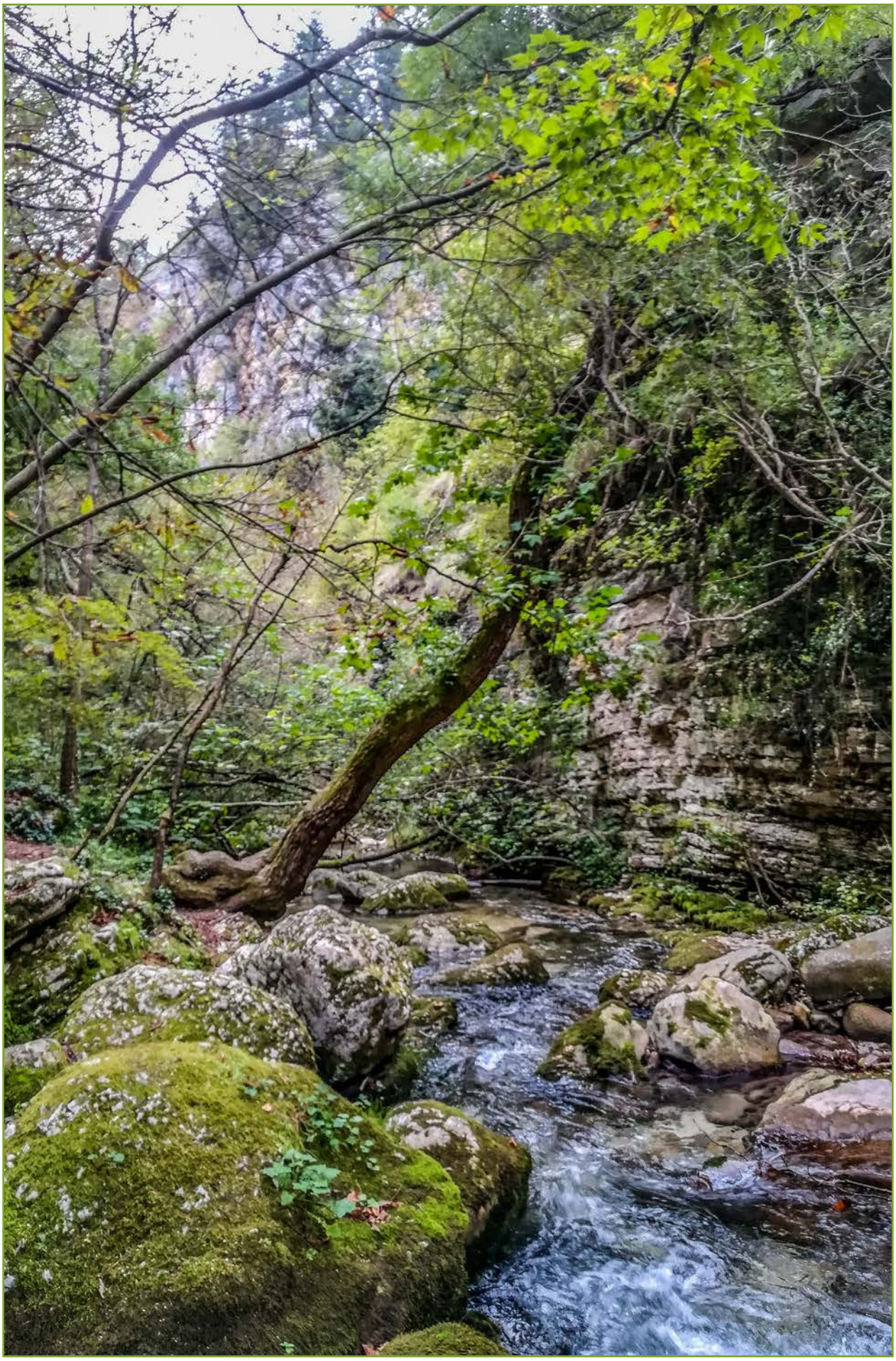
European Wilderness Quality Standard Audit

Parco Nazionale della Majella

EUROPEAN WILDERNESS SOCIETY

2019

Let's get Wild!



European Wilderness Quality Standard Audit

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WILDERNESS CERTIFICATE

The European Wilderness Society certifies that the

MAJELLA WILDERNESS

ITALY

with 15 960 ha is complying with the PLATINUM European Wilderness Quality Standard and registered in the European Wilderness Network

valid until 01.10.2028

Max A.E. Bossberg
Chairman

Vlado Vančura
Director Wilderness Development

European Wilderness Quality Standard and Audit System Report

EWQA Version: 1.8

February 2019

PARK INFORMATION

Protected area's name:	Majella National Park
Name of the Wilderness:	Majella Wilderness
Country(s):	Italy
Geographical position:	42°02'45"N 13°59'37"E
IUCN classification:	II
Main ecological classification:	mixed forest and mountain Wilderness
Number of visitors per year:	>125 000
Size of Wilderness:	25 895 ha
Size of protected area (without buffer zone):	74 095 ha
Year Special Protected Area established:	1995

PARK MANAGEMENT INFORMATION

Address:	Majella National Park, Palazzo Di Sciascio, 66, 66016 Guardiagrele, Italy
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E-mail:	info@parcomajella.it
Web-site:	www.parcomajella.it
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AUDIT RESULT:

Certification Level:	Platinum
Valid until:	2028
Intermediate Audit:	2022

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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, 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. Wilderness also provides important economic, social and environmental benefits, including ecosystem services.

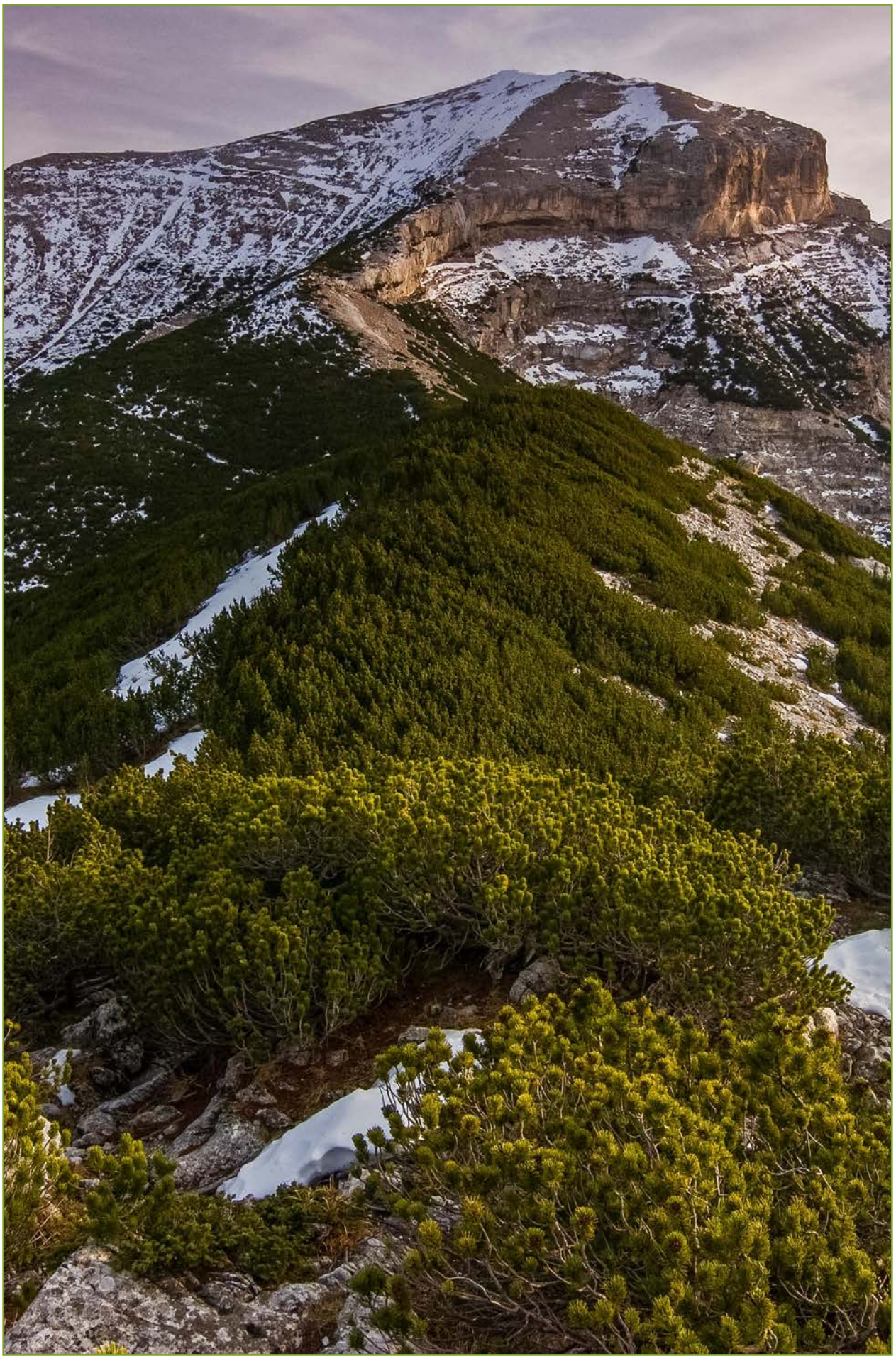
The European Wilderness Society, as a pan-European, Wilderness and environmental advocacy organisation, has developed a standardised Wilderness norm: the European Wilderness Quality Standard and Audit System (EWQA). This norm is a tool to identify, designate, steward and promote European Wilderness in order to support the long-term existence of Wilderness 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 mobilise the necessary interest and support among Wilderness advocates across society.

The European Wilderness Quality Standard and Audit System is the mechanism which has been used to assess the quality of Wilderness within the Majella Wilderness. The 25 895 ha Majella Wilderness is part of the Majella National Park, located in Central Italy.

Majella National Park has previously been subject to a European Wilderness Quality Standard Audit in 2005, 2006, 2008 and 2009. This Re-Audit of Majella Wilderness extends the area's membership in the European Wilderness Network for another ten years. The next European Wilderness Quality Standard Re-Audit is scheduled for 2028.

The Majella Wilderness was re-audited using the European Wilderness Quality Standard and Audit System version 1.8. This Re-Audit lasted from May 2018 until November 2018 and included two extensive site assessments from May 25th to 28th and September 9th to 16th 2018. The result of the research, the site assessments and the data verification resulted in a list of 109 recommendations of differing priorities, which should be completed by 2028.



2. Wilderness Concept in Europe[1]

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 'Ancient and Primeval Beech Forests of the Carpathians and other regions of Europe', or recent initiatives to promote Wilderness (e.g. Wild Europe Initiative, European Wilderness Society, 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 (1964) exists, which clearly defines Wilderness as 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 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, while 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 as well as the cultural context. Numerous authors acknowledge the difficulties in finding an appropriate definition, as a conservation concept and a historic concept,

1) The texts in this chapter is based on information available in the following document: The European Wilderness Quality Standard and Audit System in the scientific context of current Wilderness research, Michael Huber & Michael Jungmeier (E.C.O. Institute of Ecology/University of Klagenfurt) February 2016.

Wilderness is above all a cultural concept. Trommer, (1997) calls the European Wilderness mainly a cultural phenomenon being a contrast to civilisation. Nash (1982, P.1) even says "one man's Wilderness is another's roadside picnic ground."

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

The European Wilderness 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 upon 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 processes 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 Commission, Zoltan Kun & Vlado Vancura, 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) claim 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 guidelines, 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 Category Ia or Ib, to a certain extent even with IUCN Category II National Parks, which have the priority objective to allow for dynamic processes on a large scale (Dudley, 2008). It is also congruent with the US 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. The label assigned to the Wilderness (bronze, silver, etc.) is independent of the habitat type and size of the area.

- **Unmodified or slightly modified areas:** 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 short term basis. 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 irrespective of the time since the area has been exempt from any use.

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

are 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. Wild areas or wild lands 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.

The European Wilderness Quality Standard and Audit System makes the claim to locate the current status of an area on the Wilderness Continuum by assessing a number of criteria and indicators. However, Orsi et al., (2013) explains that the decision to locate the point, along the continuum, beyond which there is Wilderness 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 and 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 it clear that the European Wilderness Quality Standard and Audit System operates in a rather dynamic new area. It demands absolute transparency and well-defined criteria and thresholds, while there is discussion going on and criteria and thresholds are not yet agreed upon by the research community. The work of the European Wilderness Society thus constantly focuses on developing, defining and refining thresholds to test them in practice..

Definition of natural processes

All definitions of Wilderness 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 are comprised of:

- climate
- water
- light
- fire
- relief
- geology

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.

Fig. II-1: Central Balkan Wilderness, Bulgaria. According to the European Wilderness definition, a Wilderness is an area governed by natural processes.

2.2. Assessment of Wilderness

Lupp et al., (2011) carried out a comprehensive analysis of the current state of Wilderness research and concluded that, even though theoretical work has been carried out in a European context so far, concrete, empirical research is still lacking. Theoretical research has not yet been fully tested on the ground, which makes it rather challenging to elaborate a system to assess the quality of a Wilderness. However, this makes the European Wilderness Quality Standard and Audit System one of the few efforts to standardise 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, conceptualise and assess Wilderness with a specific focus on the 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 & Gillson, 2007).

The qualities of Wilderness

When it comes to assess the quality of Wilderness, the question arises, which qualities comprise Wilderness? A number of approaches and definitions from the American context, such as a minimum size of 5 000 acres (2 000 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:

- naturalness
- undisturbedness
- undevelopedness
- scale

In varying terms with similar meanings all assessments refer to these dimensions (e.g. remoteness (Mackey et al., 1998; 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 operationalisation 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
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 includes zonation, size of the core zone, extent of management measures and interferences, including 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 four qualities of Wilderness as 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 Commission, 2013). However, there is substantial discussion about how to measure naturalness. 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 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 the 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 minimise 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 motorised 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. Meanwhile, 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).

IUCN does not give standardised minimum sizes for Wilderness as long as it is ensured that areas are large enough for effective ecological functioning of natural processes, without intrusive or extractive human activity (European Commission, 2013). Thus, this also includes core zones of National Parks (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 1 000 ha in Northern, and 500 ha in Southern Sweden (Kuiters et al., 2013), following a similar definition as Finland (1 000 ha; European Commission, 2013).

The US Wilderness Act (1964) generally considers about 2 000 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 of up to 10 000 ha (PAN Parks, 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, it shows 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).

Fig. II-2: Hohe Tauern Wilderness, Austria. The Wilderness continuum is a basis for the European Wilderness Quality Standard and Audit System.

Classification of Wilderness

Lupp et al., (2011) analysed the current discussion regarding approaches to determine various types of Wilderness. Diemer et al., 2003, proposes four designations based on spatial extents, National Parks (>1 000 ha), Urban Wilderness (<1 000 ha close to cities), Urban or Rural Rewilding Sites (<500 ha) and Rewilding 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.

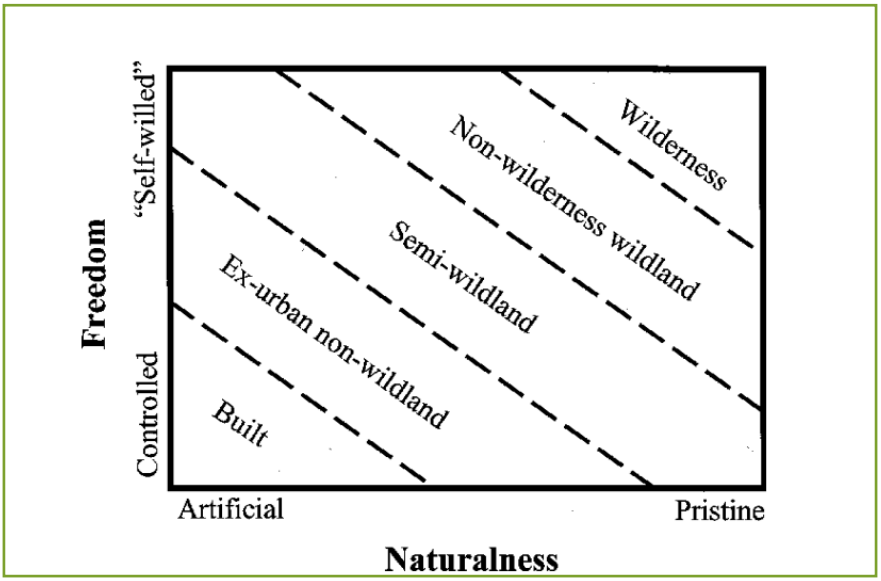


Fig. II-3: The continuum of Wildness with increasing wildness as a function of naturalness and freedom from human control.

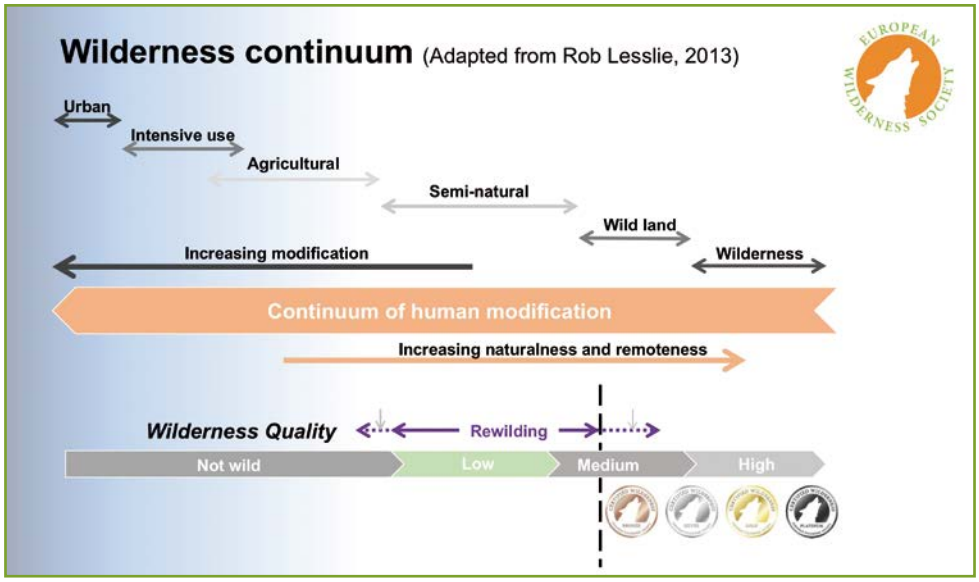


Fig. II-4: The Wilderness continuum as a basis for the European Wilderness Quality Standard and Audit System.

Considering the figures showing the Wilderness continuum, it is interesting to see how they relate to the European Wilderness Quality Standard and Audit System and how they are or could be operationalised (see labels on the bottom right).

The classification of Aplet et al., (2000) offers an attractive two-dimensional model. The assessment of self-will or control is rather easy to operationalise 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 characterised? 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.

When considering a comprehensive assessment of Wilderness, further issues 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) highlight the problem to locate the point along the continuum beyond which there is Wilderness, as this decision is affected by individual perceptions.

Nine European Wilderness Quality Standard and Audit System principles

The European Wilderness Quality Standard and Audit System is based on nine principles.

1. Wilderness size and zoning
2. Natural processes and biodiversity
3. Wilderness stewardship
4. Wilderness restoration
5. Wilderness extractive and intrusive uses
6. Wilderness disturbance
7. Natural dynamic processes
8. Wilderness research and monitoring
9. International relevance and importance of the Wilderness

Table II-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 stewardship					√
Wilderness restoration					√
Wilderness extractive and intrusive uses	√				
Wilderness disturbance		√	√		
Natural dynamic processes		√			
Wilderness research and monitoring					√
International relevance and importance of the Wilderness					√

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

However, this leaves four principles, which provide additional qualities going beyond the European Wilderness debate. These mainly comprise the principles of Wilderness stewardship, 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 the Wilderness (the current state of biodiversity, natural processes, existing infrastructures, visitors, eventual uses and disturbances, etc.)

- The quality of the Wilderness stewardship (existence of plans, regulations, organisational 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 the current quality and standard of the authority responsible to steward the respective Wilderness. This could be a major additional value of the European Wilderness Quality Standard and Audit System on 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. It assesses whether the area is recognised by IUCN or similar organisations, whether it is part of the Natura 2000 network for example, and if endangered species or habitats are protected by the Wilderness. Furthermore, it serves as a proxy indicator by assessing whether the stewardship is able to comply with international requirements.

Fig. II-5: Cepkeliai Wilderness, Lithuania. The 9 principles adequately reflect the Wilderness qualities as defined by the European Commission.

Conclusions and Perspectives

The current essay reflects the concept of the European Wilderness Quality Standard and Audit System in the light of current Wilderness research. Currently, 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 the theoretical concept of 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, summarised 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 four 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 by the European Wilderness Society integrate this concept into the European Wilderness Quality Standard and Audit System methodology. Additionally, further specification of thresholds is 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, including the criteria applied to reach a certain label. Regarding the structure, it is recommended to strictly separate the stewardship perspective and the Wilderness quality principles as this will make the structure more comprehensible and will further emphasise one of the strengths of the European Wilderness Quality Standard and Audit System, namely bringing together quality and stewardship.

3. European Wilderness Quality Standard and Audit System

3.1. The European Wilderness Quality Standard and Audit System

The main reason for the absence of a coordinated strategy on Wilderness in Europe is the lack of a common, systematic Wilderness standard and audit.

Wilderness standard

There are many different words for 'Wilderness' and 'wild' and it is impossible to adequately promote, protect, and restore an area if its standard remains unclear, or is understood differently according to its geographic location, individual perception or local culture. It is important that this standard can thus be applied in operational circumstances, in a socio-economic and geographical independent way.

Wilderness audit

An audit is an objective examination and evaluation to ensure that the management plans follow the Wilderness principles in a fair and accurate way. The Wilderness audit assesses the quality of potential Wilderness in Europe.

European Wilderness Quality Standard and Audit System

To link the two lacking elements, i.e. the Wilderness standard and Wilderness audit, the European Wilderness Society, developed the European Wilderness Quality Standard and Audit System, with support of several partners, in a solution-oriented process (European Wilderness Society, 2015) .

This is a habitat independent, solution oriented, European-wide basis for the identification and audit of Wilderness. Besides that, the system also includes continuous monitoring and a re-audit cycle, supported by sophisticated marketing.

The European Wilderness Quality Standard and Audit System is a continuation of the previous work of the Wild Europe Initiative and the European Wilderness Areas and Wild Areas definition (2013). It has a similar structure compared to a number of other quality standards, such as the Forest Stewardship Council or the Marine Stewardship Council.

Fig. III-1: Retezat Wilderness, Romania. The European Wilderness Quality Standard and Audit System is based on a system of principles, criteria and indicators.

Methodology of the European Wilderness Quality Standard and Audit System

The European Wilderness Quality Standard and Audit System is based on a system of principles, criteria and indicators.

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 whether or not a particular criterion is met.

In other words, the criteria are necessary to demonstrate that the principles have been met and the indicators show which criteria have been achieved. Consequently, each criterion and indicator is an essential part of the whole system and all need to be considered for the different categories of the European Wilderness Quality Standard and Audit System.

The European Wilderness Society continuously discusses and develops the European Wilderness Quality Standard and Audit System. This provides an up to date, comprehensive tool for auditing Wilderness in Europe.

