all assessments refer to these dimensions (e.g. remoteness (Mackey et al. 1998 and Mayerhofer et al. 2015); solitude (Aplet et al. 2000)). Some authors also refer to trophic chains by looking at the spatial occurrence of megafauna species such as apex predators, large herbivores or birds of prey (Ceausu et al. 2015). Furthermore, human impact such as land-use, pollution (Aplet et al. 2000) or artificial light (Ceausu et al. 2015) and human infrastructures such as roads, buildings or settlements, natural composition, uncontrolled processes, unaltered structures and many more are used as proxies to describe the wilderness quality. In other approaches the term untrammelled (U.S. Wilderness Act 1964, BLM 2010) is also used. Initial efforts to include the documentation and monitoring of natural processes have been undertaken by Jungmeier et al. (2015).

There are several GIS-based studies which measure wilderness on the basis of wilderness quality on a regional, national or even global scale by using varying combinations of the above mentioned qualities (Orsi et al. 2013; Plutzar et al. 2013; Carver et al. 2011; Fischer et al. 2010; Fritz et al. 2000; McCloskey & Spalding 1989; Mayrhofer et al. 2015).

Reif (2013), who reflected the operationalization of wilderness targets in Germany, proposes five qualities namely (1) Size, representing the completeness of processes, states, and species composition, (2) habitat continuity, (3) Rareness and endangerment, (4) connectivity and absence of fragmentation and (5) representativeness.

Kuiters et al. (2013) made a comprehensive effort to identify wilderness in Europe and implement a European Wilderness Register by adhering to the four wilderness qualities. Their analysis included zonation, size of the core zone, extent of management measures and interferences as well settlements, road infrastructure and access, extractive uses and management aspects such as wildlife management.

In general, there seems to be a trend towards the use of at least the four qualities of wilderness as also defined by the European Commission (2013). Consequently, the following section makes an effort to further specify these dimensions and the current state of debate.

## Naturalness

According to the European Wilderness Guidelines, the quality Naturalness includes naturalness of vegetation, naturalness of the occurring species and naturalness of the natural processes (EU Commision 2013). However, there is substantial discussion about how to measure naturalness. Some authors even argue that past landscape modifications by human popula-

tions and pervasive human impacts across scales make the idea of wilderness particularly in Europe inconsequential (Heckenberger et al. 2003). This raises the question of the respective baseline against which naturalness is measured. In practice, traditional agricultural landscapes often have become the benchmark against which biodiversity change was measured (Papworth et al. 2009).

Most approaches make use of proxy indicators such as distance to roads or settlements as well as distance from patches of artificial / modified land cover (e. g. Orsi et al. 2013) due to a lack of spatial data on other indicators of naturalness. Several authors also describe naturalness by indicator species (Mayrhofer et al. 2015), by forest hemeroby (Mayrhofer et al. 2015, Grabherr et al. 1998) or by a comparison with the potential natural vegetation (Pnv, e.g. Bohn et al. 2000; Ceausu et al. 2015). This issue is addressed by the European Wilderness Quality Standard and Audit System by the principle Natural process and Biodiversity and its related criteria.

### Undisturbedness

According to the EU Commission's definition (2013), undisturbedness refers to an administrative, statutory or legislative measure. A wilderness should be free from modern human control or manipulation. While existing human interventions like infrastructure and land uses are assessed in the categories of naturalness and undevelopedness, regulations with regards to human interactions in the given area are considered main criteria to assess undisturbedness (Mayrhofer et al. 2015). This can be ensured by regulations, legal provisions, management plans or an appropriate zonation system, which should provide a frame to minimize possible disturbances. Some authors also consider stand age of forests as appropriate indicator to assess the degree of undisturbedness from a historical point of view (Mayrhofer et al. 2015).

### Undevelopedness

The quality of undevelopedness can be measured by number of or distance to settlements or other human artefacts (Plutzar et al. 2013; Orsi et al. 2013; Tricker et al. 2012). Tracks that allow motorized vehicles increase the potential for modifying the environment and are considered human artefacts. Evaluating undevelopedness could be based on an analysis of length and density of the road network (Mayrhofer et al. 2015). Orsi et al. (2013) define solitude as an important factor for the perception of wilderness by visitors and have used the probability of meeting other visitors by length and visitor frequency on footpaths. Aplet et al. (2000) took population density as an indicator for solitude.

### Scale

From an ecological point of view, it can be argued that a wilderness should meet minimum size features (i.e. large enough for the effective ecological functioning of natural processes). The spatial scale needed for maintaining the ecological integrity of a natural area determines its minimum size (i.e. scale needed for undisturbed natural ecological processes and viable species populations). This largely depends on the ecosystem types involved (Kuiters et al. 2013). Thus, IUCN does not give standardized minimum sizes for wilderness as long as it is

ensured that areas are large enough for an effective ecological functioning of natural processes without intrusive or extractive human activity (European Commission 2013). Thus, this also includes core zones of Nationalparks (IUCN Category II) which allow for dynamic processes on a large scale (Dudley 2008). The Swedish Environmental Protection Agency (SEPA), has further specified standards for IUCN Ib wilderness to 1000 ha in Northern, and 500 ha in Southern Sweden (Kuiters et al. 2013), following a similar definition as Finland (1000 ha; European Commission 2013). The US Wilderness Act (1964) generally considers about 2000 ha as an appropriate minimum size. The European Wilderness Register adopted a minimum threshold value for wilderness core zones of at least 3.000 hectares (Kuiters et al. 2013). Other initiatives even define minimum areas up to 10.000 ha (PANParks 2009).

Given the variety of minimum sizes, the frequent absence of minimum areas and the numerous attempts to provide definitions for a minimum size of wilderness in Europe show that primarily values and perspectives are important in defining thresholds.

Scale is not only important from an ecological point of view but it can also be defined by anthropogenic factors. A certain size may be necessary to enable the protection of whole landscapes. This is important as people spiritually identify with wilderness and feel emotionally bound to certain landscape features. The size of the area often determines the perception of 'wildness', i.e. if a visitor can experience solitude, wholeness and other spiritual experiences. The issue of sufficient size must be considered with reference to the surrounding landscape as the quality of the surrounding landscape determines the ecological connectivity and the functioning of the ecosystems in the core area. The surrounding landscape also influences how the visitors experience the area. Therefore, wilderness is often related to remoteness, although it is not a strict prerequisite (European Commission 2013).

## Categories of Wilderness

Lupp et al. (2011) analyzed the current discussion regarding approaches to determine various types of wilderness (e.g. by Diemer et al. 2003), who proposes four designations based on spatial extents (Nationalparks (>1000ha), Urban Wilderness (<1000ha close to cities), Urban or Rural Rewildering Sites (<500ha) and Rewildering Microcosms (several hectares).

The wilderness continuum assesses wilderness quality in relation to the degree of modification as well as in relation to the degree of freedom to develop without human interference. Similarly, Aplet et al. (2000) describe five different types of wilderness depending on the degree of naturalness and freedom.

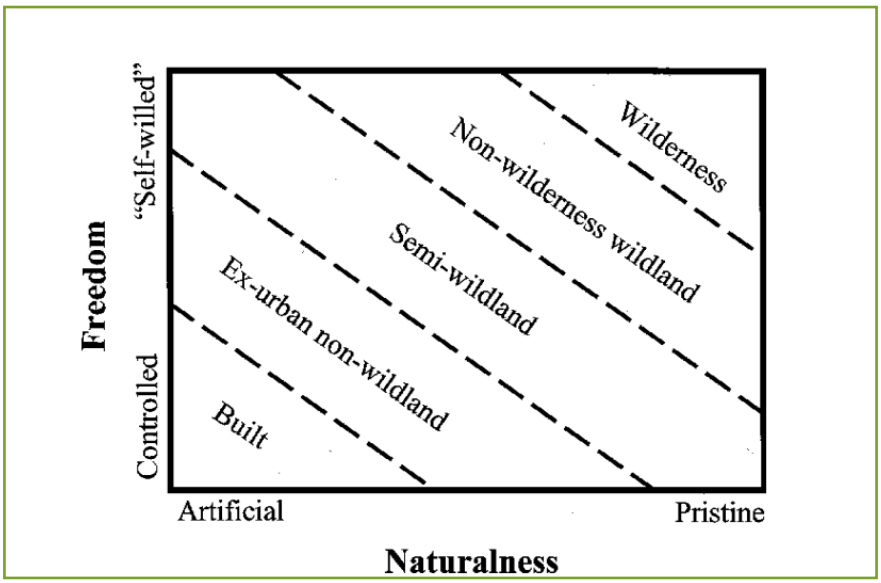



*Fig. 1: The „continuum of wildness" with increasing wildness as a function of naturalness and freedom from human control.*

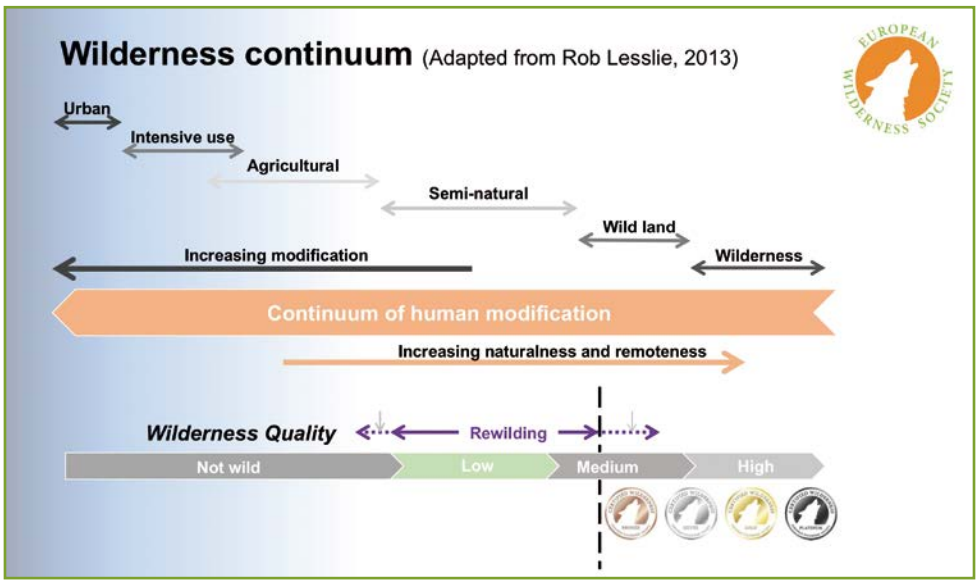



*Fig. 2: The wilderness continuum as a basis for the European Wilderness Quality Standard and Audit System.*

Considering the figures showing the wilderness continuum, the question raises how they relate to the European Wilderness Quality Standard and Audit System and how they are or could be operationalized.

The classification of Aplet et al. (2000) offers an attractive two-dimensional model. The assessment of self-will or control is rather easy to operationalize by referring to existing regulations, eventual zoning and management plans. However, the second key dimension, naturalness, is widely considered a core dimension for wilderness, but raises a number of questions yet to be answered. How can a pristine environment be characterized? How to define thresholds for naturalness? Several studies have addressed this issue (as indicated further above)

using proxies such as hemeroby, potential natural vegetation, indicator species or even just the absence of human infrastructure.

If considering a comprehensive assessment of wilderness, a further issue needs to be considered: Where to draw the baseline? How to define understandable thresholds? The location of the different types or labels of wilderness on this matrix is a key challenge for research. Orsi et al. (2013) point out the problem to locate the point, along the continuum, beyond which there is wilderness as this decision is affected by individual perceptions.

## Wilderness Categories and minimum size

There are four categories of wilderness zones; each category defines a specific wilderness quality standard with a focus on its wilderness values. Wilderness should have a wilderness zone with the following sizes:

- Bronze wilderness – at least 1,000 ha (500 ha for specific habitats such as raised bogs, floodplains, etc.).
- Silver wilderness – at least 2,000 ha.
- Gold wilderness – at least 3,000 ha. This category represents the minimum size recommended by the former Working Definition of European Wilderness and Wild Areas.
- Platinum wilderness – at least 10,000 ha. This category represents the highest achievable level in the wilderness continuum.


*Fig. 3: Bronze-, Silver-, Gold and Platinum Wilderness-Categories, European Wilderness Quality Standard and Audit System.*

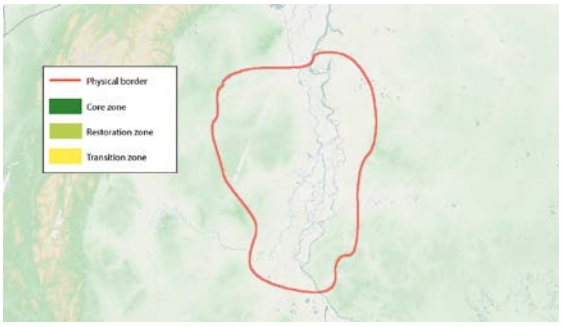
## Step Approach to Certification along the Wilderness Continuum

A potential wilderness generally has a defined boundary as a result of mapping in addition to a vision for the area. Based on this vision, several steps take place; an initial examination of the area, workshops with the management team and an analysis of available and relevant research and management plans. After which the area becomes designated as a the European Wilderness Quality Standard and Audit System Candidate. During the following two years, various actions take place, such as the creation of a management plan for invasive species, fire control management plan and a restoration plan in order to prepare the area for an audit.

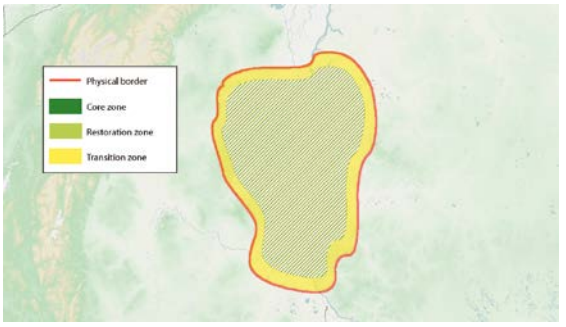
*Fig. 4: The manager of a potential wilderness proposes a wilderness with a clearly defined boundary.*

After two years, the area will be examined according to the indicators resulting in a SWOT analysis. Based on the results of this audit System, a management plan would be developed for the wilderness, followed by the awarding of a wilderness category.

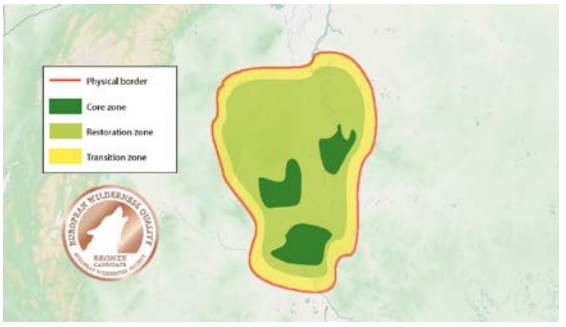
The wilderness zone would gradually be enlarged in order to reach a maximum extent. The progress of restoration defines which wilderness category would be assigned.



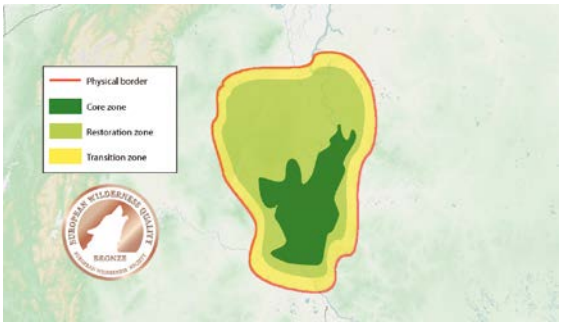

***Step 1:*** *Selection of the area is based on wilderness quality mapping, giving it a physical boundary.*



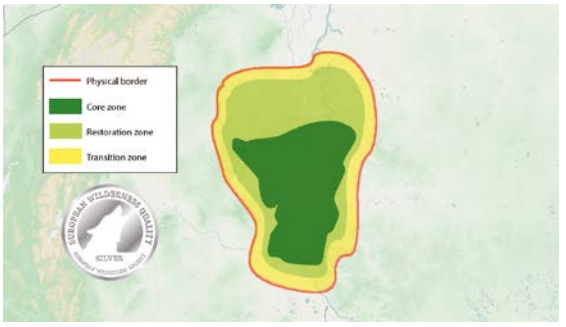

***Step 2:*** *Development of a vision for wilderness.*



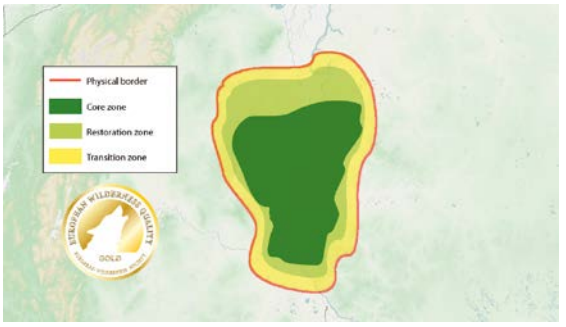

***Step 3:*** *Area receives candidate status, followed by a wilderness audit over the next two years, utilizing the European Wilderness Quality Standard and Audit System.*



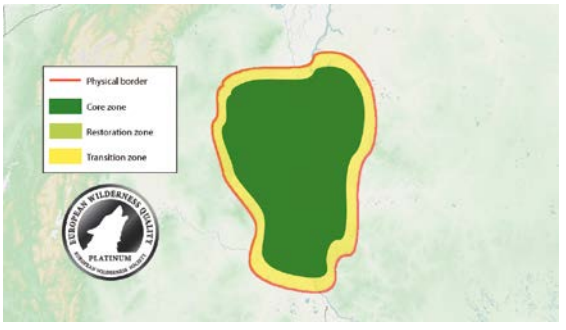

***Step 4:*** *Based upon the results of the European Wilderness Quality Standard and Audit System audit, a management plan is created as well as a wilderness restoration plan. The area is given an appropriate certified wilderness category.*




***Step 5:*** *Restoration in the restoration zone leads to non-intervention wilderness zone of more than 2,000 ha. The area is given Silver certification.*




***Step 6:*** *Progressive restoration leads to non-invention wilderness zone reaching 3,000 ha and given Gold certification*




***Step 7:*** *The restoration of wilderness is complete.*

## The European Wilderness Quality Standard and Audit System approach: Methodology

The European Wilderness Society developed the European Wilderness Quality Standard and Audit System (European Wilderness Society 2015) to provide a common European wilderness certification standard which is following the common accepted "Definition for European wilderness and wild areas" developed by the Wild Europe initiative (Wild Europe 2012).

The European Wilderness Quality Standard and Audit System is based on over 500 indicators assigned nine principles. Each area is assigned one of the four categories forming the proposed wilderness preservation system: bronze, silver, gold or platinum. The European Wilderness Society puts a lot of effort into the discussion and further development of the European Wilderness Quality Standard and Audit System and thresholds for its indicators in order to provide a comprehensive tool for operationalizing the theoretical discussion. The European Wilderness Quality Standard and Audit System understands principles as the fundamental statements about a desired outcome. Criteria are the conditions that need to be met in order to comply with a principle. Indicators are the measurable states which allow the assessment of whether or not a particular criterion has been met.

Areas of platinum or gold category are regarded as wilderness, while those of bronze or silver are wild areas. A wild area can evolve into a wilderness over a long term process as also considered in the wilderness continuum approach (Lesslie & Taylor 1985). For general communication purposes and easy understanding, the European Wilderness Society applies the term wilderness for all categories irrespective of the actual category.

## The nine European Wilderness Quality Standard and Audit System principles

The European Wilderness Quality Standard and Audit System is based on 9 principles, which are as follows (in order of their appearance in the European Wilderness Quality Standard and Audit System guideline):

- **Wilderness Size and Zoning:** Wilderness certified under the European Wilderness Quality Standard and Audit System should have three zones, the wilderness zone surrounded by a restoration zone, surrounded by a transition zone. This threefold structure is considered the best protection for key wilderness principles while allowing the potential for expansion and flexible interaction with other land uses.

- **Natural processes and biodiversity:** (In general) a wilderness or wild area should have a core zone where natural processes maintain natural dynamics in biodiversity, contributes to the conservation of wilderness indicative species and contains examples of undisturbed ecosystems.

- **Wilderness Management Plan:** This plan encompasses the different Wilderness conservation measures, a biodiversity management plan, and a plan for supporting the natural processes, a landscape management and the training of the responsible wilderness management team. This principle also covers the impact of visitor management.

- **Wilderness Restoration:** In general, a plan must be in place for all Bronze- and Silver Standard areas to restore wilderness with the focus on low human intervention. In the Gold-and Platinum Standard areas, wilderness restoration is typically implemented in the buffer zone for later expansion.

- **Wilderness and Extractive Uses:** Gold- and Platinum Standard Level areas should not have any human extractive use. At the Bronze- and Silver Standard Level a phase out plan for extractive use should be put into place. Also covered under this principle are fire control, disease control, and invasive species control. The core zone should not have any human extractive use or human intervention, not even fire control, disease control, wildlife management or invasive species control. For restoration purposes, some management interventions might still be permitted at the Bronze- and Silver Standard-levels especially, but only under very strict regulations and after close scrutiny of their necessity.

- **Wilderness Disturbance:** Here the focus lies on the removal of infrastructure, well-planned tourism access and strictly regulated and limited access to the area, in order to secure minimum impact on the wilderness core zones.

- **Control strategy for fire, invasive species, and natural catastrophes:** In general, a wilderness or wild area should have a fire control plan, a disease control plan and an invasive species control plan. Here the focus lies on the core zone without any active management measures to control fire, disease and an invasive species.

- **Wilderness Research and Monitoring:** Research and monitoring activities should generally be zero-impact in their character and observe minimum-intervention principles. This requires a detailed plan for scientific research and cooperation with scientific institutions and universities regardless of the European Wilderness Quality Standard and Audit System level.

- **International Relevance:** The audit of the international relevance focuses mainly on the IUCN categories, Natura 2000 Network, UNESCO designations but also accepts other certifications.

Given the structure and content, it becomes clear that a wide range of issues of wilderness is covered by the European Wilderness Quality Standard and Audit System approach. The principles related Wilderness Management Plan, to Wilderness Research and Monitoring as well as International relevance, furthermore indicate the presence of an additional dimension referring to a management quality. (see page 18).

*Table 1: The dimensions of Wilderness and the European Wilderness Quality Standard and Audit System.*

| | Dimensions of Wilderness | | | | |
|---|---|---|---|---|---|
| **European Wilderness Quality Standard and Audit System Principles** | Naturalness | Undisturbedness | Undevelopedness | Scale | Management |
| Wilderness Size and Zoning | | | | √ | |
| Natural processes and biodiversity | √ | | | | |
| Wilderness Management Plan | | | | | √ |
| Wilderness Restoration | | | | | √ |
| Wilderness and Extractive Uses | √ | | | | |
| Wilderness Disturbance | | √ | √ | | |
| Control strategy for fire, invasive species, and natural catastrophes | | √ | | | |
| Wilderness Research and Monitoring | | | | | √ |
| International Relevance | | | | | √ |

These general principles or qualities seem to adequately reflect the wilderness qualities as defined by the European Commission (2013) without referring to the specific criteria or indicators.

However, this leaves three principles, which provide additional qualities going beyond the current wilderness debate. This comprises mainly the principles of Wilderness Restoration, Wilderness Research and Monitoring and International Relevance. Based on these principles, the European Wilderness Quality Standard and Audit System covers two key dimensions:

- The quality of wilderness (the current state of biodiversity, natural processes, existing infrastructures, visitors, eventual uses and disturbances).

- The quality of the wilderness management (existence of plans, regulations, organizational settings, guidelines how to deal with certain issues etc.).

Thus, the European Wilderness Quality Standard and Audit System gives not only an assessment of the current quality of wilderness, but also about the current quality and standard of the authority responsible to manage the respective wilderness. This could be a major additional value of the European Wilderness Quality Standard and Audit System subject to the condition that the related indicators cover all relevant aspects. However, the indicators are not subject of the present review.

The principle international relevance aims to describe the wilderness and its importance within the international conservation network as it assesses whether the area is recognized by IUCN or similar organizations, whether it is part of the Natura 2000 network and if endangered species or habitats are protected by the wilderness. Furthermore, it serves a proxy indicator by assessing whether the management is able to comply with international requirements.

## Conclusions and Perspectives

The current essay reflects the concept of the European Wilderness Quality Standard and Audit System in the light of the current wilderness research. Apparently, there is no other such assessment available even though there are numerous ongoing research activities aiming to assess wilderness. Most of the research has either a focus on theoretical reflection of the concept wilderness or is strictly case-study based.

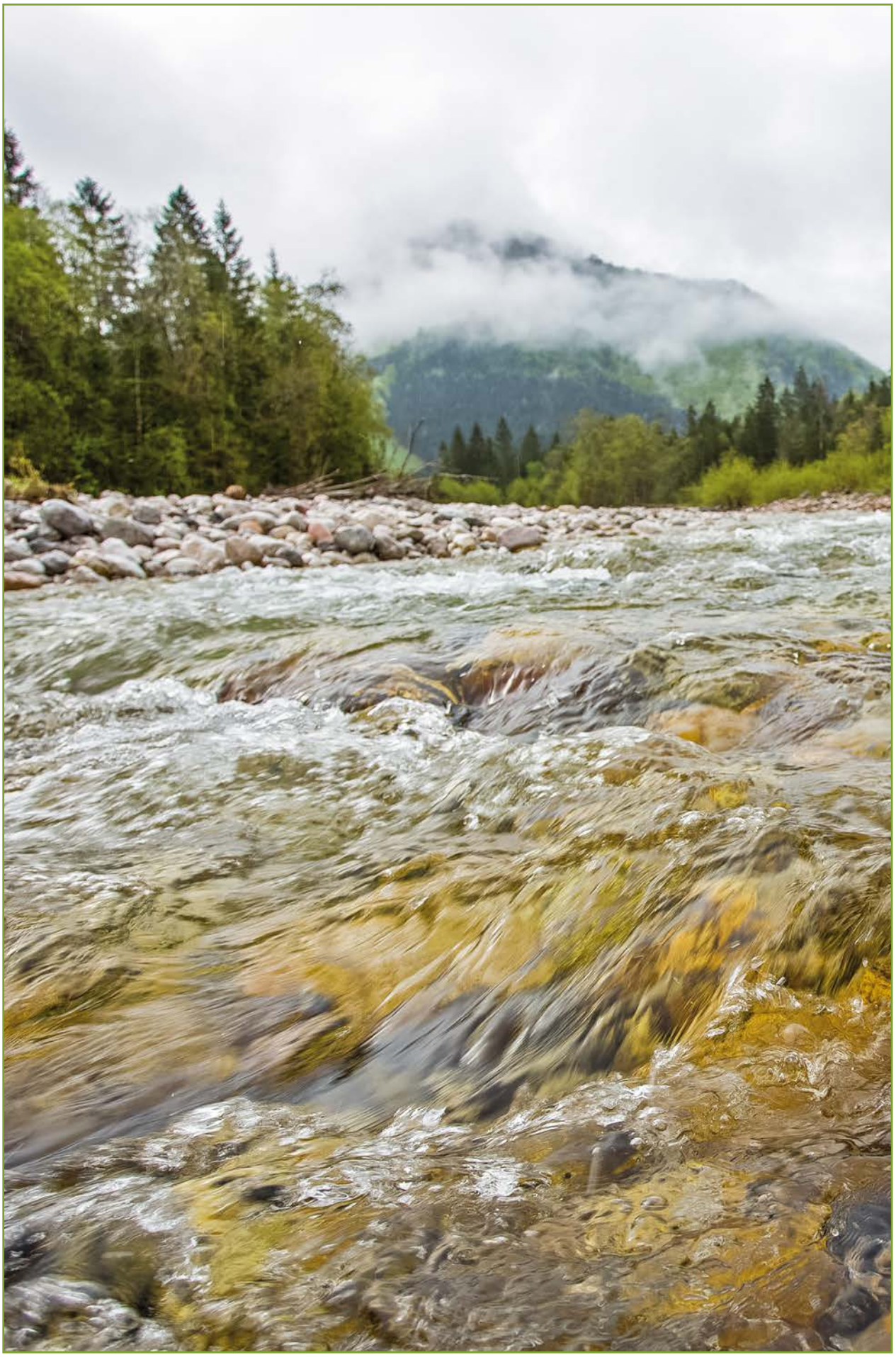
The approach of the European Wilderness Quality Standard and Audit System is not primarily focusing on theoretical reflection, but is a well-elaborated effort for a practical and pragmatic assessment summarized in a process-oriented tool for a reproducible assessment of wilderness. The approach applied to assess wilderness is well covered by the existing criteria and principles. It also includes the 4 qualities of wilderness as defined by the European Commission (2013).

However, further efforts should focus on the definition and evaluation of further thresholds and on an intensive discussion on the key issue of naturalness. Several authors provide viable approaches (e.g. hemeroby or potential natural vegetation) also applicable on larger scales to contribute to an assessment of naturalness going beyond proxies such as the absence of human traces or infrastructures. The authors recommend to strengthen the issue of naturalness as it is considered a key dimension of wilderness by science.

The approach to build on the wilderness continuum is viable and appropriate from a scientific point of view and provides a sound framework. Further efforts integrate this concept into the European Wilderness Quality Standard and Audit System methodology and to further specify thresholds are currently being discussed by the European Wilderness Society. Results are to be included by the next update of the European Wilderness Quality Standard and Audit System methodology. This will strengthen the credibility and transparency of the assessment as well as of the criteria applied to reach a certain label. Regarding the structure, it is recommended to strictly separate the management perspective and the wilderness quality principles as this will make the structure more comprehensible and will further emphasize one of the strengths of the European Wilderness Quality Standard and Audit System namely bringing together quality and management.