Benefits of European Wilderness Quality Standard and Audit System

The implementation of the European Wilderness Quality Standard and Audit System provides the following benefits:

- **Improved compliance** – The European Wilderness Quality Standard and Audit System is compliant with all recent and existing Wilderness definitions currently applied in most European countries. This provides easy integration into national and regional policies.

- **Safety and reliability** – Adherence to the European Wilderness Quality Standard and Audit System helps to ensure visitor satisfaction, reliability and environmental care. As a result, visitors perceive Wilderness as more dependable – this in turn raises visitor confidence, increasing visits and financial support.

- **Improving effectiveness** - The European Wilderness Quality Standard and Audit System provides Wilderness managers with reliable third-party recommendations based upon a detailed SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) on the basis of a standard set of European-wide accepted criteria and indicators.

- **Support from government policies and legislation** - Standards are frequently referenced by regulators and legislators to protect users and business interests, and to support government policies. Standards play a central role in the European Union's policy for a Single Market. Adherence to the European Wilderness Quality Standard and Audit System will show the commitment to a common set of European values.

- **Interoperability** – The ability of Wilderness stewards to work together, relies heavily on a common set of Wilderness standards.

- **Encourage research** – The European Wilderness Quality Standard and Audit System provides a solid foundation upon which scientists can base their research and can enhance monitoring.

- **Marketing possibilities** – As more and more Wilderness adhere to the European Wilderness Quality Standard and Audit System, more visitors and Wilderness advocates will support and promote Wilderness due to their increased awareness and confidence.

- **Cost reduction** – Potential Wilderness do not have to reinvent the wheel, because all the basic Wilderness criteria and indicators have already been thought through. This ensures that new Wilderness will support the same principles with the existing Wilderness network.

- **Wilderness benefits from Standards** – The European Wilderness Quality Standard and Audit System sets minimum levels that help classify Wilderness according to several criteria and a multitude of indicators. They provide benchmarks against which Wilderness is audited. This gives the areas an incentive to improve their Wilderness to gain an advantage. In turn, this guarantees public access to more Wilderness for future generations.

Interpretation of the nine European Wilderness Quality Standard and Audit System principles

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

1. **Wilderness size and zoning:** Wilderness should not depend on a minimum size. Wilderness has a defined boundary and should have three zones: The Wilderness zone, the Restoration zone and the Transition zone.

2. **Natural processes and biodiversity:** Wilderness has a Wilderness zone, where dynamic open-ended natural processes can take place without human intervention. This helps contribute to the conservation of threatened species of that region and become a leading example of an undisturbed habitat.

3. **Wilderness stewardship:** Wilderness Stewardship is a holistic approach[2] to Wilderness management. Managers first determine whether there is the need for any management action before implementing an action plan.

4. **Wilderness restoration:** Wilderness restoration is an intentional activity that initiates or accelerates the recovery of a 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. These activities should be implemented once and not continuously.

5. **Wilderness, extractive and intrusive uses:** The European Wilderness definition stipulates that the Wilderness zone is an area without extractive or intrusive uses.

6. **Wilderness disturbance:** This principle focuses on the removal of permanent and temporary infrastructure, creating well-planned tourism access with minimal impact and regulating and limiting road access to the Wilderness, in order to reduce the human impact in the Wilderness zones.

7. **Natural dynamic processes:** Natural dynamic processes, such as windstorms, fire, disease outbreaks or avalanches, are a critical aspect of Wilderness and are important sculptors of landscapes and habitats. However, they are often considered problematic and undesirable by humans.

8. **Wilderness research and monitoring:** Wilderness offers opportunities to study the unique attributes of nature and natural processes. Quality Wilderness research and monitoring allows managers to make appropriate decisions. Research and monitoring activities should never be invasive and should minimise impact on the Wilderness zone.

1) Holistic approach is relating to or concerned with wholes or with complete systems rather than with the analysis of, treatment of, or dissection into parts. The holistic approach means instead of focusing on one thing to focus on the whole picture

9. **International relevance and importance of the Wilderness:** A Wilderness is internationally recognised by the IUCN, UNESCO, and European Union, as well as other important international organisations.

Implementation of the European Wilderness Quality Standard and Audit System

The Wilderness Audit assesses the quality of potential Wilderness in Europe on the basis of the European Wilderness Quality Standard and Audit System. It is an objective examination and evaluation to ensure that the stewardship plans of a potential or already certified Wilderness follow the Wilderness principles of the European Wilderness Quality Standard and Audit System. The Wilderness Audit also includes a continuous monitoring to ensure that the Wilderness stewardship of all European Wilderness Network partners continuously fulfils the European Wilderness Quality Standard and Audit System.

- The first part of the European Wilderness Quality Standard and Audit System is a desk study. This includes the examination of maps of the proposed Wilderness, and analysis of the current zoning system, which is crucial for a Wilderness. This includes constructive discussions on Wilderness research and the potential for enlargement of the Wilderness, conducted between the European Wilderness Society and the area's management team.

- The second part of the European Wilderness Quality Standard and Audit System is the field work - the Wilderness Field Audit.

- The third part of the European Wilderness Quality Standard and Audit System is office work. This includes the development of the Audit report and a SWOT analysis, and interaction with Wilderness management and stewards.

- The fourth part of the European Wilderness Quality Standard and Audit System is the awarding of the Wilderness diploma and/or Wilderness certificate.

3.2. The European Wilderness Quality Standard and Audit System process

A Wilderness Audit is a step-wise approach and is implemented in stages along the Wilderness Continuum, from Pre-Audit to Quick-Audit to Full-Audit, from smaller to larger, from management to stewardship. Depending on the potential Wilderness and its management, as well as the available resources and the objective of the Wilderness stewards, the implementation of this step-wise approach can vary.

Step 1: Preaudit Process

Recognition as a Wilderness Candidate

At the beginning, it is important to formulate a clear Wilderness vision for the area. Based on this vision, several steps take place: an initial examination of the area, workshops with the management team, analysis of available and Wilderness relevant research, and training with a focus on: Wilderness management plan, transition to Wilderness stewardship plan, Wilderness inventory, defined boundary of Wilderness as a result of mapping, etc.

After these steps, the area becomes designated as a Wilderness Candidate. During the following 2-3 years various actions take place, such as the development of a Wilderness stewardship plan, management plan for invasive species, fire control plan and a Wilderness restoration plan, in order to prepare the area for an audit.

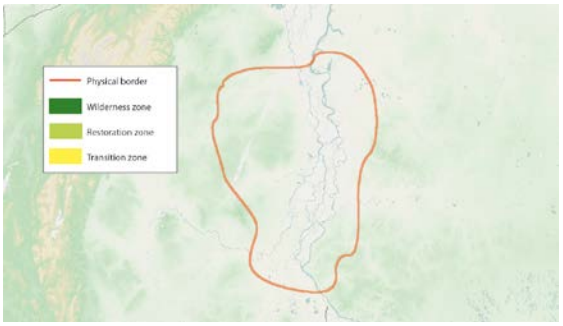
After 2-3 years, the area will be examined according to the European Wilderness Quality Standard and Audit System (either Quick- or Full-Audit). Based on the results of this process, the area will be labelled in the relevant Wilderness category.

Implementation of Wilderness zonation system

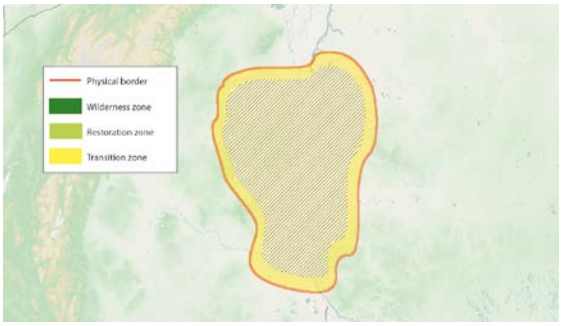
Wilderness is categorised into three 'zones':

- The Wilderness zone (where there is no human intervention and natural dynamic processes govern),
- The Restoration zone (where restoration and/or expansion is undertaken), and
- The Transition zone (which acts as a buffer between the Wilderness and surrounding areas).

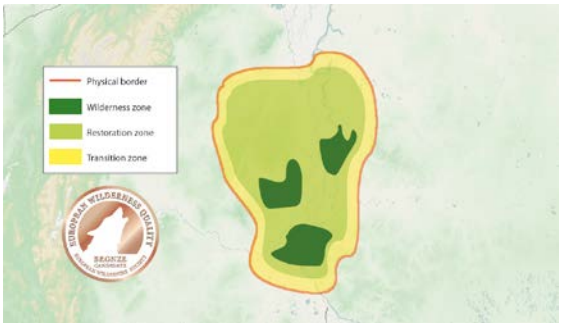
It is considered that this three-zoned structure offers best protection of key Wilderness principles, whilst allowing the potential for future expansion and flexible interaction with protected area zoning or other land uses.
The Wilderness zone should gradually be enlarged in order to reach a maximum extent. The progress of restoration defines which Wilderness label should be assigned.



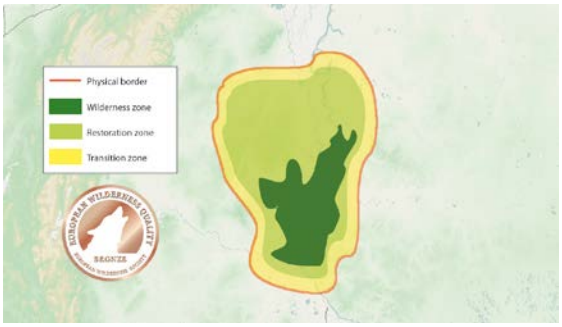
Step 1: *Selection of the area is based on Wilderness quality mapping, giving it a physical boundary.*



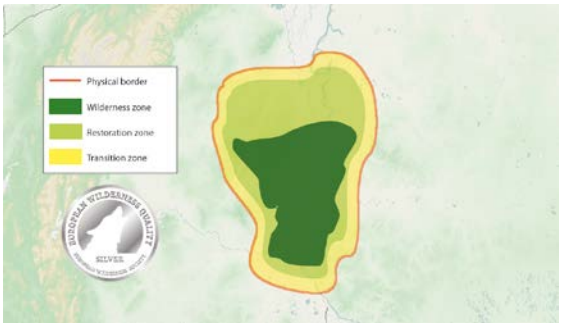
Step 2: *Development of a vision for Wilderness.*



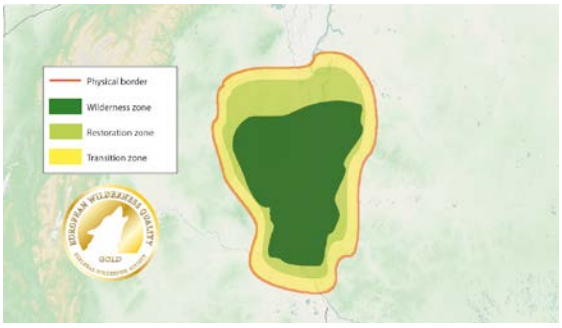
Step 3: *Areas receive Wilderness Candidate status, followed by a Wilderness Audit over the next two-three years, utilising the European Wilderness Quality Standard and Audit System.*



Step 4: *Based upon the results of the European Wilderness Quality Standard and Audit System Audit, a Wilderness stewardship plan is created. The area gets an appropriate certified Wilderness category.*



Step 5: *Restoration in the Restoration zone leads to a non-intervention Wilderness zone. The area is given a silver certification.*



Step 6: *Progressive restoration leads to non-intervention Wilderness zone and area is given a gold certification.*

Step 7: *The restoration of Wilderness is complete. The area is given a platinum certification..*

The **Wilderness zone** has the 'highest' quality of Wilderness, with minimal impact from human activity (e.g. patrol, education, low impact tourism) or infrastructure (e.g. interpretive panels, orientation signs, inherited disused structures, such as abandoned shelters, roads or bridges) and a dominance of natural processes. Outward expansion should occur over time through restoration/rewilding into the Restoration zone – particularly if the Wilderness is initially not large enough to allow complete ecological processes.

The **Restoration zone** has a relatively low human impact and presence. It surrounds and protects the Wilderness zone, is free of any extractive uses and unnecessary or uncontrolled motorised traffic (only for Stewardship purposes and with permits of the protected area management). The main emphasis here is the restoration/rewilding of natural habitats and processes. This means that any active restoration measures and the use of built structures (e.g. roads, bridges) and high impact activities (e.g. uncontrolled tourism) are phased out within the next 10 years. Where feasible, the Restoration zone should be incorporated into the Wilderness zone and expanded outwards into the Transition zone over time.

The **Transition zone** shows the same low human impact and presence as the Restoration zone and is free of any extractive human uses. Active and passive restoration measures, inherited built structures as well as sustainable visitor management can be found here. The main purpose of the Transition zone is to act as a buffer between the Wilderness and its surroundings. The difference between the Transition zone and the Restoration zone is the objective to phase out any active restoration measures in the Restoration zone in order to be incorporated into the Wilderness zone. The reasons for missing this objective in the Transition zone can be ownership structures, financial or structural issues.

Step 2: The Quick-Audit

European Wilderness Quality Standard Quick-Audit

For most larger areas the European Wilderness Quality Standard Quick-Audit is typically the first step in the Wilderness audit process. In addition, the European Wilderness Quality Standard Quick-Audit is the perfect tool for most smaller, wild areas with an exceptionally high quality Wilderness and limited budget, who are interested in joining the European Wilderness Network. The Quick-Audit can prepare the area for the Full-Audit and the implementation of the European Wilderness Quality Standard.

The European Wilderness Quality Standard Quick-Audit also provides an opportunity for the audited Wilderness to correct weaknesses before undergoing a full certification in accordance with the European Wilderness Quality Standard Full-Audit. During the Quick-Audit, the auditors will examine all relevant documents and cover the following topics:

- Examination of the map of the proposed Wilderness,
- Development of a short analysis of the zoning system (particularly conditions of the Wilderness zone),

- Clarification of the compatibility and size differences between zoning of the audited protected area and the Wilderness zoning of the European Wilderness Quality Standard and Audit System,
- Examination of the Stewardship plan for the potential Wilderness,
- Examination of the potential Wilderness biodiversity and tourism value,
- Examination of the potential for enlargement of the proposed Wilderness,
- Development of a detailed itinerary of the Quick-Audit,
- Implementation of a 3-5 day field audit of the proposed Wilderness,
- Writing a European Wilderness Quality Standard Quick-Audit report
- Writing a short list of the main recommendations,
- Setting up a preliminary Wilderness Quality categorisation according to the European Wilderness Quality Standard and Audit System for a maximum of 5 years,
- Listing the audited Wilderness in the European Wilderness Network.

Step 3: The Full-Audit

European Wilderness Quality Standard Full-Audit

The European Wilderness Quality Standard Full-Audit is a systematic and professional examination for larger Wilderness focusing on a high quality of Wilderness and protected areas that are already dedicated to a Wilderness stewardship (management) approach.

A European Wilderness Quality Standard Full-Audit includes, in addition to the above mentioned Quick-Audit topics:

- Development of comprehensive maps and photos, depicting the visual highlights of the audited Wilderness,
- Development of a detailed scientific explanation of the European Wilderness Quality Standard and Audit System in the context of current Wilderness research,
- Development of the history of Wilderness protection in Europe,
- Development of the history of the audited Wilderness protection,
- Detailed explanation of the verification team and their itinerary,
- Development of a biodiversity description of the habitats of the audited Wilderness,
- Examination of the legal structure, the stewardship plan, the tourism and the educational programmes of the audited Wilderness,
- 6 months of research and desk work,
- A 12-14 day field audit of the potential Wilderness, including overnight stays in the area,
- Development of a 150-200 page Wilderness Audit Report, including a detailed SWOT analysis with site-specific recommendations for action,
- A Wilderness Quality categorisation according to the European Wilderness Quality Standard and Audit System for a period of 10 years,
- Comprehensive communication support with public relations, promotional material like flags, posters, brochures, etc.,
- Development of monitoring and evaluation plan,
- Certification and labelling valid for 10 years with a free monitoring audit after 5 years.

Wilderness Audit Report

The Wilderness Audit Report is the evaluation and outcome of the Quick- or Full-Audit. It is a comprehensive document summarising the results of the extensive Audit process, detailing a comprehensive list of specific recommendations for further improving the effectiveness of the Wilderness stewardship plan, and consequently the Wilderness quality. The basis of these recommendations is a comprehensive SWOT analysis examining all principles of the European Wilderness Quality Standard and Audit System with the help of the data collected during the Wilderness Audit.

Wilderness Audit Reports are shared with all European Wilderness Network partners, fostering a Network-wide exchange of best-practice Wilderness stewardship methods, and experience with the identification and handling of potential threats.

Wilderness Audit Recommendations

The objective of the recommendations is to give guidelines on the best course of action to continuously meet the European Wilderness Quality Standard. The main goal is to support the proper protection of the currently existing Wilderness, and to increase the quality and size of it in the future. The Wilderness Audit Recommendations provide support and guidance for Wilderness stewards to identify and counteract weak points of Wilderness stewardship. Each recommendation has a specific timeframe and priority adapted to its content and realistic feasibility. The implementation of these recommendations is voluntary, but vital for the maintenance and/or improvement of the Wilderness quality label. Consequently, this allows the Wilderness to remain within the European Wilderness Network.

Recommendations should be gradually implemented in the everyday work of the Wilderness stewardship. Their implementation or progress will be subject to random monitoring during the validity period of the Wilderness audit. The European Wilderness Society provides support and advice for the implementation of the given recommendations. It is possible to transfer the implementation of a recommendation to a project which can be jointly implemented with the European Wilderness Society and other relevant partners.

If any recommendations, or their priority or timeframe, are beyond the current ability or capacity of the Wilderness stewards, it is recommended to consult the European Wilderness Society and jointly work on a solution (e.g. resources, expertise or re-planning).

Step 4: The Monotoring

Monitoring and Re-Audit

Depending on the type of Audit carried out, a Re-Audit will be scheduled within a certain period of time of the initial audit. A Wilderness Pre-Audit is valid for 1-2 years, a Wilderness Quick Audit is valid for a period of 2-5 years whereas a Wilderness Full-Audit is valid for a period of 10 years from the day of awarding. Each area is visited regularly by the European Wilderness Society, either to monitor or to support the management of these areas.

In case serious shortcomings are detected, the Wilderness stewards will be given the chance to rectify those challenges within a reasonable period. Should the deficiencies continue and the Wilderness Quality significantly decrease, the European Wilderness Society is entitled to revoke the awarded Wilderness certificate after a probation period.

Fig. III-2: Fulufjället Wilderness, Sweden. Wilderness Audits include several field days in the Wilderness.

3.3. European Wilderness Network

As of early 2019, the European Wilderness Network has grown to over 41 members in 16 countries, with more than 300 000 ha of audited Wilderness. This network represents the best Wilderness across Europe and continues to expand every year.

The European Wilderness Network categories

- Wilderness – Wilderness with a mixed habitat and a minimum Wilderness zone size of 1 000 ha
- WILDCoast – Wilderness combining terrestrial, coastal and marine habitats
- WILDForest – Wilderness with a predominant forest habitat
- WILDIsland – Island with terrestrial, coastal and surrounding marine habitats
- WILDRiver – Wilderness along rivers and riverbank habitats

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 Wilderness zone. The surrounding landscape also influences how the visitors experience the area.

All categories, i.e. Wilderness, WILDIsland, WILDForest, WILDCoast and WILDRiver, in the European Wilderness Network are unique and represent the best and wildest places in Europe. They cover a multitude of different habitats, all governed by natural processes and non-intervention stewardship techniques, following the principles of the European Wilderness Quality Standard and Audit System.

Wilderness Quality Labels

The successful completion of the Wilderness Audit and Wilderness Report will conclude in a partnership in the European Wilderness Network, and the awarding of either a Wilderness Quality Diploma for Quick-Audits, or a Wilderness Quality Certificate for Full-Audits. An area will be labelled “Wilderness Candidate” after a Pre-Audit and “Wilderness” after a successful Quick- or Full-Audit.

There are four labels for Wilderness quality. Depending on a number of factors (size, stewardship, research, etc.) the Wilderness is labelled with a bronze, silver, gold or platinum Wilderness Quality Diploma or Certificate.

Wilderness size impacts many of the 54 criteria and therefore the larger the Wilderness is, in general, the higher the quality may be. Thus, there is no minimum Wilderness size as defining factor. Size is, like many other indicators, considered during the audit and labelling process.

Fig. III-3: Bronze-, Silver-, Gold and Platinum Wilderness-Categories

Areas with platinum or gold labels 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 restoration process, as considered in the Wilderness continuum (Rob Nash, 1985). For general communication purposes and easy understanding, the European Wilderness Society applies the term Wilderness for all categories, irrespective of the actual label.

Each audited area is assigned one of the five categories forming the European Wilderness Network. In each of the categories, the European Wilderness Society differentiates the Wilderness quality using the Bronze to Platinum labels, with Platinum being the most pristine and usually largest Wilderness.

Fig. III-4: The stewards of a potential Wilderness propose a Wilderness with a clearly defined boundary. Kalkalpen Wilderness, Austria

Marketing Support

The European Wilderness Society provides the European Wilderness Network Partner with an international communication and marketing strategy during the entire partnership, free of charge. As well as receiving marketing material to be used in their day to day activities for free, the Network Partner will also be listed on the official search engine optimised European Wilderness Network Website: www.european-wilderness.network. Each Network Partner will have its own page on this website, including information on the specific Wilderness, pictures, sustainable tourism information, and contact information.

- **European Wilderness Network Marketing Toolbox:** The European Wilderness Society provides the European Wilderness Network Partner with an international communication and marketing strategy during the entire partnership, free of charge. As well as receiving marketing material to be used in their day to day activities for free, the Network Partner will also be listed on the official search engine optimised European Wilderness Network Website: www.european-wilderness.network. Each Network Partner will have its own page on this website, including information on the specific Wilderness, pictures, sustainable tourism information, and contact information.

- **European Wilderness Exchange Programme:** The European Wilderness Exchange Programme offers selected representatives of the European Wilderness Network the opportunity to visit other Wilderness within the Network, to facilitate the exchange of personal experience, professional know-how, and to expand personal Wilderness networks. This also includes the International Fellowship Programme to visit partners outside of Europe, i.e. USA or Canada.

- **European Wilderness Academy Days:** A European Wilderness Network Partner receives one VIP ticket to attend the European Wilderness Academy Days – a regular network meeting. During the European Wilderness Academy Days, there will be a session dedicated to the Partners of the European Wilderness Network.

- **Literature and Publications:** A European Wilderness Network Partner has access to the European Wilderness Network Library, which consists of hundreds of documents on international Wilderness. Exclusively available for Network Partners and constantly updated with new literature by the European Wilderness Society, it includes for example: the European Wilderness Journal, Annual Report, WILD5 in multiple European languages, the European Wilderness Quality Standard or European Wilderness Standard Quick- and Full-Audit reports free of charge.

- **Sustainable Tourism and Wilderness:** The European Wilderness Society are working closely with Ecological Tourism Europe, to develop new, innovative sustainable tourism concepts and projects which are to be made available to the partners of the European Wilderness Network.

- **Personal visits:** Personal visits free of charge from the European Wilderness Society management and Wilderness team. During these visits the European Wilderness Society will support the Network Partner in identifying the Wilderness strengths, weaknesses, opportunities and threats (SWOT), using the standards of the European Wilderness Quality Standard Audit System. Should shortcomings be found, the European Wilderness Society will develop jointly with the Network Partner an action plan, with workshops and meetings to help and overcome these shortcomings.

- **Project partners:** Network Partners have the opportunity to become an official project partner in a European Wilderness project (funded for example through INTERREG, LIFE, National Ministries, Erasmus etc.) of the European Wilderness Society. It is also possible to jointly develop new projects in support of the Network Partners and Wilderness concept internationally.

- **Research partners:** Inclusion into an exclusive list of preferred locations for Wilderness research for international BSc. and postgraduate students.

- **Access to Dropbox:** Access to the European Wilderness Society Dropbox, containing all relevant documents, logos and examples that will support the Network Partner.

4. Wilderness

4.1. 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.

4.2. Wilderness functions

Wilderness performs several functions more efficiently than 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

4.3. 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 a 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

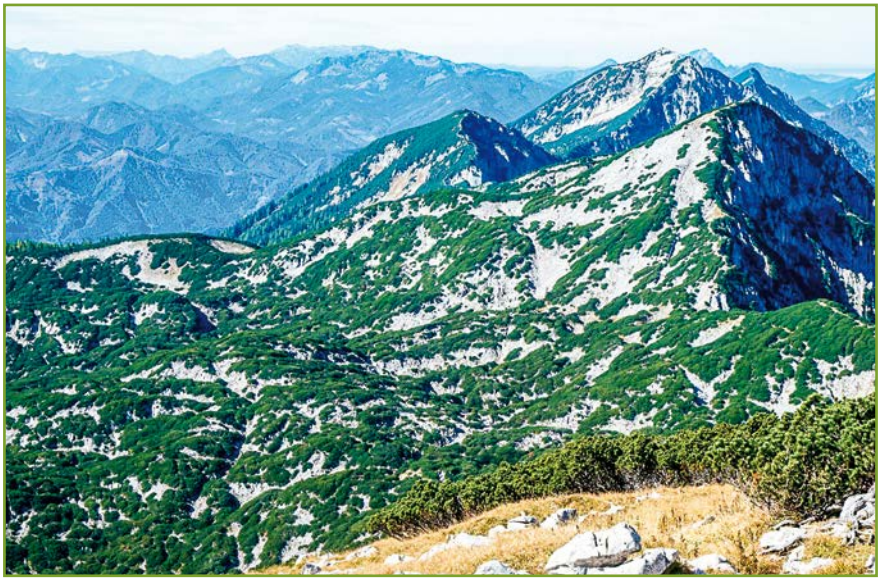


Fig. IV-1: The Wilderness concept has gained considerable momentum in Europe during the last 15 years. Kalkalpen Wilderness, Austria.

4.4. European Wilderness Society

The European Wilderness Society is a Pan-European, Wilderness and environmental advocacy organisation whose mission is to identify, designate, steward and promote European Wilderness in order to support its long-term existence, further development and restoration. The European Wilderness Society is an international organisation with numerous years of experience with Wilderness conservation in Europe. The European Wilderness Society is a member of several European organisations such as Wild Europe, UNEP, UNESCO, etc.

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

4.5. European Wilderness Network

Growing demand for more Wilderness in Europe led to the creation of the European Wilderness Network, showcasing some of the finest Wilderness in Europe. This network includes the best of European Wilderness from the Mediterranean up to the Arctic Circle, and from the Atlantic coast to the Ural Mountains. All members of the European Wilderness Network 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.

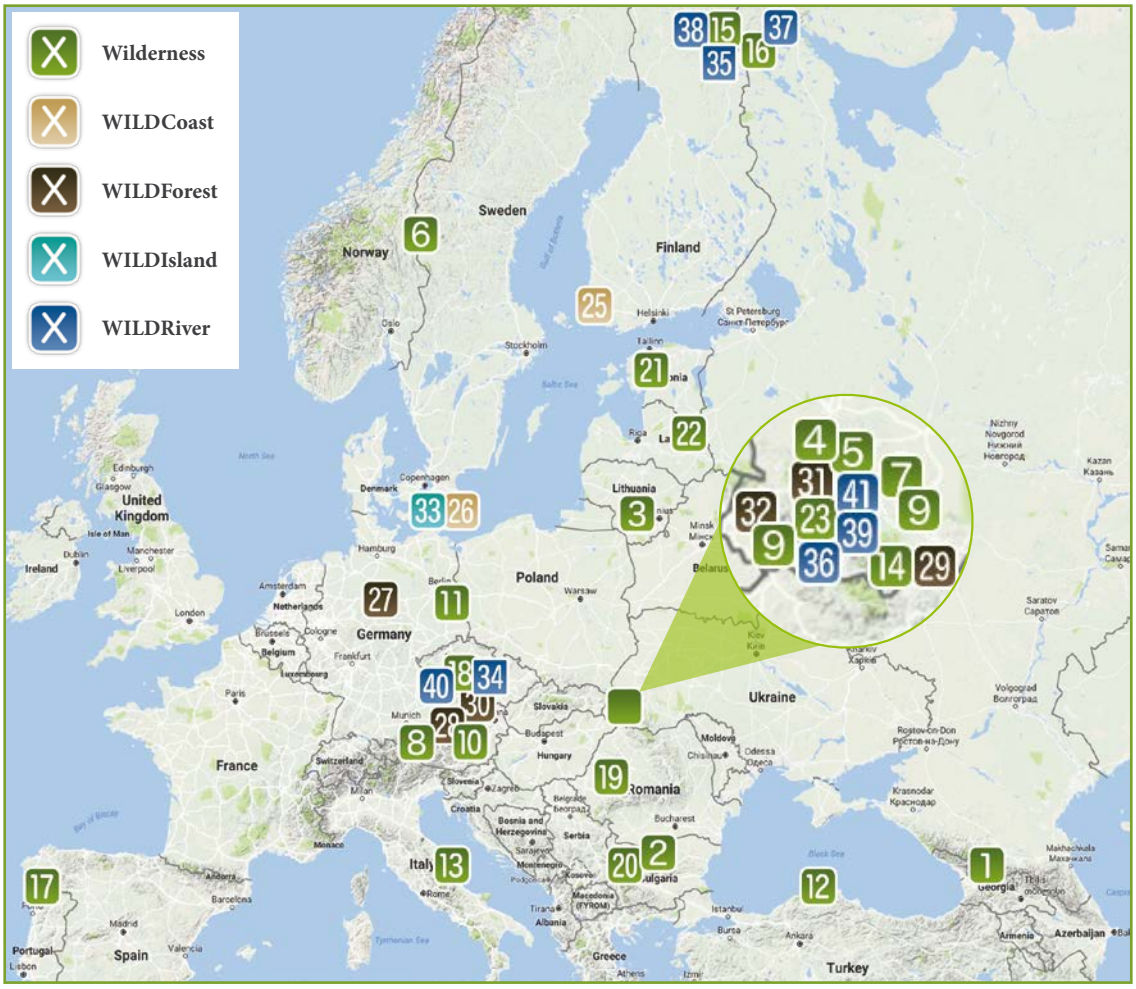
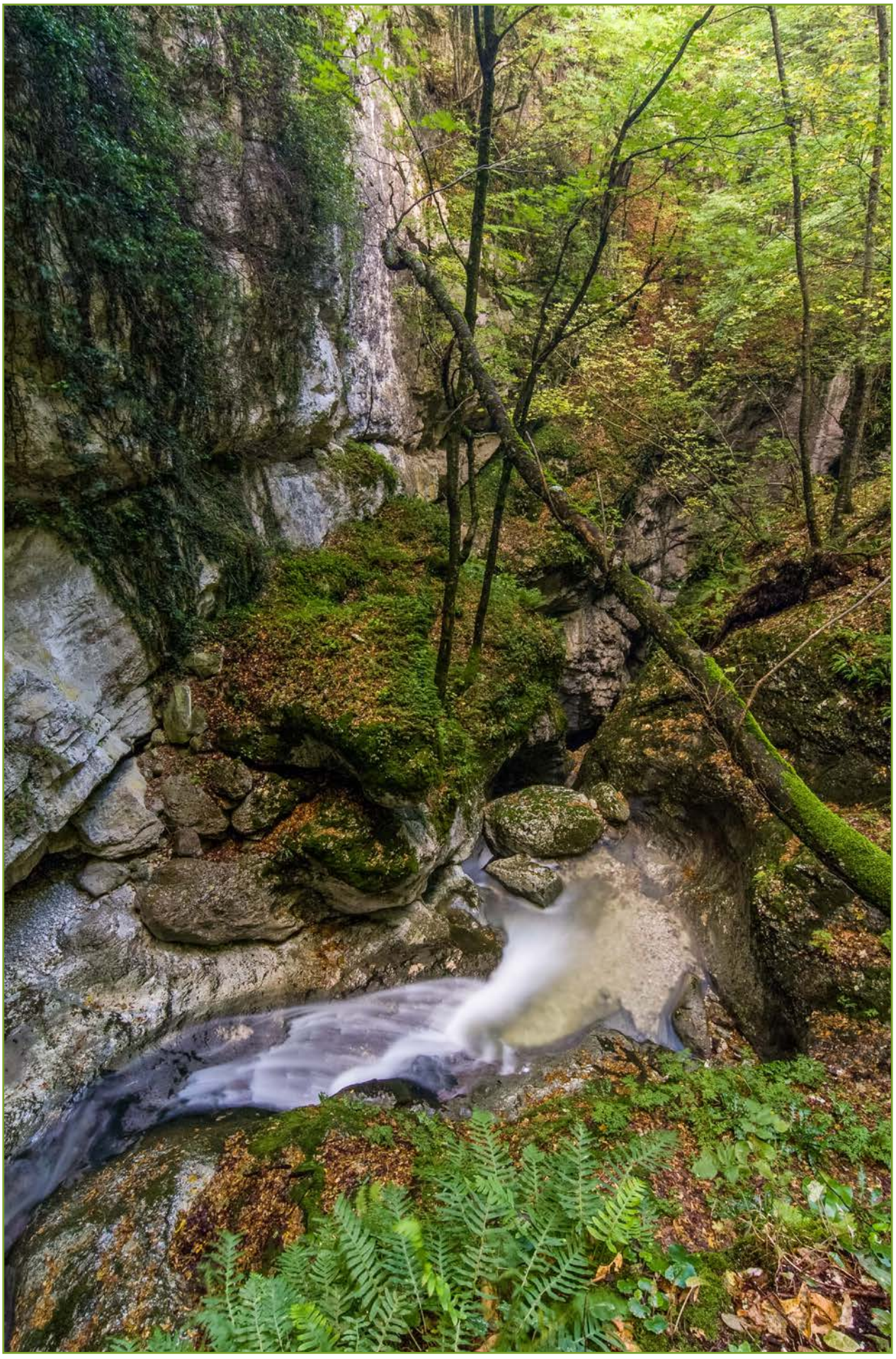


Fig. IV-2: European Wilderness Network 2019.



5. Audit Team and Itinerary

5.1. Audit Team

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

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

Verena Gruber; Wilderness auditor
Field of expertise: Wilderness and tourism use, implementation of European Wilderness Quality Standard and Audit System.

Nick Huisman; Wilderness auditor
Field of expertise: Biologist and large mammal specialist, project development and management.

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

Rebecca Hollely; Report development
Field of expertise: Biologist, content development, event management, layout.

Majella Wilderness Staff
Eremo Di Nino Director of Majella National Park (retired in November 2018),
Dr. Luciano Di Martino, Acting Director of Majella National Park
Giuseppe Marcantonio, Head of Agronomic Office and Wildlife Compensation
Giampiero Ciaschetti, Botanist and Field Manager
Valter Di Cecco, Botanist and Field Manager
Angelo Pietropaulo, Botanist and Field Manager
Antonio Antonucci, Head Office, Wildlife Conservation and Monitoring Unit

Majella Wilderness Lodging
Casa del Lupo, Caramanico Terme

5.2. Verification itinerary

- Data collection: May 2018 – September 2018
- Site audit: 25th to 28th May and 9th to 17th September 2018
- Data completion and verification: May - November 2018
- Preliminary report, writing, editing and layout: September - November 2018
- Final report writing, editing and layout: October – April 2019
- Final report printing and presentation: May 2019

5.3. Site assessment itinerary

Fig. V-1: Meetings with the director and managers of Majella Wilderness underline the commitment of all parties to protect Majella Wilderness.

Friday 25th May

Arrival of Max Rossberg and Nick Huisman at Orfento Valley Visitor Centre in Caramanico Terme, meeting with Giuseppe Marcantonio to discuss possible Re-Audit of Majella Wilderness, hike from Blockhaus to the area of Scrima Cavallo and first fountain on the way to Monte Amaro.

Sunday 27th May

Drive through National Park Majella with stop-over close to Bosco di Sant'Antonio forest, discussion of local livestock management practices and large carnivore management in Majella National Park with local sheep owners and shepherds.

Monday 28th May

Meeting in headquarters of Majella National Park in Sulmona with director Eremo Di Nino and Giuseppe Marcantonio to discuss Re-Audit of Majella Wilderness.

Fig. V-2: Managers of Majella Wilderness accompanied the verifiers during the field audit.

Sunday 9th September

Arrival of Vlado Vancura and Verena Gruber at Casa del Lupo in Caramanico Terme.

Monday 10th September

Arrival of Vlado Vancura and Verena Gruber at headquarters of Majella National Park in Sulmona, meeting with director Eremo Di Nino to present the European Wilderness Network and European Wilderness Quality and Standard Audit System, logistics of forthcoming verification, internal meeting with Giuseppe Marcantonio and Giampiero Ciaschetti to discuss and arrange logistical details of the forthcoming verification.

Discussed issues: Areas that will be verified, possible adaptations of size and zoning of Majella Wilderness, logistics and guides for upcoming field days.

Field trip to lower Orfento Valley in northern part of Majella Wilderness, former Riserva Naturale Orientata Valle dell'Orfento, starting from Casa del Lupo in Caramanico Terme.

Discussed issues: alteration and impacts to lower part of Orfento river due to touristic structures such as trails and bridges, water extraction, natural dynamic processes and spontaneous natural restoration in Orfento valley.

Tuesday 11th September

Field trip with Giuseppe Marcantonio to upper Orfento Valley starting from Decontra, visit of Hermitage of San Giovanni, round hike in Lama Bianca forest in north-western part of Majella National Park, former Riserva Naturale Orientata Lama Bianca di Sant'Eufemia a Majella.

Discussed issues: inherited traditional uses in other zones of the National Park, park management approaches to reduce these traditional uses within the National Park, co-operation with Carabinieri Forestale, forestry history, adaptation of Wilderness borders to increase Wilderness quality, research projects of Majella National Park.

Wednesday 12th September

Field trip with Valter Di Cecco and Angelo Pietropaolo starting in Fara San Martino to Cima della Stretta and lower part of the Valle di Macchia Lunga on the south eastern side of Majella National Park, former Riserva Natural Orentata Fara San Martino Palombaro.

Discussed issues: inherited traditional uses and phasing out of these uses in the core zone, water extraction, remnant of old-growth black pine forest, botanical monitoring and research of Majella National Park, management of natural dynamic processes in Majella Wilderness and Majella National Park core zone.

Thursday 13th September

Field trip with Giampiero Ciaschetti to Monte Porrone on southern side of Majella Wilderness starting in Campo di Giove.

Discussed issues: Local endemic and endangered fauna and flora, biodiversity of Majella Wilderness, research and monitoring activities of Majella National Park, history and intensity of use of the area, clear cuts, logging and touristic use in the surroundings, Wilderness potential of surrounding areas, potential vegetation of the area.

Friday 14th September

Presentation of European Wilderness Network and European Wilderness Quality Audit process to members of Majella National Park management at Majella National Park headquarters in Sulmona, meeting with director of Majella National Park to discuss outcomes of field Wilderness assessment and next steps of Re-Audit process, internal meeting with Giuseppe Marcantonio and Giampiero Ciaschetti.

Discussed issues: adaptation of borders of Majella Wilderness, next steps of Re-Audit process and contributing tasks of Majella National Park management.

Saturday 15th September - Sunday 16th September

Day 1: hike from Blockhaus to Monte Amaro via Bivacco Fusco, overnight stay in Bivacco Pelino on top of Monte Amaro.

Discussed issues: management of bivouacs and refuges in Majella Wilderness, in particular waste management, touristic infrastructure in Majella Wilderness, assessment of visual disturbances seen from the top of Majella Wilderness, assessment of noise and light pollution in Majella Wilderness, visitor numbers at Monte Amaro, co-operation with Alpine Club.

Day 2: hike down from Monte Amaro via Refuge Ciro Manzini and Bivacco Fusco to Blockhaus.

Discussed issues: implementation of European Outdoor Ethic principles in Majella Wilderness, assessment of visual disturbances seen from the top of Majella Wilderness, assessment of noise and light pollution in Majella Wilderness.

Fig. V-3: Discussing the final logistics of the field days for the Wilderness Audit.

6. Majella National Park

Majella National Park combines some of the most impressive, wild and extensive mountain ranges of the Apennines. It is well known due to its high biodiversity, resulting from the high elevation range within the park, starting at 130 m and reaching up to 2 793 m at Mt. Amaro. Numerous endangered, rare and endemic species live within Majella National Park.

6.1. Introduction

Majella National Park is located in the Central Apennines in Central Italy, approximately 170 km east of Rome. The National Park consists of four big orographic units, namely the calcareous Majella massif, Monte Morrone, Monte Porrara and Monte Pizzalto, connected by impressive valleys and karst plains. The Majella massif forms the centre of the National Park and the Majella Wilderness. Majella National Park includes numerous nationally and internationally important habitat types, such as mixed broadleaf forests, evergreen treeline habitats and alpine grasslands. Furthermore, Majella National Park hosts numerous historical and culturally important sites, such as hermitages and stone houses.

Fig. VI-1: Majella National Park is a vital part of Italy's natural heritage.

Despite the intensive and long historic use of the area, Majella National Park protects remaining patches of original Apennine ecosystems, such as pure and mixed beech forests, black pine forests, mugo pine (Pinus mugo Turra subsp. mugo) formations and alpine grasslands. The area hosts a wide diversity of landscapes and provides unique Wilderness experiences for visitors.

Majella National Park is situated in the Abruzzo region and stretches over six municipalities and 39 villages within the three provinces of Pescara, l'Aquila and Chieti.

The Majella Wilderness represents an outstanding example of wild and rewilding mountain and forest ecosystems in the Mediterranean. Majella Wilderness contains a large genetic reservoir, which many species depend on and can be associated with.

The proximity to the Grand Sasso National Park, the Abruzzo National Park and the Sirente-Velino Regional Park makes Majella National Park particularly valuable for ecological connectedness. Therefore, it is integral for the survival of rare and endangered species, such as the Apennine wolf (Canis lupus italicus), the Marsican bear (Ursus arctos marsicanus) or the Apennine chamois (Rupicapra rupicapra ornata).

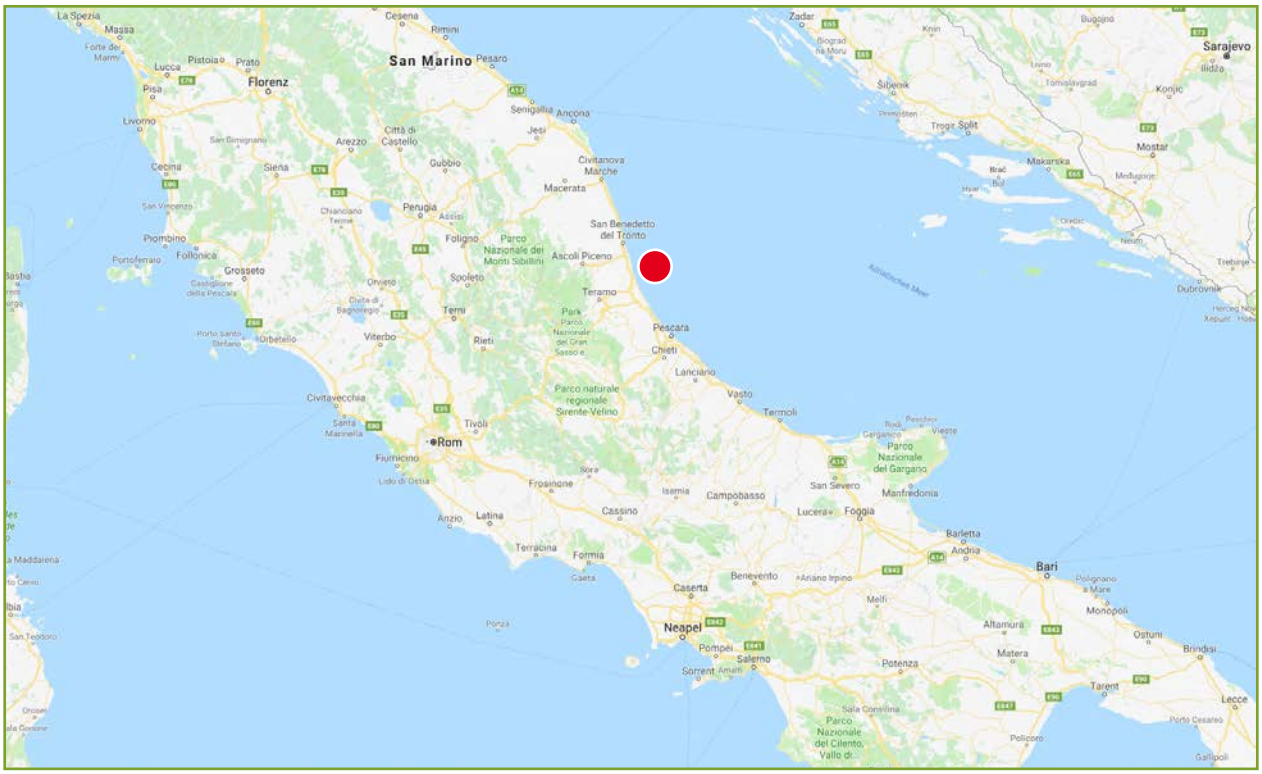


Fig. VI-2: Location of the Majella National Park, Italy.

Table VI-1: Majella National Park

Wilderness information	
Protected area	Majella National Park
Wilderness	Majella Wilderness
Wilderness Quality Standard	Platinum
Country	Italy
Size of the Protected Area	74 095 ha
Size of the Wilderness	25 895 ha
European Wilderness Quality Standard Audit	2018
Wilderness Uniqueness	Apennine mixed beech forests, rare fragment of old-growth black pine forest, alpine and subalpine calcareous grasslands, dwarf pine and rhododendron, deep canyons, large mammals (chamois, wolf, Marsican bear), and many endemic plant species
Number of visitors per year to the protected area	approx. 530 000
Number of visitors per year to the Wilderness	approx. 125 000

History of the Majella National Park

The Abruzzo region, including Majella National Park, has been inhabited since the Palaeolithic era, around 800 000 years ago. The beginnings of agriculture in the area can be traced back to the sixth and seventh millennium BC. Sheep farming became predominant in the Late Bronze Age. In the 3rd century AD Italian cities grew in importance and as a consequence the road network was improved. The Italian unification in the 19th century promoted the horizontal transhumance of cattle, which was improved and used till the beginning of the following century. However, the Italian unification also marked a change in the high mountain life of the Abruzzo region. The main reasons for this were brigandage, a decline in the sheep industry, the development of the industrial production, the exodus of the bourgeoisie and rising unemployment and emigration. The post-war period brought another wave of emigration to the mountainous region.