The European Wilderness Quality Standard and Audit System makes the claim to locate the current status on this Wilderness Continuum by assessing a number of criteria and indicators. However, Orsi et al. (2013) and Comber et al. (2010) point out the problem to locate the point, along the continuum, beyond which there is wilderness as this decision is affected by individual perceptions that reflect the viewpoint of a group of scientists and stakeholders (e.g. managers, NGOs).

The approach of the European Wilderness Quality Standard and Audit System and its application across Europe will provide relevant contributions to the ongoing discussion about comparable and reproducible assessments of wilderness to fill the gap outlined by Comber et al. (2010) and Heckenberger et al (2003). It is an elaborate effort integrate the theoretical academic approaches and case studies into a common framework, which is tested and adapted on site. Furthermore, it constantly explores the limits between academic wilderness concepts and their implementation in practice.



# 3. Wilderness

## 3.1. Value of the European Wilderness

Wilderness represents a vital element of Europe's natural and cultural heritage. In addition to its intrinsic value, it offers the opportunity for people to experience the spiritual quality of nature in the widest experiential sense – beyond mere physical and visual attributes, and in particular its psychological impact.

European wilderness also provides important economic, social and environmental benefits, including ecosystem services, for local communities, landholders and society at large.

## 3.2. Wilderness functions

Wilderness performs several functions more efficiently than in modified landscapes. Among these are:

- Conserving natural processes.
- Securing evolutionary genetic potential.
- Conserving biodiversity, especially large herbivores, top predators and scavenger communities.
- Protecting essential ecosystem services.
- Connecting landscapes.
- Capturing and storing carbon dioxide.
- Building scientific knowledge and understanding of natural processes.
- Inspiring people.

## 3.3. Wilderness in Europe

The wilderness concept has gained considerable momentum during the last 15 years. A milestone occurred when the European Parliament Resolution on Wilderness in Europe[1] was adopted in 2009. In brief it states that the European Commission must:

- Develop a clear definition of wilderness
- Mandate that the European Environment Agency and other relevant European bodies map the last wilderness' in Europe.
- Undertake a study on the values and benefits of wilderness protection.
- Develop an wilderness strategy.
- Expand wilderness and manage rewilding areas.
- Promote the values of wilderness and launch information campaigns to raise awareness about wilderness and its significance, working together with NGOs & local communities.

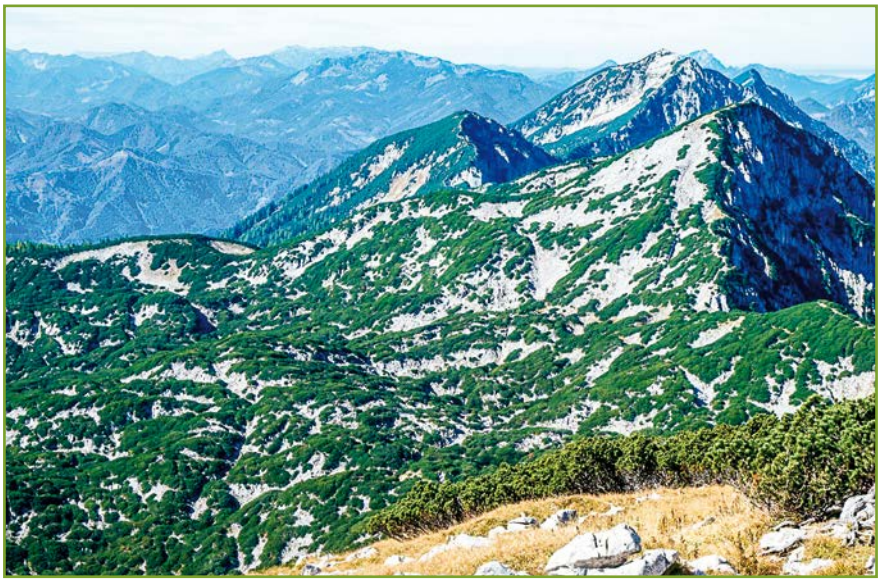


*Fig. 5: The wilderness concept has gained considerable momentum in Europe during the last 15 years.*

## 3.4. European Wilderness Society

The European Wilderness Society is a Pan-European, wilderness and environmental advocacy organization whose mission is to identify, designate, manage and promote European wilderness in order to support their long-term existence and further development and restoration. The European Wilderness Society is an international organisation with 18 years of experience with wilderness conservation in Europe. The European Wilderness Society is a member of a number of European organization such as Wild Europe, UNEP, UNESCO, etc. The European Wilderness Society is also the key partner in the process of developing the European wilderness definition, the European Wilderness Registry (2013), and the Guidelines on Wilderness in Natura 2000 (2013).

[1] *Wilderness in Europe. European Parliament resolution of 3 February 2009 on Wilderness in Europe (2008/2210(INI))*

## 3.5. European Wilderness Preservation System

Growing demand for more wilderness in Europe has led us to the creation of the European Wilderness Preservation System showcasing some of the finest wilderness in Europe. This system includes the best European wilderness sprinkled from the Mediterranean up to the Arctic Circle, from the Atlantic coast to the Ural Mountains! All members of the European Wilderness Preservation System have been verified according to the European Wilderness Quality Standard and Audit system, guaranteeing full compliance with a common set of wilderness principles, criteria and indicators.

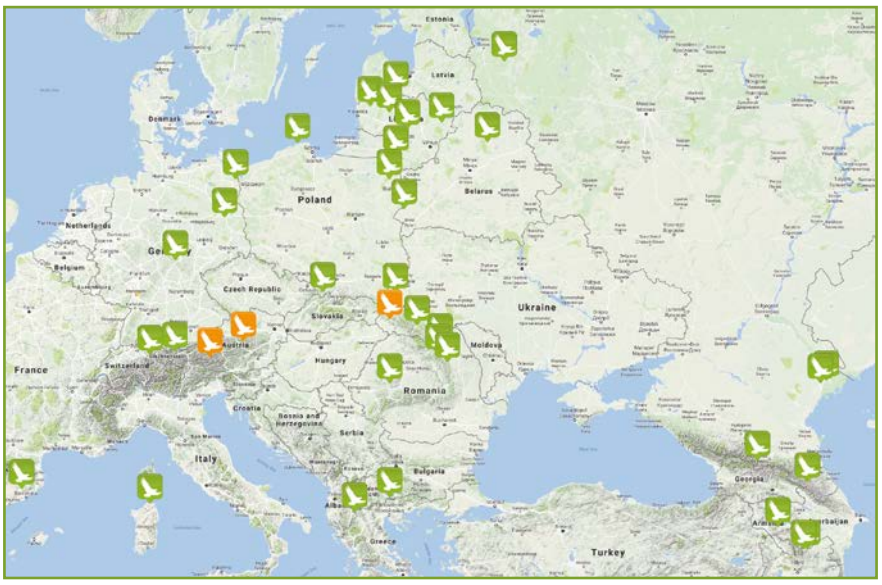



*Fig. 6: European Wilderness Preservation System 2016.*

# 4. Audit Team and itinerary

## 4.1. Audit Team

**Mr. Vlado Vancura; Lead wilderness auditor**
Field of expertise: Wilderness in Europe, wilderness management, wilderness and local stakeholders, wilderness and tourism use, and implementation of European Wilderness Quality Standard and Audit System

**Max Rossberg; Legal auditor**
Field of expertise: Management plans, visitor management, legislative framework and educational programmes

**Katrin Schikorr; Wilderness auditor**
Field of expertise: Wilderness and tourism use and implementation of European Wilderness Quality Standard and Audit System

**Gudrun Pflüger; Lead biologist**
Field of expertise: Flora and fauna, implementation of European Wilderness Quality Standard and Audit System

**Bodo Rossberg; Report developement**
Field of expertise: Report developement and layout

**Karin Eckard; Lead editor**
Field of expertise: Report editing

*Fig. 7: Katrin Schikorr, European Wilderness Society Wilderness Verifier in Nationalpark Kalkalpen*

## Host team

Erich Mayrhofer – Director of Nationalpark Kalkalpen
Hartmann Pölz – Deputy Director of Nationalpark Kalkalpen

## Photographer

Sami Fayed – professional photographer

## Park staff

Dominic Dachs – Wildlife management
Miriam Aigner-Kothe – Ranger on call, education and interpretation
Erich Weigand – Wildlife biologist, Natura 2000, Ramsar Convention
Simone Mayrhofer – Plants ecologist
Christian Fuxjäger – Coordinator of Lynx Project and Monitoring
Andreas Hatzenbichler – Management of alpine meadows
Angelika Stückler – Visitor management
Zäzilia Tannwalder – Visitor information, Panorama Tower
Brigitte Schöngruber – Visitor information, Panorama Tower
Gabriele Lugmayr – Secretary

*Fig. 8: Nationalpark Logde Villa Sonnwend.*

**Nationalpark Logde Villa Sonnwend**
Leopold Döcker – Manager of Villa Sonnwend, Hengstpaßhütte and Wilderness Camp
Marjolein Gasplmayr – Villa Sonnwend
Michaela Herzog – Villa Sonnwend

## 4.2. Verification itinerary

- Data collection: February – June 2015
- Site assessment: July – August 2015
- Data completion and verification: August – October 2015
- Preliminary report, writing, editing and presentation including consultation: November 2015 – February 2016
- Final report writing, editing and layout: February – September 2016
- Final report printing and presentation: September 2016

## 4.3. Site assessment itinerary

### Saturday, 31 May

Arrival of Katrin Schikorr, Vlado Vancura and meeting with professional photographer Sami Fayed in Villa Sonnwend. Internal meeting to discuss forthcoming verification.

### Sunday, 1 June

Opening meeting with Erich Mayrhofer, Hartmann Pölz, Erich Weigand, Dominic Dachs at Nationalpark Kalkalpen headquarter, Molln (including the third European Wilderness Society verifier – Gudrun Pflüger) in order to agree on the verification schedule

Discussed issues: principles of the European Wilderness Quality Standard and Audit System. Accommodations and provisions that were provided by Nationalpark Kalkalpen and Nationalpark Logde Villa Sonnwend, Alms and Alpenverien hut in park.

Presentation of the principal management documents, maps, history and vision of wilderness management. Recent and current projects relevant to wilderness management (e.g. management of core and buffer zones, culling, reintroduction of lynx, ecological linkage with surrounded areas like Nationalpark Gesäuse and Wilderness Dürrenstein).

*Fig. 9: Three-days assessment trip to the Kalkalpen wilderness guided by local ranger.*

## Monday - Thursday, 2-3 June

Three-days trip (Katrin Schikorr, Gudrun Pflüger, Sami Fayed and Vlado Vancura) to the north, central and south part of park guided by Dominic Dachs.

**Day 1:** Windischgarsten, Molln, Bodingraben – Jagdhütte, Blumaueralm, Feichtauhütte and Feichtauseen.
**Discussed issues:** Herbivore management, culling, feeding of herbibores and visitor experience, management of meadows (Alms) in the buffer zone.

**Day 2:** Feichtauhütte, Haltersitz, Hoher Nock, Koopenalm, Hagler and Bärenriedlau Jagdhütte.

**Discussed issues:** Management of high alpine ecosystems (tree line, dwarf pine forest, alpine zone in the core zone. Infrastructure in core zone. fire management, light and sound pollution.

**Day 3:** Bärenriedlau Jagdhütte., Taschengraben, Koppen and Windischgarsten

**Discussed issues:** Management of visitors in core zone, partnership with Alpenverein, old growth relict indicative species (e.g. woodpeckers, rosalia alpina, fire management in area Koppen, native ecosystems on south site of Sensengebirge, endemic and rare species).

## Friday, 5 June

Office work in Nationalpark Logde Villa Sonnwend, meetings with Nationalpark Kalkalpen experts Erich Weigand, Angelika Stückler and Hartmann Pölz.

**Discussed issues:** Relict species with map, zoning systems, non-extractive activities, history of grazing in core zone, wilderness focused educational and interpretation programs, maintenance of the tourism trail system, monitoring system, diseases on native herbivores, abandoned and used structures in core zone.

*Fig. 10: Field trip guided by biologist and ranger. Focused subject: Area impacted by fire in park.*

## Saturday, 6 June

Field trip to the north and central part of park, guided by Hartmann Pölz (Nationalpark Logde Villa Sonnwend, Leitersteig, Rumpelmayrreicht, Jagdhütte Haslersgatter, Dürreneck).

**Discussed issues:** Activities in buffer zone, maintenance and use of roads in buffer zone, trail maintenance in core zone, meadow use in buffer zone, forest roads maintenance and restoration of abandoned forest roads, spontaneous restoration process in core zone, wildlife management and historical grazing.

## Sunday and Monday 7 – 8 June

Two-days field trip to the north and central part of park guided by Miriam Aigner-Kothe.

**Day 1:** Nationalpark Logde Villa Sonnwend, Reichraming, Wilder Graben, Aueralmhütte, Sinnrelperboden, peat-bog and Ebenforstalm.

**Topics:** Visitor management in the north, entrance to buffer and core zone, interpretation activities, natural road restoration process in Weisenbach Valley (including abandoned infrastructure), snowmobile, bike and horse use, trail system in core zone, ranger on call concept, history of Alm use

**Day 2:** Ebenforstalm, Trampl, Schäumberghütte, Schambergalm, Jorglgraben. Splitting the team

1. Katrin Schikorr and Miriam Aigner-Kothe –
   Jörglgraben, Mikado, Hohe Stiege, Annerlsteig
2. Gudrun Pflüger and Vlado Vancura –
   Jorglgraben, Bretteries, Kienrücken, Annerlsteig, etc.

Discussed issues: Management of herbivores, forest management and bark beetle, management of the old forest roads, commercial harvesting of berries in core zone, biking and visitor management, wilderness and biodiversity, endemic species.

## Tuesday 9 June

Office work in Park Administration, Molln, meetings Nationalpark Kalkalpen experts Sami Fayed, Christian Fuxjäger, Angelika Stückler and Hartmann Pölz.
Discussed issues: World Heritage, Lynx reintroduction, carnivores, biotopes mapping, Alm managements and biodiversity, roads management, forest service and legal framework of Alm ownership, restoration projects, monitoring activities, zoning system in practice, motorised transport.

*Fig. 11: Two days' field trip to the south-east part of park guided by Erich Mayrhofer.*

### Wednesday - Thursday, 10 – 11 June

Two-days field trip to the south-east part of park guided by Erich Mayrhofer.

**Day 1:** Nationalpark Logde Villa Sonnwend, Hengstpass, Ahornsattel, Blaberg-Hochkogel, Blabergalm.

**Discussed issues:** Management of core and buffer zone, vision to wilderness conservation, management of large carnivores, role of the Nationalpark Kalkalpen in wilderness conservation in Austria, wilderness and Natura 2000, potential to enlarge wilderness zone, fire management, wilderness research and monitoring.

**Day 2:** Blabergalm, Saigerinbach, Hintere Saigerin Hütte, Windhageralm, Wildniscamp, Hengstpass, Nationalpark Logde Villa Sonnwend.

**Discussed issues:** Management of old grow beach forest, vision/future of Alms, lynx reintroduction project, ecosystem dynamism as a tool to educate visitors, avalanche management, political challenge to protect wilderness in upper Austria and central Europe.

### Friday, 12 June

Closing meeting at park headquarters, Molln (Vlado Vancura, Katrin Schikorr and Erich Mayrhofer).

**Discussed issues:** Summary of wilderness assessment, next steps, invitation to attend European Wilderness Days 2015, communication strategy about achievements on wilderness conservation, possibility to cooperate on lynx reintroduction, development of wilderness field training centre in Nationalpark Kalkalpen.

# 5. Nationalpark Kalkalpen

## 5.1. Introduction[1]

The protected area is located in the north-eastern Limestone Alps in Upper Austria and consists of the two mountain ranges Sengsengebirge and Reichraminger Hintergebirge. It is large contiguous piece of wild land and it includes several important habitats types such as conifers, mixed and broadleaf forest, alpine pastures and rocks.

*Fig. 12: Nationalpark Kalkalpen is located in the north-eastern Limestone Alps.*

The park is managed by a team of committed managers led by a director with a strong wilderness vision. Their systematic work is based on wide range of research based analysis with a focus to create a unique wilderness in the limestone Austrian Alps. They have a vision that through natural wilderness restoration, the land will recover from the several centuries of intensive human use. The area offers a unique opportunity to observe and study dynamism of spontaneous nature processes.

The total size of the Nationalpark Kalkalpen is 20,850 ha and the area is managed by the Nationalpark Kalkalpen administration which is located in the village of Molln.

[1]*The Document used for the following text: Nationalpark Kalkalpen - promoting wilderness as a core topic, Erich Mayrhofer, director of the Nationalpark Kalkalpen, Austria; Molln, June 2013*

*Table 2: Nationalpark Kalkalpen*

| Park information | |
|---|---|
| Protected area | Nationalpark Kalkalpen |
| Country | Austria |
| IUCN classification | II |
| Main ecological classification | Forrest, alpine pastures, rocks |
| Size of Nationalpark Kalkalpen | 20,850 ha |
| Land ownership | 88% Austrian Federal Forest, 11% private, 1% local municipalities |
| Size of Kalkalpen wilderness | 13,034 ha |
| Year established | 1997 |

## History of the Nationalpark Kalkalpen

Nationalpark Kalkalpen was created in the 1997s, as Austria's first national park in the northern limestone Alps. The Nationalpark is located in the province Upper Austria. After almost two decades of wilderness movement in Europe, an internal strategy was developed to create an extensive wilderness zone.

It was challenging due to a complex land ownership situation and the ability of management to implement the necessary steps to create the wilderness.

However, due to the commitment of the entire management team, Kalkalpen Wilderness become a European Wilderness Society partner in 2014 and a member of the European Wilderness Preservation System in 2015.

Since then, management has worked closely with the European Wilderness Society to contribute to wilderness conservation in Europe

## Natural features and biodiversity

The Nationalpark Kalkalpen cover in total an area of 20,850 hectares. From west to east, the parks stretch over a distance of more than 80 km, their widths reaching up to 30 km. There are two mountain ranges:

The Reichraminger Hintergebirge which is one of Austria's largest forest areas, a sea of forest, which has not yet been dissected by transportation routes and settlements. In addition, you find one of the longest intact stream systems of the eastern Alps. Old shelters and overgrown trails remind us today of how wood was used and harvested in earlier times.

The Sengsengebirge is a northern outpost of the limestone Alps. It has a 20 km main ridge which reaches its highest point at Hohe Nock (1,963 m).
The name Sengsengebirge can be traced back to the use of the forests as a source of energy for the numerous scythe smithies once located here.

*Fig. 13: Up to an altitude of 1,450 metres spruce forests make up climax vegetation.*

## Habitat types

Habitat types of the forest, subalpine and alpine zones are well represented in the park. Up to an altitude of 1,450 metres, beech (Fagus sylvatica) and spruce-fir-beech forests make up the majority of the vegetation which is followed by spruce (Picea abies) and spruce-fir forests. Steep slopes, weather conditions and natural hazards result in complex ongoing and highly dynamic processes with considerable effect on forest ecosystems.

The former utilization of large parts of the park, especially some valleys in the Reichraminger Hintergebirge, can be traced back to medieval times. Other areas, such as the highest part of the park, the Sengsengebirge, lack this type of evidence. The first period with an increased demand for timber coincides with early mining. Timber logging in the area began about 500 years ago and was common in the Hinter and Sengsengebirge of which 42 logging dams, 16 racks, daring drifting tracks and about 100 charcoal sites bear witness to this time of intensive forest utilization.

The tree species composition was abandoned in favour of spruce because of its better drifting attributes. Some areas of the park have seen intensive use, other areas were used only once. As some of the terrain is inaccessible, it is safe to assume that not all forest areas have been used and that it was possible to preserve some areas as refuge.

## Fauna

The international importance of the Nationalpark Kalkalpen is, from the perspective of the EU nature conservation directives, highly significant. A total of 22 habitat types, including eight that are priority, have been nominated for this Natura 2000 area.

*Fig. 14: The area of the Nationalpark Kalkalpen used to be a famous hunting area.*

The bird fauna is represented in appendix I Habitat Directive with 19 species. As for other animals, several other subsequent nominations are planned, with special intention to be designated for their conservation. Priority species (i.e. endangered species for which the European Community has special responsibilities include the sporadically presence of brown bear, the alpine long-horned beetle, and the bear moth). With respect to the alpine long-horned beetle, which has become extremely rare throughout Central Europe, experts estimate that throughout Austria, a good population may possibly exist only in the region of the Nationalpark Kalkalpen.

In 1999, lynx was reintroduced through the project LUKA - Lynx Upper Austria Kalkalpen. This was an important step for the return of the lynx to the Alps and the park is active in this work.

Reichraminger Hintergebirge has evidence of a population of indigenous river trout, which is the only known occurrence in Upper Austria.

*Fig. 15: The monitoring of the wilderness flagship species is important part of park staff daily work.*

The return of the flagship species is moving forward at a rapid pace. Once highly repressed species, such as the fungus beetle which lives only on tree mushrooms on decaying, dead-wood and thus requires virgin forest-type conditions, or the five local species of stag beetles, which live on dead, thick, deciduous wood, are being seen more frequently today.

## Flora

927 plant vascular plants species have been documented through biotope mapping which represents about one third of all plant species that exist in Austria. Many of these species have become rare here and are on the Red List.

59 species are partially or fully protected by the Upper Austrian Nature Conservation Act. In the course of biotope mapping, a total of 14 of the 18 plant species endemic to Upper Austria have been documented. There are 42 different varieties of orchids that grow in the park. The largest and probably best known species is the lady's slipper orchid.

## Forest Habitat

Four fifths of the national park is covered by forest. There are a total of 30 different forest communities. The spruce-fir-beech forest dominates the natural scenery and a natural forest is one of the most important assets in the Nationalpark Kalkalpen.

Virgin forest - the national park is located in the largest forested area in the northern lime-stone Alps. These forests are more natural and wild compared to the average forests in Aus-tria. Virgin forests are exceptionally natural for they have remained completely untouched since reforestation after the last ice age.

Deadwood - decaying trunks and branches are classified as deadwood. Many of the threatened forest species need mas.0ç 041sive deadwood with a diameter of over 20 cm to survive. Among the organisms that live off deadwood are many types of mushrooms, beetles, owls and woodpeckers, mammals such as dormice and bats, but also lichens and mosses. The most well-known among them are probably the rosalia longicorn beetle and Austria's rarest woodpecker, the white-backed woodpecker.

## Water Habitat

Water is one of the distinctive features of the natural scenery in Nationalpark Kalkalpen. Since the beginning of the formation of the Alps, erosion by water has been ongoing. This is how the many valleys and canyons of the Reichraminger Hintergebirge and the Sengsengebirge were created over millions of years. The high dynamism and the variety of different water habitats are what enable the great diversity of species.

Springs - as a karst area, the park is abundant in springs. Over 800 are known and documented. The spring is the point where the groundwater comes to the surface.

*Fig. 16: Nationalpark Kalkalpen has more than 80 km of streams and another 400 km of channels and trenches with only temporary water flow.*

**Streams** - the national park has more than 80 km of streams and another 400 km of channels and trenches with only temporary water flow. The streams are not completely untouched, because they were used earlier for the transportation of wood. For most of their length, however, the streams are in a very natural state, with natural processes allowed to take their course.

**Lakes and ponds** – there is only one real lake, the Großer Feichtausee in the Sengsengebirge. The nearby Kleiner Feichtausee as well as the Herzerlsee are considered ponds due to their depth and expanse. There are countless ponds in this area.

**Marshes and moors** - are habitats in which the ground is more or less saturated by standing water. If renewable biomass is not degraded due to lack of oxygen, this results in the formation of peat. The development of peat is the basic difference between moors and marshes, in which the water level is only periodically so high that humus is not decomposed.

*Fig. 17: Hay meadows and alpine pastures are like islands in an ocean of forest.*

## Pastures and Hay Meadows

Hay meadows and alpine pastures are like islands in an ocean of forest and can be called islands of biological diversity. They offer habitats for a variety of plants and animals that need the open landscape. These clearings occupy around 6% of the national park area and greatly enrich the scenic variety as well as the biodiversity of the national park. They are home to an abundance of plant and animal species which are often endangered or threatened with extinction.

## Biological Diversity

International conventions, such as the Agreement for Biological Diversity or the Alps Convention, focus on the cooperation and connectivity of conservation areas within the framework of ecological networks.

A hotspot in the Alps lies in the Northern Kalkalpen region and combines 15 protected areas of differing categories comprising of more than 2,000 square kilometres.

The networking takes place within the ECONNECT initiative and the project has carried out the reintroduction of the Ural owl and habitat protection for the white-backed woodpecker.

The exchange of specialised information and communication between the seven pilot regions of the Alps takes place with the aid of the Ecological Association platform and the Alpine Network of Protected Areas (Alparc).

The potential of nature between the Nationalpark Kalkalpen, Nationalpark Gesäuse and the Wilderness Dürrenstein (Rotwald) offers opportunities for cooperation and networking combined with regional added value.

## 5.2. Management of Nationalpark Kalkalpen

### 5.2.1. Land ownership

Land ownership within the Nationalpark Kalkalpen is shared by the Austrian Federal Forests (88%) and a private conservation association (11%) and local municipality (1%).

Landowners have leased their land use rights, mostly referring to forestry, hunting and grazing to the national park on the basis of contractual arrangements and annual payments, which maintains the exclusion of all extractive uses.

An analysis of the national park regulations demonstrates the added value of setting up a wilderness within the boundaries of the park. Those core zones that conform to IUCN category II provide for a high degree of nature protection by excluding extractive land uses, but do not guarantee non-intervention management such as culling, fragmentation and natural regeneration of road networks in some parts of the wilderness zone.

Upgrading suitable areas within the existing wilderness will therefore help to reinforce and to maintain the wilderness character of the most natural and least modified parts of the Kalkalpen landscape.

### 5.2.2 Park Management

The protected area has a committed management team which is led by director with a strong wilderness vision. Their systematic work is based on a wide range of research based analysis with a focus to create a unique wilderness in the heart of the Austrian Alps.

Park Management has a vision that through the natural restoration processes, the land will slowly recover over several centuries from the impact of forestry, mining, and hunting. In addition, this area offers a unique opportunity to see and study natural dynamism.

*Fig. 18: After several years of careful planning the management team prepared the proposal of wilderness zone.*

After several years of planning and preparation the management team has proposed that several thousand hectares of land would be suitable for wilderness.

# 6. Wilderness internationally

## 6.1. Wilderness globally

Globally, wilderness is a natural environment that has not been significantly modified by human activity. It may also be defined as the most intact, undisturbed wild natural areas left on our planet, the last truly wild places that humans do not control and have not developed with modern infrastructure.

The principle global wilderness criteria are: Size, intactness, human population density and biodiversity.

*Fig. 19: Globally, wilderness is a natural environment that has not been significantly modified by human activity. Banff Wilderness, Canada.*

## 6.2. Wilderness in Europe

Wilderness in Europe is rarely established by law or administrative acts and is usually hidden as fragments in some existing protected areas scattered throughout the continent. Typical for Europe is wilderness that is in various stages of wilderness continuum.[1] The main features of these areas are that they have not been modified and human activity is restricted.

[1] *http://wilderness-society.org/wilderness-continuum-european-wilderness-quality-standard/*

*Fig. 20: Wilderness in Europe is increasingly considered important for biodiversity, ecological equilibrium, as well as inspiration, and recreation. Berezinsky Wilderness, Belarus.*

Increasingly wilderness is considered important for biodiversity, ecological equilibrium, conservation as well as solitude, inspiration, and recreation. In some European countries wilderness is deeply valued for cultural, spiritual, moral, and aesthetic reasons. More and more people believe that wilderness is vital for human spirituality and creativity.

## 6.3. Wilderness in Austria

Austria contains excellent examples of European wilderness, where the Nationalpark Hohe Tauern Salzburg is one of the most ambitious protected areas in Austria to gain international recognition for wilderness[2].

Within Europe, the Alps are one of the most promising regions for both wilderness preservation and estoration (Fisher et al. 2010). Austria has a major share of the Alpine arc, 4,600 km², corresponding to 29% of the total mountain range thus it has a high degree of responsibility for wilderness protection in this ecoregion. However, nature conservation in the Austrian Alps focuses on cultural landscapes.

There is a single, small wilderness in Austria, that acceptable for IUCN 1b criteria (Wildnisgebiet Dürrenstein, 3.5 km²) representing just 0.04% of the national territory. Additionally, there are six Austrian Nationalparks, three of which are located in the Alps (Nationalpark Hohe Tauern, Nationalpark Kalkalpen and Nationalpark Gesäuse). Two of them are already members of the European Wilderness Preservation System with Hohe Tauern Wilderness and Kalkalpen Wilderness.

[2] *Kohler, Bernhard, Vančura, Vlado & Zika, Michael. Hohe Tauern West 2007. Wild Europe Initiative*

*Fig. 21: Three Austrian Nationalparks are located in the Alps (Nationalpark Hohe Tauern, Nationalpark Kalkalpen and Nationalpark Gesäuse). Rugged limestone peaks in Nationalpark Gesäuse.*

The core zones of Austrian Nationalparks, totalling 1,598 km², or 1.9% of the national territory are non-intervention management areas which could qualify as wilderness. Yet, not all Austrian Nationalparks have embraced the non-intervention management philosophy in their core zones. There is still a wide range of management approaches, from almost full compliance to the wilderness concept, as practised in Hohe Tauern Wilderness and Kalkalpen Wilderness, to an opportunistic approach, as in Nationalpark Gesäuse, where bark beetle management still takes place.

In other parks, true non-intervention management is only practised in parts of the declared core zones.

This situation has prompted WWF Austria in 2010 to set up a wilderness programme and to join forces with the Wild Europe Initiative. The long-term goal of WWF Austria is to achieve the full alpine wilderness potential and to have wilderness established on at least 10% of the national territory. To achieve this ambitious goal, it will need a twofold strategy: to designate new wilderness on unprotected land and to improve the quality and status of already existing non-intervention management areas. International support will be a crucial in both approaches.

From the outset, activities of the Wild Europe Initiative have provided essential support to wilderness work in Austria. With regard to Nationalparks, the outcomes of the Wilderness Conference in Prague 2009 have substantially influenced the development of the new Austrian Nationalpark strategy.

Under the impression of the Message (poselstvi) from Prague, the Austrian Ministry of Environment has placed the idea of wilderness at the heart of the new strategy (endorsed in

2010), declaring that all Austrian Nationalparks shall henceforth focus on ecological process management in their core zones. The establishment of strict non-intervention zones (explicitly referred to as wilderness) has been set as a clear and binding goal for all parks. The strategy also specifies that non-intervention areas shall make up no less than 75% of the Nationalparks area, as required by IUCN criteria (Lebensministerium, 2010).

*Fig. 22: Several Austrian parks put emphasis on no-intervention management.*

Although some Austrian parks conform to these requirements, the strong emphasis on ecological process management and the explicit mention of wilderness in the new Nationalpark strategy have raised many practical questions about core zone management in most parks. This provides an excellent opportunity for the Austrian wilderness movement to promote and develop the wilderness approach, both within and outside Nationalparks. Due to the advantage of their highly developed administrative structures, the Nationalparks have become something of a Austrian wilderness laboratory, where wilderness management techniques and regulations are developed and tested.

As an example, the highly controversial issue of bark beetle management in protected areas is currently treated by a commission of the joint umbrella organisation of the Austrian Nationalparks, which involves NGOs as well, among them WWF. The recommendations of this commission will set the standards for bark beetle management not only in the Austrian Nationalparks, but also in future wilderness. Therefore, it essential that the recent wilderness impetus of Austrian Nationalparks, receives further support, both from the Austrian and the European wilderness movement.

## 6.4. Kalkalpen Wilderness[3]

Kalkalpen Wilderness features the largest forest region in central Europe and the largest karst in the country, Pießling Ursprung in Roßleithen, a true paradise for wild nature lovers.

Kalkalpen Wilderness is a colourful mosaic consisting of pristine forests, promising viewpoints, hidden gorges and untouched mountain streams. If someone want to get away from the hectic and noise of the city and are on the look for unique fauna and flora, then have to come to the Nationalpark Kalkalpen and exploring Kalkalpen Wilderness adventure.

*Fig. 23: Mr. Erich Mayerhofer, director of Nationalpark Kalkalpen, together with his team managed to design a large Kalkalpen Wilderness.*

[3] *Assessment of forest wilderness in Nationalpark Kalkalpen, Simone Mayrhofer, Hanns Kirchmeir, Erich Weigand & Erich Mayrhofer, 2015*

### 6.4.1. Kalkalpen Wilderness Quality

A recent effort to model Austria's wilderness potential (Plutzar 2013) provided the opportunity to evaluate the wilderness quality of the proposed area. The model is based on the wilderness-continuum (Lesslie et al. 1993).

This model assigns to each locality a quantitative wilderness quality index. The index consists of the evaluation and integration of four different components:

1. Remoteness from settlements: the distance to permanently inhabited places
2. Remoteness from access: the distance to established traffic routes
3. Apparent naturalness: the presence of permanent civilization facilities
4. Biophysical naturalness: the presence of biophysical disturbance caused by industrialized society

The results of modelling show that extensive tracts of land in the limestone Alps range attain the highest wilderness quality index. In fact, the eastern portion of Kalkalpen wilderness is one of the largest contiguous wilderness in Austria.

*Fig. 24: Nationalpark Kalkalpen has defined the preservation of forest wilderness within its boundaries as a priority target.*

The preservation of forest wilderness has been targeted as a priority with the protected area. Natural re-wilding is the main tool for the preservation and development of wilderness.

The guiding principle for Kalkalpen Wilderness is wilderness as defined by IUCN Category I or the U.S. Wilderness Act (1964). Implementation revealed that wilderness of this quality rarely exists in Europe (Hegyi 2008; Fisher et al. 2010). In a European context, the term

wilderness has to be extended to areas large enough for an effective ecological functioning of natural processes without intrusive or extractive human activity (European Commission 2013). National parks (IUCN Category II) which allow dynamic processes on a large scale (Dudley 2008) fit this definition and are particularly eligible for wilderness conservation.

Kalkalpen Wilderness is a candidate category silver according to the European Wilderness Quality Standard and Audit System (2014).

*Fig. 25: The conservation of wilderness is an objective target that is socially desired and a main task of protected areas.*

The conservation of wilderness is the aim and the main task of the protected areas (Machado 2003; Mittermeier et al. 2003). However, there is no applicable method for recording and assessing this value.

Strategic planning and implementation is well illustrated in the following paragraph describing this process.

## The long-term vision

To protect dynamic wilderness, habitats rich in flora and fauna and cultivated landscapes.

Successful implementation of this vision illustrates achievements in the past when the mid-term goals were established and had been partially achieved.

## The mid-term aims

To create a protected area in which the course of natural development is permanently assured for 75% of the national park area which will become wilderness standard. This aim was from the period 2008-2012 and were implemented according number of plans and milestones

*Fig. 26: Nationalpark Kalkalpen maintains agreement with 19 local communities.*

## Local Partnership

Local Partnership is an important milestone. There is an agreement with 19 local communities. The project catalogue includes 12 fields of activity which focuses on regional identity and cooperation. Many projects have already been realised in cooperation between Nationalpark Kalkalpen and local initiatives with a focus to support Kalkalpen wilderness.

*Table 3: Examples of local partnership of activities*

| Subjects of activity | Programme/Projects | Measures |
|---|---|---|
| 1. Regional identity | programme of regional events | Alpine-meadow summer, festival, thematic evenings, excursions |
| 2. Cooperation | Implementation of Leader project, community network, regional forum | Concept of cooperation strategy, regulate sustainability report, workshops |
| 3. Management of cultivated landscape | Projects in Steinbach, Molln, Enns Valley | Cooperation on events, alpine-meadow farmers, biodiversity research and monitoring |
| 4. Traffic Logistic | centres, signposting, orientation | Carriage taxi, shuttle buses |
| 5. Water Springs | monitoring | Water quality |
| 6. Forestry, game and alpine meadows management | game management, cooperation with alpine meadows owner/ managers, alpine meadow register | ECONNECT, replace diesel aggregates by solar panels, restoration of water supply and sewage-treatment plants |
| 7. Tourism | Nationalpark Kalkalpen information and service centres, development of cycling, riding and hiking trails | Nationalpark Kalkalpen centres open daily, hiking areas, connection routes, Hintergebirge trail |

| | | |
|---|---|---|
| 8. Settlements | • Monument preservation<br>• Traffic concepts<br>• Open-area management, customer satisfaction | • Maintenance of traditional culture<br>• Hintergebirgehikers' bus,<br>• Nationalpark Kalkalpen partners, technology and service centre, settlement,<br>• added-value study |

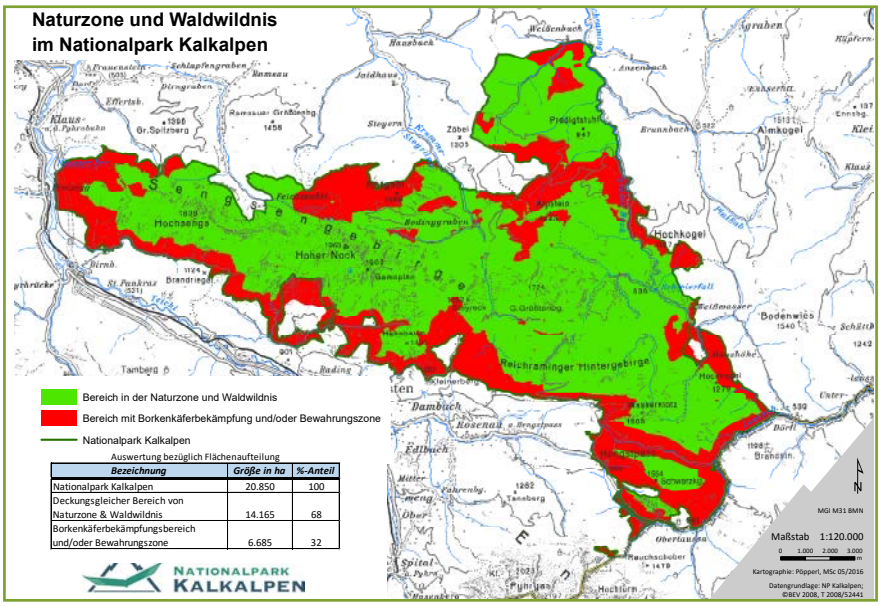



*Fig. 27: Proposed future zoning: green 75% non-intervention management, red 25% management area. © Nationalpark Kalkalpen*

## 6.4.2. Wilderness and Biodiversity

The reasons for the decline of biological diversity in Austria is because of increasing population, increasing mobility, changes of living and recreation behaviours as well as the intensification of land cultivation and forestry.

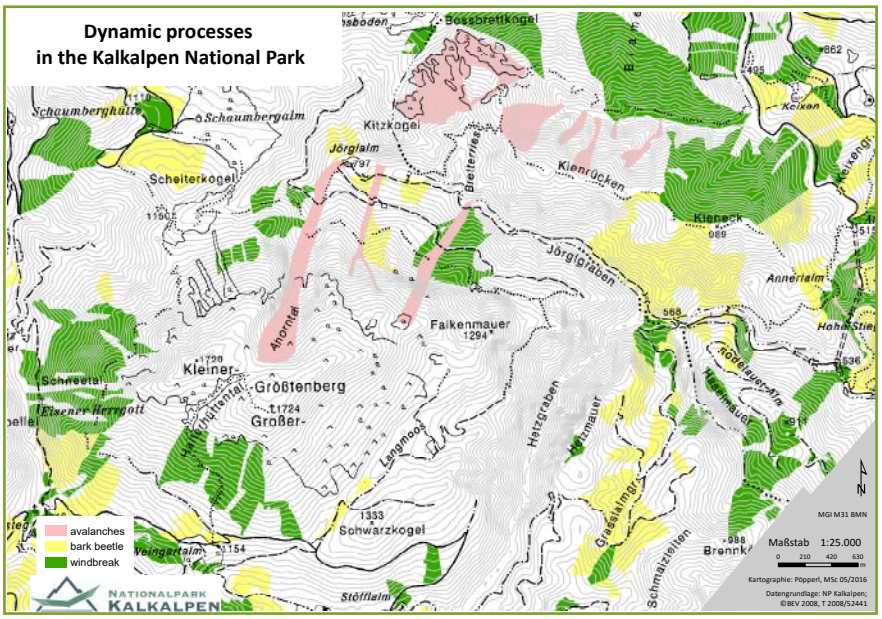



*Fig. 28: Dynamic processes in Kalkalpen Wilderness. © Nationalpark Kalkalpen*

Kalkalpen Wilderness is well known due to a large number of dynamic processes, such as high water, avalanches and exceptionally hard winters, storms with windfalls and the mass expansion of bark beetles. The amount of dead wood alone has increased since 1997 from 16 to 32 $m^3$ per hectare in the wilderness. Kalkalpen Wilderness is an area where the following principles are implementing:

**Wilderness shows how nature really is.**
Natural processes are permitted in 75% of the protected area and are at the core of biological diversity

**Wilderness creates diversity.**
Research has shown that highly dynamic habitats that rare species, such as woodpecker, amphibians, butterflies and dead-wood organisms, are returning. Regular monitoring records these increases.

**Freedom for wildlife.**
Development of the wildlife corridors and projects for the natural recovery of various wildlife population.

**Wilderness safeguards biological and genetic resources.**
The importance of natural processes has been scientifically documented and with climate change and declining species throughout Europe, this protected area will become more important as a genetic reservoir and store of natural heritage.

*Fig. 29: Visitors can become eyewitnesses of the development of the wilderness.*

**Visitors can see wilderness in progress.**

In the last years more than 106,000 interested people visited the protected area. A numbers of educational programmes were developed, such as wilderness tours, excursions and guided tours. The education program encompasses:

- Feeling wilderness
- Discovering nature
- Viewing wildlife
- Experiencing wilderness
- Enjoying alpine meadows

**Sample indicators of wilderness development**

- Dead wood: amount of dead wood in cubic metres per hectare
- Biodiversity: number of plant and animal species
- Rare species: white-backed woodpecker, red-breasted flycatcher, Alpine sawyer, breeding pairs per 1,000 hectares
- Length of forest roads: kilometres of forest roads and kilometres of abandoned forest roads

*Fig. 30: Beach forest is dominant habitat in Kalkalpen Wilderness.*

### 6.4.3. Current protection status

Kalkalpen Wilderness is well established in the Nationalpark Kalkalpen and the park is surrounded by forests which is managed by the State Forestry Service.

# 7. Implementation of the European Wilderness Quality Standard and Audit System in Kalkalpen Wilderness

European Wilderness Quality Standard and Audit System and Nationalpark Kalkalpen use their own zoning systems. European Wilderness Quality Standard and Audit System zoning system is based on The Definition of European Wilderness and Wild Areas. Nationalpark Kalkalpen zoning system is based on Austrian legislation. Table 3 shows the compatibility of the two systems.

The nine European Wilderness Quality Standard and Audit System principles are divided to 48 criteria and over 300 indicators. Each area is assigned one of the four categories forming the European Wilderness Preservation System: bronze, silver, gold or platinum. Areas of platinum or gold category are in general larger and unfragmented. Areas of silver or bronce category are in general smaller and more fragmented.

*Table 4: The nine European Wilderness Quality Standard and Audit System principles*

| Principles |
|---|
| Wilderness size and zoning |
| In general, wilderness has defined boundary on the map and in the field and three zones (the wilderness zone surrounded by a restoration zone, surrounded by a transition zone). |
| Natural processes and biodiversity |
| Wilderness has a core zone where natural processes maintain natural dynamics in biodiversity, contributes to the conservation of wilderness indicative species and contains examples of undisturbed ecosystems. |
| Wilderness management |
| This principle addresses the various wilderness conservation measures such as a biodiversity management plan, plan for supporting the natural processes, landscape management and the training of the wilderness management team. |
| Wilderness restoration |
| In general, a wilderness restoration should be in place for the restoration zones for later expansion of the wilderness zone. Wilderness restoration includes a wide range of activities such as restoration of disturbed areas and the reintroduction of native species. |
| Wilderness and extractive uses |
| The working definition of wilderness stipulates that wilderness is an area without intrusive or extractive uses. |
| Wilderness disturbance |
| In general, Here the focus lies on the removal of infrastructure, well planned tourism access and strictly regulated and limited access to the area, in order to secure minimum impact on the wilderness core zones. |
| Control strategies for fire, diseases, invasive species and other natural disturbances |

| |
|---|
| In general, a wilderness should have a fire control plan, a disease control plan and an invasive species control plan. The focus lies on the core zone without any active management measures to control fire, disease and an invasive species. |
| Wilderness research and monitoring |
| In general, a detailed plan for scientific research and cooperation with scientific institutions and universities should be in place. Research and monitoring activities should be not invasive in their character. |
| International relevance |
| The importance of wilderness is finally being recognized in Europe and this principle is a link between local efforts to protect wilderness and global initiatives to protect wilderness heritage and biodiversity. |

European Wilderness Quality Standard and Audit System and Nationalpark Kalkalpen use their own zoning systems. European Wilderness Quality Standard and Audit System zoning system is based on The Definition of European Wilderness and Wild Areas. Nationalpark Kalkalpen zoning system is based on Austrian legislation. Table X shows the compatibility of the two systems.

*Table 5: The different zoning systems, EWQA = European Wilderness Quality Standard and Audit System*

| | EWQA | Nationalpark Kalkalpen | Compatibly between EWQA and Nationalpark Kalkalpen zoning |
|---|---|---|---|
| Wilderness area[1)] | Wilderness zone[2)] | Kalkalpen Wilderness zone (see Fig. 31): green area | Compatible |
| | Restoration zone[3)] | Kalkalpen Restoration zone (see Fig. 31): light red and yellow areas | Compatible. Temporary managed area (bark beetle and herbivore management) |
| | Transition zone[4)] | Kalkalpen Management zone (see Fig. 31): red areas | Compatible. Standard bark beetle and herbivore management |

*[1] Wilderness can be categorised into three 'zones,' with a wilderness zone surrounded by a restoration/buffer area of minimal activities, which in turn is surrounded by a transition zone (see Appendix II). It is considered that this threefold structure offers best protection of key wilderness principles whilst allowing potential for future expansion and flexible interaction with other land uses. (Definition of European Wilderness,2013)*

*[2] The Wilderness zone would have the 'highest' quality of wilderness, with minimal impact of human activity or infrastructure and a dominance of natural processes. Where feasible, outward expansion would occur over time through restoration/rewilding into the restoration/buffer zone – particularly if the wilderness is not large enough initially to allow complete ecological processes. (Definition of European Wilderness, 2013)*

*[3] The Restoration zone, with relatively low impact of human presence, surrounds and protects the wilderness zone. Emphasis here should be on restoration/rewilding of natural habitats and processes, with phasing out of built structures and high impact activities within 10 years. Where feasible, there should be plans for it to be incorporated into the wilderness zone and expand outwards over time into the transition zone. (Definition of European Wilderness, 2013)*

*[4] The Transition zone is an area where a range of human activities is permitted, but with management controls preventing development of major infrastructure, wind farms or large scale clear felling, that might significantly alter the landscape or natural environment. Sustainable harvesting is possible of timber, animals (hunting & fishing) and plants (berries, fruits, mushrooms), together with organic agriculture. (Definition of European Wilderness, 2013)*

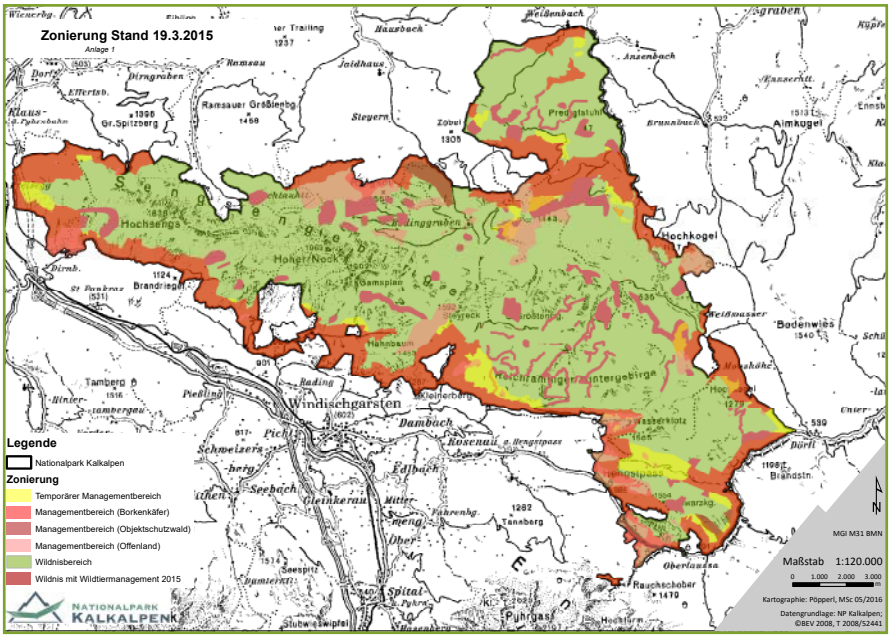



*Fig. 31: Herbivores management in Nationalpark Kalkalpen (progress report 1998 – 2012). Picture of various zones. © Nationalpark Kalkalpen*

## Introduction

Nationalpark Kalkalpen was created in 1997. There has been park management since 2002-2003 which began to work on a strategy to develop an extensive wilderness zone. The administration already had advanced wilderness management including zoning, maps, ecological corridors to the surrounded areas, a wilderness focused communication strategy as well as field training programs, marketing, etc.

*Fig. 32: The size of Nationalpark Kalkalpen is 20,850 ha.*

The size of Nationalpark Kalkalpen is 20,850 ha and the area is managed by Nationalpark O.ö. Kalkalpen Ges.m.b.H., located in village Molln.

Wilderness is a well-established part of Nationalpark Kalkalpen. It is a large continuous piece of limestone Alps including several important habitats such as forest 81% (including primary beech forest), mountainous pine forest 8%, alpine meadows 6% and rocks and screes 5%. Protected area would like to achieve platinum level of wilderness standard.

## 7.1. Principle 1: Wilderness Size and Zoning

In general a wilderness should have three zones mentioned in Table 3. In cases where these zones cannot be implemented, additional measures must be implemented to ensure protection and ecological functioning of the wilderness zone.

### Reason for the Principle

The principle focuses on four main aspects of wilderness quality; boundaries, maps, size and zoning.

### 7.1.1 Criterion 1.1. Wilderness zone has defined boundaries.

### Reason for the Criterion

A defined boundary on the map and in the field is critically important for a well-protected wilderness. A well-defined and visible boundary avoids or minimizes possible disturbances or damage to the wilderness.

#### Current situation

Wilderness is a well-established part of Nationalpark Kalkalpen. The boundary of wilderness is often identical with old borders of forestry units. The boundary of wilderness zone is well-marked on the map but not always clearly visible in field.

#### Findings

The European Wilderness Society team verified approximately 30% of the wilderness boundary in the field. Of the boundaries which were verified, they were100% accurate with the map. The boundaries mostly follow along identifiable natural features in the landscape such as ridges, creeks, old roads which are known by Nationalpark Kalkalpen field staff and local forest managers.

Nationalpark Kalkalpen is surrounded by large stands of economically valuable forest which is managed by the forest service.

#### Strengths

Kalkalpen Wilderness is a large contiguous piece of land with a total size of 14,643 ha. Currently 13,034 ha meets European Wilderness Quality Standard and Audit System.

This size together with large natural areas of national forests in particular in the north and east, supports ecological connectivity with surrounded areas. The wilderness zone is large enough to support spontaneous natural processes.

The boundary of Kalkalpen Wilderness is identical with the Nationalpark Kalkalpen boundary. These boundaries are well marked and visible at entry points such as roads and trails. Visitors are aware that they enter the national park and Kalkalpen Wilderness. The boundary of Kalkalpen Wilderness outside of entry points is not so well marked or visible. However, these boundaries are known by local management authorities due to restoration activities in the management zone and forestry activities outside the park.

Kalkalpen Wilderness has defined boundaries on the map. These boundaries are not marked in the field but 50 percent of the boundaries can be identified because they follow obvious geographical lines such as valleys and ridges.

## Strengths

Boundary signs for the wilderness zone have standardized design (size, shape and colour) and are located at all entry points (trails, roads) to make sure that people are aware that they enter Nationalpark Kalkalpen and Kalkalpen Wilderness. The boundary between the wilderness and management zone are not always well visible. All important points have GPS coordinates and are usually well fixed in field.

Nationalpark Kalkalpen has well developed system of electronic maps (GIS) including high quality topographic maps for public (hiking, biking, skiing maps). This provide very effective tool to manage and improve quality of Kalkalpen Wilderness.

Kalkalpen Wilderness has a good potential for enlargement. There are ongoing projects where management of Nationalpark Kalkalpen is buying a land (or land use rights) and enlarging protected area and Kalkalpen Wilderness). The large potential is however the export of wilderness management experience and build-up the links and corridors with other existing and potential wilderness in the surrounding such as Nationalpark Gesäuse, Haller Mauren NP and Dürrenstein wilderness.

## Weaknesses

The borders between wilderness and managed zones are not marked in the field. Visitors are not aware when they are entering the wilderness zone. Publicly available maps do not show the boundaries of the wilderness zone.

Knowledge about long-term conservation approach with a focus to protect and restore wilderness is still not so well known among local stakeholders.

## Recommendations

| | |
|---|---|
| Improve boundary visibility between the wilderness and management zone particularly along the tourist trails. | |
| Priority: Medium | Time Frame: 2020 |
| Incorporate boundaries of wilderness zone to the hiking maps and existing field information systems and communication strategy to increase opportunity for visitors to better visualised wilderness zone. | |
| Priority: Medium | Time Frame: 2020 |
| Improve the wilderness aspect of communication strategy beyond German-speaking audience. | |
| Priority: Medium | Time Frame: 2020 |

*Fig. 33: Wilderness is a well-established part of Nationalpark Kalkalpen.*

*Fig. 34: The wilderness zone is large enough to support spontaneous natural processes.*

*Fig. 35: Kalkalpen Wilderness has a good potential for enlargement.*

*Fig. 36: The borders between wilderness and managed zones are not marked in the field.*

## 7.1.2. Criterion 1.2. Minimum size of the wilderness zone depends on the predominant habitat type.

### Reason for the Criterion

The size of a wilderness zone is one of the most important aspects fofr long term conservation. These areas are considered to have a high biodiversity and ecological functioning value resulting in high capacity to adapt to changes in abiotic and biotic conditions, without shifting to a different qualitatively state. In other words, they are ecologically resilient.

This important point is the reason a minimum was established for each of four wilderness categories. The minimum size of the wilderness zones differ between habitats and depends on a particular situation, which can vary from place to place.

#### Current situation

Kalkalpen Wilderness meets the European Wilderness Quality Standard and Audit System for a platinum label which is more than 10,000 ha. The wilderness zone creates a large contiguous wilderness with the potential for enlargement.

#### Findings

The size of the wilderness zone has been expanded several times since the park was created in 1997. The current zoning system is the result of intensively discussions before a final version of the current zoning was approved.

#### Strengths

Wilderness zone meets quality standard for platinum label (13, 034 ha). This zone continues with the potential to expand and even more wilderness management experience throughout the country and beyond. This wilderness zone is one of the largest contiguous pieces in Central Europe.

The enlargement of the Nationalpark Kalkalpen creates an immense opportunity to increase the size of the wilderness zone and reduce fragmentation. Nationalpark Kalkalpen is already in process of enlargement and park management recently gained a piece of land in the southeast corner, above Hengstpass. Park management would like to increase its ecological connectivity with other protected areas in the northern Kalkalpen region, Gesäuse NP and Wilderness Dürrenstein (Rotwald).

#### Weaknesses

Complex landownership around Nationalpark Kalkalpen and strong commercial interest of land owners.

#### Recommendations

| | |
|---|---|
| Park management carries out an inventory for the potential enlargement of wilderness in protected area. | |
| Priority: Medium | Time Frame: 2020 |
| Park management develops a map of the potential wilderness enlargement. | |
| Priority: Low | Time Frame: 2020 |
| Park management looks for funding and resources to enlarge the wilderness. | |
| Priority: Low | Time Frame: 2020 |

*Fig. 37: Kalkalpen Wilderness meets the European Wilderness Quality Standard and Audit System.*

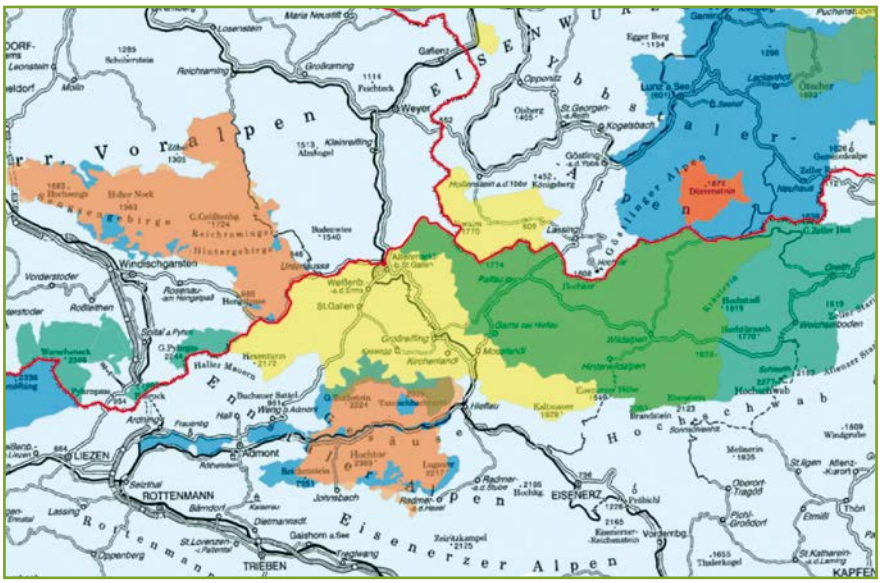



*Fig. 38: Kalkalpen region. © Nationalpark Kalkalpen*

## 7.1.3. Criterion 1.3. Wilderness has three zones; wilderness, restoration and transition, where further expansion of wilderness is planned and two zones, wilderness and transition, where restoration and/or expansion is completed.

### Reason for the Criterion

Zoning is a tool to assist in the planning and management of wilderness. In general, zoning divides a protected area into logical units for management. It applies consistent management objectives based on natural, cultural and recreational values, and existing and projected patterns of access in relation to specific conservation goals. The zones reflect the intended land use, the degree of human use, level of management and development permitted.