The current agricultural landscape of the Abruzzo region is the outcome of millennia of human presence and use of the area. The morphology of the Majella massif and its surrounding mountains lead to a diverse agricultural landscape. These traditional agricultural activities led to dramatic deforestation but simultaneously resulted in a remarkably high biodiversity, through the creation of secondary habitats to which numerous rare flora and fauna species are linked.

The high natural value of the area around the Majella massif was recognised in the early 1970s when the first nature reserve was established in the Orfento Valley. Today's territory of Majella National Park hosts five nature reserves that were established between 1971 and 1987 (Riserva Naturale Orientata Valle dell'Orfento 1971 - 1972; Riserva Naturale Orientata Feudo

Ugni 1981; Riserva Naturale Piana Grande della Majelletta 1982; Riserva Naturale Orientata Fara San Martino Palombaro 1983;; Riserva Naturale Orientata Lama Bianca di Sant'Eufemia a Majella 1987). The law to establish Majella National Park was passed in 1991 and the presidential decree to establish the park authority was passed in 1995. The newly formed Majella National Park integrated the five existing nature reserves within its territory. The Majella National Park management is located in Sulmona, on the western side of the National Park.

The forests of Majella National Park have been intensively used in the previous centuries. This significantly reduced the extent and structure, as well as functional complexity, of the forest ecosystems. Nevertheless, the forest surface area and structure has partially recovered in the last decades and it can be said that the current forest cover is the largest within the last century. The decline of agro-pastoral activities since the second World War significantly contributed to this development.

Today about 39% of Majella National Park is covered by forests, whereas around one third consists of shrublands. Temperate deciduous forests are predominant, whereby broadleaf mixed forests and beech forest are the major forest types in the National Park. In the higher elevations, shrublands of mugo pine (Pinus mugo Turra subsp. mugo) and juniper formations dominate.

Majella National Park hosts several old-growth forests characterised by large, old trees, a high amount of dead wood and high biodiversity. Some examples are the St. Antonio forest at Pescocostanzo and parts of the beech forest in the area of Palena and Pizzoferrato.

Fig. VI-3: The Orfento River has been protected since 1971 when the Riserva Naturale Orientata Valle dell'Orfento was established.

Geology and Geomorphology of Majella National Park

Some of the main features of Majella National Park are the gentle, high altitude karst plateaus. Mostly located in the sub-alpine and alpine zone, the plateaus are characterised by large areas of rocks and scree that have been shaped by the quaternary glaciations. The carbonate massifs and mountains of Majella Wilderness consist of limestone that originates in marine sediments. These sediments started to deposit about 100 million years ago. The orogeny dates back 5 million years to the Pliocene era.

The few rivers in the Majella National Park significantly shaped the landscape cutting deep into the limestone and forming steep gorges and valleys, such as the Orfento Valley in the northern part of the Park.

Karst processes re-shaped many of the glacially shaped forms, and the plateaus show numerous surface karst forms, such as dolines. The karstic geology of the Majella Wilderness gives the appearance that the limestone mountains are arid at high elevations. But on the contrary, the area is very rich in groundwater. Furthermore, there are more than one hundred caves around the Majella massif.

There are no glaciers or rock glaciers in Majella Wilderness anymore, however, some years ago sporadic permafrost was verified in the summit area of Monte Amaro

Fig. VI-4: Majella Wilderness is characterised and shaped by a high mountain climate..

Climate of Majella National Park

Majella National Park stretches over various climate zones, and consequently vegetation zones, from around 130 m in the lowlands up to 2 793 m on Monte Amaro. The park is oriented from NW to SE and is characterised by a typical mountain and high mountain climate with particularly abundant snowfalls. The average temperature in Caramanico Terme ranges from 21,2 °C in July, to 3,2 °C in January. The annual precipitation in Caramanico Terme is approximately 831 mm.

Habitats and Species of Majella National Park

The high relief energy within Majella National Park, in combination with the diverse mountain climate of the park, led to the development of a uniquely high habitat and species diversity. Dominated by mountains, the karst plateaus, karst caves, undisturbed mixed deciduous forests, shrublands and alpine meadows and grasslands are home to numerous rare, endangered and endemic plant and animal species.

Majella National Park is a biodiversity hotspot and the more than 2 000 vascular plants are particularly interesting for mountain botanists. The park hosts approximately 250 vertebrates from which more than 30 are internationally endangered. Species like the Marsican bear (Ursus arctos marsicanus), golden eagle (Aquila chrysaetos), Apennine chamois (Rupicapra rupicapra ornata), wild cat (Felis silvestris), Apennine wolf (Canis lupus italicus), peregrine falcon (Falco peregrinus) and the otter (Lutra lutra), who can be seen as an indicator species for intact ecosystems, can be found here.

Flora of Majella National Park

The flora of Majella National Park is outstandingly rich and all surveyed species amount for more than 65% of the Abruzzo flora and almost 30% of the Italian flora. In total this accounts for approximately 17% of European flora. In particular, in spring visitors can admire the numerous blossoming plants. The National Park is also known for its high number, 142 in total, of endemic species, of which five can only be found in Majella National Park: the Majella soldanella (Soldanella minima subsp. samnitica), the Majella cornflower (Centaurea tenoreana), the Fiori's butterwort (Pinguicula fiorii), the Majella hawksbeard (Crepis magellensis) and the Majella buttercup (Ranunculus magellensis). Nearly 300 plant species found in Majella National Park are included in the IUCN Red List of threatened species and are of national and international conservation importance.

The National Park also contains numerous relict species. Tertiary relicts include the European holly (Ilex aquifolium) and the spurge-laurel (Daphne laureola). Glacial relicts in the park can especially be found in high altitudes and are represented by the dwarf poppy (Papaver alpinum), capillary sedge (Carex capillaris), the elyna (Kobresia subg.), mountain avens (Dryas octopetala) and Alpine aster (Aster alpinus). The high altitude areas of the park also host species of the balchanic geographical element, such as the Apennine edelweiss (Leontopodium nivale), the Apennine gentian (Gentiana dinarica) and the Juniperus sabina.

There are two botanical gardens operated by Majella National Park. The work of these two botanical gardens focuses on the preservation and exchange of typical plants of the wider region of the Majella National Park.

Vegetation zones

The sub-montane zone in Majella National Park stretches from 600 m to 1 000 m, and is characterised by mixed deciduous forests. The montane zone between 1 000 m and 1 900 m is dominated by mixed beech forests. Other species in these beech forests are yew (Taxus baccata), holly (Ilex aquifolium), sorb (Sorbus domestica), maple, for example the Lobel's maple (Acer cappadocicum Gled. subsp. lobelii) which is endemic to the central-southern Apennines, turkey oak (Quercus cerris), hop hornbeam (Ostrya carpinifolia) and ash (Fraxinus spp.). Beech forests together with mugo pine (Pinus mugo Turra subsp. mugo) shrubs build the treeline in most parts of Majella National Park. The sub-alpine zone between 1 700 m and 2 300 m, and in some areas even higher, is characterised by mugo pine shrubs (Pinus mugo Turra subsp. mugo), juniper formations and other shrub species. The alpine zone is characterised by alpine meadows and grasslands, which were heavily used in the past but are now restoring to their natural state. The sporadic vegetation of the rock and scree fields and the cliffs of the high-alpine zone in the summit areas of the National Park is dominated by cushion plants and lichen.

Forest Habitats

Forests are the predominant habitat of Majella National Park and cover approximately 39% of the park territory. The most common forest types are beech forests, turkey oak forests, downy oak forests and hop hornbeam forests. In higher altitudes, the vitality of beech is increasing. In optimal ecological conditions, it will form the dominant community. Beech is a shade-tolerant tree, and the old beech forests have a thick closed canopy. Once the beech is present, other species have difficulties persisting in, and out competing the beech, however, in higher altitudes many other species become present.

Conifers in the park are represented by the mugo pine (Pinus mugo Turra subsp. mugo) and black pine (Pinus nigra var. italica), different juniper species, silver fir trees (Abies alba) and planted exotic coniferous trees. Evergreen holm oak (Quercus ilex) grows on steep slopes in lower altitudes. There are numerous plantations of native as well as exotic conifers scattered around the park.

The forests of Majella National Park are important habitats and feeding places for numerous species living in the park, such as the wolf (Canis lupus italicus), Marsican bear (Ursus arctos marsicanus), pine marten (Martes martes) and lynx (Lynx lynx), as well as many bird species like the northern goshawk (Accipiter gentilis).

Shrublands

Primary shrublands build the tree line in many areas. Secondary shrublands developed or are still developing after high-altitude forests were cut for grazing but are now abandoned. The most important species in the primary shrublands are mugo pine (Pinus mugo Turra subsp. mugo) and nana juniper (Juniperus procumbens) as well as bearberry (Pinemat manzanita). The secondary shrublands mostly consist of common broom (Cytisus scoparius), prickly juniper (Juniperus oxycedrus), common hawthorn (Crataegus monogyna), dog rose (Rosa canina), blackthorn (Prunus spinosa), common juniper (Juniperus communis), European raspberry (Rubus idaeus) and many more.

The shrublands are important habitats for numerous rare species such as the Ursini's Viper (Vipera ursinii) and offer food sources for many other species, such as the Marsican bear (Ursus arctos marsicanus) and many bird species.

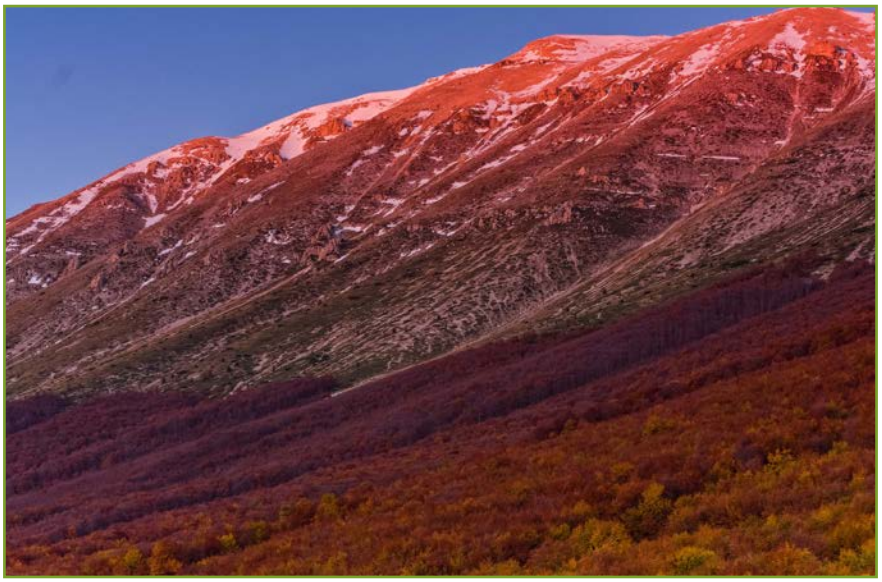


Fig. VI-5: The shrublands and grasslands of Majella Wilderness are important habitats for numerous rare species.

Subalpine and Alpine Grasslands

Grasslands cover nearly 30% of Majella National Park and are mostly located above the forested zone. These areas were heavily used in the past but have been left for natural spontaneous restoration since the grazing stopped. However, signs of this former use such as in the plant composition, are still visible in many places. In some areas the treeline has been artificially lowered by up to 200m and naturally forested areas are still dominated by grasslands. However, these areas are slowly reforesting and restoring to their natural state.

Tufted grasses dominate the grasslands in Majella National Park; the genera include Bromus,

Sesleria, Festuca, Stipa, Nardus and many more. These grasslands also host many of the flowers growing in Majella National Park, such as numerous orchids and rare and endemic species like the Majella cornflower (Centaurea tenoreana).

Grasslands are important feeding grounds for many of Majella's animal species such as the Apennine chamois (Rupicapra rupicapra ornata), rock partridge (Alectoris graeca), golden eagle (Aquila chrysaetos), red (Cervus elaphus) and roe deer (Capreolus capreolus) and many migrant bird species.

Water habitats

Due to the limestone geology of Majella National Park there are not many surface water bodies. However, the park shows numerous surface and underground karst forms, such as dolines and caves. Furthermore, there are several springs at the foot of the Majella massif fed by rainwater and melting snow in higher elevations. Only a few rivers are running through Majella National Park year round, most creeks only run seasonally. Mountain streams are the most common water bodies, such as the Avention river, Foro river, Lavino river, Orfento river, Orta river and the Vella river. In particular the upper watersheds of some of these rivers are mostly undisturbed and free flowing with a natural flow dynamic.

The only permanent lakes are the Ticino lake and the small Battista lake. Hosting numerous rare plants, such as big sedges, these two lakes are important habitats for migratory birds. Other important habitats for migratory birds are the wooden riparian vegetation that is dominated by different kinds of willows. Amongst others, the white willow (Salix alba), the rosemary willow (Salix eleagnos) and the Apennine willow (Salix apennina).

The otter (Lutra lutra) and the white-throated dipper (Cinclus cinclus) can still be found in the upper watersheds of some of these rivers, particularly in the Orfento and Orta rivers.

Caves

Majella National Park contains more than 100 caves formed through karstic processes. Some of these caves host stalactites and stalagmites, such as the Cavallone Cave which is open for visitors. The caves of Majella National Park have a constant temperature regime over the year, which together with the absent of light and the high humidity - between 80-90% - has led to the development of rare ecosystems. The entrances and lighter parts of the caves host numerous shade-loving plants, such as the Majella columbine (Aquilegia magellensis), moss and lichen. Inside the caves mostly only algae and fungi can be found.

Animals living in the caves are mainly invertebrates that adapted to these harsh ecosystems. However, some animals also use the caves for hibernation, such as the fox (Vulpes vulpes), pine marten (Martes martes), Apennine wolf (Canis lupus italicus), Marsican bear (Ursus arctos marsicanus), nocturnal birds of prey and of course bats. Numerous caves in Majella National Park also have a historical cultural value.

High mountain habitats

The high-alpine zone, also called the "Alpine tundra", as well as cliffs and vast areas of rocks and scree are the most extreme habitats of Majella National Park. These areas are characterised by a minimal soil layer and harsh climate conditions; meaning low temperatures, often below zero, strong winds, higher precipitation levels and a longer duration of snow cover.

The vegetation of these habitats consists of herbaceous and hardy plants, as well as small woody bushes adapted to the morphological and physiological conditions of the harsh climate. As competition among species is nearly absent in these areas, numerous rare and endemic species developed here. Amongst others are the Abruzzo jasmine (Androsace mathildae) and the Majella soldanella (Soldanella minima Hoppe subsp. samnitica).

These high mountain habitats are home to the Eurasian dotterel (Charadrius morinellus), white-winged snowfinch (Montifringilla nivalis) and the European snow vole (Chionomys nivalis). The cliffs of Majella National Park are home to numerous birds who use these cliffs for nesting, such as the golden eagle (Aquila chrysaetos), lanner falcon (Falco biarmicus) and Alpine swift (Tachymarptis melba). The Apennine chamois (Rupicapra rupicapra ornata) lives in the grasslands and scree areas of Majella National Park.

Fig. VI-6: Only highly adapted species can withstand the rough conditions in the high mountain habitats of Majella Wilderness.

Fauna of Majella National Park

Mammals

The fauna of Majella National Park was heavily impacted by hunting, forestry and agriculture before the National Park was established in the 1990s. The last chamois in the massif were killed in the 19th century and the deer, wolf and bear populations were drastically reduced. Efforts of the park management, the local community and local NGO's led to the implementation of several reintroduction projects which resulted in an improvement of the situation.

Nowadays, there are approximately 100 Apennine wolves (Canis lupus italicus), of which around 70 are collared, 3-4 steady Marsican brown bears (Ursus arctos marsicanus), of which one breeding female has recently been confirmed in Majella National Park. The forests of Majella National Park are also home to the lynx (Lynx lynx), pine marten (Martes martes), weasel (Mustela erminea), wild boar (Sus scrofa) and polecat (Mustela putorius). Important herbivores include more than 700 Apennine chamois (Rupicapra rupicapra ornata) and around 700-800 roe (Capreolus capreolus) and red (Cervus elaphus) deer.

The Apennine chamois (Rupicapra rupicapra ornata) was reintroduced to Majella National Park in 1991 and 1992. Around 30 individuals were set out from the Abruzzo, Lazio and Molise National Parks and have been closely monitored since then. The population has been doing extremely well and grown to around 700 individuals. This successful reintroduction project has significantly contributed to stabilising the overall population of the Apennine chamois (Rupicapra rupicapra ornata).

Fig. VI-7: The Apennine chamois was reintroduced to Majella National Park in 1991 and 1992.

Birds

The National Park is also an important area for birds, such as the golden eagle (Aquila chrysaetos), rock partridge (Alectoris graeca), wallcreepers (Tichodroma muraria), peregrines (Falco peregrinus), the rare lanner falcon (Falco biarmicus), alpine chough (Pyrrhocorax graculus) red-billed chough (Pyrrhocorax pyrrhocorax) and Eurasian Dotterel (Charadrius morinellus). The Northern Goshawk (Accipiter gentilis), European Honey Buzzard (Pernis apivorus), White-backed Woodpecker (Dendrocopos leucotos) and the Collared Flycatcher (Ficedula albicollis) can be found in the forests of Majella National Park.

Reptiles and Amphibians

The rare Ursini's Viper (Vipera ursinii) can be found in the areas of mountain pine and rocky grasslands between the Ugni Mountain, the Forcone Valley and the Majeletta-Blockhouse area. Majella National Park is also home to numerous salamander species, such as the Apennine fire salamander (Salamandra salamandra gigliolii) and the spectacled salamander (Salamandrina perspicillata). The Italian endemic Apennine yellow-bellied toad (Bombina pachypus) can also be found in the forests and open spaces from elevations between 240 m and 1 700 m.

Insects

Majella National Park hosts nearly all, over a hundred, diurnal butterflies of Italy and several hundred nocturnal butterflies. The deadwood of the old-growth and undisturbed forests offers important habitats for xylobionte insects.

Fig. VI-8: Rewilding pastures are important habitats for numerous animals and plant species.

6.2. Management of the Majella National Park

The mission of the Majella National Park is the protection of natural dynamic processes and its unique biodiversity. This involves monitoring and research of the flora and fauna as well as the conservation of rare, threatened and endemic species. Sustainable tourism and development are important tasks of Majella National Park as well, in particular ecological education, eco-tourism and recreation opportunities.

The National Park particularly focuses on improving the structure and function of its habitats. The natural restoration of formerly used and recently abandoned forest and grassland ecosystems to their natural state plays a crucial role in this process.

6.2.1. Structure of the Majella National Park

The Majella National Park is a contiguous piece of land consisting of the Majella Massif, Monte Morrone, Monte Porrara and Monte Pizzalto. The territory of the National Park spreads over the three provinces of Pescara, l'Aquilla and Chieti. It is in close proximity to the Abruzzo National Park, the Grand Sasso National Park and the Sirente-Velino Regional Park.

6.2.2 Zoning system

Zoning is the main management tool of the Majella National Park.

Zoning in the Majella National Park

The National Park is divided into five zones: the core zone also called 'the strict nature reserve', 'the general reserve', 'the zone of planned tourism' and 'agrosilvopastoral systems and the development zone'.

In the core zone (A), no human activities are allowed except for scientific research and sustainable, small-scale tourism, such as hiking. There is neither hunting nor fishing in this zone.

In the general reserve (B), only traditional occupations are allowed and all tourism activities are overseen by the park management.

The zone of planned tourism and agrosilvopastoral systems(C), mentioned activities and processes are authorised by the park management.

The development zone (D), includes built areas and all sustainable activities. This zone includes the residential development area (D1) and the touristic development area (D2).

Fig. VI-9: In the core zone (A), no human activities are allowed except for scientific research and sustainable, small-scale tourism, such as hiking.

Zoning in Majella Wildernesss

The European Wilderness Quality Standard and Audit System and the Majella National Park use different zoning systems. The European Wilderness Quality Standard and Audit System zoning system is based on the Definition of European Wilderness and Wild Areas, whereas the Majella National Park zoning system is based on Italian legislations.

The core zone of Majella National Park hosts Majella Wilderness. Majella Wilderness is zoned according to the European Wilderness Quality Standard and Audit System.

Land ownership

Majella National Park is owned by a variety of landowners, such as the surrounding municipalities, the Italian State and private owners. The territory of Majella Wilderness is managed according to the overall managing concept of Majella National Park. The five former Nature Reserves (Riserva Naturale Orientata) are managed by the Carabiniere Forestale. However, they act according to the National Park management strategy and operate in close co-operation with the Majella National Park management.

Management of the Majella National Park

The management of the Majella National Park has advanced Wilderness stewardship knowledge. This includes strict non-intervention management, a zoning system, maps, ecological corridors to the surrounded areas, a Wilderness focused communication concept as well as Wilderness focused research and monitoring, and seminars.

The Majella National Park has a committed management team which is led by a director who strongly supports the Wilderness concept. The park management has a strong Wilderness vision and their systematic work is based on a wide range of research based analyses with a focus to maintain and increase the unique quality of Majella Wilderness.

The National Park administration is organised in fourteen departments next to the director's office. The main administrative office of the Majella National Park is located in Sulmona.

The Majella National Park is an institution for science and research in nature protection of international significance. It is subordinate to the Ministry of the Italian Ministry of the Environment and Protection of Land and Sea and financed by the EU and state budget.

Management of Majella Wilderness

Non-intervention management and natural spontaneous restoration are the main objectives of the stewardship concept of the Majella Wilderness. The creation of a core zone with non-intervention management has been an objective since the beginning of the Majella National Park. This approach has been fully reconfirmed during the last audit mission and is in line with the European Wilderness concept and European Wilderness Quality Standard and Audit System.

Non-intervention management is still not a very common management approach in this area, which has been used and modified for thousands of years. However, the abandonment of landscapes that were previously used for forestry or agricultural activities opened up opportunities to let these areas rewild and restore in a natural way, without human intervention. The Majella Wilderness is a great example to underline the power of nature to restore itself, if granted enough time and space. The European Wilderness Society and the European Wilderness Network support this process by providing technical and communication support alongside international credit and visibility.

Due to the commitment of the entire management team, Majella Wilderness became a partner of the PAN Parks Network in 2005, which transformed to the European Wilderness Network in 2014. Since then, the management has been working closely with the European Wilderness Society on contributing to the implementation of Wilderness conservation.

Protection status

The Majella National Park is protected as a National Park according to the IUCN category II. It is protected by Italian law since 1991 and falls under the authority of the Ministry of the Environment and Protection of Land and Sea.