Wilderness certified under the European Wilderness Quality Standard and Audit System should have three zones with a wilderness zone surrounded by a restoration zone of, which in turn is surrounded by a transition zone. It is considered that this threefold structure offers best protection of key wilderness principles whilst allowing potential for future expansion and flexible interaction with other land uses. http://wilderness-society.org/european-wilderness-quality-standard/

### Current situation

Kalkalpen Wilderness includes three zones: wilderness, restoration and transition. Since the wilderness zone is large (platinum standard, a large restoration zone is not necessary however the wilderness zone is surrounded by the restoration and transition zone.
As Kalkalpen Wilderness fulfills the management criteria for restoration and transition zone and a wilderness zone is adequately connected with these areas it is not necessary to delineate such a zone for the wilderness zone separately.

The wilderness zone creates one large contiguous piece of land with the total size of 13,034 ha.

The wilderness zone is considered an important contributor to the conservation of wilderness flagship species such as: lynx, birds of prey and provides excellent habitat for possible return of wolves. The wilderness zone contains examples of undisturbed ecosystems such as beech forest, rocky outcrops, mountains pine forest, etc.

Proposed zoning

- Wilderness zone, 13,034 ha
- Restoration zone 1,609 ha
- Transition zone 6,207 ha
- Total 20,850 ha

### Findings

Park management uses a selective culling approach in several areas inside the restoration zone. These areas are usually along old abandoned forest roads and meadows. Due to this process the size of wilderness zone is partially fragmented and reduced to 13,034 ha.

### Strengths

The wilderness zone is not missing any important ecological processes such as succession, deadwood, habitat for native species, etc. The wilderness zone is almost completely free of any management or restoration measures. Several smaller areas had restoration project in the past for abandoned roads, etc.

## Weaknesses

The zoning of Kalkalpen Wilderness is dynamic due to temporary culling and bark beetle management which causes fragmentation of the wilderness zone.

## Recommendations

Park management monitors the impact of the culling policy and implements measures to minimize the fragmentation of wilderness zone.

Priority: High Time Frame: 2020

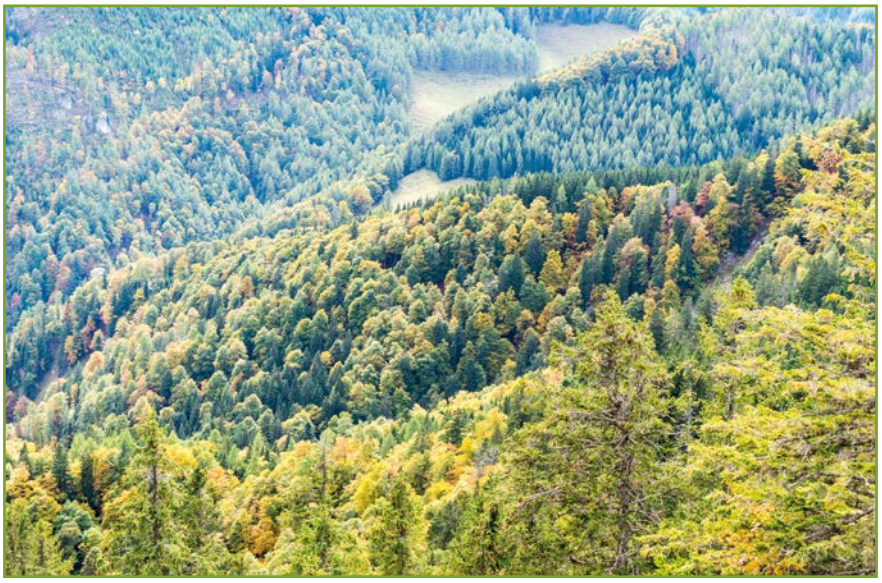


*Fig. 39: Kalkalpen Wilderness includes 3 zones: wilderness zone, restoration zone and transitional zone.*

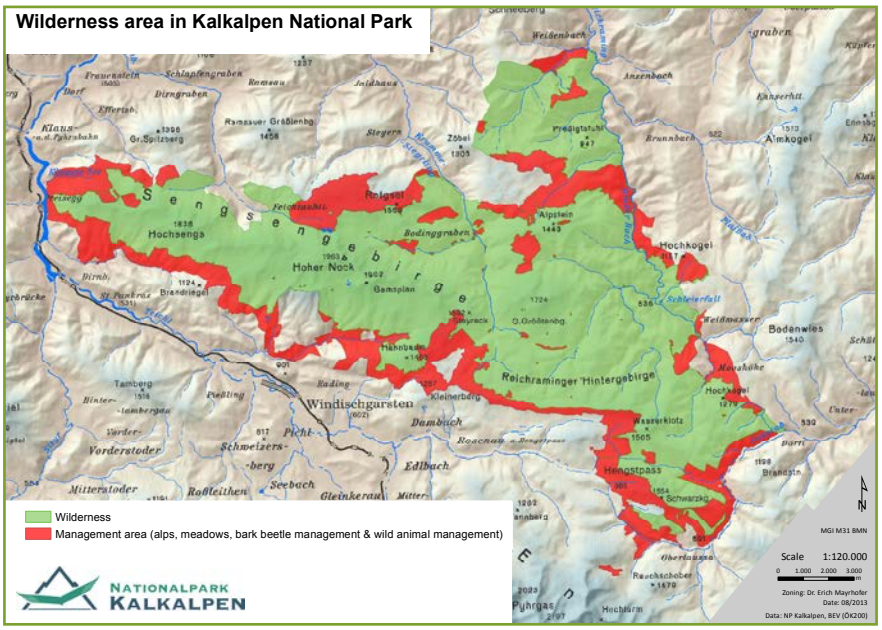



*Fig. 40: Wilderness management in Nationalpark Kalkalpen (Nationalpark Kalkalpen progress report 1998 – 2012), © Nationalpark Kalkalpen*

*Fig. 41: Wilderness zone is not missing any important ecological processes such as succession, deadwood, habitat for native species, etc.*

## 7.2. Principle 2: Natural processes and biodiversity

A wilderness should have a zone where natural processes take place without the human intervention and in a healthy state so that it contributes to the conservation of threatened species for that region and contains examples of undisturbed habitats.

### Reason for the Principle

This principle focuses on one of the key ecological aspect of wilderness quality standard which is naturalness.
Naturalness means; the naturalness of vegetation and associated species assemblages and natural processes.

### 7.2.1. Criterion 2.1. The wilderness zone has natural processes to maintain biodiversity.

### Reason for the Criterion

Natural vegetation and its associated species are the result of its unique evolutionary history of biodiversity within its local abiotic environment. Its conservation is not only important for species protection but also adaptation to climate change and other environmental disturbances. In this context, spontaneous natural processes and examples of undisturbed habitats play a critical role in conservation.

The main objective in the wilderness zone is to maintain natural dynamics and a high level of biodiversity with minimal or no management measures whenever possible.

*Fig. 42: The main objective in wilderness zone is to maintain natural dynamics.*

## Current situation

Wilderness zone has a well-established practice of non-intervention management. The concept of non-intervention management in the strictly-protected wilderness zone was developed and implemented in Nationalpark Kalkalpen since 2003.

The park is managed by a team of committed staff who is led by a director with a strong wilderness vision. The long-term systematic work is based on a wide range of research-based analysis with a focus to restore wilderness dynamic in this part of country which has a long history of extractive uses such as grazing, logging, mining and standard forestry operation.

After more than 12 years of wilderness management the result is that the public can study and experience the power of spontaneous natural recovery – rewilding. This is an important experience because of its location in Central Europe. For example; the Europarc report from 2015 concluded that about 55% of the park territory is managed according non-intervention principles without any wildlife management.

## Findings

The wilderness zone is managed according principles of maintaining natural dynamics in biodiversity.

The site assessment revealed that there is an opportunity and potential to expand the wilderness zone. However, this will be challenging due to cost of the land and limited resources.

## Strengths

Wilderness zone has a clear long-term vision. The main objective is to maintain natural dynamics and spontaneous natural processes as well as examples of undisturbed ecosystems to maintain biodiversity.

The value of the wilderness zone and spontaneous natural processes were the main arguments for meeting the requirements for achieving UNESCO World Heritage Site thus it has Nationalpark Kalkalpen has achieved candidate status.

The area of wilderness zone was intensively managed since the Second World War until the creation of the Nationalpark Kalkalpen) due to mining, forestry and grazing. All these activities were abolished by the end of 1990s. In the last 15 years non-intervention management has been implemented.

The site assessment revealed the remarkable work done in the last 15 years from the perspective of wilderness management and which has expanded to other protected areas in country.

The objectives in the wilderness zone are to restore wilderness quality, study and increase knowledge about linkages between wilderness, natural dynamics and biodiversity. Management has long-term vision for the wilderness zone which includes non-intervention management, enlargement and reducing fragmentation.

The wilderness management documents that are available provide evidence to support maintaining natural dynamics and biodiversity by minimal or no management measures.

This experience with the management of the wilderness zone provides valuable evidence to protect biodiversity through the implementation of non-intervention management. There is solid research work that focuses on collecting data and evidence for wilderness management.

There is systematic research on parameters to measure the scale of naturalness such as site conditions, regeneration, tree species composition, utilization, amount of deadwood, tree age and other indicators.

## Weaknesses

The knowledge gained on non-intervention management wilderness is only available in German. This limits the sharing of information beyond the German speaking countries.

The comprehensive wilderness management plan which highlights the objectives of non-intervention management in the wilderness zone are under development.

Some local stakeholders are not fully aware about importance of wilderness conservation through non-invention management.

## Recommendations

| | |
|---|---|
| Park management finalize a comprehensive management plan for the wilderness zone to maintain natural dynamics processes. | |
| Priority: High | Time Frame: 2020 |
| The wilderness management plan is a separate document or chapter of the overall management plan, with an English summary. | |
| Priority: Medium | Time Frame: 2020 |
| Park management continues to communicate the importance of wilderness management to local stakeholders and visitors. | |
| Priority: High | Time Frame: 2020 |
| Park management develops a more comprehensive strategy on how to effectively share wilderness management practices with an international audience (e.g. park managers, rangers, etc.). | |
| Priority: Low | Time Frame: 2020 |

*Fig. 43: Park has more than 12 years of experience with implementation of wilderness management.*

*Fig. 44: Abandoned bridge on forest roads in wilderness zone.*

*Fig. 45: Park management is running a systematic wilderness research.*

## 7.2.2. Criterion 2.2. The Wilderness zone contributes to the conservation of wilderness indicator species.

### Reason for the Criterion

Number and dynamism of wilderness indicative species are just one of several important indicators to measure naturalness of wilderness.

Specific species such as xylobionts beetles (relict species living with/by/through wood) and

some birds which are highly specialize for dead wood (e.g. white-backed woodpecker). These species are considered as indicator species for the health of an ecosystem

Large carnivores such as lynx, wolf or bear, and their ability to mate, raise cubs are good indicators of healthy wilderness.

### Current situation

Approximately, 95% of the management staff agrees that the wilderness zone is an important tool to guarantee conservation of natural processes and dynamics of biodiversity. Meaning that wilderness provide a safe home range for a number of wilderness indicator species, in particular during sensitive periods in their life cycle such as in breeding season.

### Findings

The management documents provide information on IUCN red-listed species. For many of them, Kalkalpen wilderness provides a safe refuge during critical periods in their life. Management measures are directed towards mitigating the main threats to these species, with particular focus on human activities (e.g. zones without management, no hunting, number of restoration project and/or enlargement effort).

Nationalpark Kalkalpen and the surrounding area used to have large carnivores. A reintroduction project has brought back a small population of lynx but still faces poaching. Wolves occasionally use the area as a corridor, otters are still present in creeks, and brown bears were extirpated, etc. The area is not suitable for typical alpine animals such as marmot or Ibex.

### Strengths

Almost all of management agrees that the wilderness zone is an important tool for protecting of wilderness for indicator species due to protection of habitat and natural processes.

The management plan provides information on red-listed species (14 endemic plant species in eastern Alps). There is ongoing research on endemic species in springs and caves. Previous research has confirmed a that there is a correlation between more wilderness signifies more deadwoods which in term is more relict species.

The alpine area above tree line, provides an excellent example of spontaneously recovered tree line and mugo pine recovery in some areas where grazing was faded out 60 years ago. Some areas are now completely covered by forest and dense mugo pine stands.

Management measures contribute to the conservation of wilderness indicator species (e.g. lynx, otter, and eagle). These measures are being taken to mitigate the main threats to these species, with particular reference to human activities in order to create zones without management or hunting, without implementing active restoration projects, ongoing enlargement effort, etc.

The area is home to a number of endemic species (e.g. rosalia alpina, salmo trutta trutta morfa fario). This list is regularly updated based on regular inventory and research (e.g. in springs and caves).

The activities of park rangers focus on cooperation with local communities. Rangers are involved in implementing management measures such as wilderness monitoring, research, international cooperation and other field activities.

## Weakness

There is forestry operation and hunting pressure in the surrounding areas of the wilderness zone due the control measures for bark beetle and the culling of large herbivores such as roe and red deer, and chamois.

Local people are starting to accept a small population of lynx although 2 were recently poached.

Management is aware of four invasive alien species (IAS) (e.g. salmo trutta, impatience grandifolia). These occur at the edges of the protected area and they currently have no impact on the wilderness zone and minimal impact on other species or ecosystems in the park.

## Recommendations

Management plan should:

- Provide information on endemic, red-listed, vulnerable and/or other rare species which occur in the wilderness.
- Provide information on native species in the wilderness zone that have decreased or become extinct.
- Provide actions steps on IAS/management.
- Continue systematic monitoring of large herbivores with a focus on the wilderness zone.
- English summary

Priority: High | Time Frame: 2020

Park management continues to implement a communication strategy that focuses on educating the public about wilderness, the importance of indicator species such as ibex, chamois or moderate forest operations and grazing and hunting activities around the wilderness zone.

Priority: High | Time Frame: 2020

Park management continues on monitoring of invasive species in wilderness.

Priority: High | Time Frame: 2020

Park management continues on implementation of lynx reintroduction programme.

Priority: High | Time Frame: 2020

*Fig. 46: Kalkalpen Wilderness and surrounded area used to have all relevant large carnivores in the past.*

*Fig. 47: There is a forestry operation in the surroundings of wilderness zone.*

## 7.2.3. Criterion 2.3. The wilderness zone contain examples of undisturbed ecosystems.

### Reason for the Criterion

It is difficult to find undisturbed habitats in Europe therefore the definition of wilderness in Europe does not mean only pristine or primeval landscapes but areas that are recovering and are without intrusive or extractive human activity, settlements, infrastructure or visual disturbance.

#### Current situation

Nationalpark Kalkalpen is well known due to its systematic implementation of non-intervention management.

#### Findings

The wilderness zone contains examples of undisturbed ecosystems in particular old-growth Beech forest with deadwood at different stages of decay, some of which are still standing or on the ground. There are areas with no signs of logging which has created a habitat that is highly diverse. The deadwood is home to a wide variety of invertebrates, larva, insects and fungi.

#### Strengths

The wilderness zone contains the finest examples of undisturbed ecosystems in the entire county such as fragments of old growth beech forest with standing and lying deadwood and no evidence of logging.

The wilderness zone is also rich on mixed forest, pinus mugo stands, alpine meadows, small peat bog, network of streams and creeks without any signs of construction activities, limestone rocky outcrops and narrow canyons with minimal signs of disturbances caused by people. Water streams in area of Reichraminger Hintergebirge Mountain are an excellent example of successful reintroduction of native trout population.

Another sign of well naturally restored ecosystems is presence of good population of birds of prey and small population of lynx. It is likely that also wolf will visit this wild area more frequently in the coming years.

All activities in wilderness zone are carefully controlled and monitor by park staff and particularly by rangers.

## Weaknesses

Eastern part of wilderness zone - Reichraminger Hintergebirge Mountain was heavily impacted by mining and forestry in the last century. There is a network of roads, narrow gauge railways, tunnels, bridges penetrate through several narrow karsts valleys and impact of that construction are visible even today – many years after those commercial activities where abandoned.

## Recommendations

Park management continue on effective communication of restoration efforts in wilderness zone with a focus on local, national and international audience.

Priority: High Time Frame: 2020

*Fig. 48: Nationalpark Kalkalpen is well known due to systematic implementation of non-intervention management.*

*Fig. 49: Eastern part of wilderness zone - Reichraminger Hintergebirge was heavily impacted by mining and forestry in the last century.*

## 7.2.4. Criterion 2.4. The wilderness has a management plan to restore natural processes in the restoration zone.

### Reason for the Criterion

Wilderness is rarely undisturbed. Therefore the places that have been impacted by humans can be restored to wilderness over time.

Restoration is the process of assisting in the recovery of a landscape that has been degraded, damaged, or destroyed. Restoration can be active or passive.

Active restoration is an intentional activity that initiates or accelerates landscape recovery with respect to functional processes, species composition and community structure, and resistance to disturbance. Passive restoration is when minimal activities are undertaken and the area is allowed to restore on its own.

#### Current situation

Wilderness zone has many signs of impact by humans in the past (forest roads, narrow gauge railways, tunnels, bridges. Nevertheless, most of the wilderness zone has been left for decades to passive restoration and with positive outcomes.

#### Findings

The wilderness has a clear vision to restore natural processes. The management of large herbivores in management zone and restoration zone is currently subject intensively discussed.

The area also provides a unique example of a long-term spontaneous forest roads restoration where almost 100 km of these roads were already either actively or passively restored or stopped in use.

There is also ongoing project/process focusing on enlargement and restoration of natural processes.

#### Strengths

The current zoning of the national park can be combining with zoning used by European Wilderness Quality Standard and Audit System as follows (see Principle 1). All three zones are marked in the internal maps and described in planning/management documents.

The current management documents set a clear framework for passive management in order to restore natural processes on 75% of Nationalpark Kalkalpen (requirement of IUCN).

Management documents include clear objectives to enlarge wilderness zone (including eco-corridors). Wilderness zone has no human management activities. The restoration zone includes certain level of activities (culling, use and maintenance of old gravel forest road, etc.).

There is ongoing project to test management measures in restoration zone (i.e. culling activity).

Spontaneous natural processes are the main tool for restoration either in wilderness or restoration zone.

There is a unique experience with restoration of natural processes in areas impacted by bark beetle:
- Wilderness zone – no intervention at all
- Restoration zone - no intervention at all
- Transitional zone – control bark beetle population dynamics

## Weaknesses

Open end process of testing disperses culling in management zone and using abandoned old gravel forestry roads by motorised vehicles.

## Recommendations

| Park management continues on restoration of natural processes in the restoration zone | |
|---|---|
| Priority: Medium | Time Frame: 2020 |

| Park management agree on time line when the areas for herbivores culling in restoration zone will be ceased and fragmentation of wilderness zone will be decreased. | |
|---|---|
| Priority: High | Time Frame: 2020 |

*Fig. 50: The area also provides a unique example of long-term forest roads restoration.*

*Fig. 51: Nationalpark Kalkalpen also provides an experience with restoration of natural processes in areas impacted by bark beetle.*

## 7.3. Principle 3: Wilderness Management

This principle addresses the various wilderness conservation measures such as a biodiversity management plan, plan for supporting the natural processes, landscape management and the training of the wilderness management team. In addition, this principle covers the impact of visitor management.

### Reason for the Principle

An area that has been designed as a protected wilderness zone does not always guarantee that it will be managed to ensure its preservation. In order to guarantee long-term sound wilderness conservation, it is necessary to have a good understanding of the principles of wilderness management. Good wilderness management must recognize and respect that wilderness is; an area governed by natural processes, composed of native habitats and species and is large enough for ecological functioning. The area needs to be unmodified or only slightly modified without intrusive or extractive human activities, settlements, infrastructure or visual disturbances.

*Fig. 52: The main objective in Kalkalpen wilderness is to maintain natural dynamics.*

### 7.3.1. Criterion 3.1. The wilderness is protected by law in accordance within national legislative framework for an indefinite period of time.

#### Reason for the Criterion

In order to guarantee the protection of wilderness for an indefinite period of time it needs to be protected by law. National legislative framework include laws for Nationalparks, bylaws

and other regulations as they related to nature conservation and protection. These laws usually provide secured long-term legal protection and it is the most common tool to mitigate any possible illegal activities as well as prevent its commercial development.

## Current situation

Nationalpark Kalkalpen is part of the Austrian protected area network which was declared in 1997. The defined condition of management was to meet the quality standard IUCN category II. However, the site assessment revealed that Kalkalpen wilderness meets the quality standard IUCN category Ib - wilderness.

## Findings

The management of Kalkalpen wilderness is a unique example of wilderness management which is supported by local government and the largest landowners, the Austrian Forest Service. The aim of the wilderness zone is to protect wilderness by focusing on non-intervention the main approach.

## Strengths

Kalkalpen wilderness is legally protected and legislation has set the management approach and governs which activities can take place in the wilderness zone.

There is a committed management team. The park is considered an important wilderness model for wilderness conservation in Austria and Central Europe.

The management team has wilderness knowledge and the skill to apply this knowledge, approximately 80% of the park employees believe that non-intervention in the wilderness zone is an important asset for the park. Wilderness management knowledge is mandatory requirements for park employees. Top managers are well-educated and are supporters of non-intervention.

Long-term wilderness protection is supported by adequate financial resources which comes from various sources; federal and provincial government of Austria as well as European Commission. The team is skilled at accessing resources from EU sources and is currently implementing several project which focuses on wilderness conservation and wilderness restoration.

Personal believe and commitment to wilderness conservation is a critical element for effective wilderness management.

Nationalpark Kalkalpen has a list of important habitat types in the wilderness, for example beech forest, mugo pine forest, alpine meadows, spruce forests, rivers and creeks network, springs and caves.

The most unique assets of Kalkalpen wilderness are fragments of old-growth beech forest nominated as UNESCO World Heritage Site. There is ongoing effort to enlarge the wilderness outside of the protected area.

There are a number of activities (i.e. tourism, forestry, hunting, and motorized access) that are permitted outside the protected area. These activities impact indirectly conservation objectives in wilderness zone.

The area outside of the protected area is often used as entry points for visitors. There are many kilometres of forest roads which are used by bikers and hikers; Austrian Alpenverein maintains officially marked trails.

There are several remote areas with difficult terrain outside Nationalpark Kalkalpen. These areas also meet the wilderness quality standard.

## Weaknesses

The main challenge for wilderness management is that local people do not always have a positive attitude toward wilderness protection.

Bark beetle management is a challenge for wilderness management in the protect area and surrounding areas. The forest outside Kalkalpen wilderness is intensively managed due to bark beetle impact and commercial forestry (e.g. sanitary forestry operation, logging and repairs of forest roads, maintenance of access roads to alpine meadows and Alms). These activities impact wilderness zone.

The ownership structure and cost to buy the rights is a limiting factor for further enlargement of Kalkalpen wilderness in the foreseen future.

## Recommendations

| | |
|---|---|
| Park management continues on implementation of a long-term wilderness plan to guarantee legal protection of the wilderness zone (e.g. specific wilderness focus legislation, extent period of long-term agreement/lease with Austrian Forest Service for 30-35 years, etc.). | |
| Priority: High | Time Frame: 2020 |

| | |
|---|---|
| Park management continues to implement a long-term wilderness communication strategy with a focus on local stakeholders, visitors and an international audience. | |
| Priority: High | Time Frame: 2020 |

*Fig. 53: Nationalpark Kalkalpen is part of the Austrians protected area network.*

*Fig. 54: The area outside of Nationalpark Kalkalpen is often use as entry points to the park for visitors.*

## 7.3.2. Criterion 3.2. The wilderness has a wilderness management plan of at least 10 years.

### Reason for the Criterion

A manager has a natural tendency to want to 'manage' whether there is a need for it or not.

The need to manage wilderness could be inconsistent with the concept of wilderness. By definition, wilderness is an area governed by natural processes. It is composed of native habitats and species, and large enough for the effective ecological functioning of natural processes.

The term management strongly suggests that people are in control, that the land needs to be managed. Non-intervention management can be a new approach for protected areas.

Wilderness stewardship is a more accurate terminology of this new form of land use management. Wilderness stewardship is a more holistic approach to wilderness management where managers first determine whether there is the need for any management action before implementing an action plan.

Wilderness stewardship aims to protect, maintain and where necessary, restore wilderness and provide opportunities for solitude in nature. It includes the designation, planning, management and monitoring of wilderness. A long-term wilderness management plan is an important to achieve these goals.

#### Current situation

Nationalpark Kalkalpen has developed several documents providing a framework for daily management. These documents include a long-term wilderness conservation strategy. Nationalpark Kalkalpen currently is developing a new management plan.

A draft wilderness management plan has been available since February 2015 and the final version is still under the development. Several documents developed in the past are available including zoning maps with existing and visionary plans. Nationalpark Kalkalpen has also developed a business plan for years the years 2013-2022.

#### Findings

The documents provide a framework for daily management which include short and long term objectives that highlight the need to maintain ecosystem processes and biodiversity over the long term.

These documents outline the basic objectives and management principles for Nationalpark Kalkalpen including Kalkalpen Wilderness.

## Strengths

Nationalpark Kalkalpen has several documents that deal with long-term conservation strategy; wilderness conservation and connectivity with other wilderness' (e.g. Give Space Connect Together to Find Ways). These documents are publicly available in German.

The protected area has long and short term objectives as well as a comprehensive communication and marketing strategy.

The management objectives highlight the priorities of wilderness conservation; ecological processes and biological diversity are maintained over the long-term. The wilderness conservation objective is to a create large and contiguous wilderness zone.

There is a wide range of various wilderness focused education and activities available for visitors (e.g. Look at the Nationalpark Kalkalpen, Enjoy wilderness experience, Wildnesspuren, and brochures on lynx).

There are wilderness interpretation and training programmes, a wilderness academy, wilderness rangers in school programme (e.g. visit of wilderness with rangers, several tourist guides for Nationalpark Kalkalpen and the wider region). The acceptance of wilderness according to a recent survey among local people showed 90% support.

The document named Education and interpretation programme 2015 is a result of 20 years of activities and it offers wide range of activities for local schools. The programme includes personal invitation for local teachers to become a partner of Nationalpark Kalkalpen. Park administration produces a monthly newsletter which is distributed to 7000 addresses. There are almost 200 information boxes throughout the park and in cities.

Management organizes workshops to discuss difficult issues such as windstorm, bark beetle management and wilderness. A unique project is named Nationalpark Kalkalpen Wilderness Camp. The target audience are children and interested adults in the region. Guided tours in English are also offered by skilled rangers. These brochure and programmes highlight a positive aspect of wilderness.

## Weaknesses

Several important documents for wilderness management, long-term conservation strategy and connectivity with other wilderness in surroundings are only available in German.

*Fig. 55: Wilderness stewardship aims to protect, maintain and where necessary, restore a wilderness.*

## Recommendations

| | |
|---|---|
| Park management focuses on finalizing a new management plan and in particular section dealing with wilderness. | |
| Priority: High | Time Frame: 2020 |

| | |
|---|---|
| Park management continue to implement a long-term research and monitoring strategy with a focus on wilderness. | |
| Priority: Medium | Time Frame: 2020 |

| | |
|---|---|
| Park management develops an English summary of wilderness focused education brochures including maps, and communicate this also to foreign audience. | |
| Priority: High | Time Frame: 2020 |

| | |
|---|---|
| Park management communicates the benefit of wilderness conservation to increase the potential to assist other parks with wilderness counservation. | |
| Priority: High | Time Frame: 2020 |

| | |
|---|---|
| Park management develops an analysis of external and internal threats to the wilderness zone. | |
| Priority: Medium | Time Frame: 2020 |

| | |
|---|---|
| Park management develops capacity to train trainers in the context of wilderness conservation for countries in Central and Eastern Europe. | |
| Priority: Medium | Time Frame: 2020 |

*Fig. 56: Management objectives highlight priority of wilderness conservation.*

*Fig. 57: Nationalpark Kalkalpen organizes also a discussion to such difficult issues such windstorm, bark beetle management and wilderness dynamics.*

### 7.3.3. Criterion 3.3. The wilderness has a sufficiently large and trained full time management team.

#### Reason for the Criterion

An important precondition for successful park operations is an appropriately sized and trained management team that is committed and dedicated.

Due to the wide range of skills that park management staff must possess, it is imperative that proper training is made available.

The manager who knows how to handle issues in a professional manner will smooth over problems with less collateral damage. Avoiding these types of issues will save time and valuable resources.

#### Current situation

Nationalpark Kalkalpen has a professional management team of approximately 20 committed employees of which 10 are rangers. The objective of the team is to guarantee the long-term protection of the park.

Park management has a high level of wilderness management knowledge and approximately 70% of the park employees believe in the importance of non-intervention in wilderness zone.

Wilderness management knowledge are mandatory requirements for park employees. Eighty percent of park staff has a forestry education and twenty percent are university educated. The three top level managers (i.e. the director and two deputies) are well-educated and support wilderness conservation.

## Findings

Approximately 60% of park employees were met during the site assessment; e.g. the director, deputy directors, field rangers, administrative staff. It was confirmed that they are committed and proud of the park in particular wilderness.

Park rangers have a responsibility to implement and communicate the following subject: nature conservation law, forestry law and hunting law. However, park rangers have a limited enforcement capacity; they are mostly focusing on education, interpretation and communication! Reasons behind is interest to maintain a good relationship with the local population.

Discussions with the management team confirmed that approximately 60% of employees (e.g. rangers) are directly involved in wilderness management including the top park managers.

## Strengths

Nationalpark Kalkalpen has a professional management team which is sufficiently large and well trained. Approximately 50 people including visitor centres staff, lodges and 40 independent rangers. There is also a number of seasonal employees in summer, including students doing research work.

## Weakness

There is a need to further train staff on wilderness management, improved English language skills as well as wilderness focused education and interpretation.

## Recommendations

| | |
|---|---|
| Park management considers developing field trainings for wilderness management best practice. | |
| Priority: High | Time Frame: 2020 |
| Park management considers idea to increase language skills of staff who are involved in tourism, visitor management, communication, interpretation, etc. | |
| Priority: Medium | Time Frame: 2020 |
| Park management develops and implement wilderness focused education, interpretation training programmes. | |
| Priority: High | Time Frame: 2020 |


*Fig. 58: Kalkalpen wilderness has an appropriately sized and trained management team that is committed and dedicated.*

*Fig. 59: Park management considers developing a new field trainings for wilderness management best practice.*

## 7.3.4. Criterion 3.4. A training plan for the management team exists.

### Reason for the Criterion

Training is an excellent opportunity for expanding the management team's knowledge base. A structured training and development programme would ensure that the management team has sufficient experience and background knowledge.

A structured training programme should have a programme which would include a timeline, outline of activities, and who is responsible for what activities as well as defined outcomes for the training.

### Current situation

Regular trainings are organised for management team. There is annual meeting of all Austrian National Park employees (including directors and staff). The subjects of these meetings are various management subjects, including non-intervention management.

Nationalpark Kalkalpen organises number of seminars, field trainings, more and more focused also on wilderness. Park is using also external lectors and trainers.

### Findings

The site assessment revealed that park rangers have good knowledge and skills to work in the field and fulfil tasks linked to wilderness conservation (e.g. patrolling, monitoring, etc.).

Training programme of management team occurs on regular annual base. These training focuses on Nationalpark Kalkalpen related subjects, role of the park in Europe, ecological processes and biodiversity, role of large carnivores, etc.

### Strengths

The regular internal trainings for the management team. The training plan includes objectives, methods and schedules for the management team. There is a strong commitment and wish of the management team to learn and get new skills.

The issue of wilderness and importance of non-intervention management as one of the highlight of Nationalpark Kalkalpen is growing in the last several years. It will be likely even more important when this area will be included to the European Wilderness Preservation System. In this moment the following subjects could become important: wilderness in Europe, wilderness and ecological processes and biodiversity, wilderness and large predators, wilderness rangers, wilderness and visitors and locals, etc.

### Weakness

Most of information about training programme is available only on a local language.

### Recommendations

| Park management develops a wilderness focused training plan for the management team. | |
|---|---|
| Priority: Medium | Time Frame: 2020 |

*Fig. 60: Nationalpark Kalkalpen organises number of seminars, field trainings, more and more focused also on wilderness.*

## 7.4. Principle 4: Wilderness Restoration

A plan should be in place for the restoration of areas in the restoration zones for later expansion of the wilderness zone.

Wilderness restoration is an intentional activity that initiates or accelerates the recovery of damaged ecosystem that has wilderness potential. Wilderness restoration includes a wide range of activities such as restoration of disturbed areas and the reintroduction of native species.

### Reason for the Principle

A wilderness restoration plan would be needed for if the objective was to expand the wilderness zone.

### 7.4.1. Criterion 4.1. It is the objective to enlarge the wilderness zone.

#### Reason for the Criterion

The objective of of enlarging the wilderness zone is an important criterion and requires planning. Enlarging the wilderness zone is a strategic decision and therefore this process should include key stakeholders.

Enlargement of the wilderness zone is an important decision for wilderness managers to meet the European Wilderness Quality Standard or upgrade the wilderness category. Enlargement of the wilderness zone can reduce fragmentation and minimize negative impacts. Wilderness zones that are adequately large provide safe areas for species to thrive and ecosystem functioning.

**Current situation**

Nationalpark Kalkalpen has a long-term vision to develop a unique large wilderness in Austria and become a model for other wilderness in Europe.

**Findings**

There is a long-term strategy to enlarge the wilderness zone so that 75% of park territory utilizes a non-intervention approach. In addition to expanding their experience of wilderness management to the wider region.

The guiding document for this process is Planning concept of protected areas Nationalpark Kalkalpen, Nationalpark Gesäuse and Wilderness Dürrenstein which was developed in 2015.

## Strengths

The process of enlargement includes improving the ecological links between the three main protected areas (Nationalpark Kalkalpen, Nationalpark Gesäuse and Wilderness Dürrenstein). These activities would support the development of connectivity corridors, reduce fragmentation and disturbances and well as decrease hunting pressure and density of roads.

There is a significant potential for enlargement of Kalkalpen wilderness due to an already existing area that is forested which has wilderness quality. In addition, there is growing interest in non-intervention management and wilderness conservation among young people particularly in big cities.

The territory of Nationalpark Kalkalpen was just recently enlarged using available funding at southeast corner of the protected area.

## Weaknesses

In order to achieve their objectives described requires resolving several key issues; gaining support of local governments, requirements of landowners and stakeholders. It is a challenging process due to the many socio-political and economic constraints. The document is only available only in German.

## Recommendations

| | |
|---|---|
| Continue on implementation of a long-term vision to enlarge the wilderness zone in Nationalpark Kalkalpen. | |
| Priority: Low | Time Frame: 2020 |

| | |
|---|---|
| Continue on implementation of document: Planning concept of protected areas Nationalpark Kalkalpen, Nationalpark Gesäuse and Wilderness Dürrenstein developed in 2015 with a focus to motivate creation of other wilderness areas in region. | |
| Priority: Medium | Time Frame: 2020 |

| | |
|---|---|
| Continue on communication and building up acceptance of local people, local stakeholders and user of this area. | |
| Priority: High | Time Frame: 2020 |

*Fig. 61: Enlargement of the wilderness zone is an important decision for wilderness managers.*

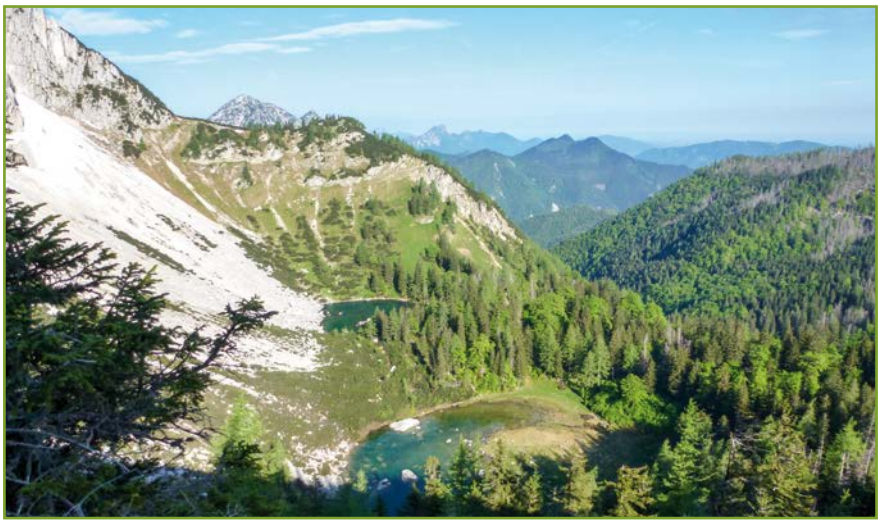


*Fig. 62: There is a long-term strategy to enlarge current wilderness zone.*

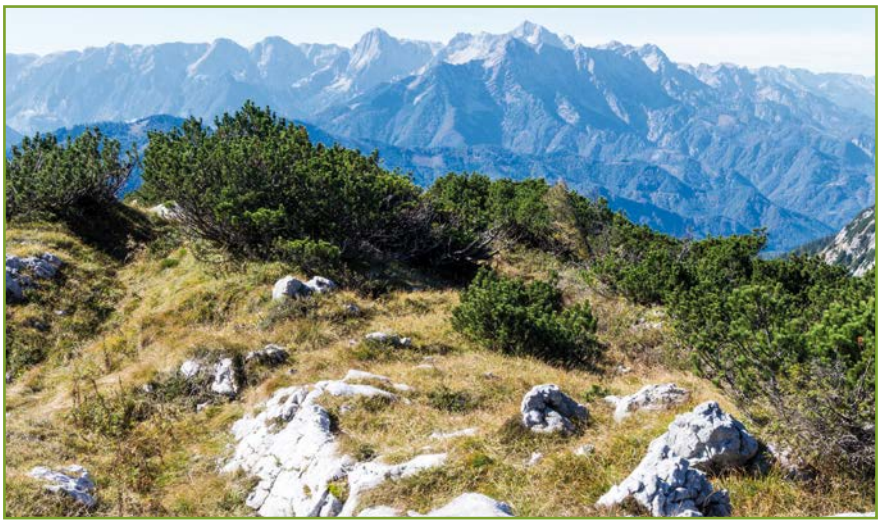


*Fig. 63: The process of enlargement Kalkalpen wilderness includes building up the ecological links between protected areas in the surroundings.*

## 7.4.2. Criterion 4.2. The wilderness has a wilderness restoration plan to enlarge and improve the wilderness zone.

### Reason for the Criterion

Due to land uses and human activities in the past, biological and/or physical processes have been altered in a particular area. In this case, active managed might be needed to restore ecological functioning and return the land to its natural condition as much as possible. Revegetation and reintroduction of native species are just two examples of active management.

A wilderness restoration plan is a tool for implementing an intentional activity that initiates or accelerates the recovery of a damaged ecosystem with wilderness potential.

Wilderness restoration

- is an important tool to achieve wilderness Nationalpark Kalkalpen vision
- is closely linked with ongoing lynx restoration
- is an important instrument during all wilderness history in Nationalpark Kalkalpen, (particularly passive wilderness restoration)

#### Current situation

Nationalpark Kalkalpen is gradually, step-by-step implementing long-term wilderness restoration project.

#### Findings

There is ongoing process to implement a long-term wilderness restoration plan including restoration activities.

Currently, there is a large-scale and long-term wilderness restoration project including protected areas with wilderness core zones of Nationalpark Gesäuse and Wilderness Dürrenstein and other potential wilderness areas (Haller Mauern, Totes Gebirge, etc.) in the wider Kalkalpen region.

Nationalpark Kalkalpen is an excellent example with 15 years history of passive wilderness restorations.

#### Strengths

Nationalpark Kalkalpen has a professional and passionate staff which strongly believes in passive wilderness restoration with minimal intervention.

A lot of recourses and capacity has been spent in the last years to communicate and increase support of locals, stakeholders and the general public for wilderness restoration. The KW is a model for other wilderness areas in Austria and Central Europe

Extractive uses in KW have been limited or completely removed. These activities include:

- Alpine grazing, above the tree line has stopped however grazing on meadows in forest continues and is supported in the management zone.
- Forestry including sanitary logging has ceased in the wilderness zone.
- Hunting has replaced by game management which includes the culling of large herbivores in management zone.

In addition, the removal of public motorized access from the wilderness zone has already occurred in large parts of these zones thus reducing manmade disturbances.

## Weaknesses

In order to meet wilderness quality standards, it would be necessary to stop using and/or remove forestry roads by park staff thus removing all motorized transport in wilderness zone.

## Recommendations

| | |
|---|---|
| Implement conclusions of document: Planning concept of protected areas Nationalpark Kalkalpen, Nationalpark Gesäuse and Wilderness Dürrenstein, developed in 2015. | |
| Priority: Medium | Time Frame: 2020 |
| Develop strategy to minimize use of old forest road by park staff in wilderness zone. This is important particularly if Nationalpark Kalkalpen has an ambition not only to maintain the current quality level of wilderness diploma but also became a model and inspiration for other areas with wilderness inspiration. | |
| Priority: High | Time Frame: 2020 |

*Fig. 64: There is ongoing process to implement a long-term wilderness restoration plan.*

*Fig. 65: To meet wilderness quality standards is also necessary stop using old gravel forestry roads by park staff.*

## 7.5. Principle 5: Wilderness and extractive uses

The working definition of wilderness stipulates that wilderness is an area without intrusive or extractive uses.

### Reason for the Principle

The wilderness zone does not have any extractive uses or intrusive activities such as forestry, hunting/culling, fishing, agricultural activities including livestock grazing, or mining, dead-wood collection, or any other activities that modifies the landscapes or extracts resources.

However, during restoration, some management activities and/or extractive uses might be permitted for at the bronze and silver levels.

### 7.5.1. Criterion 5.1. The wilderness zone has no extractive or commercial uses.

### Reason for the Criterion

Extractive or commercial uses have a negative impact on wilderness.

#### Current situation

There are no extractive uses or commercial activities in the wilderness zone.

#### Findings

The verification team verified a large part of the wilderness zone in the central and eastern part of Nationalpark Kalkalpen. This area provides an excellent example of a large contiguous piece land that has been re-wild naturally without management intervention.

#### Strengths

The wilderness zone has a long-term vision with a goal to protect the role of non-intervention re-wilding. Extractive uses were removed two decades ago from the wilderness zone.

#### Weaknesses

The wilderness zone was intensively use for the production of charcoal, mining, road and narrow gauged railway construction, forestry, and grazing. The signs of these extractive uses are still visible in the wilderness zone in particular the many forest roads.

The fragmentation of the wilderness zone is caused by islands of meadows/alms which include access roads that are located inside the wilderness zone. These areas are also culling areas in order distribute the impact of this activity.

## Recommendation

Park management continues education and interpretation activities which focus on the impact of extractive uses (i.e. grazing, forestry and hunting) rewilding, spontaneous natural processes, and wilderness conservation.

Priority: Medium Time Frame: 2020

*Fig. 66: The wilderness zone does not have any extractive uses.*

*Fig. 67: Wilderness zone was in the past intensively uses.*

## 7.5.2. Criterion 5.2. The wilderness zone has no forestry operation.

### Reason for the Criterion

Forestry operation, even selective cutting and nature close forest management techniques, are not compatible with the principles of wilderness management.

#### Current situation

There is no forestry operation in the wilderness zone.

#### Findings

There is no forestry operation in the wilderness zone.

#### Strengths

The wilderness zone has no forestry activities due to an agreement between between park management and state forest managers. In the future, forestry activities are not likely due to the objectives of the park and the agreement with state forestry.

#### Weaknesses

Current legislation is not clear regarding limited/sanitary forestry in wilderness zone for insect outbreak and/or sanitary cutting. In order to prevent it, an effort will be necessary by park management. There are on-going sanitary forestry activities in the management zone due to the impact of bark beetles.

#### Recommendations

| | |
|---|---|
| Continue on implementing education and interpretation activities organized by protected area with a focus on extractive or commercial uses in wilderness zone (bark beetle versus ecosystem dynamics, etc.). | |
| Priority: High | Time Frame: 2020 |

*Fig. 68: To prevent forestry operation extreme effort of the park management is needed.*

## 7.5.3. Criterion 5.3. The wilderness zone has no hunting and/or game management

### Reason for the Criterion

Hunting and/or game management are not compatible with wilderness management.

#### Current situation

There is no hunting in the wilderness zone. Game management, the culling of herbivores takes place outside the wilderness zone.

#### Findings

There is no hunting and/or game management in the wilderness zone.

There are five feeding stations in the management zone but it is gradually being reduced. These feeding stations are attractive spots for visitors and the park offers organized interpretive walks for tourists in the wintertime to observe animals at feeding stations.

#### Strengths

Hunting and game management activities are not allowed in the wilderness zone. It is an excellent habitat for wide range of species including carnivores (e.g. lynx, badger, fox and otter). The wilderness zone is a large area without extractive use which provides an opportunity for the recolonization of the wolf in a future.

#### Weaknesses

There is a culling programme (roe deer, red deer, chamois) in the management zone. This population contract activity required because of the lack of large predators. The culling takes place with lead free ammunition. The midterm plan (5 years) stop the culling from the potential for wilderness zone, culling days have already been reduced.

The attitude of the local communities is not always positive to the replacement of hunting and culling with their natural predators. Recent poaching of lynx as a native predator is illustration of this attitude.
This situation poses a challenge because already invested a lot of effort and resources has been done for the lynx reintroduction programme. A well thought-out, strategic communication as well as interpretation and education programmes would be crucial for successful acceptance.

#### Recommendations

| | |
|---|---|
| Park management develops a strategy to communicate the importance of having a hunting-free zone in wilderness zone. | |
| Priority: High | Time Frame: 2020 |
| Park management continues to its communication strategy of the importance of having carnivores in the wilderness zone. | |
| Priority: High | Time Frame: 2020 |
| Park management continues on implementation lynx reintroduction programme. | |
| Priority: High | Time Frame: 2020 |

*Fig. 69: There are 5 feeding stations in management zone.*

## 7.5.4. Criterion 5.4. The wilderness zone has no extractive fishing or management of fish populations.

### Reason for the Criterion

Extractive fishing and/or management of fish populations are not compatible with wilderness.

#### Current situation

There is no fishing or management of fish populations in the wilderness zone.

#### Findings

The wilderness zone has an excellent fish habitat. There was a successful reintroduction of endemic rainbow trout in the area.

A large part of the wilderness zone (Sengsengebirge – large, steep mountains) does not provide suitable habitat for fish. However, good undisturbed stream habitat for native fish species can be found in the eastern part of the park. These streams host endemic rainbow trout and crayfish.

#### Strengths

The fishing is not allowed in the wilderness zone.

#### Recommendations

| | |
|---|---|
| Park management continues to monitor and control extractive fishing activities. | |
| Priority: Medium | Time Frame: 2020 |

| | |
|---|---|
| Park management develop an interpretation programme with a focus on endemic rainbow trout reintroduction programme. | |
| Priority: High | Time Frame: 2020 |

*Fig. 70: The fishing is not allowed in the wilderness zone.*

## 7.5.5. Criterion 5.5. The wilderness has a fish and game management plan for the restoration and transition zones.

### Reason for the Criterion

In Principle 1, it is proposed to create a restoration and a transition zone. Management of these zones requires specific activities with objectives to enlarge wilderness zone.

The restoration zone with its relatively low human impact not only surrounds and protects the wilderness zone but also assists in the restoration/rewilding of habitats and ecological functioning. The objective is that these activities are phased out within ten years.

The transition zone is an area where a range of human activities is permitted, however management controls prevent development of major infrastructure such as wind farms or large scale clear cutting which would significantly alter the landscape or the environment. Sustainable harvesting of timber, animals (i.e. hunting and fishing) and plants (e.g. berries, fruits and mushrooms), together with organic agriculture is possible in the transition zone.

**Current situation**

A management plan is in development, it will include management of fish populations and game in the restoration as well as the transition zone.

**Strengths**

A lynx reintroduction programme is already established in the wilderness zone in particular in the eastern part of protected area – Hintergebirge Mountains) which provides excellent habitat. Lynx that were poached last year, will be replaced in the coming months.

## Weaknesses

Poaching is a real threat to the lynx population. The fish and game management documents are available only in German.

## Recommendations:

| Park management continues with game management in transition zone. | |
|---|---|
| Priority: High | Time Frame: 2020 |

*Fig. 71: The transition zone is an area where a range of human activities is permitted.*

*Fig. 72: Park management continues with game management in transition zone.*

### 7.5.6. Criterion 5.6. The wilderness zone has no active mining.

#### Reason for the Criterion

Mining activities are often located in proposed wilderness. The reason for the criterion is to prevent future mining activities in newly verified wilderness.

**Current situation**

Wilderness zone (and whole protected area) has no active mining.

### 7.5.7. Criterion 5.7. The wilderness zone has restored former mining sites.

#### Reason for the Criterion

Restored mining sites are frequently located in proposed wilderness.

**Current situation**

The wilderness zone was intensively used for mining, road/railway construction, etc. However, all these activities stopped two decades ago and this area is not in need of active restoration.

### 7.5.8. Criterion 5.8. Park management has implemented a restoration plan for previous mining sites in the restoration zone.

#### Reason for the Criterion

The restoration zone has randomly occasionally implemented restoration plans for old mining sites. Reason of this criterion is prevent that newly verified wilderness has poorly implemented restoration plans for old mining sites in the restoration zone.

**Current situation**

A restoration plan for previous mining sites is not needed.

### 7.5.9. Criterion 5.9. The wilderness zone has no domestic livestock grazing.

#### Reason for the Criterion

Livestock grazing is not compatible with wilderness management.

**Current situation**

Wilderness zone has no domestic livestock grazing.

**Findings**

The wilderness zone has no domestic livestock grazing anymore. Traditional grazing of cattle and sheep in the lower parts of the wilderness zone has happened in the past - but there is no ongoing grazing in these areas anymore.

## Strengths

The wilderness zone has no domestic livestock grazing anymore.

## Weakness

Several decades ago, the western part of the wilderness zone (alpine) used to be grazed by livestock. These areas have already recovered.

The transitional zone has domestic cattle grazing (alms). It is ongoing activity in several areas throughout the park, including areas (meadows) with access by gravel roads which are used by the owners and/or managers inside of the wilderness zone. These meadows are not included to this zone.

## Recommendations

Park management continues its communication strategy for importance of having no livestock grazing in wilderness zone.

Priority: High | Time Frame: 2020

*Fig. 73: Livestock grazing is not compatible with wilderness management.*

*Fig. 74: Park management continues its communication strategy for importance of having no livestock grazing in wilderness zone.*

## 7.5.10. Criterion 5.10. The wilderness zone has no agricultural activities.

### Reason for the Criterion

Agricultural activities are not compatible with wilderness.

**Current situation**

The wilderness zone has no agricultural activities.

**Findings**

The wilderness zone has no agricultural activities.

## 7.5.11. Criterion 5.11. The wilderness zone has no deadwood collection.

### Reason for the Criterion

Deadwood collection is not compatible with wilderness.

**Current situation**

The wilderness zone has no deadwood collection.

**Findings**

The deadwood collection happened in the past centuries only at the limited parts of the wilderness zone (lower elevation) to supply fire wood for summer alms.

## 7.5.12. Criterion 5.12. There is no commercial harvesting of berries, nuts and/or mushrooms in the wilderness zone.

### Reason for the Criterion

Commercial harvesting of berries, nuts and/or mushrooms is not compatible with wilderness.

**Current situation**

There is no commercial harvesting of berries, nuts and/or mushrooms in the wilderness zone.

**Findings**

The harvesting of berries, nuts and/or mushrooms for private use happened in the past centuries only at the limited parts of the wilderness zone) north and lower elevation).

**Strengths**

The collecting of berries, nuts and mushrooms mostly occurs in the transition zone and only for personal use. It is not considered a threat.

*Fig. 75: The collecting of berries, nuts and mushrooms mostly occurs in the transition zone and only for personal use.*

## 7.5.13. Criterion 5.13. There is no commercial collection of minerals in the wilderness zone.

### Reason for the Criterion

Commercial harvesting of minerals is not compatible with wilderness.

**Current situation**

There is no commercial collection of minerals in the wilderness zone.

**Recommendations**

| Park management continues to monitor and control the collection of minerals in the wilderness zone. | |
|---|---|
| Priority: Medium | Time Frame: 2020 |

*Fig. 76: Park management continues to monitor the collection of minerals in the wilderness zone.*

## 7.5.14. Criterion 5.14. There is no commercial use of wilderness zone for filmmaking.

### Reason for the Criterion

Filmmaking is not compatible with wilderness.

**Current situation**

There is no commercial use of the wilderness zone for filmmaking

**Findings**

There is growing pressure of filmmaking requests using also helicopters. Park has already clear rules and policy how to handle these requirements.

**Strengths**

Currently there is no commercial use of wilderness zone for filmmaking.

## 7.6. Principle 6: Wilderness Disturbance

This principle focus on the removal of infrastructure, creating well-planned tourism access and regulating and limiting road access to the area in order to reduce impact in the wilderness zones

This principle addresses disturbances in a world were humans have imposed scale and boundaries on landscapes. The main issue of scale in disturbance management is about patch dynamic equilibrium. The main issue of boundary in disturbance management is the effect of edge conditions on disturbance frequency and magnitude. Human activities outside the wilderness dramatically influence management decisions on disturbances within wilderness zone.

### Reason for the Principle

The wilderness zone should not have any significant man-made disturbances.

The wilderness zone should generally be free of infrastructure, commercial development and/or extractive uses. Disturbances would include but are not limited to permanent infrastructure, roads, permanent settlements, noise and light pollution.

The restoration zone can include temporary man-made disturbances such as infrastructure or other activities that might take place for a short period of time and does not leave damage.

The focus lies on the removal of obsolete infrastructure, well-planned tourism access and strictly regulated and limited road access to the area, in order to secure minimum impact on the wilderness zones.

*Fig. 77: Disturbances are essential element of wilderness management.*

## 7.6.1. Criterion 6.1. The wilderness zone has no permanent infrastructure.

### Reason for the Criterion

Wilderness should not have permanent infrastructure as it is incompatible with wilderness quality standard[1].

#### Current situation

The wilderness zone has permanent infrastructure there were inherited when the park was established. There is a shelter/bivouac, old forest houses which are used for management purposes and there is a network of old gravel roads. Permanent infrastructure can also be found in the restoration and transition zones.

There are no paved roads in the wilderness zone.

There is an extensive network of old gravel roads partially extends into the wilderness and restoration zones (e.g Biwakplats, south site of Schwarzkogel and Reichaminger Hintergebirge). A significant part of the wilderness zone is road less.

#### Findings

It is known that road systems in the wilderness zone have a negative impact and they have a plan to deal with this issue.

The inventory of roads in the wilderness:

- Connected forest roads - 46 km.
- Preserved forest roads for legal reasons - 39 km.
- Forest roads used for management (permanent) 94 km.
- Forest roads used for management (temporary) 20 km.
- Abandoned forest roads 106 km.

These roads are used by park management, rangers and in case of an emergency. There are 2-3 roads used to transport visitors (e.g. Scheiblingau – Jagerhouse, Haslersgatten – NP bivakplatz). There is minimal maintenance of these roads in order to reduce the negative impacts inside wilderness zone. The repairs are typically done by hand.

There is no technical infrastructure in place for rescues due to avalanches, landslides and rock-fall.

#### Strengths

There is a strategic approach to deal with the roads in wilderness zone by gradually phasing out the abandonment of old gravel roads in particular Hintergebirge. Their experience should be shared with other protected areas in Europe.

#### Weaknesses

There are many old gravel roads in wilderness zone which are considered necessary for the management purposes.

[1] *This criterion is directly link also to the IUCN Protected Areas Category Ia and 1b quality which states: Category Ia - Distinguishing features of this Category is … limiting access by people and excluding settlement. Category 1b - Protected areas Category 1b are usually large unmodified or slightly modified areas, retaining their natural character and influence, without permanent or significant human habitation, which are protected and managed so as to preserve their natural condition.*

## Recommendations

| | |
|---|---|
| Park management develops an updated map and inventory of the road network and other infrastructure in the wilderness zone (roads, houses, shelters, tunnels, bridges, etc.). | |
| Priority: High | Time Frame: 2020 |
| Park management develops a strategy how to further eliminate old gravel forest roads in wilderness zone (stop using them at all). | |
| Priority: High | Time Frame: 2020 |
| Park management update a plan how to eliminate illegal use of old gravel forest roads in wilderness zone. | |
| Priority: Low | Time Frame: 2020 |

*Fig. 78: There are no paved roads in wilderness zone.*

*Fig. 79: Park management is focusing on gradual abandonment of old gravel forest roads.*

## 7.6.2. Criterion 6.2. The wilderness zone has no permanent settlements.

### Reason for the Criterion:

Permanent settlements are incompatible with wilderness quality standards.

**Current situation**

Kalkalpen wilderness zone has no settlements.

**Findings**

The nearest settlement from the wilderness zone boundary is 4 kilometres away.

## 7.6.3. Criterion 6.3. There is a management plan how to deal with temporary structures in the restoration zone.

### Reason for the Criterion

Temporary structures in the restoration/transition zone can be used for various purposes (e.g. restoration work, interpretation and education, etc.) The management plan provides framework for the permitted type and size of these temporary structures to minimized negative impacts in wilderness zone.

Common temporary structures in the restoration/transition zone are tourist huts/shelters for visitors which have orientation signs, maps, fire rings and interpretive panels

**Current situation**

There is a limited amount structures in the restoration and transition zones around the wilderness zone.

**Findings**

There is number of structures located in the restoration and transition zones.

**Strengths**

The amount of structures in the restoration and transition zones has been significantly reduced in the last decade.

**Weaknesseses**

There still remains a lot of structures in the restoration and transition zones.

## Recommendations

| | |
|---|---|
| Park management develops a map and inventory of existing permanent and temporary structures in the restoration and transition zone. | |
| Priority: High | Time Frame: 2020 |
| Park management will continue on monitoring of existing permanent and temporary structures in the restoration and transition zone. | |
| Priority: Medium | Time Frame: 2020 |
| Park management will communicate widely experience with reduction of permanent and temporary structures beyond wilderness boundary. | |
| Priority: High | Time Frame: 2020 |


*Fig. 80: Temporary structures inherited from the previous use in the restoration zone are trails, orientation signs, maps and interpretive panels.*

*Fig. 81: There are permanent and temporary structures in the restoration and transition zone inherited from the previous use.*

### 7.6.4. Criterion 6.4. There is a management plan to deal with inherited settlements in the wilderness.

#### Reason for the Criterion

There is a growing interest to create new or enlarge existing wilderness which requires how to handle inherited settlements in the proposed wilderness.