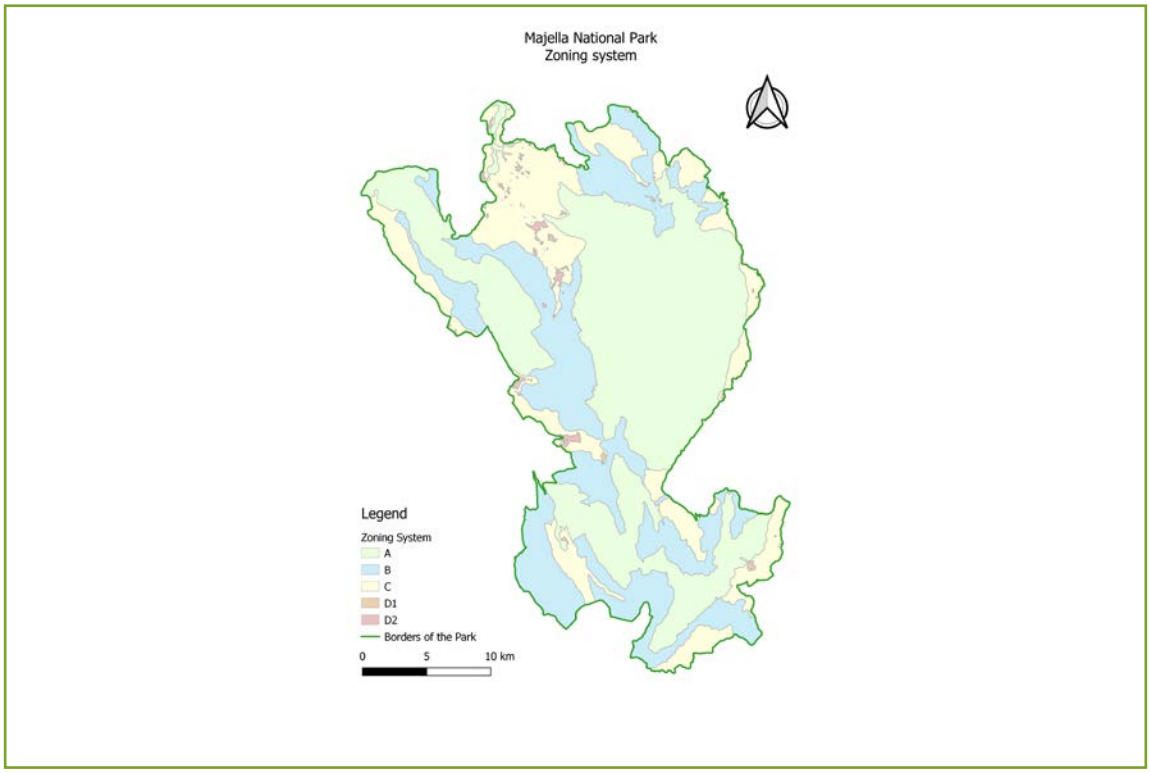


Fig. VI-10: Map of the territory of Majella National Park © Majella National Park

Research and Monitoring

Research and monitoring is an extremely important task of the Majella National Park management. The focus of research and monitoring lies on the unique floral composition of the park, large carnivores, herbivores, the monitoring of reintroduced species, and natural ecosystem dynamics. The park's management is committed to interfere as little as possible to the natural processes of the park.

Cooperation with Local People

The territory of Majella National Park spreads over 39 municipalities, with only three town centres and several small scattered settlements within the park boundaries. Tourism is the driving factor of these municipalities; traditional animal husbandry is still present but has been declining over the last few decades.

The Majella National Park management has been trying to phase out all uses in the core zone since the establishment of the park. Traditional small scale extensive uses, such as grazing and fire-wood collection, are allowed in the other zones of the park.

The National Park management co-operates with local NGOs concerning the touristic and educational work within the National Park. These co-operations support and create local job opportunities and benefit the sustainable development of the area.

Ecological Education

Majella National Park has a strong focus on the ecological education of visitors and locals. The Park management produces comprehensive information material concerning its fauna, flora and habitats. The National Park co-operates with numerous Italian universities for their research work.

The visitor centres and museum of the National Park provide information and interpretation programmes to local people and visitors.

Facilities for visitors

The National Park operates two botanical gardens that are open for visitors. All other visitor centres are operated by local NGO's such as Majambiente. The park operates the Casa del Lupo, an accommodation facility for visiting researchers, in Caramanico Terme.

The Majella National Park provides around 200 km of trails, the majority of which are for hiking, with some designated ones for biking or equestrianism. Some of these trails, like in the lower part of the Orfento valley, have information panels offering information about the area. There are numerous refuges and bivouacs scattered around the park.

International recognition

The Majella National Park is:
- an IUCN category II National Park (1991)
- a Natura 2000 area according to the Habitats and Birds Directive (1995)
- a member of the PAN Parks Network (2005)
- a partner of the European Wilderness Network (2014)

Research and monitoring is an extremely important task of the Carpathian Biosphere Reserve management. The focus of research and monitoring lies on natural ecosystem dynamics and on non-invasive monitoring methods. The reserve's management is committed to interfere as little as possible to the natural processes in the reserve.

Fig. VI-11: Majella National Park is protected as a National Park according to the IUCN category II.

7. Wilderness Internationally[1]

7.1. Global Wilderness

Globally, Wilderness is known as a large, unmodified or slightly modified protected area, which retains its natural character and influence, without permanent or significant human habitation. These Wilderness areas are protected and managed to preserve their natural condition.

The primary objective of Wilderness is to protect the long-term ecological integrity of natural areas that are undisturbed by significant human activity, free of modern infrastructure and where natural forces and processes predominate. These are rare areas where current and future generations have the opportunity to experience unmodified nature.

Distinguishing Features of Global Wilderness

- Wilderness is free of modern infrastructure, development and industrial extractive activities, including but not limited to roads, pipelines, power lines, mobile phone towers, oil and gas platforms, offshore liquefied natural gas terminals or other permanent structures, including mining, hydropower development, oil and gas extraction, agriculture including intensive livestock grazing, commercial fishing, low-flying aircraft etc., preferably with highly restricted or no motorised access.
- Wilderness is characterised by a high degree of intactness, containing a large percentage of the original extent of the ecosystem, complete or near-complete native faunal and floral assemblages, retaining intact predator-prey systems including large mammals.
- Wilderness areas have a sufficient size to protect biodiversity, to maintain ecological processes and ecosystem services as well as an ecological refuge. They act as a buffer against the impacts of climate change and maintain evolutionary processes.
- Wilderness offers outstanding opportunities for solitude, enjoyed, once the area has been reached, by simple, quiet and non-intrusive means of travel (e.g. non-motorised or highly regulated motorised access where strictly necessary and consistent with the biological objectives listed above).
- Wilderness is free of inappropriate or excessive human use or presence, which will decrease Wilderness values and ultimately prevent an area from meeting the biological and cultural criteria listed above. However, human presence should not be the determining factor in deciding whether to establish an IUCN category Ib area. The key objectives are biological intactness and the absence of permanent infrastructure, extractive industries, agriculture, motorised use, and other indicators of modern or lasting technology.

In addition, Wilderness also includes disturbed areas that are capable of restoration to a

[1] *https://www.iucn.org/theme/protected-areas/about/protected-areas-categories/category-ib-wilderness-area*

Wilderness state, and smaller areas that might be expanded or could play an important role in a larger Wilderness protection strategy, as part of a system of protected areas that includes Wilderness. This requires the management objectives for those somewhat disturbed or smaller areas to be consistent with the objectives set out above.

Where the biological integrity of a Wilderness is secure and the primary objective listed above is met, the management focus of the Wilderness may shift to other objectives, such as protecting cultural values or recreation, but only as long as the primary objective continues to be secure.

In many ways, Wilderness plays a similar role in the landscape/seascape to IUCN category II National Parks, by protecting large, functioning ecosystems or at least areas where many aspects of an ecosystem can flourish. Their particular roles include:

- Protecting large, mainly untouched areas, where ecosystem processes, including evolution, can continue unhindered by human activities, like development or mass tourism;
- Protecting compatible ecosystem services;
- Protecting particular species and ecological communities that require relatively large areas of undisturbed habitat;
- Providing a "pool" of such species to help populate sustainably-managed areas surrounding the protected area;
- Providing space for a limited number of visitors to experience Wilderness;
- Providing opportunities for responses to climate change, including biome shift.

An issue for consideration is the fact that some Wilderness areas include livestock grazing by nomadic peoples and distinctions may need to be made between intensive and non-intensive grazing. However, this will pose challenges if people want to increase stocking density.

Fig. VII-1: Globally, Wilderness is a natural environment that has not been significantly modified by human activity. Banff Wilderness, Canada.

7.2. Wilderness in Europe

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 'Ancient and Primeval Beech Forests of the Carpathians and Other Regions of Europe', or recent initiatives to promote Wilderness (e.g. Wild Europe Initiative, European Wilderness Society, etc. (Martin et al., 2008)).

Europe is not a continent where Wilderness survived the increased human development on a scale and quality such as in Canada, Africa or the United States of America. After thousands of years of shaping the European landscapes, the primeval imagination of European Wilderness is hardly achievable.

It is apparent that European Wilderness as a conservation concept requires the reflection of the current natural and spatial conditions, including the cultural context. Nevertheless, the European Wilderness concept builds on the existing IUCN Category Ia and Ib.

After that the main challenge becomes the implementation of the widely accepted and approved European Wilderness concept. Implementation involves combining the concept of the agreed Wilderness Definition[2] with the existing network of European areas dominantly on the IUCN Category Ia and Ib List and the EU Wilderness Register List.

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. The main features of these areas are that they have not or only been sparsely modified and that human activity is restricted. However, European Wilderness can be found in various stages of the Wilderness continuum[3].

Fig. VII-2: Wilderness in Europe is increasingly considered important for biodiversity, the ecological equilibrium, inspiration and recreation. Berezinsky Wilderness, Belarus.

2) https://wilderness-society.org/european-wilderness-definition/
3) https://wilderness-society.org/what-is-wilderness-continuum/

Wilderness is increasingly considered important for biodiversity, the ecological equilibrium, and also for solitude, inspiration, and recreation. In some European countries Wilderness is deeply valued for cultural, spiritual, moral, and aesthetic reasons. Increasingly more people believe that Wilderness is vital for human spirituality and creativity.

The team members of the European Wilderness Society have been developing the European Wilderness Network[4] for several years. This unique network of Wilderness areas audited according to the European Wilderness Quality Standard has now exceeded 300 000 ha.

The European Wilderness Society's objective for 2020 is to have 500 000 ha and by 2030 1 000 000 ha of audited Wilderness meeting the European Wilderness Quality Standard.

7.3. Wilderness in Italy

7.3.1. An overview

Italy has a long history of land use and a rich cultural past. This leads to the fact that nearly every piece of land has been used at some point in human history. However, many areas have been left to themselves for centuries, and others have been abandoned a few decades ago. Consequently, Italy hosts a variety of naturally restoring and rewilding areas.

Italy does not have a long tradition of protecting Wilderness. The concept of Wilderness is not commonly known and only a small number of people actively work to protect Italian Wilderness. One important effort is the protection of primeval and old-growth beech forests through the UNESCO World Heritage Site 'Ancient and Primeval Beech Forests of the Carpathians and Other Regions of Europe', which includes 10 sites in Italy.

There are several protected areas that host zones managed according to a non-intervention approach and are left to natural spontaneous restoration, scattered across Italy. These areas mostly consist of high mountain areas, alpine meadows or forests that host important habitats and species.

However, there are currently only two Italian Wilderness areas listed in the European Wilderness Network:

- Majella Wilderness in Majella National Park
- Velino Wilderness Candidate in Sirente-Velino Regional Park

4) http://european-wilderness.network/

Within Southern Europe, the Abruzzo Mountains in Central Italy are one of the most promising regions for natural rewilding of previously used areas. Being subject to intensive use for thousands of years, the remoteness and difficult accessibility of many areas led to the abandonment of vast meadows and forest areas. This offers a big potential for spontaneous naturally rewilding.

The Abruzzo Region spans from the Adriatic Sea to high mountains reaching up to nearly 3 000 m and combines mountainous and alpine landscapes with coastal areas. This combination led to an impressively high number of habitats and species. Many endangered and endemic plants and animals can be found in the diverse ecosystems of this region. Therefore, Wilderness can be an important tool in the protection of these diverse, untouched, and naturally rewilding areas in the Abruzzo Region.

The Abruzzo Region hosts three National Parks, one Regional Park and numerous nature reserves: The Abruzzo National Park, the oldest National Park of the Apennines, the Gran-Sasso National Park, hosting Europe's southernmost glacier the Calderone, Majella National Park and Sirente-Velino Regional Park, both hosting Wilderness. Together these protected areas protect around one third of the region's territory. This high percentage of protected areas makes the Abruzzo region unique within Italy and particularly valuable within Europe.

Approximately 75% of Europe's plant and animal species are represented in the Abruzzo region. Several rare and endangered, as well as endemic species, such as the Eurasian dotterel (Charadrius morinellus), golden eagle (Aquila chrysaetos), Abruzzo chamois (Rupicapra rupicapra ornata), Apennine wolf (Canis lupus italicus) and Marsican bear (Ursus arctos marsicanus), live in the region.

Fig. VII-3: Velino Wilderness in Sirente-Velino Regional Park in the Abruzzo Region.

7.3.2. Protected Areas Network in Italy

Italy has a Protected Area Network classified by law which consists of National Parks, Regional and Interregional Nature Parks, Nature Reserves, Wetlands of International Importance (Ramsar), Land and Marine Potential Park Areas, and other protected natural areas including areas not classified in the other categories. National Parks and Marine Areas fall under the authority of the Italian Ministry for the Environment and the Protection of Land and Sea. Regional Parks are run by the regional administrations. Some reserves fall under the authority of the Italian Ministry for Agricultural Policy. Furthermore, Italy hosts several Biosphere Reserves and UNESCO World Heritage sites. In general, the areas correspond to the internationally recognised IUCN protected area categories[5] . All protected areas combined cover approximately 11% of the territory of Italy.

National Parks

National Parks are environmentally protected, scientific-research institutions of state-wide and international status. Their intention is to protect ecosystems that are either intact or only partially degraded and host physical, geological, geomorphological or biological formations of national or international importance. Their objective is to preserve the natural, scientific, aesthetic, cultural, educational and recreational values of an area for present and future generations.

National Parks are protected from commercial use and are granted protection under Italian law. Their main objective is the conservation of natural complexes and specific features as well as to conduct scientific research and monitoring, to disseminate environmental awareness, communication and interpretation.

Regional Parks

Regional Parks are environmentally protected, scientific-research, recreational institutions of state-wide status that host areas of great natural and environmental value. They derive their value from natural, scenic, artistic and cultural assets and traditions of the area.

Nature Reserves

Nature Reserves are environmentally protected, recreational institutions of regional or state-wide status and importance. They contain one or more animal or plant species or ecosystems of conservation importance for biodiversity or the conservation of genetic resources. The objective of these nature reserves is to guide and control management measures appropriate to the environmental conditions. The management does not only focus on the preservation of nature but also on the development of the overall natural potential of the area.

[5] *http://www.iucn.org/about/work/programmes/gpap_home/gpap_quality/gpap_pacategories/*

7.4. Majella Wildernesss

The 25 895 ha large Majella Wilderness lies within the Majella National Park, located in the southern Abruzzo Region in Central Italy, approximately 170 km east of Rome. Majella Wilderness is home to some of the most impressive, wild and extensive mountain ranges of the Apennines. The Wilderness combines forest and mountain ecosystems reaching up to 2 793 m at its highest peak Monte Amaro.

Majella Wilderness consists of the Majella massif and the massif of Monte Porrara, which are surrounded by valleys and karst plateaus.

The Majella Wilderness represents an outstanding example of wild and naturally rewilding mountain and forest ecosystems in the Mediterranean. The area has a high biodiversity hosting numerous rare, endangered and endemic species. Majella Wilderness contains a large genetic reservoir on which many species depend and can be associated with.

The Majella Wilderness is an area of great international importance and a regional and Europe-wide hotspot for biodiversity, which depends on spontaneous natural processes and ecosystem dynamics. It contains representatives of flora and fauna typical for the Apennine mountains.

7.4.1. History of the Majella Wilderness

Thousands of years of human presence and use significantly shaped the landscapes in and around Majella Wilderness. Sheep and cattle farming significantly shaped the life in this part of the Abruzzo region and signs of these agricultural and forestry activities are still visible. In many areas of the Majella National Park the traditional agricultural activities resulted in a remarkably high biodiversity, creating secondary habitats to which numerous rare flora and fauna species are linked.

However, the decline of agro-pastoral activities since the Second World War significantly contributed to the recovery of the dramatically reduced forest surface and heavily impacted forest structure. Due to this successful recovery of the forests in the last decades the current forest extent is said to be the largest within the last century.

Fig. VII-4: Signs of these past forestry activities are still visible today, for example recovering coppiced forests.

Today the forests of Majella Wilderness are dominated by mixed broadleaf forests, predominately beech forests, which are replaced by mugo pine (Pinus mugo Turra subsp. mugo) and juniper shrublands in higher elevations. Majella Wilderness also hosts remnants of old-growth forests, such as in the St. Antonio forest in Pescocostanzo and old-growth beech forests around Palena and Pizzoferrato. Additionally, Majella Wilderness includes fragments of native black pine forest, such as in the St. Spirito Valley in the municipality of Fara san Martino.

The decline of agricultural activities and the abandonment of agricultural land and forests due to emigration from the mountainous regions of the Abruzzo region lead to the natural rewilding of many areas. The high natural value of these naturally and spontaneously restoring and rewilding areas together with old-growth forests were already recognised some decades ago. They formed the basis for the establishment of five Nature Reserves:

- Riserva Naturale Orientata Fara San Martino Palombaro and
- Riserva Naturale Orientata Feudo Ugni.
- Riserva Naturale Orientata Lama Bianca di Sant'Eufemia a Majella,
- Riserva Naturale Orientata Valle dell'Orfento,
- Riserva Naturale Piana Grande della Majelletta,

These reserves were combined within the Majella National Park in 1995.

The Majella National Park joined the PAN Park Network in 2005 as a partner, and audits of Majella Wilderness were carried out between 2005 and 2009. In 2014 Majella Wilderness was transformed to the European Wilderness Network, the next step of the PAN Park Network. In 2018 Majella Wilderness underwent a Wilderness Re-Audit mission.

7.4.2. Habitats of Majella Wilderness

Majella Wilderness is characterised by the contrast of gentle, high altitude karst plateaus, steep cliffs and deep, narrow gorges. The slopes are covered by undisturbed forests and vast formations of coniferous shrublands and alpine grasslands. The typical mountain and high mountain climate in combination with the high relief energy within Majella Wilderness result in a uniquely high habitat and species diversity. Majella Wilderness hosts numerous rare, endangered and endemic species and is also home to several tertiary relict species.

Majella Wilderness Forest Types

Forests represent the most natural and undisturbed ecosystems of Majella Wilderness. The deciduous forests of Majella Wilderness mainly consist of beech forests (Fagus), turkey oak forests (Quercus cerris), downy oak forests (Quercus pubescens) and hop hornbeam forests (Ostrya virginiana). Riparian hygrophilous forest formations with a single relict group of silver birch (Betula pendula) can be found as well. Evergreen plants in the Wilderness include mugo pine (Pinus mugo Turra subsp. mugo), rare remnants of old-growth black pine forest (Pinus nigra var. italica), juniper forests (Juniperus communis var. saxatilis), various types of reforested conifers and holm oak (Quercus ilex) on steep grounds at lower altitudes.

Beech wood is the most widespread physiognomic typology. This forest type is present in the sub-montane and montane zone between 900 m - 1 800 m. At lower altitudes oak woods and thermophilic mixed deciduous forest can be found whereas the forest in higher altitudes, in areas up to 2 400 m, consist of subalpine shrubs, composed of prostrate mugo pines (Pinus mugo Turra subsp. mugo), alpine juniper (Juniperus communis var. saxatilis) and pinemat manzanita (Arctostaphylos uva-ursi).

Fig. VII-5: Beech wood is the most widespread physiognomic typology and is present between 900 m - 1 800 m.

The mugo pine (Pinus mugo Turra subsp. mugo) formations of Majella Wilderness represent the most extended population within the Apennines. The population has a high importance in regard to its biogeographical and conservation aspect as this is the southern limit of the distribution of the rare species. The Lobel's maple (Acer lobelii), an endemic species linked to beech forests, has its northern limit within the Adriatic side of the National Park.

Characteristics of rewilding forests

The majority of forests in Majella Wilderness have been used to some extent in the past. In some forests naturally restoring coppice can still be found. Others have been without any human interventions for decades and are dominated by open-ended natural dynamic processes. A high percentage of old trees, deadwood and native species composition underline the high importance of these rare undisturbed forests.

Old-growth forests

Majella National Park host several undisturbed, partial remnants of old-growth forest. Big trees up to several hundred years old and a high volume of deadwood characterise these mostly remote and inaccessible forests. Most of these remnants are not larger than 50 - 100 ha. Broken and dead trees are a key habitat feature of old-growth forests, and form ideal ecosystems for numerous fungi, moss and lichens. These undisturbed forests are important refuges for many shy animal species living in Majella National Park, such as the lynx (Lynx lynx), the wildcat (Felis silvestris) and the white-backed woodpecker (Dendrocopos leucotos).

Remnants of old-growth black pine forest

Majella Wilderness hosts some small remnants of Apennine primeval old-growth black pine forest (Pinus nigra var. italica). These rare remnants can be found in steep inaccessible slopes above deep canyons in the Orfento valley and close to the village of Fara San Martino. Particular the latter is noteworthy. This 145 ha large forest is located on a steep wall on the Cima della Stretta close to the village of Fara San Martino. The black pine population of this particular forest can be labeled as native to this location. Due to the steepness of the wall and the resulting difficult accessibility, human activities in this forest were very rare. Dendrochronological analysis found a tree on the wall of Cima della Stretta with a circumference of over four meters that exceeds 700 years. Natural black pine forests are very rare in the Apennines and the stands of Majella Wilderness are among the best preserved ones. The high age of the trees and inaccessibility make these remnants of untouched and wild old-growth black pine forest particular valuable for Majella Wilderness and all of Italy.

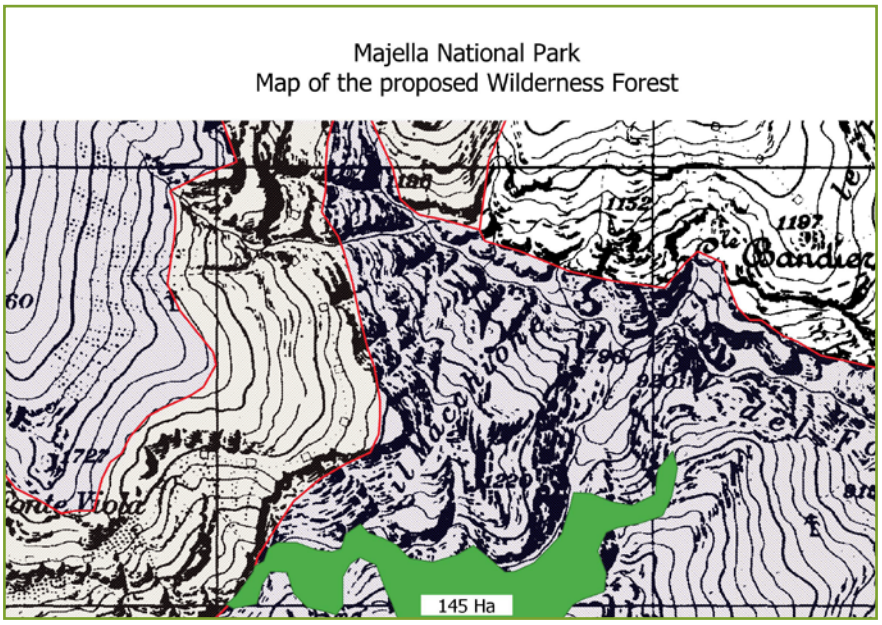


Fig. VII-6: Location of the old-growth black pine forest (Pinus nigra var. italica) in Majella Wilderness.