There are several options for wilderness managers:

- Exclude inherited settlements from the potential wilderness (e.g. large active settlements.
- Accept them in the wilderness (e.g. abandoned settlement which could be restored to wilderness.
- Use them for the benefit of wilderness (e.g. information points for visitors) which the management plan would need to set long-term objects and rules of use as needed.

**Current situation**

There are no settlements in the wilderness zone.

**Findings**

Inherited settlements in the wilderness zone are either abandoned or only use by wilderness managements (e.g. huts own by the Forest Service, alms, tourism facilities).

**Strengths**

Inherited settlements (alms) in the restoration and transition zones are either partially abandoned or used only to maintain a traditional way of life.

**Weaknesseses**

Inherited settlements (alms) in the restoration and transition zones are accessible but with limited rights of access.

The visual impact of the inherited settlements is low and localized. Alms are an important part of the tourist infrastructure in the protected area.

**Recommendations**

Park management develops an updated inventory and map of the inherited settlements in the restoration and transition zones.

Priority: Medium Time Frame: 2020

## 7.6.5. Criterion 6.5. There is a management plan for the wilderness to deal with inherited indigenous gathering sites (e.g. traditional reindeer herding sites in Nordic countries).

### Reason for the Criterion

Indigenous people are defined by international or national legislation as people having a set of specific rights based on their historical ties to a particular territory and their cultural or historical distinctiveness from other populations that are often politically dominant.

In the northern part of Europe, indigenous people are still living a traditional way of life (e.g. Hunting and fishing to make a living, grazing reindeer in traditional manner, etc.)

The way of the life of these people is a rare example of humans coexisting with nature, often times in the wilderness.

This creates an opportunity to include these large areas in the European Wilderness Quality Standard and Audit System.

**Current situation**

The protected area has no inherited indigenous gathering sites.

## 7.6.6. Criterion 6.6. Permanent infrastructures in the restoration zone are removed according to the restoration plan, unless the removal is detrimental to the quality of the wilderness.

### Reason for the Criterion

Part of the restoration process is also to remove abandoned and disused infrastructure that are located in the restoration zone.

**Current situation**

The restoration zone has

- A network of used, abandoned and restored gravel roads. In addition to bridges, tunnels, narrow gauge-rails (see Criterion 6.1.) .
- Structures related to previous traditional activities e.g. agricultural (alms) forestry (houses, barracks), hunting (huts) and tourism (alms, huts) (see Criterion 6.3.).
- Structures related to inherited settlements (see Criterion 6.4.).

**Findings**

There is a restoration plan for the gravel roads, a declining interest to maintain traditional agricultural activities and a number of abandoned alms and other buildings.

**Strengths**

There is a strategy to deal with abandoned and obsolete infrastructure in order to improve the quality of wilderness.

In the last decades more than one hundred kilometres of gravel roads have been abandoned either by passive or active restoration. There is a strategy to deal with abandoned and obsolete infrastructure. Tourism structures are well maintained.

**Weaknesseses**

There is inherited infrastructure which is either abandoned or used for management purposes only.

**Recommendations**

Park management develops a map, list and action plan to remove the permanent infrastructure from wilderness and restoration zone and shows what permanent infrastructures is going to be just left abandon, removed or actively restored.

Priority: Medium Time Frame: 2020

*Fig. 82: Part of the restoration process is also abandoned and disused infrastructure that are located in the restoration zone.*

*Fig. 83: There is number of abandoned alms and other buildings.*

## 7.6.7. Criterion 6.7. There is a management plan to deal with abandoned archaeological sites in the wilderness zone.

### Reason for the Criterion

Wilderness sometimes have abandoned archaeological sites. Actively researched archaeological sites or those used by tourist should not be included in the wilderness are.

If archaeological sites are already part of the wilderness zone, park management has to develop a plan to minimize the negative impact from the research or as a tourist attraction.

| Current situation |
| --- |
| Wilderness zone has no archaeological remains. |

## 7.6.8. Criterion 6.8. There is no motorized transport in the wilderness.

### Reason for the Criterion

A wilderness limits motorized transport as much as possible. Motorized transport is incompatible with wilderness quality standard.
Motorized access is completely excluded in wilderness zone with the exception for rescue or if necessary to implement restoration activities.

#### Current situation

There is no motorized transport in the wilderness zone.

#### Findings

The network of old gravel roads in the restoration and transition zones are sometimes illegally used by locals for off-road activities. However, due to the poor conditions, it significantly limits access to the wilderness zone.

#### Strengths

No motorized transport is permitted in the wilderness zone except by staff for activities related to the park.

In the transition zone, land owners have access to their property by using existing gravel roads. These roads often cross through the wilderness zone. Local communities have special, historical rights of access (e.g. community Rosennau has access rights along Grosser Bach).

There is also public transport for visitor during the summer season the in transition zone (e.g. Bodingraben area).

#### Weaknesses

Locals occasionally use the gravel roads and there is no intention to cease or discourage this activity. There is no data on the frequency of unauthorized use.

#### Recommendations

Park management collects data regarding of the unauthorized use of old gravel forest roads in wilderness zone.

| Priority: Medium | Time Frame: 2020 |
|---|---|

Park management update a list (km) and map of old gravel forest roads use in the wilderness zone and restoration zone (separately).

| Priority: Medium | Time Frame: 2020 |
|---|---|

Park management update a list (km) and map of old gravel forest roads use in the wilderness and restoration zone proposed to close with the following specifications:

- Roads needed for management purposes
- Roads planned for restoration

| Priority: Medium | Time Frame: 2020 |
|---|---|

Park management develops an impact study of aviation (e.g. helicopters, drones, etc.) in wilderness zone.

| Priority: Medium | Time Frame: 2020 |
|---|---|

*Fig. 84: Poor conditions of gravel roads limit motorized access to the wilderness zone.*

*Fig. 85: Abandoned road in wilderness zone*

## 7.6.9. Criterion 6.9. There is free access on foot into the wilderness.

### Reason for the Criterion

Access on foot is the main manner in which to visit the wilderness and in particular the wilderness zone. In addition, monitoring and the patrolling of the wilderness zone is done on foot.

#### Current situation

**Access:** The wilderness zone is accessible on foot.

Free access on foot is permitted in the wilderness zone.

Free access on foot is permitted in the wilderness zone and there is no obligation to stay on the marked paths. This kind of access is unlimited but 90% of visitors stay on the trails.

**Trails:** There are many kilometrs of marked trails that go through the wilderness zone. The wilderness zone is well known and used as destination for outdoor enthusiasts.

The trail network in the wilderness zone is extensive and trail marking are subtle. A number of signs have been set up at critical points of the trail network but the majority of the wilderness zone is devoid of simple tracks. All existing trails are narrow hiking paths, just broad enough for a single person. Width of the trail is usually 50-60 cm.

There are some areas in the wilderness zone where due to intensity of use the trail is divided to the several lines and widened.

There are some areas in the wilderness zone where due to intensity of use, the trail is divided into the several paths and widened. They are well maintained. There are only few muddy trails sections, in particular the steep terrain during rainy periods or on soft soil areas. The difficult parts of the trails are fixed by ropes, hooks, or clamps (e.g. northern site of Hoher Nock) to secure safety).

Trail maintenance is done with simple instruments, by skilled volunteers from the Alpine Clubs. This Club has developed a philosophy of minimal intervention and run extensive Nationalpark Kalkalpen for restoring multiple track-trails to single low-impact routes. As it makes sense to concentrate visitor on single tracks along nature hiking routes. The present level of trail maintenance and markings should be maintained with no new trails opened within the wilderness.

#### Findings

There are many kilometers of marked trails providing access to the park and also to wilderness zone. The existing trails are minimally marked with colored signs either on trees or stones. Signs are well done and maintained.

There are no marked trails for mountain bikes within the wilderness zone. Bikes are used frequently in the restoration and transition zones on abandoned forest roads.

The wilderness zone, particularly in spring, is use also for alpine skiers.

The wilderness zone is a popular destination in particular to reach the highest peak of the region Hoher Nock.

## Strengths

Protected area offers an excellent wilderness experience. There are several demanding day hikes in addition to easy hikes that include interpretive Nationalpark Kalkalpen. The hiking trails which are maintained by local alpine clubs and they are well designed and kept up so as to encourage hikers to stay on the path.

The availability of abandon forest roads is an excellent opportunity for bikers to enjoy the protected area to use marked trails.

Nationalpark Kalkalpen area (including wilderness zone) is also used for other outdoor activities such as cross country and alpine skiing.

## Weaknesses

The hiking trails do not always meet European Wilderness Quality Standard and Audit System wilderness quality standard. Some trails are too wide and in difficult train not well maintained (e.g. hiking Hoher Nock). Or the use of inappropriate signage (e.g. hiking Hoher Nock from south - strong green neon kind color), an over abundance of tourist signs or nailing signs on trees. There is also increased pressure to open up new trails in caves. Access to sensitive climbing areas (e.g. nesting period for cliff swallow, peregrine falcon) cannot be officially (temporary) limited! All conservation measures are based on voluntary agreement with climbers and hikers.

Biking is acceptable in wilderness zone and they sometimes use the abandon forest roads outside of the network of marked trails. An assessment of the impact is needed.

## Recommendations

| | |
|---|---|
| Park management open discussion with local group of Alpine Club with objective to agree on high quality standard for trail marking concept in wilderness zone of Nationalpark Kalkalpen e.g. less frequent marks, narrow trails, including concept of minimal impact (limit of acceptable changes). | |
| Priority: Medium | Time Frame: 2020 |

*Fig. 86: Free access on foot is permitted in the wilderness zone.*

*Fig. 87: There are some areas in the wilderness zone where due to intensity of use the trail is divided to the several lines and widened*

*Fig. 88: Protected area is offering an excellent wilderness experience for example demanding several days hiking trips.*

## 7.6.10. Criterion 6.10. The wilderness zone has no noise pollution.

### Reason for the Criterion

It is important to exclude noise pollution from the wilderness. Noise pollution is incompatible with wilderness quality standard.

Noise pollution has negative environmental consequences for wilderness. Human-induced noise pollution is one of many factors contributing to the depletion of wildlife populations. Noise pollution adversely affects animals by:

- masking, which is the inability to hear important environmental cues and animal signals;
- non-auditory physiological effects, such as increased heart rate and respiration and general stress reaction; and
- behavioral effects, which vary greatly between species and noise characteristics, resulting in, for example, abandonment of territory and lost reproduction

Noise pollution significantly intrudes on the environment and wilderness experience.

#### Current situation

The noise intrusion is minimal and machinery is not normally heard in the area due to its remoteness from airports and overflights in wilderness are travel at high altitudes. Aircraft condensation trails are a regular sight but acoustic impact is low. Noise from helicopters is limited to the occasional rescue flights or the few supply flights to huts.

#### Findings

There is a noisy transport corridor south and west of the wilderness but its remoteness, the impact is minimal.

#### Strengths

The wilderness zone has minimal noise pollution. Seventy percent of the wilderness zone is free of noise pollution, this was verified by an overnight the northern and southern parts of the wilderness zone.

None of the huts in the wilderness zone have electricity generate which would product noise.

#### Weaknesses

Three is minimal noise pollution in the transition zone due. The noise is associated with forestry operations, traffic and shooting from the military training area presents the most significant noise polluter.

#### Recommendations

| The development of a random monitoring scheme for noise pollution in the wilderness zone. | |
|---|---|
| Priority: Low | Time Frame: 2020 |

*Fig. 89: The light pollution due to the remoteness of the wilderness zone is minimal.*

## 7.6.11. Criterion 6.11. The wilderness zone has no light pollution.

### Reason for the Criterion

It's important to exclude light pollution from the wilderness. Light pollution is incompatible with wilderness quality standard.

Plants and animals depend on Earth's daily cycle of light and dark, the rhythm to govern life-sustaining behaviors such as reproduction, nourishment, sleep and protection from predators. Artificial light at night has negative and deadly effects on many animals including amphibians, birds, mammals, insects and plants.

The source of most light pollution in wilderness is from cities, machines, transport systems, motor vehicles and lone tourism structures that are remotely located.

Light pollution significantly intrudes on the ecology and experience wilderness values.

**Current situation**

There is minimal light pollution in the wilderness zone.

**Findings**

There is minimal light pollution the due to its distance from urban areas.

Ninety percent of the wilderness zone is free of light pollution which was verified by overnights in the wilderness zone on north site of Sensegebirge and on south site of Sensegebirge.

Several measures to combat light pollution were carried out in cooperation with external partners. The result was that Beherg Alm is one of the least light polluted areas in Austria. The park strategy is to increase light pollution from new development.

## Strengths

There is minimal light pollution in the wilderness zone.

The wilderness zone is a remote dark area. Alms which are a source of some light pollution are located outside of wilderness zone. The area has some light pollution that comes from villages located at the foothill of mountains.

## Weaknesses

Small amount of light pollution comes from the concentration of small towns around the park which includes highways west and south from the wilderness zone. In addition, a small amount of light pollution in summer season comes from the alms and tourist facilities in the transition zone.

## Recommendations

| | |
|---|---|
| Park management continue on monitoring of light pollution in wilderness zone with a focus on alms and huts. | |
| Priority: Low | Time Frame: 2020 |

*Fig. 90: There is minimal light pollution in the wilderness zone.*

*Fig. 91: Small light pollution is produced in summer season in transitional zone due to operation of alms and tourist cabins.*

*Fig. 92: Park management continue on monitoring of light pollution in wilderness zone with a focus on alms and huts.*

## 7.6.12. Criterion 6.12. The wilderness zone has no visual distraction on the horizon.

### Reason for the Criterion

It is important to exclude from the wilderness visual distractions that are on the horizon. Visual distractions on the horizon are incompatible with wilderness quality standard.

Visual distractions on the horizon have negative impacts on the wilderness experience. The sources of most visual distractions are from cities, towers and lone tourism structures that are remotely located.

Visual distractions on the horizon significantly intrude on the main experience of wilderness values.

## Current situation

Wilderness zone has no visual distractions on the horizon.

## Findings

The wilderness zone is remote area. Huts and alms do not create any significant distractions on horizon.

Nationalpark Kalkalpen administration makes sure no visible infrastructure is installed in the vicinity of the wilderness.

## Strengths

The wilderness zone has no visual distractions on horizon.

The eastern part of the wilderness zone is made up of the mountain range, Hintergebirge which is covered in dense forests. It helps to decrease the visual distractions on horizon.

A few of the mountains in eastern part of the wilderness zone offer spectacular panoramic views to the mountain range to the south and east. The mountains in this direction are mostly covered by forest.

## Weaknesses

The center and western part of wilderness zone made up of the mountain range Sensengebirge with wide panoramic view. This area has many towns and cities including infrastructure that is easily visible and causes medium visual distractions on horizon.

## Recommendations

A visual distraction assessment is carried out in the wilderness zone with a focus on identifying visual disturbances.

Priority: Low | Time Frame: 2020

*Fig. 93: The wilderness zone has no visual distractions on horizon.*

## 7.6.13. Criterion 6.13. The wilderness has no garbage pollution.

### Reason for the Criterion

It is important for the wilderness to be free of litter. Garbage pollution is incompatible with wilderness quality standard.

Garbage pollution has negative environmental impacts and lowers the wilderness experience. The main source of most garbage pollution is from visitors, or previous land users (e.g. forestry, agriculture, tourism, hunters, etc) have contributed to debris left on the ground.

Garbage pollution significantly intrudes on the main environmental and experience wilderness values.

**Current situation**

The wilderness zone is fairly clean.

**Findings**

There is not a pollution problem in the wilderness zone.

**Strengths**

There is a strategy to keep the wilderness zone clean. There is carry-in/carry-out policy.

**Recommendations**

Park management share the garbage pollution experience with other wilderness in Europe (for example recently verified wilderness in Ukraine).

Priority: High Time Frame: 2020

*Fig. 94: The wilderness zone has not garbage pollution problems.*

## 7.6.14. Criterion 6.14. There are recreational fire pits in the wilderness.

### Reason for the Criterion

Making fire pits in the wilderness is a very complex issue throughout Europe due to the risk of fire so there are many regulations. In many European countries camp fires, particularly in forests are strictly forbidden or regulated. However, the camp fire is an important part of a wilderness experience.

Fire pits are suitable in the transition zone to provide opportunities for visitors to have this type of wilderness experience but it needs to be carefully planned.

| Current situation |
| --- |
| The fire is not allowed in the wilderness zone. |

| Findings |
| --- |
| There are no fire pits in the wilderness zone. |

## 7.6.15. Criterion 6.15. There are rules for the use of horses in the wilderness zone.

### Reason for the Criterion

The use of horses occurs in some wildernesses in conjunction with hiking. Horses are used usually in large wildernesses and besides patrolling, they help to implement various projects, as well as do research and monitoring. Horses are also seen in favourable way to experience wilderness. However, intensive use of horses can have negative impacts on trails (e.g. erosion, mud, damage of trail, etc) and also on the experience of hikers. Therefore to use horses in the wilderness, managers have to keep in mind the conflict that could arise with hikers (e.g. hiking on muddy trail should not be part of their experience).

Management techniques include:

- separate hikers and horseback riding trails (where suitable)
- limit horseback riding groups
- exclude horseback riding from sensitive areas (e.g. wet areas, meadows, etc)

Combining the use of horses in the wilderness as well as hikers, there needs to be careful planning.

**Current situation**

The use of horses is not allowed in the wilderness zone.

**Findings**

Horses are not permitted in the wilderness zone.

*Fig. 95: Access with horses to large part of wilderness zone is impossible due to the difficult terrain.*

## 7.6.16. Criterion 6.16. The wilderness zone has no fencing.

### Reason for the Criterion

It is important to have fence-free wildernesses. Fences are incompatible with wilderness quality standard.

Fencing in wilderness has negative impact on environment and wilderness experience. Fencing creates barriers and causes injury, even death, for animals.

#### Current situation

Fencing is not allowed in the wilderness zone

#### Findings

There is no fencing in the wilderness zone.

#### Strengths

There is no fencing in the wilderness zone.

#### Weaknesses

Some areas in the restoration and transition zones (alms) are fenced to keep livestock in the meadows.

#### Recommendations

| | |
|---|---|
| Park management creates a map of the fenced boundary between the wilderness zone and alms in particular where it is barbed wire. | |
| Priority: High | Time Frame: 2020 |

| | |
|---|---|
| Park management develops strategy how to remove (minimize) fences between wilderness zone and alms. | |
| Priority: High | Time Frame: 2020 |

*Fig. 96: The wilderness zone has no fencing.*

## 7.6.17. Criterion 6.17. There are rules about dogs in the wilderness zone.

### Reason for the Criterion

Hiking with dogs is a great way to spend time in nature for many people but doing so in wilderness can impact both the land, wildlife and the dogs themselves. For example every dog owner's nightmare is to lose their pet in the woods. An uncontrolled dog can injure other hikers and/or wildlife, etc.

To minimize these threats, rules for dogs (or any other pet) are necessary.

Dogs are allowed in some wildernesses with regulations and others they are not permitted. Some wildernesses do not address this issue.

**Current situation**

Dogs must be kept on leashes in the wilderness zone.

**Findings**

Dogs were observed around the huts and along the trails close to the huts.

**Strengths**

Dogs are only permitted on leashes.

**Weakness**

The presence of dogs in wilderness zone causes problems for wildlife.

**Recommendations**

| | |
|---|---|
| Park management continues with the strategy of how to deal with dogs in wilderness zone. | |
| Priority: Medium | Time Frame: 2020 |

*Fig. 97: National park rules prescribe that dogs have to be kept on leads.*

## 7.6.18. Criterion 6.18. The wilderness has a visitor and recreational use strategy

### Reason for the Criterion

Visitors and recreation activities are getting to be more and more risk in many protected areas in Europe. To combine wilderness conservation with opportunity for visitors to experience this unique environment the concept "leave no trace" should be implemented.

Visitors and recreational activities in the wilderness require careful planning and rules.

**Current situation**

The Nationalpark Kalkalpen law rules that the conventional form of tourism and hiking are not subject to restrictions within the park.

The wilderness zone is important place from a tourism and recreation perspective. Due to the difficult terrain, access to the wilderness is limited to forms of travel, like walking, hiking, and skiing.

The park administration should keep up legal options for temporarily restricting access to parts of the future wilderness.

## Findings

Visitors and recreation activities have a long tradition in Nationalpark Kalkalpen and the they have made great strides to minimize the negative impact of tourism in particular in the wilderness zone. The concept of "leave no trace" has strong support.

Canoeing is not possible because of steepness and ruggedness of the relevant river sections, mountain biking is directed to the transition zone with abandoned forest roads and paragliding is forbidden by the regulations of the Nationalpark Kalkalpen, which do not allowed for any aerial traffic for sports.

Pitching tents is allowed in designed spots but hikers and climbers may sleep in alms or small hut at the ridge of Sensengebirge or under the open sky when they are either forced to do so by special circumstances, or when they undertake a demanding tour, which cannot be completed within a single day.

## Strengths

There rules for visitors and recreational activities in the wilderness zone.

## Weaknesses

Leave No Trace is difficult to Implement.

## Recommendations

Park management continues on implementation the concept "leave no trace" rules in wilderness zone with specific focus on hikers and skiers.

Priority: High Time Frame: 2020

*Fig. 98: Visitors and recreation activities have a long tradition in Nationalpark Kalkalpen.*

## 7.6.19. Criterion 6.19. The wilderness has an integrated visitor and recreation strategy to support the wilderness concept.

### Reason for the Criterion

Protected areas, and particularly wilderness, attract people. Sometimes the protected area management is glad about people who are interested in their work and activities, sometimes protected areas are forced to open up more to the public to improve the number of visitors, and sometimes the pressure of visitors is too strong. In any case the management of a protected area has to take care of their "guests".

Nowadays integrated visitors and recreation strategy is a significant tool, sometimes even one of the main jobs within the protected area management. Visitor management is also critically important for sound wilderness management.

#### Current situation

Nationalpark Kalkalpen is traditionally well known destination for Austrian and also for foreign visitors. Newly created wilderness zone is just an additional reason to visit this area.

#### Findings

Wilderness zone is an attractive area for visitors and Nationalpark Kalkalpen is working on integrated visitors and recreation strategy

The wilderness zone has a great tourism potential and is historically managed by tourism organization Alpenverein. Since 1997, there has been a focus on organizing tourism activities in particular wilderness education and interpretation. The number of these activities is increasing every year.

#### Strengths

There is a new tourism development which is valid through 2018. The document includes plans for infrastructure improvements, implementation of small scales tourism and the diversification of tourism activities with a specific focus on the wilderness zone. This is closely linked with the philosophy of wilderness conservation.

The park has a good potential for the development of very specific wilderness focused mountain experience - small scale and diverse products. There is committed staff who has many ideas to achieve this task.

#### Weaknesses

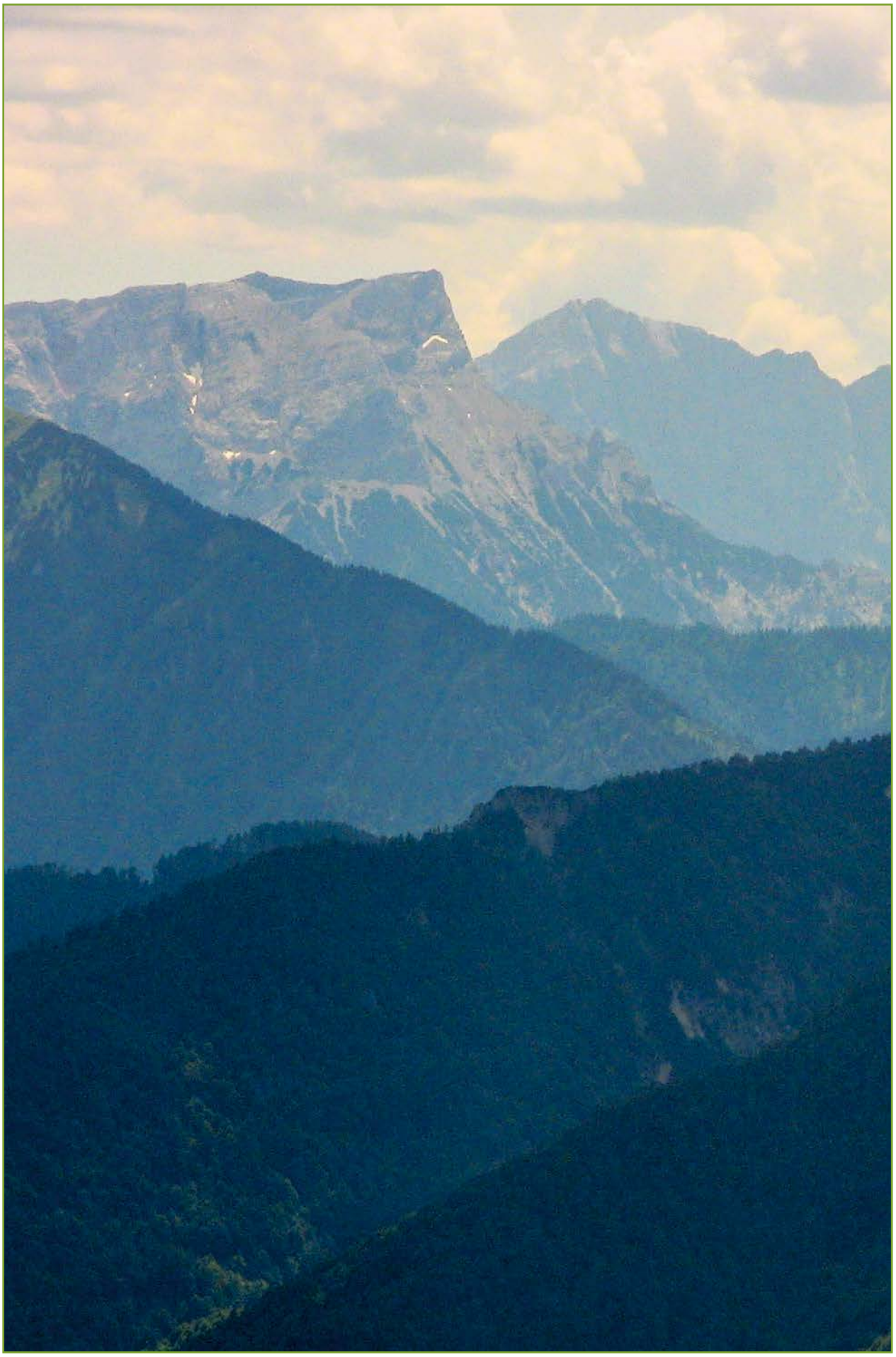
There is no integrated visitors and recreation strategy to support the idea of the wilderness conservation. There is no map to show where the development would take place and what would be the wilderness focused products.

#### Recommendations

Park management upgrade the integrated visitors and recreation strategy (including training and communication) with focus on wilderness.

Priority: High | Time Frame: 2020

*Fig. 99: Wilderness zone is an attractive area for visitors.*



## 7.7. Principle 7: Control strategies for fire, disease, invasive species, and other natural disturbance

Ecological disturbances are one of the most profound aspects of wilderness. Natural disturbances such as wildfires and windstorms are important sculptors of landscape and habitats, however, they are often considered problematic and undesirable by humans.

Natural disturbances are among the most important sources of dynamics in a landscape. The role of disturbance in wilderness relates directly to scale and boundary which is problematic for conservation goals. Many landscapes are only fragments of what they once were, so called islands of habitats.

There should be fire and disease control plans as well as a plan to deal with invasive species. However, the wilderness zone should not have active management measures to control these disturbances.

### Reason for the Principle

Ecological disturbances are a fundamental part of wilderness dynamic.

The characteristics of ecological disturbances are not always well understood by park managers and often the dilemma relates to the scale and how to respond to them.

Often, in human-dominated landscapes implementing a let it go policy is difficult due to the threats to society.

*Fig. 100: Wilderness area should have a natural disturbance control plan.*

## 7.7.1. Criterion 7.1. There is a fire control plan.

### Reason for the Criterion

There is not always a good understanding of the ecological role of fire in wilderness. There are very few areas in Europe where fire management is used as a tool to maintain and protect biodiversity. However, there is a growing recognition that fire plays an important role in forest and range land ecosystems. Consequently, it is important to communicate the importance role fire plays.

#### Current situation

Austrian law requires the suppression of forest fires and fines are imposed if it is not done so in practice the park is subject to fire control measures.

#### Findings

Nationalpark Kalkalpen cannot implement any type of let-it-burn policy as it conflicts with national laws.

At last two big fires happened in Nationalpark Kalkalpen and the vicinity, one occurred 12 years ago and the other 50 years ago). None of these areas were subject to active post-fire restoration. The fires happened in an extreme ecological condition, on the steep limestone slopes where in some locations approximately 50 cm of humus was burned and washed out. The area had been used for grazing before the fire.

Both burned areas are the subjects of long term monitoring. This work revealed intensive ecological processes right after the fire with dramatic increase of biodiversity and also increase number of small avalanches in winter. For example, the area burned 12 years ago become two years after fire an excellent habitat for insects and birds. In the following years the number of species decreased but abundance increased.

After 50 years of spontaneous restoration there is no erosion at all. Forest is recovering very slowly but the area is stable.

Detailed fire history study of these areas came to the conclusion that the fire is likely an important element in these ecosystems!

#### Strengths

Park managers understand the importance of fire to ecological processes.

#### Weaknesses

Fire ecology is a complex and difficult issue in central Europe. There are conflicting opinions and implement a let-it-burn policy (or even prescribed fire) is a difficult subject and long-term process.

Fire management is politically a very difficult issue to communicate. There is no communication in regards to this subject. It would be a long term goal, more time and education are needed to improve the situation.

## Recommendations

| | |
|---|---|
| Park management continues on monitoring and research programme focusing to learn the fire history in this area. | |
| Priority: Low | Time Frame: 2020 |
| Park management develops education and interpretation programme explaining role of the fire in ecosystem dynamism, role of the fire management and let-it-burn policy. | |
| Priority: Medium | Time Frame: 2020 |

*Fig. 101: Austrian national legislation requires the suppression of forest fires.*

*Fig. 102: Fire management is politically very difficult issue to be properly communicated.*

## 7.7.2. Criterion 7.2. There is a disease control plan.

### Reason for the Criterion

There is not always a good understanding of the ecological role disease plays in wilderness. There are very few areas in Europe where park managers implement disease management as a tool to maintain and protect biodiversity. However, there is a growing recognition that disease plays an important role in forest and range land ecosystems. Wilderness is the places where it should be implemented and its importance communicated to the public.

#### Current situation

Austrian law requires the control the threat of disease outbreak. In practice wilderness is supposed to have regular disease control monitoring and measures.

#### Findings

It is understood the importance of disease outbreak to ecological processes. However, they cannot implement any type of let-it-fly policy due to conflicts with national law.

**Bark beetle management**
There is a bark beetle control plant. Active management measures are focusing in particular to control bark beetle in the transitional zone and around the protected area. This type of disease control is a complex issue particularly in areas with spruce stands due to the conflicting approaches and concern for economic damages in the surrounding areas.

**Wildlife diseases**
Possible outbreaks of sarcoptic mangle which affects chamois and domestic sheep will constitute at recurring challenge for management of the wilderness area. Veterinary law prescribes radical intervention for affected ungulate populations, by culling all individuals showing signs of the disease. This would not be compatible with the strict non-intervention approach in the wilderness zones.

Some wildlife veterinarians argue that radical culling measures will not prevent the spread of the disease but rather tend to promote it as individuals flee from the culling. An alternative that has been suggested is to set-up a quiet zones where hunting is banned for the duration of the epizootic outbreak. In addition, access for visitors is drastically restricted. The affected ungulate herds are not molested within those zones but movement is kept to a minimum and only individuals leaving the area are shot.

This model could be applied to the wilderness area whereas the wilderness zone acts as a permanent quiet zone. However, such an arrangement would need the consent of neighbouring hunters which could eventually be reached within the framework of regional wildlife management. Since the economic risks associated with the uncontrolled spread of the disease are high, it remains to be seen whether such arrangements would be achievable.

There is ongoing discussion with local hunters on how to deal with sarcoptic mangle when a certain percentage of chamois suddenly die due to the disease. Research carried out by the University of Veterinary Medicine in Vienna revealed that they die-offs occur due to bacterial pneumonia of where there are two strains of bacteria that are highly unusual in chamois. So the issue seems to be whether managers should interfere in the natural process of the disease or should the disease process be left on its own. There is a similar issue is with red deer suffering from tuberculosis.

## Strengths

It is accepted that bark beetle outbreak in the wilderness zone is part of the management policy. There is no active management in this zone. Strategic, systematic and well organized bark beetle control is done in transition zone and around the protected area.

There has already been measures in place to prevent bark beetle impact in wilderness zone for the last 12 years which has given park management knowledge and experience with this issue. However, it remains a controversial issue in the local communities and province.

Bark beetle management measures in the transition zone and the surrounding area was implemented and provides valuable experience including data on the amount of dead wood, impact of sanitary logging, development and implementation of educational and interpretation programme on the bark beetle.

This work provides a good argument to support wilderness conservation in Europe.

## Weaknesses

Spontaneous disease outbreak as a part of natural ecological processes is a complex and a difficult issue in this type of protected area in Central Europe. There are conflicting approaches and challenges to implement a let-it-fly policy. It would be a long term process to change the practice.

It is not easy to control the behaviour of the bark beetle particularly in a mountainous region with large areas of spruce forest actively managed in the past.

Most of the studies, monitoring and inventories are available in German only.

## Recommendations

| | |
|---|---|
| Park management continues to research on the dynamics of spontaneous disease outbreak in this area such as bark beetle as well as diseases that affect chamois and roe deer disease. | |
| Priority: High | Time Frame: 2020 |

| | |
|---|---|
| Park management continues to develop education and interpretation programmes that focus on the role of spontaneous disease outbreak in wilderness zone. | |
| Priority: High | Time Frame: 2020 |

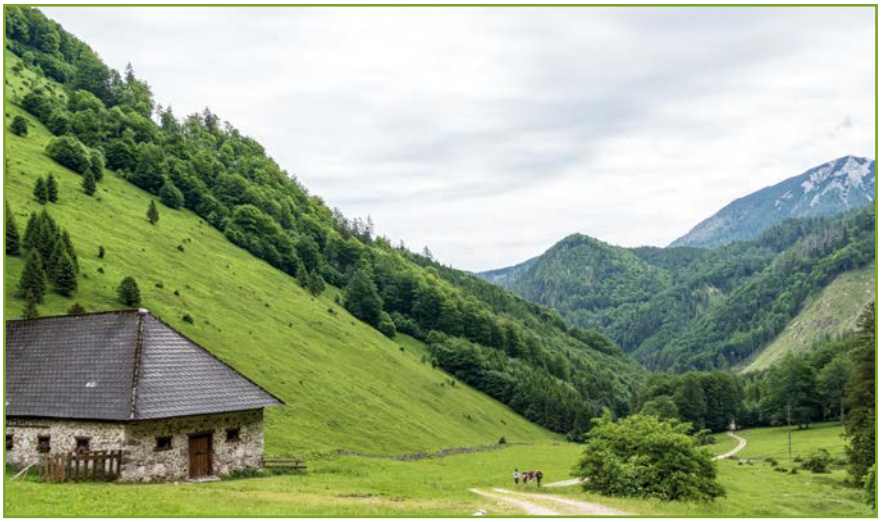


*Fig. 103: Active management measures are focusing particularly to control bark beetle in transitional zone and around Nationalpark Kalkalpen.*

*Fig. 104: Park management accept the bark beetle outbreak in the wilderness zone.*

## 7.7.3. Criterion 7.3. An invasive species control plan has been developed for the wilderness.

### Reason for the criterion

Invasive species are a significant threat to native habitats. Species are considered invasive if they are not native to the particular habitat under consideration and an established population causes or is likely to cause environmental harm.
Nevertheless the attempts to control invasive species is often accompanied with considerable intervention into the natural processes. Therefore invasive species are not allowed in the wilderness zone and if absolutly necessary must be limited to the restoration and/or transition zone. The invasive species control plan provides strategies and recommendations for invasive species prevention, survey and detection, and ultimately control. It also addresses appropriate habitat restoration, staff training and public outreach and education.

**Current situation**

Currently, there are no invasive species threatening the wilderness zone.

**Findings**

Invasive species are not a major issue at least not for the moment.
The impact of invasive species is concentrated at the northern edge of the protected area far from wilderness zone.

## Strengths

The park policy is that invasive species are not tolerated within the wilderness zone. The research and monitoring does not indicate any serious threats of an invasive species in wilderness zone.

Over the past 10 years, exotic rainbow trout were removed from the bodies of water located in the wilderness and restoration zone. The documents maps related to this issue are available at the parks office.

Invasive species are the subject of systematic monitoring but without any specific management action.

## Weaknesses

There are several invasive species in the north eastern part of the protected are which is the transition zone and around the protected area. It is a challenging task to prevent and control invasive species attack.

There are already several aggressive invasive species such as: Impatience, Heracleum, Ambrosia around the protected area has been identified in the transition zone.

Invasive species attack can occur spontaneously therefore it is important to be proactive by having an invasive species control plan.

## Recommendations

| | |
|---|---|
| Park management continues its research and monitoring of invasive species in order to improve their knowledge on invasive alien species that could potentially threaten the wilderness zone. | |
| Priority: Medium | Time Frame: 2020 |
| Park management develops an invasive alien species (IAS) control plan to prevent incursion of invasive species to the wilderness area. | |
| Priority: Medium | Time Frame: 2020 |
| Park management develops education and interpretation programme focusing on invasive species. | |
| Priority: Medium | Time Frame: 2020 |

*Fig. 105: An invasive species control plan provides strategies and recommendations for invasive species prevention, survey and detection, and control.*

*Fig. 106: Invasive species are subject of systematic monitoring.*

## 7.7.4. Criterion 7.4. There is a plan for natural disturbances.

### Reason for the Criterion

There is a number of other natural disturbances such as wind, climatic extremes (i.e. drought, hailstorms, and heat waves), but also floods, volcanic eruptions, and earthquakes.

A natural disaster can cause loss of life or property damage and typically leaves some economic damage in its wake, but simultaneously these are important players of ecosystem dynamics.

#### Current situation

Visitors and people living around the protected area feel that the occurrence of natural disturbances has been increasing in the last years such as an increased frequency of climatic extremes. However, few people understand that natural disturbances play a key role in ecosystems dynamics.

#### Findings

Kalkalpen Wilderness provides a good opportunity to study and monitor impact of these natural disturbances.

#### Strengths

Wilderness zone is impacted by natural events. These natural events are an important part of the natural development of the wilderness zone. Due to the character of wilderness zone there are a number of spontaneous, violent, natural events such as wind storm, climatic extremes, avalanches and rock falls. All these processes are natural for this kind of landscape and are protected.

#### Weaknesses

The consequences of these natural disturbances in wilderness zone have impacted the life of foresters and farmers in the area.

## Recommendations

| | |
|---|---|
| Park management continues to research and monitor natural disturbances such as wind storm, climatic extremes, avalanches and rock falls. | |
| Priority: High | Time Frame: 2020 |
| Park management develops natural disturbances monitoring plan. | |
| Priority: Medium | Time Frame: 2020 |
| Park management develops education and interpretation programme focusing on role of natural disturbances. | |
| Priority: High | Time Frame: 2020 |

*Fig. 107: Kalkalpen wilderness provides a good opportunity to study and monitor natural disturbances.*

*Fig. 108: Due to the character of wilderness zone there is number of spontaneous, violent, natural events such as wind storm, climatic extremes, avalanches and rock falls.*

## 7.8. Principle 8: Wilderness Research and Monitoring

Wilderness offers opportunities to study the unique attributes of nature and natural processes. Quality wilderness research and monitoring allows park managers to make appropriate decisions. Research and monitoring activities should be invasive in their character.

### Reason for the Principle

Early wilderness stewards did not have a large amount of research and/or monitoring resources so they relied on instinct and personal experience to guide them. Wilderness stewards today have access to a growing body of literature related to defining, managing, and monitoring wilderness.

Wilderness research and monitoring explores complex as well as long-term natural and social issues related to wilderness stewardship. It is a catalyst for synergistic, interdisciplinary activities that addresses the many issues that confronts wilderness stewards.

*Fig. 109: Wilderness research and monitoring work to identify long-term natural and social science issues related to wilderness stewardship.*

## 7.8.1. Criterion 8.1. There is a wilderness research and monitoring strategy.

### Reason for the Criterion

A wilderness research and monitoring is an *important* tool for the decision making process. A wilderness research and monitoring strategy helps to improve knowledge on wilderness in order to more effectively implement management measures and meet conservation objectives.

Any decision regarding wilderness management, should have had research done prior to the decision being made. Research is the key to successful wilderness management.

#### Current situation

There is well designed wilderness research and monitoring plan which focuses on wilderness and wilderness restoration.

Wilderness research and monitoring are important aspects management in particular in the wilderness zone. The management plan includes a list of research and monitoring priorities (e.g. dynamism of forest ecosystems in wilderness zone, management of herbivores, inventory of wilderness indicator species).

#### Findings

There are completed and ongoing research which focus on wilderness and biodiversity (e.g. 1500 butterfly species, flowers and beetles). The outcome of this work confirms that Nationalpark Kalkalpen is one of the most important biodiversity hotspots in Austria and the wilderness zone significantly contributes to the biodiversity conservation.

There is a well-designed research and monitoring plan and a new long-term research and monitoring plan is in development which will incorporate wilderness research and wilderness restoration.

#### Strengths

A number of studies have been done from the time of the park creation. There is research that focusing on wilderness (e.g. mapping and monitoring of old growth beach forest). There is a standardized and systematic reporting for research and monitoring in the park on an annual base.

There is an impressive wilderness focused research with remarkable outcomes, for example the identification of wilderness relict species.

The research and monitoring team has collected excellent information and gain experience regarding road resizing, management of herbivores in the wilderness. In addition to management of human activities such as biking and hiking, wilderness training and interpretation.

#### Weaknesses

Wilderness focused research and monitoring are not a top priority in Austria's NPs.

There is
- inadequate coordination of wilderness research among protected areas
- limited funding
- missing tools to share wilderness focused research and monitoring experience within existing and potential wilderness protected areas
- lack of outcome and experience (wilderness arguments) available in English

## Recommendations

| | |
|---|---|
| Park management continues to research and monitor activities with a focus on wilderness. | |
| Priority: High | Time Frame: 2020 |
| Park management develops and implements a communication strategy to assist the publics' understanding of the importance of the outcomes of wilderness research and monitoring. | |
| Priority: Medium | Time Frame: 2020 |
| Park management improves coordination with other wilderness protected areas (e.g. unify GIS systems and research methodology among partners focusing on wilderness research). | |
| Priority: Medium | Time Frame: 2020 |
| Park management proactively uses a network of wilderness areas organized under European Wilderness Preservation System to share research and monitoring knowledge. | |
| Priority: Medium | Time Frame: 2020 |
| Park management provides an English summary of the important outcomes of research and monitoring. | |
| Priority: High | Time Frame: 2020 |

*Fig. 110: Wilderness research and monitoring are important aspects of Nationalpark Kalkalpen management.*

*Fig. 111: Research and monitoring management team collected excellent information regarding wilderness management.*

## 7.8.2. Criterion 8.2. There is a monitoring system which documents activities and extractive uses.

### Reason for the Criterion

Research and monitoring are a *major* component of good wilderness stewardship as well as a cornerstone in the decision making process for management.

#### Current situation

Park management has a research and monitoring system in place documenting many activities and extractive uses in the wilderness area. Research and monitoring are some of the most important elements of the work at Nationalpark Kalkalpen. The research and monitoring system include a list of priorities.

#### Findings

A monitoring system documenting activities and previous extractive uses in wilderness zone is in development.

Many research activities in the wilderness zone already implement minimum intervention principles.

#### Strengths

There are several ongoing monitoring activities with a focus on wilderness and the restoration zone which incorporates outcomes of monitoring findings into their management documents. Monitoring focuses on intensity of extractive uses in restoration zone.

Monitoring system focus on the management of herbivores, reintroduction of lynx, impact of bark beetles, biodiversity in beech old-growth forest, and dynamics of previously burned areas.

## Weaknesses

More wilderness focus research and particularly monitoring specifically relevant to the beech forest in wilderness and restoration zone are recommended. Particular capacity should be allocated to collect argument on subject: wilderness and biodiversity.

## Recommendations

| | |
|---|---|
| Park management continues to implement current monitoring system to advance management of forest ecosystems, herbivores, tourism management, wilderness interpretive programme, etc. | |
| Priority: High | Time Frame: 2020 |
| Park management seeks possible funding (e.g. Erasmus) to share their experience with other wilderness areas in Europe using European Wilderness Society communication platform. | |
| Priority: High | Time Frame: 2020 |
| Park management looks for opportunities for more wilderness focused research in close cooperation with other protected areas in European Wilderness Society network, research institutions or universities. | |
| Priority: High | Time Frame: 2020 |
| Park management seeks opportunity to minimizing visible and ecological impacts of research and monitoring within the wilderness zone. | |
| Priority: High | Time Frame: 2020 |

*Fig. 112: Many research activities in the wilderness zone implement minimum intervention principles.*

*Fig. 113: Monitoring system is focusing on biodiversity and herbivore populations.*

## 7.8.3. Criterion 8.3. There is a monitoring plan to document indigenous peoples livelihoods and their impacts.

### Reason for the Criterion

In the northern parts of Europe, indigenous people still live a traditional way of life (e.g. subsistence living through hunting, fishing and the grazing of reindeer). This way of life is a rare example of people coexisting with nature of often in places with high wilderness quality.

This situation creates an opportunity to include these, often large, areas as part of the European Wilderness Quality Standard. This criterion was created for this specific situation

| Current situation |
| --- |
| Nationalpark Kalkalpen has no indigenous people. |

## 7.8.4. Criterion 8.4. The wilderness or wild area has a detailed plan for cooperation with scientific institutions and universities.

### Reason for the Criterion

Cooperation between the protected area and scientific institutions and universities is fundamental for successful wilderness management.

Scientific institutions and universities can bring knowledge and innovative approaches to the management of wilderness, very often they provide arguments as to the importance of wilderness and how better to protect it.

Collaboration can be either of formal or informal in nature with scientific institutions or universities

### Current situation

There is formal and informal cooperation with scientific institutions and universities.

### Findings

There is a well-established and ongoing collaboration with both Austrian and international partners.

### Strengths

The management team actively cooperates with national and international research and monitoring partners such as University of Vienna, environmental agency of Austria. There is a close cooperates with the Bavarian Forest NP, in Germany as well as research partners in Switzerland. In the eastern part of the park, there is a European monitoring station, only three exist Austria.

### Weaknesses

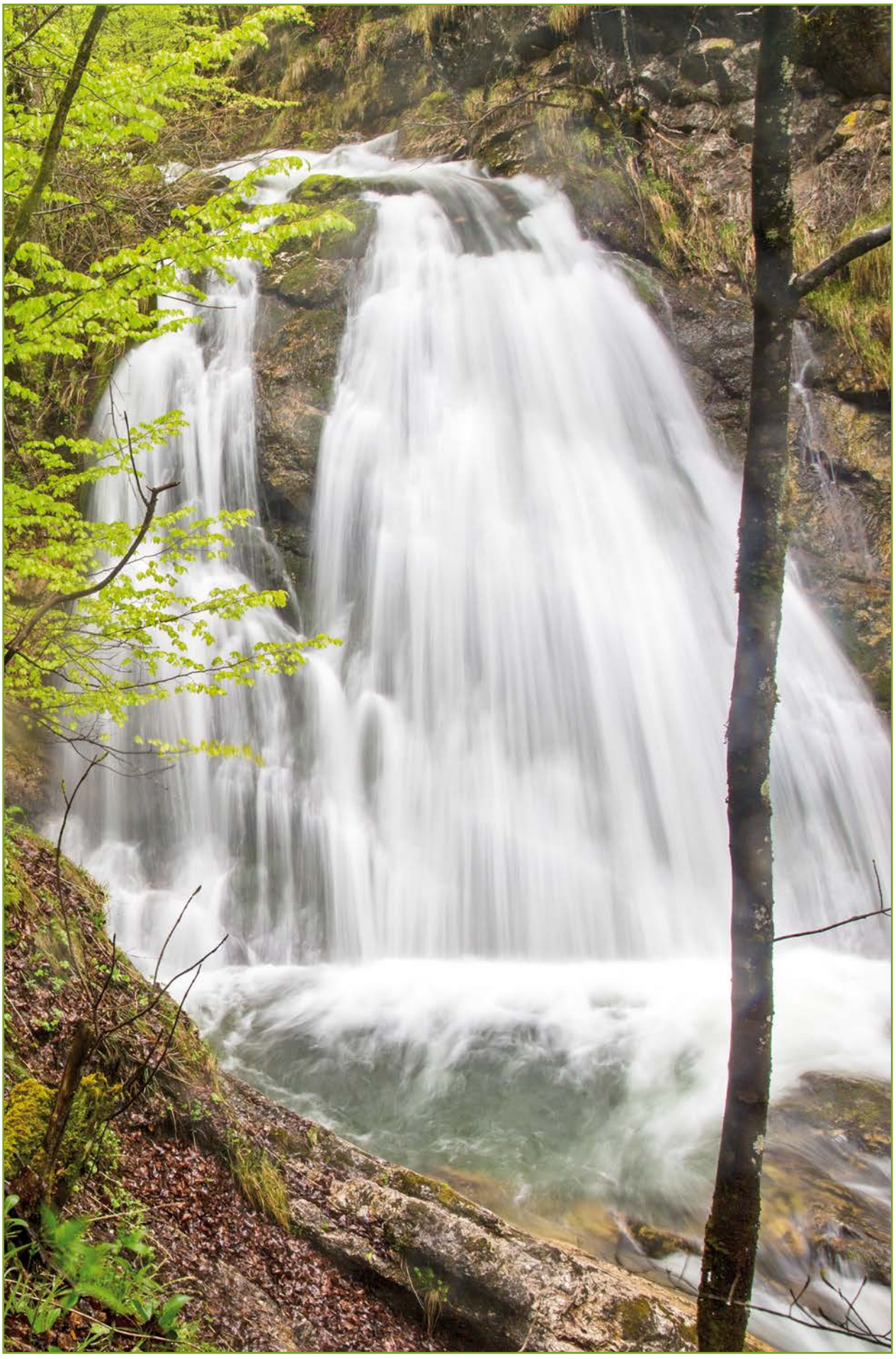
There is limited resources to enhance cooperation with scientific institutions and/or universities to focus on wilderness conservation.

### Recommendations

A plan is developed to collaborate with scientific institutions and universities with a focus on wilderness conservation.

| Priority: Medium | Time Frame: 2020 |
|---|---|

*Fig. 114: Collaboration can be either formal or informal in nature with scientific institutions or universities.*



## 7.9. Principle 9: International Relevance

The importance of wilderness is finally being recognized in Europe. More people and initiatives are beginning to work to protect and expand wilderness.

The International Union for Conservation of Nature (IUCN) has classified protected areas. These categories are recognised by international bodies such as the United Nations and by many national supra-national governments (European Union) as the global standard for defining and recognizing protected areas. Within IUCN protected area management categories, Category 1a and 1b are strict nature reserves and wilderness areas. UNESCO – World Heritage Sites (WHS), UNESCO – Man and Biosphere (MAB), and Natura2000 are other important international networks for protected areas

### Reason for the Principle

This principle is a link between local efforts to protect wilderness and global initiatives to protect wilderness heritage and biodiversity.

*Fig. 115: International relevance is a link between local efforts to protect wilderness and global initiatives to protect wilderness heritage and biodiversity.*

## 7.9.1. Criterion 9.1. The wilderness is internationally recognized (IUCN, Natura 2000, other certifications).

### Reason for the Criterion

International recognition is supposed to be proof that a wilderness meets a certain international standard. However, the current European network of IUCN protected areas with categories 1a and 1b, do not always meet these wilderness quality standards.

According IUCN Protected Areas categories system, category 1a and 1b are usually large unmodified or slightly modified areas, retaining their natural character and influence, without permanent or significant human habitation, which are protected and managed so as to preserve their natural condition.

### Current situation

Managers are committed to wilderness conservation and to the protection of the integrity of the natural processes within the park.

It is a model of a well-managed wilderness which can motivate other protected areas to
- create wilderness
- enlarge their wilderness zones
- reduce fragmentation
- improve the quality of wilderness

### Findings

The protected area is relatively new but already it has significant international relevance. The park is heavily involved in several well-known (global and European) international recognitions. It has an IUCN category II (since 2006) and a pending application as a UNESCO World Heritage.

It protects large contiguous piece of limestone Alps, fragments of beech old-growth forest and several important habitats such as beech, spruce and mountains pine forest in addition to alpine meadows, limestone cliffs and screes. The area provides favourable habitat for several threatened species such as lynx, red deer, eagles and badgers, and is a potential refuge for bears and wolves.

It is part of the Nature 2000 network, Europark 2015, PAN Parks 2013, AlpPark 2013 and the Green Alps networks. In addition, there is a Ramsar site and it is certified according ISO 9001since 2008.

There is a pending application for UNESCO World Heritage beech forests, a transnational nomination with Slovakia, Poland, Ukraine, and Germany. This follows the joint nomination of the Beech Forests of the Carpathians from 2005.

Kalkalpen wilderness is a member of European Wilderness Preservation System.

### Strengths

There is a good chance they will achieve UNESCO World Heritage status as it provides an excellent example of old-grow beech forest. The high quality habitat provides a range for internationally threatened species. There is a potential for recolonization of locally extinct species such as wolf and bear as well as increasing the population of existing threaten species.

High-quality habitat, unique beech forest, wild limestone area with a lot of carst features, large areas without any infrastructure, actively and passively restored more than 100 km of forest gravel roads provide an excellent starting point to join European Wilderness Preservation System.

## Recommendations

| The nomination for UNESCO and European Wilderness Preservation System will be finalized | |
|---|---|
| Priority: High | Time Frame: 2020 |


*Fig. 116: Kalkalpen wilderness is also a member of European Wilderness Preservation System.*

*Fig. 117: High-quality habitat is an excellent starting point to join European Wilderness Preservation System.*

## 7.9.2. Criterion 9.2. There is a plan for the wilderness to become part of Natura 2000 network (where relevant and in accordance with the wilderness objectives).

### Reason for the Criterion

Natura2000 is a network of nature protected areas in the European Union. It is made up of Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) designated respectively under the Habitats and Birds Directives.

Wilderness is not explicitly mentioned in the Natura2000 legislation but applying a wilderness approach to the management of Natura2000 sites is compatible with the provisions of the Directives.

#### Current situation

It is part of Natura 2000 with long-term programme to implement non-intervention management in wilderness zone.

#### Findings

Protected area is part of Natura 2000 with long-term programme to implement non-intervention management in wilderness/natural zone.

#### Strengths

It's an excellent example on how to implement non-intervention management in Natura 2000.

#### Weeknesses

There is a lack of resources to further enlarge the wilderness zone.

#### Recommendations

Their experience with non-intervention management in Natura 2000 site should be promoted to a wider audience.

| Priority: High | Time Frame: 2020 |
|---|---|

*Fig. 118: Protected area is part of Natura 2000 with long-term programme to implement non-intervention management in wilderness zone.*

## 7.9.3. Criterion 9.3. Wilderness supports the protection of internationally threatened species.

### Reason for the Criterion

Wilderness is often the only type of protected area to guarantee protection of internationally threatened species. Large and contiguous wilderness creates space and an environment for species, particularly during critical periods of their life (e.g. mating and breeding season, rising litters).

**Current situation**

The protected area forms an important part of the Alpine network an essential area for wilderness restoration and protection of internationally threatened species.

**Findings**

It provides an excellent habitat to support the protection of several internationally threatened species (e.g. chamois, eagle).

Nationalpark Kalkalpen is involved in number of European-wide projects for the protection of vulture, eagle, and there is an Econet project with Berchtesgaden.

**Strengths**

There is a contiguous wilderness zone with the potential for enlargement. This creates an excellent condition to support the protection of internationally threatened species. There is systematic monitoring and a research programme in the wilderness zone. There is a committed staff.

**Weeknesses**

It is challenging to maintain the support of local communities.

## Recommendations

The development of an education and marketing campaign which focuses on wilderness and internationally threatened species.

Priority: High | Time Frame: 2020

*Fig. 119: Continuous wilderness zone with potential for enlargement create an excellent condition to supports the protection of internationally threatened species.*

# 8. Findings and Recommendations

Both existing and potential wilderness were evaluated for this report. The recommendations are divided into three priorities, high, medium and low. In addition a time frame is given for their completion. The intention of this chapter is assist managers in their strategically planning for the protected area.

## Implementation of the European Wilderness Quality Standard and Audit System in the Nationalpark Kalkalpen

European Wilderness Quality Standard and Audit and Nationalpark Kalkalpen use their own zoning systems. European Wilderness Quality Standard and Audit System zoning system is based on The Definition of European Wilderness and Wild Areas. Nationalpark Kalkalpen zoning system is based on Austrian legislation. Table 1 shows how the two zoning systems can be combined.