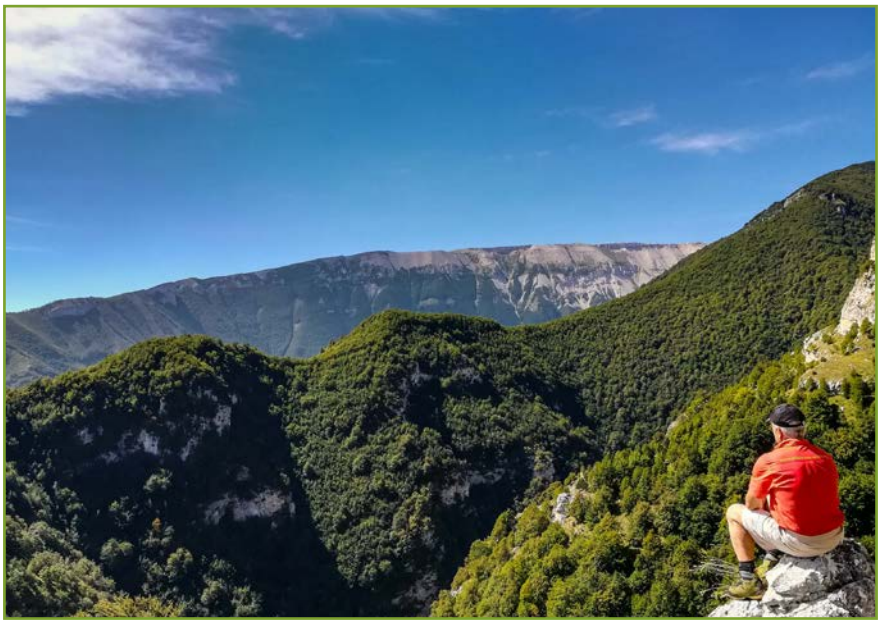


Fig. VII-7: The black pine forest on the Cimma della Stretta is a rare relict of native black pine forest.

Inhabitants of Undisturbed Forests

Majella Wilderness hosts around 10 packs of Apennine wolves (Canis lupus italicus) as well as 3 - 4 steady Marsican brown bears (Ursus arctos marsicanus). The forests of Majella Wilderness are also home to the elusive wildcat (Felis silvestris) and pine marten (Martes martes). The rivers of Majella Wilderness, such as the Orfento river, are again home to the otter (Lutra lutra). Important herbivores include more than 700 Apennine chamois (Rupicapra rupicapra ornata) and around 700 - 800 roe (Capreolus capreolus) and red (Cervus elaphus) deer.

Majella Wilderness also offers suitable habitats for numerous birds, such as the golden eagle (Aquila chrysaetos), rock partridge (Alectoris graeca), the alpine (Pyrrhocorax graculus) and the red-billed chough (Pyrrhocorax pyrrhocorax) and the Eurasian Dotterel (Charadrius morinellus). The natural and rewilding forests of Majella Wilderness are home to the Northern Goshawk (Accipiter gentilis), European Honey Buzzard (Pernis apivorus) and the White-backed Woodpecker (Dendrocopos leucotos).

Deadwood Specialists

Old trees and deadwood are essential habitats for many typical forest species. Without deadwood, many types of fungi, moss, lichen and insects present in Majella Wilderness would have no basis for existence.

Above the forests

Shrublands build the treeline in most parts of Majella Wilderness. They are dominated by mugo pine (Pinus mugo Turra subsp. mugo) and nana juniper (Juniperus procumbens) but also consist of bearberry (Pinemat manzanita), the common broom (Cytisus scoparius), the prickly juniper (Juniperus oxycedrus), the common hawthorn (Crataegus monogyna), the dog rose (Rosa canina), the blackthorn (Prunus spinosa), the common juniper (Juniperus communis), the European raspberry (Rubus idaeus) and many more.

Above the shrublands these habitats are replaced by alpine grasslands. Most of these areas have been heavily used in the past but have been left for natural spontaneous restoration since the grazing stopped. However, today's plant composition still reflects these former uses. Another visible sign of the centuries-long grazing of these high mountain areas is the lowering of the treeline by up to 200m. Shrubs and newly developing forest are slowly taking back these deforested areas. The alpine grasslands of Majella Wilderness are dominated by tufted grasses and the numerous flowers, many of them rare or endemic, growing in the Wilderness.

The shrublands and grasslands of Majella Wilderness are important feeding grounds for many of the animals living in these rare high altitude habitats. In particular the Apennine chamois (Rupicapra rupicapra ornata), the Marsican bear (Ursus arctos marsicanus), numerous birds such as the golden eagle (Aquila chrysaetos), the rock partridge (Alectoris graeca), and migratory birds depend on these habitats. These areas also offer important habitants for reptiles and amphibians such as the rare Ursini's Viper (Vipera ursinii), the Apennine fire salamander (Salamandra salamandra gigliolii) or the spectacled salamander (Salamandrina terdigitata).

The Alpine Tundra of Majella Wilderness

The "Alpine tundra" of Majella Wilderness is characterised by vast fields of scree and rocks and harsh climate conditions. Only herbaceous and hardy plants are able to survive in this environment. Examples of these often rare and endemic plants are the Abruzzo jasmine (Androsace mathildae) and the Majella soldanella (Soldanella minima Hoppe subsp. samnitica).

The peaks of Majella Wilderness are home to species such as the Apennine chamois (Rupicapra rupicapra ornata), Eurasian dotterel (Charadrius morinellus), white-winged snowfinch (Montifringilla nivalis) and the European snow vole (Chionomys nivalis). The steep cliffs offer important nesting grounds for numerous birds, such as the golden eagle (Aquila chrysaetos), lanner falcon (Falco biarmicus) and Alpine swift (Tachymarptis melba).

Hydrology of Majella Wilderness

The limestone geology of the Majella massif led to an abundance of springs, karst caves, underground and surface karst forms, such as dolines. There are only a few year round rivers and several seasonal creeks flowing through Majella Wilderness. These rivers, namely the Avention river, Foro river, Lavino river, Orfento river, Orta river, and the Vella river formed impressive deep gorges in the Wilderness. The upper watersheds of these rivers are still mostly undisturbed and free flowing with a natural flow dynamic. Consequently they are some of the most valuable habitats within the Majella Wilderness. Many rare species, such as the otter (Lutra lutra) and the white-throated Dipper (Cinclus cinclus), still live in these undisturbed upper watersheds.

Fig. VII-8: Due to the limestone geology, there are only a few year round rivers and several seasonal creeks flowing through Majella Wilderness.

Access to Majella Wilderness

Majella Wilderness is a well-known destination for local and international visitors, with over 125 000 visitors per year. Spectacular canyons, dense beech forests and mountain peaks provide extraordinary Wilderness experiences. Majella Wilderness contains several marked trails for hiking, biking and equestrianism. It is in easily accessible location for tourists, approximately 170 km east of Rome. In particular, Monte Amaro (2793 m), the second highest peak of the Apennines, is a magnet for tourists year round. Two bivouacs and one refuge on the way up to the peak offer infrastructure for visitors.

8. Implementation of the European Wilderness Quality Standard and Audit System in Majella Wilderness

8.1. Principles of the European Wilderness Quality Standard and Audit System

The nine European Wilderness Quality Standard and Audit System principles are divided into 54 criteria and over 300 indicators. Each area is assigned one of the four categories forming the European Wilderness Network: bronze, silver, gold or platinum. Areas of platinum or gold category are in general larger and contiguous. Areas of silver or bronze category are in general smaller and more fragmented, although it is the overall quality of the Wilderness that leads to the overall categorisation of Wilderness.

Table VIII-1: The nine European Wilderness Quality Standard and Audit System principles

Principles
1. Wilderness size and zoning
Wilderness does not depend on a minimum size. Wilderness has a defined boundary and should have three zones: The Wilderness zone (where there is no human intervention and natural dynamic processes govern), the Restoration zone (where restoration and/or expansion is undertaken), and the Transition zone (which acts as a buffer between the Wilderness and surrounding areas).
2. Natural processes and biodiversity
Wilderness has a Wilderness zone, where dynamic open-ended natural processes can take place without human intervention, in order to contribute to the conservation of threatened species of that region and to become a leading example of an undisturbed habitat.
3. Wilderness stewardship
Wilderness Stewardship is a holistic approach to Wilderness management where managers first determine whether there is the need for any management action before implementing an action plan.
4. Wilderness restoration
Wilderness restoration is an intentional activity that initiates or accelerates the recovery of a 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. These activities should be implemented once and not continuously.

5. Wilderness and extractive and intrusive uses
The European Wilderness definition stipulates that the Wilderness zone is an area without extractive or intrusive uses.
6. Wilderness disturbance
This principle focuses on the removal of permanent and temporary infrastructure, creating well-planned tourism access with minimal impact and regulating and limiting road access to the Wilderness, in order to reduce the human impact in the Wilderness zones.
7. Natural dynamic processes
Natural dynamic processes, such as windstorms, fire, disease outbreaks or avalanches, are a critical aspect of Wilderness and are important sculptors of landscape and habitats. These processes should be given freedom in the Wilderness, without human influence. However, they are often considered problematic and undesirable by humans.
8. Wilderness research and monitoring
Wilderness offers opportunities to study the unique attributes of nature and natural processes. High quality Wilderness research and monitoring allows park managers to make appropriate decisions regarding the Wilderness. Research and monitoring activities should never be invasive in their character
9. International relevance and importance of the Wilderness
The importance of Wilderness is finally being recognised in Europe. More people and initiatives are beginning to work to protect and expand Wilderness. A Wilderness should be internationally recognised by the IUCN, UNESCO, EU, for example, as well as other relevant international organisations.

Zoning of the European Wilderness Quality Standard and Audit System

The European Wilderness Quality Standard and Audit System and the Majella National Park use their own zoning systems. The European Wilderness Quality Standard and Audit System zoning system is based on the Definition of European Wilderness and Wild Areas. The Majella National Park zoning system is based on the Italian legislation. The following table shows the compatibility of the two systems.

For the purpose of this report the Majella Wilderness is zoned according to the European Wilderness Quality Standard and Audit System.

Table VIII-2: Compatibility of the European Wilderness Quality Standard and Audit System and the Majella National Park zoning systems.

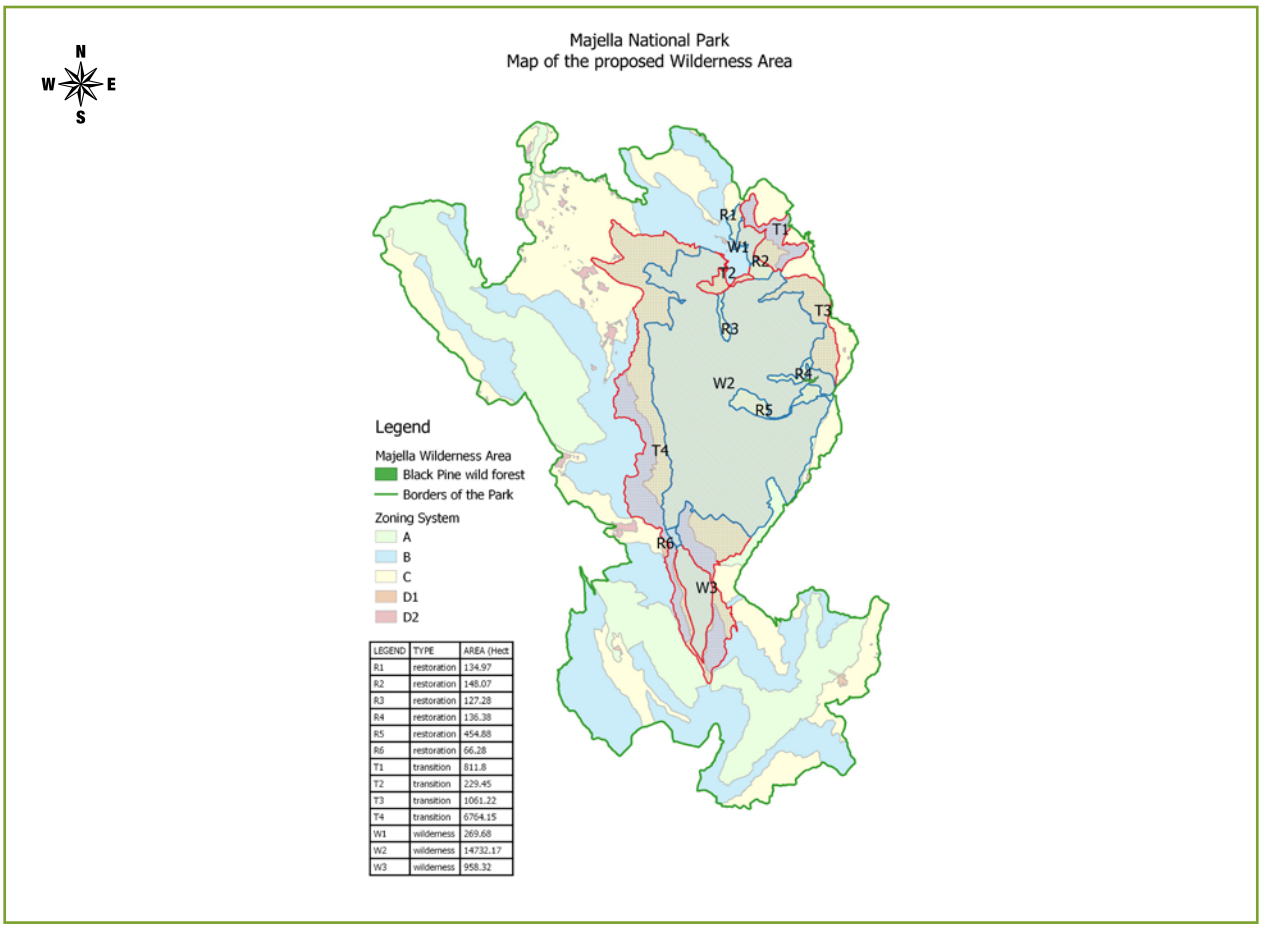
	European Wilderness Quality Standard and Audit System (EWQA)	Majella National Park	Compatibility between European Wilderness Quality Standard and Audit System and Majella National Park
Widerness[1)]	Wilderness zone[2)]	Core zone (A)	Compatible. EWQA Wilderness zone is part of Majella National Park Core zone
	Restoration zone[3)]	Core zone (A)	Parts of Majella National Park Core zone as well as parts of the Traditional zone are EWQA Transition zone
		Traditional zone (B)	
	Transition zone[4)]	Core zone (A)	Parts of Majella National Park Core zone as well as parts of the Traditional zone are EWQA Transition zone
		Traditional zone (B)	

[1] Wilderness can be categorised into three 'zones,' with a Wilderness zone surrounded by a Restoration zone which in turn is surrounded by a Transition zone (see Appendix II). It is considered that this threefold structure offers the 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 has the 'highest' quality of Wilderness, with minimal impact of human activity (patrol, education, low impact tourism) or infrastructure (interpretive panels, orientation signs, inherited disused structures, such as abandoned shelters, roads or bridges) and a dominance of natural processes. Outward expansion should occur over time through restoration/rewilding into the Restoration zone – particularly if the Wilderness is initially not large enough to allow complete ecological processes (Definition of European Wilderness, 2018).

[3] The Restoration zone, has a relatively low impact of human presence and surrounds and protects the Wilderness zone. It is free of any extractive uses and unnecessary and uncontrolled motorised traffic (only for Stewardship purposes and with permits of the protected area management). The main emphasis here is the restoration/rewilding of natural habitats and processes, this means that any active restoration measures and the use of built structures (e.g. roads, bridges) and high impact activities (e.g. unregulated tourism) are phased out within the next 10 years. Over time the Restoration zone should be incorporated into the Wilderness zone and expanded outwards into the Transition zone. (Definition of European Wilderness, 2018).

[4] The Transition zone shows the same low impact of human presence as the Restoration zone and is free of any extractive human use. Active and passive restoration measures, inherited built structures as well as sustainable visitor management can be found there. The main emphasis of the Transition zone is to act as a buffer between the Wilderness and its surroundings. The difference between the Transition and the Restoration zone is the objective to phase out any active restoration measures in the Restoration zone. Reasons for this missing objective in the Transition zone can be ownership structures, financial or structural issues. (Definition of European Wilderness, 2018).



LEGEND	TYPE	AREA (Hect
R1	restoration	134.97
R2	restoration	148.07
R3	restoration	127.28
R4	restoration	136.38
R5	restoration	454.88
R6	restoration	66.28
T1	transition	811.8
T2	transition	229.45
T3	transition	1061.22
T4	transition	6764.15
W1	wilderness	269.68
W2	wilderness	14732.17
W3	wilderness	958.32

Fig. VIII-1: Majella Wilderness

8.1. Principle 1: Wilderness size and zoning

Wilderness has a defined boundary and should have three zones: The Wilderness zone (where there is no human intervention and natural dynamic processes govern), the Restoration zone (where restoration and/or expansion is undertaken) and the Transition zone (where further expansion of the Wilderness is planned). If this is not the case, additional measures to ensure the protection and functioning of the Wilderness must be implemented. The size of the Wilderness zone depends on the predominant habitat type.

Reason for the Principle

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

8.1.1 Criterion 1.1. The Wilderness has three zones: The Wilderness zone, the Restoration zone and the Transition zone

Reason for the Criterion

Zoning is a tool to assist the planning and stewardship 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, the level of management and the permitted development. Wilderness certified under the European Wilderness Quality Standard and Audit System should have three zones with a Wilderness zone surrounded by a Restoration zone, which in turn is surrounded by a Transition zone. This three-zoned structure is considered the best method to offer protection of key Wilderness principles whilst allowing potential for future expansion and flexible interaction with other land uses.

Size		
Wilderness	Wilderness zone	15 960 ha
	Resoration zone	1 068 ha
	Transition zone	8 867 ha
	Total	25 895 ha

Current Situation

Majella National Park is divided into five zones: the core zone, the general reserve zone, the zone of planned tourism and agrosilvopastoral systems, and the development zone which is separated into the residential development area and the touristic development area. The Wilderness zone of Majella Wilderness is entirely located in the core zone of Majella National Park. The majority of Majella Wilderness Restoration and Transition zone are located in the Majella National Park core zone as well. The remaining parts of the Majella Wilderness Restoration and Transition zone are located in the general reserve zone of Majella National Park.

The parts of Majella core zone that connect the fragmented parts of the Wilderness zone act as Restoration zone. The Restoration zone also includes areas of potential enlargement where uses are faded out. Fire wood collection or restoration measures are still taking place, e.g. active restoration after fires, in the Restoration and Transition zone.

The size of Majella Wilderness is 25 895 ha, divided into the Wilderness zone with 15 960 ha, and a Restoration zone with 1 068 ha surrounded by the Transition zone with 8 867 ha.

Findings

Most of Majella National Park core zone is managed according to non-intervention management and is dominated by natural processes. Despite thousands of years of use, several decades of non-intervention management have led to the stage where natural processes govern the majority of Majella Wilderness today.

The current management approach supports the implementation of non-intervention management.

The Majella National Park core zone was audited as the Majella Wilderness and Restoration zone. Parts of the general reserve zone (B) of Majella National Park were audited as the Majella Wilderness Restoration and Transition zone. All these zones are part of the Majella Wilderness and consequently of the European Wilderness Network.

The land of Majella Wilderness is owned by a variety of land owners, such as the surrounding municipalities, the Italian State and private owners. The territory of Majella Wilderness is managed according the overall managing concept of Majella National Park. However, the Majella National Park management and Carabinieri Forestale share the management responsibility for it.
Majella National Park does not have a typical ranger service, but the whole area is controlled by the employees of the Carabinieri Forestale.

To increase the Wilderness quality of Majella Wilderness the management of Majella National Park adapted, in discussion with the European Wilderness Society, the size and zoning of Majella Wilderness.

Strengths

Majella Wilderness zone is one of the largest pieces of Wilderness in Central Italy. The current zoning is an important management tool to achieve the long-term objective of Wilderness stewardship and conservation.

The Wilderness zone is not missing any important ecological processes, such as succession, deadwood production or habitats for native species, etc.
Due to the adapted zonation system, the Wilderness zone is completely free of any management or restoration measures.
During the European Wilderness Society Re-Audit in 2018, the size and zonation system of Majella Wilderness was adapted to increase the Wilderness quality.

The Majella National Park and Majella Wilderness have good internal digital maps (a small team of experts produce digital maps with a GIS software). Majella Wilderness has multi-lingual maps available for the public and for internal use.

Weaknesses

The borders of the Wilderness are not marked well in the field on entries along public trails.

Recommendations

The park management has to increase visibility of the Wilderness borders along public trails, in particular at popular touristic entry points to the Wilderness.	
Priority: High	Time Frame: 2020
The park management has to develop a strategy on how to communicate the borders and zoning of Majella Wilderness zone to its employees and the public.	
Priority: Medium	Time Frame: 2020
The park management should develop a uniform layout on how to combine the European Wilderness Society and Majella National Park logos (e.g. maps, signs in the field, PR material).	
Priority: High	Time Frame: 2020

8.1.2. Criterion 1.2. The Wilderness has clearly 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 minimises possible disturbances or damages to the Wilderness.

Current Situation

Wilderness is a well-established part of the management of Majella National Park. The boundaries of Majella Wilderness are not identical with the boundaries of the Majella National Park zoning system. The boundaries of Majella Wilderness are marked in the Wilderness map and follow existing natural border lines, such as rivers, creeks, ridges, which are not always clearly visible in the field.

Findings

The Majella Wilderness has well defined boundaries on the map. However, the Re-Audit mission found that most of the visited borders were not clearly visible and marked in the field.

The boundaries often follow identifiable natural features in the landscape, such as ridges, creeks, old gravel roads or the treeline.

Strengths

The park management recently updated the Wilderness zoning system to increase the quality of Majella Wilderness. The Re-Audit resulted in the decision to increase the Wilderness quality of Majella Wilderness by transferring parts of the Wilderness zone to the Restoration zone.

Majella Wilderness zone used to be very well marked and informed visitors about the importance of Wilderness. Important entry points used to have standardised boundary signs. This approach was used as a model in other European Wilderness areas.

The Majella National Park has a standardised design for their boundary signs (size, shape and colour). The signs are located at every entry point (e.g. trails, roads) to make sure that people are aware that they enter the Majella National Park. All important points have GPS coordinates and are usually well fixed in the field.

The Majella National Park has a well-developed system of digital maps (GIS). These maps provide a very effective tool to identify boundaries and to manage and improve the stewardship quality of Majella Wilderness.

Weaknesses

The Wilderness boundaries are not clearly visible and marked in the field.

Not all Majella National Park and Carabinieri Forestale field employees have sufficient knowledge about the adapted borders and zoning of Majella Wilderness.

Recommendations

The park management together with the Carabinieri Forestale have to train their field employees on the adapted borders and zoning system of Majella Wilderness.

Priority: Medium Time Frame: 2020

The Park management has to increase the amount of publicly available information on the importance of Wilderness, Wilderness in Majella and the context and importance of Majella Wilderness in Europe.

Priority: Medium Time Frame: 2022

Fig. VIII-2: Signs should indicate the border of the Wilderness zone as they are not always visible in the field.