*Table 6: The different zoning systems, EWQA = European Wilderness Quality Standard and Audit System / NPK = Nationalpark Kalkalpen*

| | EWQA | Nationalpark Kalkalpen | Compatibly between EWQA and Nationalpark Kalkalpen zoning |
|---|---|---|---|
| Widerness area[1)] | Wilderness zone[2)] | Kalkalpen Wilderness zone (see Fig. 31): green area | Compatible |
| | Restoration zone[3)] | Kalkalpen Restoration zone (see Fig. 31): light red and yellow areas | Compatible.<br>Temporary managed area (bark beetle and herbivore management) |
| | Transition zone[4)] | Kalkalpen Management zone (see Fig. 31): red areas | Compatible.<br>Standard bark beetle and herbivore management |

[1] *Wilderness can be categorised into three 'zones,' with a wilderness zone surrounded by a restoration/buffer area of minimal activities, which in turn is surrounded by a transition zone (see Appendix II). It is considered that this threefold structure offers best protection of key wilderness principles whilst allowing potential for future expansion and flexible interaction with other land uses. (Definition of European Wilderness, 2013)*

[2] *The Wilderness zone would have the 'highest' quality of wilderness, with minimal impact of human activity or infrastructure and a dominance of natural processes. Where feasible, outward expansion would occur over time through restoration/rewilding into the restoration/buffer zone – particularly if the wilderness is not large enough initially to allow complete ecological processes. (Definition of European Wilderness, 2013)*

[3] *The Restoration zone, with relatively low impact of human presence, surrounds and protects the wilderness zone. Emphasis here should be on restoration/rewilding of natural habitats and processes, with phasing out of built structures and high impact activities within 10 years. Where feasible, there should be plans for it to be incorporated into the wilderness zone and expand outwards over time into the transition zone. (Definition of European Wilderness, 2013)*

[4] *The Transition zone is an area where a range of human activities is permitted, but with management controls preventing development of major infrastructure, wind farms or large scale clear felling, that might significantly alter the landscape or natural environment. Sustainable harvesting is possible of timber, animals (hunting & fishing) and plants (berries, fruits, mushrooms), together with organic agriculture. (Definition of European Wilderness, 2013)*

## 8.1. Principle 1: Wilderness Size and Zoning

A wilderness should have the three zones; wilderness, restoration and transition zones. In cases where these cannot be implemented, additional measures to ensure the protection and functioning of the wilderness core zone must be implemented.

| Recommendations | Priority | | | Time |
|---|---|---|---|---|
| | Low | Medium | High | |
| Criterion 1.1. Wilderness zone has defined boundaries. | | | | |
| Improve boundary visibility between the wilderness and management zone particularly along the tourist trails. | | √ | | 2020 |
| Incorporate boundaries of wilderness zone to the hiking maps and existing field information systems and communication strategy to increase opportunity for visitors to better visualised wilderness zone. | | √ | | 2020 |
| Improve wilderness aspect of communication strategy beyond German-speaking audience. | | √ | | 2020 |
| | | | | |
| Criterion 1.2. Minimum size of the wilderness zone depends on the predominant habitat type. | | | | |
| Park management carries out an inventory for the potential enlargement of wilderness in protected area. | | √ | | 2020 |
| Park management develops a map of the potential wilderness enlargementwilderness zone. | | √ | | 2020 |
| Park management looks for funding and resources to enlarge the wilderness. | √ | | | 2020 |
| | | | | |
| Criterion 1.3. Wilderness has three zones; wilderness, restoration and transition, where further expansion of wilderness is planned and two zones, wilderness and transition, where restoration and/or expansion is completed. | | | | |
| Park management monitors the impact of the culling policy and implements measures to minimize the fragmentation of wilderness zone. | | | √ | 2020 |

## 8.2. Principle 2: Natural processes and biodiversity

A wilderness should have a zone where natural processes take place with-out the human intervention and in a healthy state so that it contributes to the conservation of threatened species for that region and contains examples of undisturbed habitats.

| Recommendations | Priority | | | Time |
|---|---|---|---|---|
| | Low | Medium | High | |
| Criterion 2.1. The wilderness zone has natural processes to maintain biodiversity. | | | | |
| Park management finalize a comprehensive management plan for the wilderness zone to maintain natural dynamics processes. | | | √ | 2020 |

| | | | | |
|---|---|---|---|---|
| The wilderness management plan is a separate document or chapter of the overall management plan, with an English summary. | | √ | | 2020 |
| Park management continues to communicate the importance of wilderness management to local stakeholders and visitors. | | | √ | 2020 |
| Park management develops a more comprehensive strategy on how to effectively share wilderness management practices with an international audience (e.g. park managers, rangers, etc.). | √ | | | 2020 |
| | | | | |
| Criterion 2.2. The wilderness zone contributes to the conservation of wilderness indicator species. | | | | |
| Management plan should:<br>• Provide information on endemic, red-listed, vulnerable and/or other rare species which occur in the wilderness.<br>• Provide information on native species in the wilderness zone that have decreased or become extinct.<br>• Provide actions steps on IAS/management.<br>• Continue systematic monitoring of large herbivores with a focus on the wilderness zone.<br>• English summary. | | | √ | 2020 |
| Park management continues to implement a communication strategy that focuses on educating the public about wilderness, the importance of indicator species such as ibex, chamois or moderate forest operations and grazing and hunting activities around the wilderness zone. | | | √ | 2020 |
| Park management continues on monitoring of invasive species in wilderness. | | | √ | 2020 |
| Park management continues on implementation of lynx reintroduction programme. | | | √ | 2020 |
| | | | | |
| Criterion 2.3. The wilderness zone contain examples of undisturbed ecosystems | | | | |
| Park management continue on effective communication of restoration efforts in wilderness zone with a focus on local, national and international audience. | | | √ | 2020 |
| | | | | |
| Criterion 2.4. The wilderness has a management plan to restore natural processes in the restoration zone. | | | | |
| Park management continues on restoration of natural processes in the restoration zone. | | √ | | 2020 |
| Park management agree on time line when the areas for herbivores culling in restoration zone will be ceased and fragmentation of wilderness zone will be decreased. | | | √ | 2020 |

## 8.3. Principle 3: Wilderness Management

This principle addresses the various wilderness conservation measures such as a biodiversity management plan, plan for supporting the natural processes, landscape management and the training of the wilderness man-agement team. In addition, this principle covers the impact of visitor management.

| Recommendations | Priority | | | Time |
|---|---|---|---|---|
| | Low | Medium | High | |
| Criterion 3.1. Thwilderness is protected by law in accordance within national legislative framework for an indefinite period of time. | | | | |
| Park management continues on implementation of a long-term wilderness plan to guarantee legal protection of the wilderness zone (e.g. specific wilderness focus legislation, extent period of long-term agreement/lease with Austrian Forest Service for 30-35 years, etc.). | | | √ | 2020 |
| Park management continues to implement a long-term wilderness communication strategy with a focus on local stakeholders, visitors and an international audiencefocus wilderness. | | | √ | 2020 |
| | | | | |
| Criterion 3.2. The wilderness has a wilderness management plan of at least 10 years. | | | | |
| Park management focuses on finalizing a new management plan and in particular section dealing with wilderness. | | | √ | 2020 |
| Park management continue to implement a long-term research and monitoring strategy with a focus on wilderness. | | √ | | 2020 |
| Park management has an English summary of wilderness focused education brochures including maps and communicate to an foreign audience. | | | √ | 2020 |
| Park management communicates the benefit of wilderness conservation to increase the potential to assist other parks with wilderness counservation. | | √ | | 2020 |
| Park management develops an analysis of external and internal threats to the wilderness zone. | | √ | | 2020 |
| Park management develops capacity to train trainers in the context of wilderness conservation for countries in Central and Eastern Europe. | | √ | | 2020 |
| | | | | |
| Criterion 3.3. The wilderness has a sufficiently large and trained full time management team. | | | | |
| Park management considers developing field trainings for wilderness management best practice. | | | √ | 2020 |
| Park management considers idea to increase language skills of staff who are involved in tourism, visitor management, communication, interpretation, etc. | | √ | | 2020 |
| Park management develops and implement wilderness focused education, interpretation training programme. | | | √ | 2020 |
| | | | | |
| Criterion 3.4. A training plan for the management team exists. | | | | |
| Park management develops a wilderness focused training plan for the management team. | | √ | | 2020 |

## 8.4. Principle 4: Wilderness Restoration

Wilderness restoration is an intentional activity that initiates or accelerates the recovery of damaged ecosystem that has wilderness potential. Wilder-ness restoration includes a wide range of activities such as restoration of dis-turbed areas and the reintroduction of native

species.

| Recommendations | Priority | | | Time |
|---|---|---|---|---|
| | Low | Medium | High | |
| Criterion 4.1. It is the objective to enlarge the wilderness zone. | | | | |
| Continue on implementation of a long-term vision to enlarge the wilderness zone in Nationalpark Kalkalpen. | √ | | | 2020 |
| Continue on implementation of document: Planning concept of protected areas Nationalpark Kalkalpen, Nationalpark Gesäuse and Wilderness Dürrenstein developed in 2015 with a focus to motivate creation of other wilderness areas in region. | | √ | | 2020 |
| Continue on communication and building up acceptance of local people, local stakeholders and user of this area. | | | √ | 2020 |
| | | | | |
| Criterion 4.2. The wilderness has a wilderness restoration plan to enlarge and improve the wilderness zone. | | | | |
| Implement conclusions of document: Planning concept of protected areas Nationalpark Kalkalpen, Nationalpark Gesäuse and Wilderness Dürrenstein, developed in 2015. | | √ | | 2020 |
| Develop strategy to minimize use of old forest road by park staff in wilderness zone. This is important particularly if Nationalpark Kalkalpen has an ambition not only to maintain the current quality level of wilderness diploma but also became a model and inspiration for other areas with wilderness inspiration. | | | √ | 2020 |

## 8.5. Principle 5: Wilderness and Extractive uses

The working definition of wilderness stipulates that wilderness is an area without intrusive or extractive uses.

| Recommendations | Priority | | | Time |
|---|---|---|---|---|
| | Low | Medium | High | |
| Criterion 5.1. The wilderness zone has no extractive or commercial uses. | | | | |
| Park management continues education and interpretation activities which focus on the impact of extractive uses (i.e. grazing, forestry and hunting) rewilding, spontaneous natural processes, and wilderness conservation. | | √ | | 2020 |
| | | | | |
| Criterion 5.2. The wilderness zone has no forestry operation. | | | | |
| Continue on implementing education and interpretation activities organized by protected area with a focus on extractive or commercial uses in wilderness zone (bark beetle versus ecosystem dynamics, etc.). | | | √ | 2020 |
| | | | | |
| Criterion 5.3. The wilderness zone has no hunting and/or game management. | | | | |
| Park management develops a strategy to communicate the importance of having a hunting-free zone in wilderness zone. | | | √ | 2020 |

| | | | | |
|---|---|---|---|---|
| Park management continues to its communication strategy of the importance of having carnivores in the wilderness zone. | | | √ | 2020 |
| Park management continues on implementation lynx reintroduction programme. | | | √ | 2020 |
| | | | | |
| Criterion 5.4. The wilderness zone has no extractive fishing and no management of fish populations. | | | | |
| Park management continues to monitor and control extractive fishing activities. | | √ | | 2020 |
| Park management develop an interpretation European Wilderness Society with a focus on endemic rainbow trout reintroduction programme. | | | √ | 2020 |
| | | | | |
| Criterion 5.5. The wilderness has a fish and game management plan for the restoration and transition zones. | | | | |
| Park management continues with game management in transition zone. | | | √ | 2020 |
| | | | | |
| Criterion 5.6. The wilderness zone has no active mining. | | | | |
| n/a | | | | |
| | | | | |
| Criterion 5.7. The wilderness zone has restored old mining sites. | | | | |
| n/a | | | | |
| | | | | |
| Criterion 5.8. Park management has implemented a restoration plan for old mining sites in the restoration zone. | | | | |
| n/a | | | | |
| Criterion 5.9. The wilderness zone has no domestic livestock grazing. | | | | |
| n/a | | | | |
| | | | | |
| Criterion 5.10. The wilderness zone has no agricultural activities. | | | | |
| n/a | | | | |
| | | | | |
| Criterion 5.11. The wilderness zone has no deadwood collection. | | | | |
| n/a | | | | |
| | | | | |
| Criterion 5.12. There is no commercial harvesting of berries, nuts and/or mushrooms in the wilderness zone. | | | | |
| n/a | | | | |
| | | | | |
| Criterion 5.13. There is no commercial collection of minerals in the wilderness zone. | | | | |
| n/a | | √ | | 2020 |
| | | | | |
| Criterion 5.14. There is no commercial use of wilderness zone for filmmaking. | | | | |
| n/a | | | | |

## 8.6. Principle 6: Wilderness Disturbance

This principle focus on the removal of infrastructure, creating well-planned tourism access and regulating and limiting road access to the area in order to reduce impact in the wilderness zones.

| Recommendations | Priority | | | Time |
|---|---|---|---|---|
| | Low | Medium | High | |
| Criterion 6.1. The wilderness zone has no permanent infrastructure. | | | | |
| Park management develops an updated map and inventory of the road network and other infrastructure in the wilderness zone (roads, houses, shelters, tunnels, bridges, etc.). | | | √ | 2020 |
| Park management develops a strategy how to further eliminate old gravel forest roads in wilderness zone (stop using them at all). | | | √ | 2020 |
| Park management update a plan how to eliminate illegal use of old gravel forest roads in wilderness zone. | √ | | | 2020 |
| | | | | |
| Criterion 6.2. The wilderness zone has no permanent settlements. | | | | |
| n/a | | | | |
| | | | | |
| Criterion 6.3. There is a management plan to deal with temporary structures in the restoration zone. | | | | |
| Park management develops a map and inventory of existing permanent and temporary structures in the restoration and transition zone. | | | √ | 2020 |
| Park management will continue on monitoring of existing permanent and temporary structures in the restoration and transition zone. | | √ | | 2020 |
| Park management will communicate widely experience with reduction of permanent and temporary structures beyond wilderness boundary. | | | √ | 2020 |
| | | | | |
| Criteria 6.4. There is a management plan to deal with inherited settlements in the wilderness area. | | | | |
| Park management develops an updated inventory and map of the inherited settlements in the restoration and transition zones. | | √ | | 2020 |
| | | | | |
| Criterion 6.5. There is a management plan for the wilderness area to deal with inherited indigenous gathering sites (e.g. traditional reindeer herding sites in Nordic countries). | | | | |
| n/a | | | | |
| | | | | |
| Criterion 6.6. Permanent infrastructures in the restoration zone are removed according to the restoration plan, unless the removal is detrimental to the quality of the wilderness area. | | | | |
| Park management develops a map, list and action plan to remove the permanent infrastructure from wilderness and restoration zone and shows what permanent infrastructures is going to be just left abandon, removed or actively restored. | | √ | | 2020 |

| | | | | |
|---|---|---|---|---|
| Criterion 6.7. There is a management plan to deal with abandoned archaeological sites in the wilderness zone. | | | | |
| n/a | | | | |
| | | | | |
| Criterion 6.8. There is no motorized transport in the wilderness. | | | | |
| Park management collects data regarding of the unauthorized use of old gravel forest roads in wilderness zone. | | √ | | 2020 |
| Park management update a list (km) and map of old gravel forest roads use in the wilderness zone and restoration zone (separately). | | √ | | 2020 |
| Park management update a list (km) and map of old gravel forest roads use in the wilderness and restoration zone proposed to close with the following specifications:<br>• Roads needed for management purposes.<br>• Roads planned for restoration. | | √ | | 2020 |
| Park management develops an impact study of aviation (e.g. helicopters, drones, etc.) in wilderness zone. | | √ | | 2020 |
| | | | | |
| Criterion 6.9. There is a free access on foot into the wilderness. | | | | |
| Park management open discussion with local group of Alpine Club with objective to agree on high quality standard for trail marking concept in wilderness zone of Nationalpark Kalkalpen e.g. less frequent marks, narrow trails, including concept of minimal impact (limit of acceptable changes). | | √ | | 2020 |
| | | | | |
| Criterion 6.10. The wilderness zone has no noise pollution. | | | | |
| The development of a random monitoring scheme for noise pollution in the wilderness zone. | √ | | | 2020 |
| | | | | |
| Criterion 6.11. The wilderness zone has no light pollution. | | | | |
| Park management continue on monitoring of light pollution in wilderness zone with a focus on alms and huts. | √ | | | 2020 |
| | | | | |
| Criterion 6.12. The wilderness zone has no visual distraction on the horizon. | | | | |
| A visual distraction assessment is carried out in the wilderness zone with a focus on identifying visual disturbances. | √ | | | 2020 |
| | | | | |
| Criterion 6.13. The wilderness has no garbage pollution. | | | | |
| Park management share the garbage pollution experience with other wilderness in Europe (for example recently verified wilderness in Ukraine). | | | √ | 2020 |
| | | | | |
| Criterion 6.14. There are recreational fire pits in the wilderness. | | | | |
| n/a | | | | |
| | | | | |
| Criterion 6.15. There are rules for use of horses in the wilderness zone. | | | | |
| n/a | | | | |

| | | | | |
|---|---|---|---|---|
| Criterion 6.16. The wilderness zone has no fencing. | | | | |
| Park management creates a map of the fenced boundary between the wilderness zone and alms in particular where it is barbed wire. | | | √ | 2020 |
| Park management develops strategy how to remove (minimize) fences between wilderness zone and alms. | | √ | | 2020 |
| | | | | |
| Criterion 6.17. There are rules about dogs in the wilderness zone. | | | | |
| Park management continues with the strategy of how to deal with dogs in wilderness zone. | | √ | | 2020 |
| | | | | |
| Criterion 6.18. The wilderness has a visitor and recreational use strategy. | | | | |
| Park management continues on implementation the concept "leave no trace" rules in wilderness zone with specific focus on hikers and skiers. | | | √ | 2020 |
| | | | | |
| Criterion 6.19. The wilderness has an integrated visitor and recreation strategy to support the wilderness concept. | | | | |
| Park management upgrade the integrated visitors and recreation strategy (including training and communication) with focus on wilderness. | | | √ | 2020 |

## 8.7. Principle 7: Control strategies for fire, invasive species, and natural disturbances

Ecological disturbances are one of the most profound aspects of wilder-ness. Natural disturbances such as wild res and windstorms are important sculptors of landscape and habitats, however, they are often considered problematic and undesirable by humans.

| Recommendations | Priority | | | Time |
|---|---|---|---|---|
| | Low | Medium | High | |
| Criterion 7.1. There is a fire control plan. | | | | |
| Park management continues on monitoring and research European Wilderness Society focusing to learn the fire history in this area. | √ | | | 2020 |
| Park management develops education and interpretation European Wilderness Society explaining role of the fire in ecosystem dynamism, role of the fire management and let-it-burn policy. | | √ | | 2020 |
| | | | | |
| Criterion 7.2. There is a disease control plan. | | | | |
| Park management continues to research on the dynamics of spontaneous disease outbreak in this area such as bark beetle as well as diseases that affect chamois and roe deer disease. | | | √ | 2020 |
| Park management continues to develop education and interpretation European Wilderness Society s that focus on the role of spontaneous disease outbreak in wilderness zone. | | | √ | 2020 |

| | | | | |
|---|---|---|---|---|
| Criterion 7.3. An invasive species control plan has been developed for the wilderness. | | | | |
| Park management continues its research and monitoring of invasive species in order to improve their knowledge on invasive alien species that could potentially threaten the wilderness zone. | | √ | | 2020 |
| Park management develops an invasive alien species (IAS) control plan to prevent incursion of invasive species to the wilderness area. | | √ | | 2020 |
| Park management develops education and interpretation European Wilderness Society focusing on invasive species. | | √ | | 2020 |
| | | | | |
| Criterion 7.4. There is a plan for natural disturbances. | | | | |
| Park management continues to research and monitor natural disturbances such as wind storm, climatic extremes, avalanches and rock falls. | | | √ | 2020 |
| Park management develops natural disturbances monitoring plan. | | √ | | 2020 |
| Park management develops education and interpretation European Wilderness Society focusing on role of natural disturbances. | | | √ | 2020 |
| | | | | |
| Criterion 7.5. The wilderness is impacted by permafrost. | | | | |
| n/a | | | | |

## 8.8. Principle 8: Wilderness Research and Monitoring

Wilderness offers opportunities to study the unique attributes of nature and natural processes. Quality wilderness research and monitoring allows park managers to make appropriate decisions. Research and monitoring activities should be invasive in their character.

| Recommendations | Priority | | | Time |
|---|---|---|---|---|
| | Low | Medium | High | |
| Criterion 8.1. There is a wilderness research and monitoring strategy. | | | | |
| Park management continues to research and monitor activities with a focus on wilderness. | | | √ | 2020 |
| Park management develops and implements a communication strategy to assist the publics' understanding of the importance of the outcomes of wilderness research and monitoring. | | √ | | 2020 |
| Park management improves coordination with other wilderness protected areas (e.g. unify GIS systems and research methodology among partners focusing on wilderness research). | | √ | | 2020 |
| Park management proactively- uses a network of wilderness areas organized under European Wilderness Preservation System to share research and monitoring knowledge. | | √ | | 2020 |
| Park management provides an English summary of the important outcomes of research and monitoring. | | | √ | 2020 |

| | | | | |
|---|---|---|---|---|
| Criterion 8.2. There is a monitoring system which documents activities and extractive uses. | | | | |
| Park management continues to implement current monitoring system to advance management of forest ecosystems, herbivores, tourism management, wilderness interpretive programme, etc. | | | √ | 2020 |
| Park management seeks possible funding (e.g. Erasmus) to share their experience with other wilderness areas in Europe using European Wilderness Society communication platform. | | | √ | 2020 |
| Park management looks for opportunities for more wilderness focused research in close cooperation with other protected areas in European Wilderness Society network, research institutions or universities. | | | √ | 2020 |
| Park management seeks opportunity to minimizing visible and ecological impacts of research and monitoring within the wilderness zone. | | | √ | 2020 |
| | | | | |
| Criterion 8.3. There is a monitoring plan to document indigenous peoples livelihoods and their impacts. | | | | |
| n/a | | | | |
| | | | | |
| Criterion 8.4. There is a plan for cooperation with scientific institutions and universities. | | | | |
| A plan is developed to collaborate with scientific institutions and universities with a focus on wilderness conservation. | | √ | | 2020 |

## 8.9. Principle 9: International Relevance

The importance of wilderness is finally being recognized in Europe. More people and initiatives are beginning to work to protect and expand wilderness.

| Recommendations | Priority | | | Time |
|---|---|---|---|---|
| | Low | Medium | High | |
| Criterion 9.1. The wilderness is internationally recognized (IUCN, Natura 2000, UNESCO, other certifications). | | | | |
| The nomination for UNESCO and European Wilderness Preservation System will be finalized. | | | √ | 2020 |
| | | | | |
| Criterion 9.2. There is a plan to become part of Natura 2000 network (where relevant and in accordance with the wilderness objectives). | | | | |
| Their experience with non-intervention management in Natura 2000 site should be promoted to a wider audience. | | | √ | 2020 |
| | | | | |
| Criterion 9.3. Wilderness supports the protection of internationally threatened species. | | | | |
| The development of an education and marketing campaign which focuses on wilderness and internationally threatened species. | | | √ | 2020 |

# 9. Wilderness Awarding

## 9.1. The History of cooperation between the Nationalpark Kalkalpen and the European Wilderness Society

The cooperation between European Wilderness Society and Nationalpark Kalkalpen dates back to 2009 when a decision was made to formally protect wilderness in the core zone.

The director of Nationalpark Kalkalpen, Erich Mayerhofer attended several European meetings which focused on wilderness conservation. The Director of Wilderness Development, Vlado Vancura, on the behalf of the European Wilderness Society visited the potential Kalkalpen wilderness several times (2011, 2012, 2013, and 2015).

The director of Nationalpark Kalkalpen, Erich Mayerhofer, was interested in the network of European Wilderness Preservation System in order to improve management effectiveness of Nationalpark Kalkalpen and in particular wilderness. He expressed interest in creating a model for other protected areas in central Europe which have wilderness potential.

*Fig. 120: Director of Kalkalpen Wilderness was interest to protect wilderness in core zone of Nationalpark Kalkalpen.*

## 9.2. Awarding Process

In 2014, the European Wilderness Society and Nationalpark Kalkalpen agreed on a time-line in addition to the process for an audit. At the end of 2014, Nationalpark Kalkalpen was awarded the Gold Candidate Wilderness diploma.

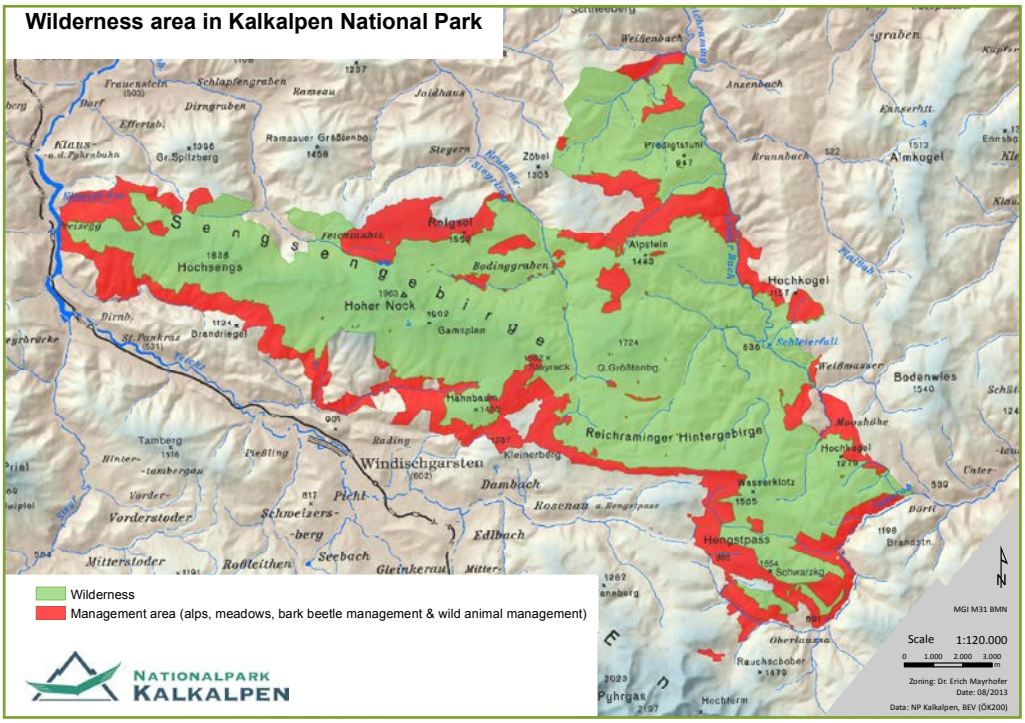



*Fig. 121: Wilderness in Nationalpark Kalkalpen.*

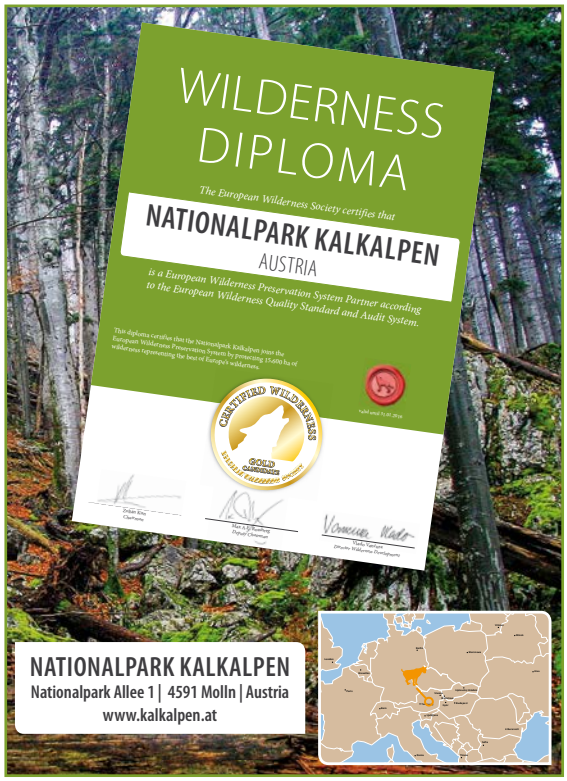



*Fig. 122: Kalkalpen Gold Wilderness Candidate Diploma and Certificate was awarded in 2014.*

In 2015, a team of the European Wilderness Society auditors visited Nationalpark Kalkalpen for 12 days and carried out the site assessment with a focus on the wilderness. This field assessment included several overnights within the park. The European Wilderness Society team verified 13,034 hectares of Kalkalpen Wilderness and they were awarded a Platinum Wilderness Certificate.

*Fig. 123: European Wilderness Society team verified 13,034 hectares of Kalkalpen Wilderness and they were awarded a Platinum Wilderness Certificate.*

The European Wilderness Society will continue to work with Nationalpark Kalkalpen in an effort to enlarge wilderness and improve management effectiveness.


*Fig. 124: Kalkalpen Platinum Wilderness Certificate was awarded in 2015.*

*Fig. 125: Kalkalpen Wilderness awarding ceremony 2015.*

# 10. Monitoring and Evaluation

After verification, monitoring is done for a period of 10 years. It is the regular process of collecting and analyzing data in order to make decisions as well as track progress toward reaching the objectives of a particular wilderness.

The monitoring focuses on processes, such as when and where recommended activities are implemented. In addition, the data from monitoring can also be applied to other wilderness' in only in Austria but through out central Europe.

Evaluation is the systematic assessment of improvement activities that have been recommended by the European Wilderness Society verification team. The evaluation focuses on expected and achieved accomplishments, examination of the results (i.e. inputs, activities, outputs, outcomes and impacts), processes, contextual factors and causalities in order to understand the achievements or the lack of achievements. Evaluation aims to determine the relevance, impact, effectiveness, efficiency and sustainability of prospective interventions and the contributions of these intervention to the overall results.

The evaluation provides evidence-based information that is credible, reliable and useful. The findings, recommendations and lessons of an evaluation are used to support future decision making regarding wilderness management.

*Fig. 126: Only regular monitoring can guarantee European Wilderness quality standard.*

*Table 7: Monitoring program for Nationalpark Kalkalpen*

| Year | Activity |
|---|---|
| 2015 | Site assessment and wilderness certification |
| 2016 | Delivery of verification report |
| 2017-2024 | Random site assessments. Collecting and analyzing data to track progress toward reaching objectives of wilderness management. |
| 2025 | Site assessment, delivery of verification report and awarding new wilderness certificate. Valid for 10 years. |

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# 12. List of figures

# 13. List of tables

# *European Wilderness Quality Standard Audit*

NATIONALPARK KALKALPEN

EUROPEAN WILDERNESS SOCIETY


**European Wilderness Society**

Registration number / ZVR Zahl: 305471009
Registered in Austria
Dechant-Franz-Fuchs Str. 5 | A-5580 Tamsweg
EU Transparency registration number: 706136913777-83
(category non-governmental organisation)