8.1.3. Criterion 1.3. The minimum size of the Wilderness zone depends on the predominant habitat type. Wetlands typically have a minimum Wilderness zone of 500 - 1 000 ha while other habitats have a Wilderness zone between 2 000 - 10 000 ha

Reason for the Criterion

The size of a Wilderness zone is one of the most important aspects for long term conservation. These areas are considered to have a high biodiversity and ecological functioning value resulting in a 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. The minimum size of the Wilderness zones differs between habitats and depends on the particular situation, which can vary from place to place.

Current situation

Majella Wilderness is a large piece of land with a total size of 25 895 ha and a Wilderness zone of 15 960 ha. This size, together with the large areas of natural forests in the northwest (Sirente Velino Regional Park and Grand Sasso National Park) and south (Abruzzo National Park), support the ecological connectivity with the surrounding areas. The Wilderness zone is large enough to support spontaneous natural processes.

There are several remote areas with difficult terrain, such as Monte Ugni and the upper part of Orfento valley.

Findings

The current zoning system of Majella National Park is the result of intensive internal and external discussions. The recent Re-Audit of the size and zoning system was conducted to better adapt Majella Wilderness to the European Wilderness Definition and the European Wilderness Quality Standard.

There are several opportunities for enlargement, particularly in the current Restoration zone.

Strengths

The Wilderness zone hosts a unique spectrum of Mediterranean mountain ecosystems that have been left for spontaneous rewilding in the previous decades.
Majella Wilderness is the largest undisturbed Wilderness in Italy.

The park management is working on increasing the quality of the existing Wilderness via passive rewilding.

Weaknesses

The units of the Wilderness zone are not directly connected with each other. However, the units are ecologically connected by the Restoration zone.

Recommendations

The park management has to develop a proposal to connect the separated units of the Wilderness zone (identify and include areas that fulfil Wilderness Quality Standard).

Priority: Medium Time Frame: 2023

Fig. VIII-3: Majella Wilderness is the largest Wilderness in the Mediterranean region.

8.2. Principle 2: Natural processes and biodiversity

Wilderness must have a Wilderness zone, where natural dynamic open ended processes can take place without human intervention, in order to contribute to the conservation of regionally threatened species and to enable the Wilderness to become a leading example of undisturbed habitats.

Reason for the Principle

This principle focuses on one of the key ecological aspects of the Wilderness Quality Standard, which is naturalness. This includes the naturalness of vegetation and associated species assemblages as well as the presence of natural processes.

Fig. VIII-4: Naturalness is a key ecological aspect of the European Wilderness Quality Standard and Audit system.

7.2.1. Criterion 2.1. The Wilderness zone has undisturbed natural dynamic processes

Reason for the Criterion

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

Current Situation

Non-intervention management is well-established in the Wilderness zone and the concept of this strictly-protected Wilderness zone has already been developed and implemented when Majella National Park was founded in 1995.

The Majella National Park is managed by a committed team with a strong Wilderness vision. Their long-term systematic stewardship is based on a wide range of research and monitoring work.

Majella Wilderness provides a unique opportunity for people all over Europe to study and experience an area that has been governed by natural dynamic processes for several decades and has no active management measures. The reserve offers an opportunity for other European countries to experience and learn how Wilderness protection can work.

Findings

The protection of natural dynamic processes is monitored and supported by the park officials and field rangers. Majella Wilderness has a strong and long-term approach to protect natural processes in the park and the resulting unique biodiversity of the Wilderness zone. The main objective of the Wilderness zone is to maintain natural dynamics and enable spontaneous natural restoration as well as to preserve examples of undisturbed ecosystems.

The area has historically been used for grazing, mining and logging for thousands of years. Signs of these past usages are still visible today. After centuries of using these areas, they have been left for natural restoration and rewilding for the last few decades and are now shaped by natural dynamic processes.

The site assessment confirmed that the Wilderness zone has a full spectrum of natural dynamic processes. Due to the high elevation of Majella Wilderness the area is regularly covered in snow. Consequently, avalanches have a significant impact on the forest ecosystems. In particular, the areas around Monte Ugni and the upper Orfento valley are excellent examples of natural dynamics.

Fire is also an important spontaneous process in Majella Wilderness. However, due to the proximity and high density of infrastructure around Majella Wilderness, fire is not always managed according to the Wilderness principles. (Example: fire at Monte Morrone in August 2017).

Strengths

The Wilderness zone contains unique examples of large undisturbed ecosystems, such as forests (e.g. mixed broadleaf, beech, black pine), vast areas of scree and rocks, diverse treeline habitats formed by mugo pine and juniper, calcareous alpine grasslands and high alpine peaks. The area is governed by natural dynamic processes.

The site assessment revealed the remarkable work that has been done in the last decades concerning Wilderness stewardship and strictness of natural dynamic processes protection. The experiences gained here can be transferred to other Wilderness areas in Italy and throughout Europe.

The objective in the Wilderness zone is to maintain and protect the Wilderness quality, to study dynamic processes and to increase the knowledge on Wilderness, natural dynamic processes and biodiversity. The management has a long-term vision for the Wilderness zone with following priorities: non-intervention management, increase of Wilderness quality and systematic monitoring and research.

The management's experience of Wilderness stewardship in the Wilderness zone provides valuable evidence for the protection of biodiversity through the implementation of non-intervention management. There is solid and systematic ongoing research that focuses on the collection of data and evidence underlining the benefits of Wilderness stewardship.

The park management also conducts systematic monitoring and research on various parameters to measure the scale of naturalness: such as site conditions, endangered and endemic species, passive rewilding, tree species composition, utilisation, amount of deadwood, tree age as well as other indicators.

A lot of research done by the park, in particular in the field of botany, is available in English.

Weaknesses

Fire is a politically and socially very challenging issue. However, Majella's Wilderness stewards are aware of the importance of fire for the natural ecological development. Currently, fire is still actively suppressed and burnt areas are partially actively managed in Majella National Park (simple measures to prevent erosion).

Recommendations

The next management plan should include a Wilderness Stewardship plan with a focus on natural dynamic processes.	
Priority: High	Time Frame: 2020
The park management should develop a training programme for employees on the natural role of fire within Mediterranean forest ecosystems.	
Priority: Medium	Time Frame: 2025
The park management should develop an information and interpretation programme for the public on the natural role of fire within Mediterranean forest ecosystems.	
Priority: Medium	Time Frame: 2025
The park management should develop a fire management strategy for the Wilderness.	
Priority: Medium	Time Frame: 2025

Fig. VIII-5: The Wilderness zone contains unique examples of large undisturbed ecosystems that are governed by natural dynamic processes.

8.2.2. Criterion 2.2. The Wilderness zone contributes to the support of Wilderness-indicator species

Reason for the Criterion

The quantity and dynamisms of Wilderness-indicator species are just two of several important indicators to measure the naturalness of Wilderness.

Specific species, such as xylobiont beetles (relict species living with/by/through deadwood) or woodpeckers (e.g. white-backed woodpecker), who are highly specialised for deadwood, are considered indicator species for a healthy ecosystem.

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

Current situation

The majority of the management staff agrees that the Wilderness zone contributes to the support of Wilderness-indicator species and guarantees the conservation of natural dynamic processes and biodiversity. This means that Wilderness provides a safe habitat for a number of Wilderness-indicator species, such as the Marsican bear, wolf, wildcat, lynx, chamois and birds of prey.
Wilderness also provides an excellent habitat during sensitive periods in their life cycle, such as the breeding season, and consequently contributes to increasing the populations of these species. Furthermore, the Wilderness is home to numerous rare, endangered and endemic plant species that depend on undisturbed natural dynamic processes and the habitats developing through these processes, such as the high amount of deadwood in the undisturbed old-growth forests.

Findings

The Wilderness zone contributes to the support of Wilderness-indicator species. The management documents provide information on IUCN red-listed as well as endemic species. For many of them, Majella National Park, in particular Majella Wilderness, provides a safe refuge during critical periods of their life. Management measures are directed towards mitigating the main threats to these Wilderness-indicator, endemic and/or endangered species, with particular focus on human activities (e.g. non-intervention management zone, no hunting, and grazing, efforts to increase the Wilderness quality).

The Majella National Park and the surrounding areas host a full spectrum of Wilderness-indicator species. Typical for the Apennine Mountains are large carnivores such as the wolf, lynx or Marsican bear. Majella National Park is home to approximately 100 wolves, from which around 70 are collared for research and monitoring purposes. The park management recently confirmed the first breeding Marsican bear. The area offers suitable habitats for typical alpine mammals, such as chamois and other alpine and subalpine species.

Strengths

The official management policy states that the Wilderness zone is an important tool to protect Wilderness-indicator and other rare species through the protection of their habitats and the natural dynamic processes forming them. The majority of staff agrees on this statement.

The management plan provides information on Wilderness-indicator, red-listed and/or endemic species. There is ongoing research on endemic species. Previous research has confirmed that there is a correlation between more Wilderness and the survival of relict species.

Non-intervention management contributes to the conservation of Wilderness indicator species (e.g. wolf, Marsican bear, lynx, and golden eagle). This management approach is used to mitigate the main threats to these species, in particular human activities. The creation of hunting and grazing free zones is an effective strategy in this work.

The park employees are, besides stewarding the Wilderness, involved in the monitoring and research of Wilderness-indicator species. The park employees are also involved in international co-operations (e.g. guiding international experts and researchers, exchanging knowledge and seeds of endemic and endangered species) and other field activities.

The high density of wolves and chamois in Majella National Park as well as the fact that the rare Marsican bear is reproducing within the park proves the high value of Majella Wilderness as a safe refuge for numerous species in sensitive periods of their lives, for example while breeding or mating.

Weaknesses

There is growing pressure of rising visitor numbers in specific locations, such as Majeletta, the peak of Monte Amaro and the lower part of the Orfento valley, which negatively impacts Wilderness-indicator species.

The knowledge about the importance of a long-term conservation approach to protect Wilderness-indicator species is not widespread among local stakeholders.

Recommendation

The park management has to monitor visitor numbers to avoid increased visitor pressure to Majella Wilderness and in particular to avoid negative impacts to Wilderness-indicator species.

Priority: High Time Frame: 2020

The park management must provide information on Wilderness-indicator species as well as endemic, red-listed, vulnerable and rare species depending on and living in the Wilderness, and particularly in the Wilderness zone, to visitors.

Priority: Medium Time Frame: 2022

The park management must develop and implement a communication plan explaining the importance of Wilderness-indicator species depending on and living in the Wilderness to stakeholders, visitors and the general public.

Priority: Medium Time Frame: 2022

The park management must continue research and monitoring on large herbivores and carnivores as well as on endemic, red-listed, vulnerable and rare species.

Priority: High Time Frame: Continuously

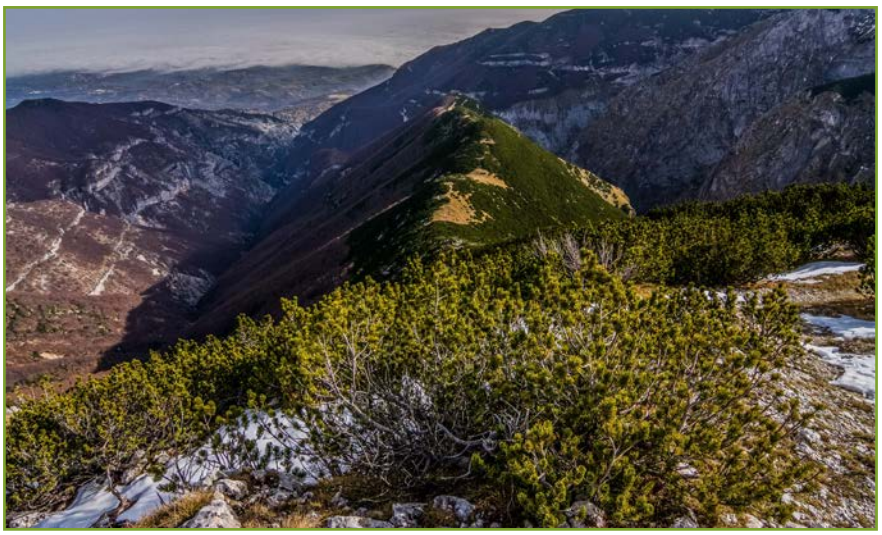


Fig. VIII-6: Majella Wilderness offers suitable habitats for Wilderness-indicator species, such as the marsican brown bear, Apennine wolf, Apennine chamois, lynx and golden eagle.

8.2.3. Criterion 2.3. The Wilderness zone contains examples of undisturbed natural dynamic processes and ecosystems

Reason for the Criterion

It is difficult to find completely undisturbed habitats in Europe, therefore, the European definition of Wilderness does not only describe pristine or primeval landscapes but also recovering areas without intrusive or extractive human activities, settlements, infrastructure or visual disturbances.

Current Situation

The Majella Wilderness is a well-known example of an area with undisturbed, natural dynamic processes and ecosystems, and of systematic implementation of non-intervention management.

Findings

The Wilderness zone contains examples of undisturbed ecosystems dominated by natural dynamic processes, in particular undisturbed broadleaf and conifer forests with deadwood at different stages of decay. Areas with no signs of logging create a highly diverse habitat. Deadwood is home to a great variety of species, particularly invertebrates, larva, insects and fungi.

Strengths

The Majella Wilderness zone contains the finest examples of remote undisturbed old-growth black pine forest in the Central Apennines. Large areas of forest contain standing and lying deadwood and show no evidence of recent logging.

The area is a great example of typical karstic underground and surface landscape features, such as dolines, plateaus, karstic springs and seasonal creeks.

Weaknesses

There are still signs of former forestry operations, in particular coppiced trees, which significantly influence the current structure of the beech forest. These coppices are currently left for passive rewilding.

The majority of creeks in Majella Wilderness, mostly at the edge of the Wilderness, have been or are still used for water extraction for the local villages. This water extraction is mostly combined with permanent structures (e.g. wells, fountains, pipelines, catchment facilities) which are located at the edge and outside of the Wilderness zone. The amount of extracted water is very low, however this water extraction influences the natural karstic river ecosystems.

Recommendation

The park management must continue with the passive rewilding of coppices in the forests of the Wilderness.	
Priority: Medium	Time Frame: Continuously
The park management must monitor the influences of the water extractions to the natural karstic river ecosystems in the Wilderness.	
Priority: High	Time Frame: 2020
The park management must develop and implement an information communication strategy informing the local, national and international audience on the importance of undisturbed ecosystems.	
Priority: High	Time Frame: 2022

Fig. VIII-7: The Majella Wilderness is a well known example of undisturbed, natural dynamic processes and ecosystems.

Fig. VIII-8: The area is a fine example of typical karstic underground and surface landscape features, such as dolines, plateaus, karstic springs and deep gorges.

8.2.4. Criterion 2.4. The Wilderness has a plan to restore natural dynamic processes in the Restoration zone

Reason for the Criterion

Wilderness is rarely undisturbed. Therefore, places that have been impacted by humans should 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 the functional processes, species composition and community structure as well as to the resistance to disturbances. Passive restoration means the performance of minimal short-term activities and the decision to leave the area to restore on its own.

Current Situation

The passive restoration of the natural dynamic processes in the Majella Wilderness is part of the current management plan.

The Wilderness zone has visible signs of past human impacts due to the history of the area. The historic impact of grazing of the meadows and forests in Majella Wilderness spreads from lower altitudes all the way up to the highest peaks. The historic impact of forestry resulted in vast treeless slopes with negative impacts to natural dynamic processes. This past usage significantly impacted the plant composition of the grasslands and forests in Majella Wilderness.

Spontaneous restoration in this area is in progress as grazing and forestry operations have been phased out since the National Park was established in 1995. There is still one shepherd grazing his sheep in the Restoration zone. However, there is an intention to phase this out. Due to this, the Wilderness provides an excellent study area to collect information about spontaneous restoration.

Findings

The Wilderness managers have a clear and long-term vision to passively restore natural processes and previously used areas in the Wilderness zone and the Restoration zone. The spontaneous regeneration of the grasslands and forests is visible in many areas.

These rewilding dynamics can be particularly observed at the treeline, which is mostly built by beech trees and remnants of mugo pine.

Strengths

The restoration of natural dynamic processes and previously used areas in Majella Wilderness is part of the current management plan.

Weaknesses

There is still small scale grazing in the Restoration zone.

Recommendations

The park management should stop all grazing activities in the Restoration zone.
Priority: High Time Frame: 2020

The park management must continue restoring natural dynamic processes in the Restoration zone.
Priority: High Time Frame: Continuously

The park management must develop an information communication strategy aimed at the local, national and international audience focusing on the necessity of continuing restoring natural dynamic processes in the Restoration zone.
Priority: Medium Time Frame: 2022

Fig. VIII-9: The restoration of natural dynamic processes and previously used areas in Majella Wilderness is part of the current management plan.

8.3. Principle 3: Wilderness Stewardship

Wilderness Stewardship is a holistic approach to Wilderness management where managers first determine whether there is the need for any management action before implementing an action plan.

Reason for the Principle

The designation of an area as a Wilderness 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 stewardship. Proper Wilderness stewardship must recognise 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.

8.3.1. Criterion 3.1. The Wilderness is protected by law in accordance with national legislative frameworks 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 frameworks include laws for protected areas, by-laws and other regulations related to nature conservation and protection. These laws usually provide secured long-term legal protection and are the most common tools to mitigate any possible illegal activities as well as to prevent commercial development.

Current Situation

The Majella National Park is part of the Italian protected areas network. The law declaring the protection of this area was signed in 1991 and the park management was established in 1995, consequently the area is protected by law in accordance to national legislative frameworks for an indefinite period of time.

Findings

Majella Wilderness is a unique example of Wilderness stewardship. The aim of this area is to protect Wilderness in accordance to national legislative frameworks by focusing on non-intervention management. The nature conservation law creates an effective legislative framework for creating non-intervention areas within the National Park core zone.

Strengths

Majella Wilderness is legally protected and the underlying legislation has set a clear objective and management approach on which activities can take place in the Wilderness. Because of the clear legislative framework Majella Wilderness is considered an important showcase model and inspiration for Wilderness conservation in Italy and Southern Europe. Majella National Park hosts several old nature reserves (Riserva Naturale Orientata), such as Orfento Valley, that have been under protection even before the National Park was established. These nature reserves formed the basis for establishing non-intervention management and finally creating the first Wilderness area in Italy during the early Wilderness momentum in Europe in the early 2000s.

Weaknesses

The current dual management responsibility by the Majella National Park and the Carabinieri Forestale is a limiting factor for improving the quality of Wilderness stewardship of Majella Wilderness in the foreseen future.

Recommendations

The park management must develop and implement a long-term Wilderness Stewardship plan to guarantee the legal protection of the Wilderness (e.g. specific Wilderness focused legislation and stewardship, develop a concept of long-term agreement with the Carabinieri Forestale). This should be done as a part of the new management plan of Majella National Park.

Priority: High | Time Frame: 2023

The park management must put further emphasis on the co-operation with the Carabinieri Forestale to further improve the quality of Wilderness stewardship in Majella Wilderness.

Priority: High | Time Frame: 2020

The park management should share their knowledge and experience with legal frameworks to implement Wilderness protection within a protected area with other protected areas in Italy and the Mediterranean region.

Priority: Medium | Time Frame: 2025

Fig. VIII-10: Majella Wilderness is legally protected, has a clear objective and management approach on protecting Wilderness.

8.3.2. Criterion 3.2. The Wilderness has a detailed Wilderness Stewardship Plan of at least 10 years

Reason for the Criterion

A manager has a natural urge to 'manage', whether there is a need for it or not.
The urge to manage Wilderness can 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 therefore be a new approach for protected area managers.

Wilderness stewardship is a more accurate terminology of this form of land use as it 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 to provide opportunities for solitude in nature. It includes the designation, planning, management and monitoring of Wilderness. A long-term Wilderness Stewardship Plan is an important tool to achieve these goals.

Current Situation

The Majella National Park has developed several documents providing a framework for daily management. These documents include a long-term non-intervention strategy for the National Park core zone. The management plan is usually updated every 10 years and the National Park is currently developing a new management plan.

Several documents developed in the past are available, including a long-term non-intervention strategy fitting to the European Wilderness Quality Standard. The management also has their own zoning system and maps where parts of the core area fit the European Wilderness Quality Standard. The management plan documents all activities and extractive uses in the Wilderness zone.

The long-term Wilderness protection is currently not always supported by adequate financial resources, which come from various sources, such as the federal and provincial government of Abruzzo as well as from projects funded by various international donors, including the European Commission. The majority of the team is skilled (in co-operation with international partners) at accessing resources from EU sources.

Findings

The current management plan provides a framework for daily management and includes 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 the Majella National Park, including a non-intervention core zone.

The property of the Majella National Park is owned by several different land owners, such as Italian and Regional government, local municipalities and local private landowners.
The administration of the Majella National Park has the management responsibility of the whole National Park territory.

The management plan provides a framework to develop a financial plan. Presently, the financial resources of the reserve are coming from the government budget and other additional resources, such as national and international projects.

Strengths

The Majella National Park has a management plan dealing with a long-term conservation strategy, non-intervention management and connectivity with other protected areas in the surroundings. These documents are mostly internal and only available in Italian language.

The Majella National Park has long and short-term objectives as well as a comprehensive communication and marketing strategy. The management objectives highlight the priorities of non-intervention management in the core zone, natural dynamic processes and the maintenance of biodiversity over the long-term. Wilderness conservation is currently not a main objective but non-intervention management has a high importance in the core zone of the National Park.

The current management model guarantees that the area of Majella National Park and Majella Wilderness will not be subject to inappropriate management measures.

Wilderness and its protection is specifically mentioned in the management plan of Majella National Park. Several important documents for non-intervention management, long-term conservation strategy and connectivity within the National Park and surroundings are available in Italian and English, such as the Sustainable Tourist Development Strategy of the former PAN Parks era.

Weaknesses

Several research and monitoring projects focus on endangered and endemic species as well as on Wilderness related research and monitoring. However, there should be a stronger emphasis on Wilderness related research and monitoring.

The land ownership structure in Majella National Park occasionally creates challenges in the Transition zone where some activities still take place.

Recommendations

The Wilderness Stewardship Plan must be a separate document or chapter of the overall management plan and must include an English summary.

Priority: High Time Frame: 2023

The Wilderness Stewardship Plan should follow the template published on the EWS Website.

Priority: Medium Time Frame: 2023

The park management must develop a Wilderness focused information communication strategy explaining the importance of Wilderness to stakeholders, visitors and the general public and must share the summary of the Wilderness Stewardship Plan with the stakeholders and the partners of the European Wilderness Network.

Priority: High Time Frame: 2023

The Wilderness Stewardship Plan should focus on research and monitoring projects in Wilderness.

Priority: Medium Time Frame: 2023

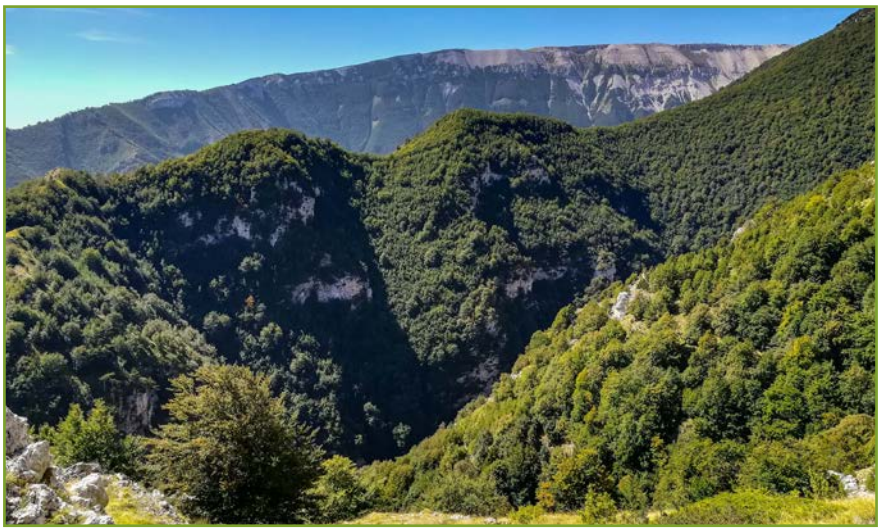


Fig. VIII-11: The Wilderness stewardship of Majella Wilderness aims to protect rare and threatened habitats and species, such as the rare Cima de Bandiera native black pine forest.

Fig. VIII-12: The current management plan provides a framework for daily management and includes short and long-term objectives for Majella Wilderness.

8.3.3. 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, committed and trained management team.

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

A manager who is trained to handle Wilderness in a professional manner will effectively lead the management team. Having a professional and trained management team will save time and valuable resources.

Current situation

Majella Wilderness has a professional and dedicated management team. The majority of the management team believes in the importance of non-intervention management in the Wilderness zone. The objective of the team is to guarantee the long-term protection of the Majella National Park and Majella Wilderness.

The park management has a high level of Wilderness stewardship knowledge and a significant part of the park employees understands the importance of non-intervention in the Wilderness zone. Most top managers are well-educated and support the need of Wilderness conservation within Majella Wilderness.

Regular seminars are organised for the management team focusing on Wilderness, however there are no trainings focusing on the implementation of non-intervention management. There are ad-hoc meetings of Italian National Park employees (including directors and staff) with subjects such as various management issues, including non-intervention management.

Findings

All employees involved in the Re-Audit of Majella Wilderness were committed and proud to work in the park, particularly in the Majella Wilderness.

The park employees have the responsibility to implement and communicate the nature conservation legislation and the management plan of Majella National Park.

Discussions and field work with the management team confirmed the high interest and commitment to non-intervention management in the core zone of Majella National Park and in Majella Wilderness.

Strengths

Majella Wilderness has a professional management team which is sufficiently large and trained. There are several employees working in the field, including four external technicians.

Personal belief and commitment to Wilderness conservation is a critical element for effective Wilderness management. There are several individuals in the team strongly committed to the protection of Majella Wilderness.

The importance of Wilderness and non-intervention management has significantly increased since the area became involved in the European Wilderness movement.

Weaknesses

There is a need to train additional staff in the area of Wilderness stewardship, as well as to improve English language skills and Wilderness focused education and interpretation.

Majella National Park is missing a ranger service.

Recommendations

The park management, in co-operation with the Carabinieri Forestale, must develop a Wilderness-focused training plan based on Wilderness stewardship best practice examples. This training plan should be aimed at the management team, particularly to the employees working with and in Majella Wilderness. (Possible training subjects may include: Wilderness in Europe, Wilderness and ecological processes and biodiversity, Wilderness and large predators, Wilderness rangers, Wilderness and visitors and locals).

Priority: High Time Frame: 2022

Majella National Park, in co-operation with the Carabinieri Forestale, has to develop a strategy on future co-operation concerning field work, communication, public information and visibility.

Priority: High Time Frame: 2020

The park management should consider opportunities to invite colleagues and experts from other protected areas within and outside of Italy on the subject of Wilderness protection.

Priority: Medium Time Frame: 2021

The park management should consider organising internal trainings to improve the English language skills of the park employees.

Priority: Medium Time Frame: 2022

Fig. VIII-13: Majella Wilderness has a professional management team which is sufficiently large and trained.

8.4. Principle 4: Wilderness Restoration

Wilderness restoration is an intentional activity that initiates or accelerates the recovery of a 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. These activities should be implemented once and not continuously.

Reason for the Principle

A Wilderness restoration plan is necessary if there is an objective to expand the Wilderness zone.

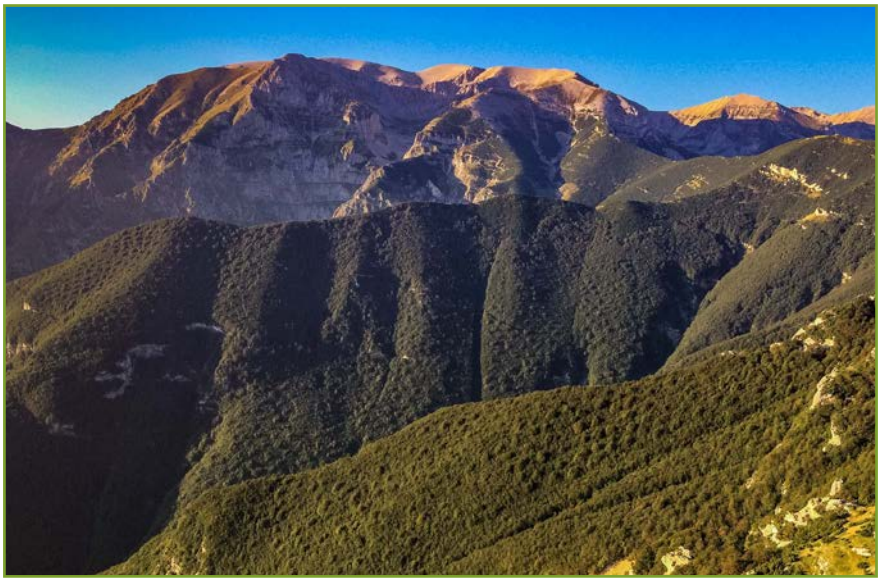


Fig. VIII-14: Majella Wilderness has a long-term vision to maintain and increase the Wilderness quality.

8.4.1. Criterion 4.1. The Wilderness has a Wilderness restoration plan to enlarge and improve the Wilderness zone

Reason for the Criterion

The objective to enlarge 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.

Enlarging the Wilderness zone is an important and necessary decision for Wilderness managers to meet the European Wilderness Quality Standard or to upgrade the Wilderness quality. The enlargement of the Wilderness zone can reduce fragmentation and minimise negative impacts. Adequately large Wilderness zones provide safe areas for species to thrive and ecosystem functioning.

Current situation

According to the legal framework, the core zone is an area without extractive or inherited traditional uses. In the last fifteen years the majority of the core zone has been without any extractive or inherited traditional uses. This created an opportunity to designate this part of the core zone as a Wilderness. Currently there is less and less pressure from local people to use the core zone for activities, such as grazing. This creates great potential for spontaneous natural restoration leading to a growing Wilderness potential of the core zone.

The Majella National Park has a long-term vision to develop a unique large Wilderness and to become a model for other Wilderness areas in Italy and Europe. Majella Wilderness has a potential for enlargement via natural Wilderness restoration.

To implement their long-term vision, the Majella National Park has a non-intervention strategy to enlarge and improve the Wilderness and Wilderness zone.

The long-term strategy to enlarge the Majella Wilderness zone demands a non-intervention approach. The guiding document for this process is the current management plan.

Findings

The aim of the park management is to phase out all inherited traditional uses, such as grazing and forestry, within the core zone. There is no commercial forestry in the core zone of the National Park.

There is currently only one shepherd left who is still grazing his sheep and goats within the core zone of the National Park, outside of Majella Wilderness, but there is a plan to stop this activity within the next few years.

Grazing is generally not allowed within the core zone of the National Park. The only exception is if this kind of activity is necessary to maintain biodiversity. However, this has to be approved by the park management.

The park management leaves abandoned, formerly used places to spontaneous natural restoration.

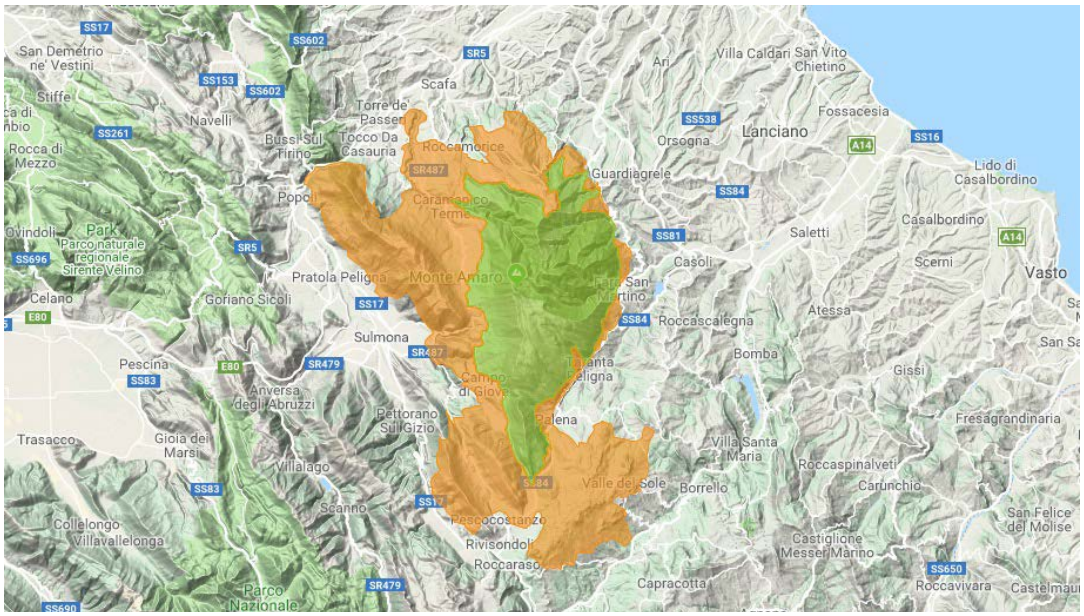


Fig. VIII-15: Majella Wilderness

Strengths

There is a history of natural restoration of abandoned, formerly used places which would fit the European Wilderness Quality Standard. These places show a high potential for enlarging the Wilderness zone.

Weaknesses

There is currently no Wilderness restoration plan in Majella Wilderness dealing with spontaneous natural restoration of abandoned, formerly used places.

An enlargement of the currently fragmented Wilderness zone through spontaneous natural restoration would benefit the ecological connectivity of the Wilderness and reduce fragmentation.

Recommendations

The park management must develop a Wilderness restoration plan focusing on spontaneous natural restoration in Majella Wilderness.	
Priority: High	Time Frame: 2023
The park management should focus on reducing the current fragmentation of Majella Wilderness through natural restoration and enlargement of the Wilderness zone.	
Priority: Medium	Time Frame: 2025
The park management should share their experience with spontaneous natural Wilderness restoration with other protected areas.	
Priority: Medium	Time Frame: 2025
The park management must develop an information communication strategy explaining the need of Wilderness restoration and enlargement to the stakeholders, visitors and the general public as well as the partners of the European Wilderness Network.	
Priority: Medium	Time Frame: 2025

Fig. VIII-16: There is potential to reduce the current fragmentation and consequently enlarge the Wilderness zone.

8.4.2. Criterion 4.2. The Wilderness zone should be enlarged with the help of Wilderness restoration measures in the Restoration zone

Reason for the Criterion

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

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.

Current Situation

There is currently no plan to enlarge the Wilderness zone.

Findings

There are ongoing spontaneous processes leading to long-term Wilderness restoration in Majella Wilderness.

Majella Wilderness is an excellent example for the results achieved through several decades of passive Wilderness restoration. Spontaneous natural restoration of forests and grasslands happening along the treeline provide opportunities to enlarge the Wilderness zone.

Strengths

The Majella National Park has professional and passionate employees who strongly believe in the implementation of passive, natural Wilderness restoration with minimal intervention.

Extractive uses in Majella Wilderness were completely removed several decades ago. Activities like forestry (including sanitary logging), grazing, hunting (including the culling of large herbivores) are not happening. There is only one shepherd still grazing in the core zone. However, there is a plan to stop this activity in the coming years. Due to the remoteness and the absence of roads most of the area is not accessible by motorised vehicles.

Several centuries of grazing of the areas above the tree line significantly impacted these areas. However, these activities have been phased out around three decades ago and these areas have been left to spontaneous natural restoration since then.

The Majella Wilderness is a model for other Wilderness areas in Italy and Southern Europe.

Weaknesses

The long history of use in Majella National Park limits the results that can be achieved through natural restoration. Signs of this past use, for example plant composition, will be visible for several more decades.

Recommendations

The park management has to continuously monitor and research the spontaneous natural restoration of abandoned formerly used areas.	
Priority: High	Time Frame: Continuously
The park management has to develop an information and interpretation programme to inform visitors, locals and stakeholders about the importance of spontaneous natural restoration for the development of Wilderness.	
Priority: Medium	Time Frame: 2023

Fig. VIII-17: Passive, natural restoration is the main tool to restore and rewild previously used areas.

8.5. Principle 5: Wilderness extractive and intrusive uses

The European Wilderness definition 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 as well as any other activities that modify the landscape or extract resources. However, during restoration, some management activities and/or extractive uses might be permitted once at the bronze and silver Wilderness quality levels.

8.5.1. 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 the Wilderness zone.

Current Situation

The Wilderness zone has no extractive or commercial uses.
There are extractive or commercial uses still happening in the Transition zone, such as grazing, water extraction and truffle collection.

Findings

The Wilderness Re-Audit team verified a large part of the Majella Wilderness zone and confirms that the Wilderness zone is free of extractive and commercial uses. This area provides an excellent example of a Mediterranean Mountain Wilderness. The area has naturally rewilded in the last several decades.

Strengths

The Wilderness zone has a long-term vision with a goal to continue with non-intervention rewilding. Extractive uses were removed from the Wilderness zone several decades ago.

Weaknesses

In the past, the Wilderness zone was intensively used for the extraction of timber and grazing. There is still water extraction scattered at the edges of the Wilderness zone. There are still signs of these former extractive uses visible in the Wilderness zone.

Recommendations

The park management must strictly enforce the rule of no extractive or commercial uses in the Wilderness zone.	
Priority: High	Time Frame: Continuously
The park management must monitor possible breaches of this principle.	
Priority: High	Time Frame: Continuously
The park management must continue education and interpretation activities which focus on the impact of extractive uses (i.e. grazing, forestry, water extraction) or commercial uses (i.e. guiding visitors, collecting truffles) outside of the Wilderness zone to enable spontaneous natural dynamic processes inside the Wilderness zone.	
Priority: High	Time Frame: Continuously

Fig. VIII-18: The audit team verified a large part of Majella Wilderness zone and confirmed that the Wilderness zone is free of extractive and commercial uses.

8.5.2. Criterion 5.2. The Wilderness zone has no forestry operations

Reason for the Criterion

Forestry operations, even selective cutting and near-nature forest management techniques, are not compatible with the principles of Wilderness.

Current situation

There are no forestry operations in the Wilderness zone.

Findings

There are no forestry operations in the Wilderness zone.

Strengths

The Wilderness zone has no forestry activities due to the clear objectives set at the establishment of the protected area several decades ago. Many previously used forests and grasslands have already been spontaneously rewilding for many decades. In the future, forestry activities are unlikely due to the objectives of the Majella National Park and its legal protection.

Weaknesses

The current legislation is not very clear how to deal with fire disturbances in the Wilderness.
Some areas that previously have been part of the Wilderness zone have been excluded due to active fire restoration and erosion prevention measures.

Recommendations

The park management must continue to prohibit all forestry operations in the Wilderness zone, including sanitary logging, active fire and erosion prevention measures.	
Priority: High	Time Frame: Continuously
The park management must develop and implement an information communication strategy explaining the importance of stopping all forestry operations to enable natural dynamic processes to function freely in the Wilderness zone. This strategy has to be targeted to stakeholders, visitors and the general public.	
Priority: High	Time Frame: 2021
The park management should share their experience with stopping all forestry operations in the Wilderness zone with the partners of the European Wilderness Network.	
Priority: Low	Time Frame: 2023

Fig. VIII-19: Majella Wilderness has no forestry operations.

8.5.3. 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.

Current Situation

There is no hunting in the Majella National Park or the Majella Wilderness.

Findings

There is no hunting in the Majella National Park or the Majella Wilderness.

Strengths

Hunting and game management activities are not allowed in the Wilderness zone and in the whole Majella National Park. The Majella Wilderness zone is a large area without extractive uses which supports the population of all typical Mediterranean mountain animals (e.g. lynx, Apennine wolf, Marsican bear, fox, Apennine chamois, roe and red deer).

Recommendations

The park management must develop an information communication strategy explaining the importance of having a hunting free zone within the Wilderness zone to stakeholders, visitors and the general public.
Priority: High — Time Frame: 2021

The park management must continuously monitor the impact of poaching in the Majella Wilderness.
Priority: High — Time Frame: Continuously

The park management must continue to emphasise the communication of the importance of having carnivores like Marsican bear, Apennine wolves and lynx in the Wilderness zone.
Priority: Medium — Time Frame: Continuously

Fig. VIII-20: Majella Wilderness is a hunting-free zone.

8.5.4. 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

There is no fishing or management of fish populations in the Wilderness zone. Fishing and Catch-and-Release-Fishing is allowed in the Restoration Zone.

Strengths

Fishing is not permitted in the Wilderness zone.

Recommendations

The park management must continue to monitor and control extractive illegal fishing activities

Priority: Medium Time Frame: Continuously

The park management must develop an interpretation programme with a focus on native fish species.

Priority: Medium Time Frame: 2023

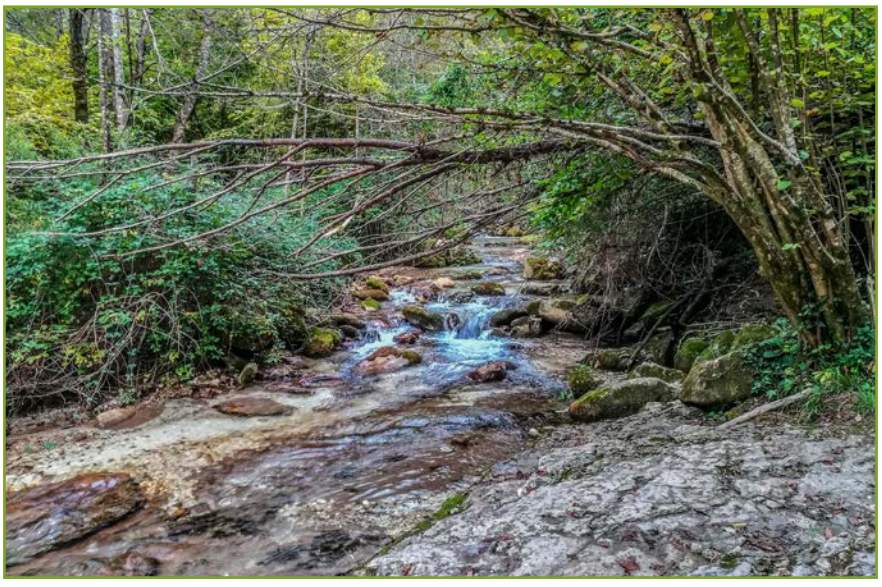


Fig. VIII-21: Fishing is not permitted in Majella Wilderness.

8.5.5. Criterion 5.5. The Wilderness has a fish and game management plan for the Restoration and Transition zones

Reason for the Criterion

Principle 1 proposes to create a Restoration and a Transition zone. The management of these two zones require specific activities with the objective to enlarge the Wilderness zone.

The Restoration zone, with its relatively low human impact, does not only surround and protect the Wilderness zone, but also assists in the restoration and rewilding of habitats and ecological functioning. The objective of the Restoration zone includes that these activities are phased out within ten years.

The Transition zone is an area where a range of human activities are permitted. However, management controls prevent the 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

Majella National Park has been a hunting free zone since its establishment. Catch-and-Release-Fishing is allowed outside of the core zone.

Findings

Hunting is forbidden in Majella National Park. Consequently, there is no game management in the Wilderness. Catch-and-Release-Fishing is allowed in parts of the Transition zone, such as the lower part of the Orfento Valley.

Strengths

Hunting is forbidden in Majella National Park since the park was established in 1995. Fishing and Catch-and-Release-Fishing is not allowed in the core zone of the National Park.

Recommendations

The park management must continue with the monitoring and controlling of extractive fishing activities and game management in the surroundings as well as their impact on the Wilderness zone.

Priority: Medium | Time Frame: Continuously

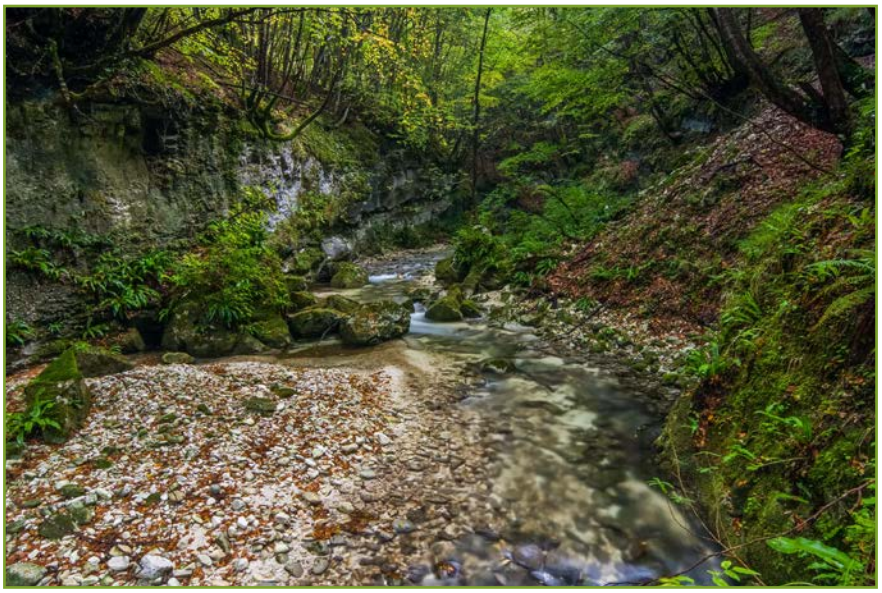


Fig. VIII-22: Hunting is not allowed in Majella National Park, fishing is only allowed outside of the core zone of the National Park.

8.5.6. Criterion 5.6. The Wilderness zone has no active mining

Reason for the Criterion

Mining activities are often located in proposed Wilderness. Therefore, the reason for the criterion is to prevent future mining activities in newly designated Wilderness.

Current situation

There is no active mining in Majella Wilderness.

Findings

There is no active mining in Majella Wilderness.

8.5.7. Criterion 5.7. The Wilderness zone has abandoned old mining sites

Reason for the Criterion

Abandoned mining sites are frequently located in proposed Wilderness areas. The reason for the criterion is to bring attention to the abandoned mining sites in newly designated Wilderness.

Current situation

There are no abandoned old mining sites in Majella Wilderness.

Findings

There are no abandoned old mining sites in Majella Wilderness.

8.5.8. Criterion 5.8. The Park management has implemented a restoration plan for previous mining sites in the Restoration zone

Reason for the Criterion

Abandoned mining sites are frequently located in the surroundings of proposed Wilderness. The park management should have a restoration plan for previous mining sites in the Restoration zone.

Current situation

There are no old mining sites in Majella Wilderness and the Restoration zone.

Findings

There are no old mining sites in Majella Wilderness and the Restoration zone.

8.5.9. Criterion 5.9. The Wilderness zone has no domestic livestock grazing

Reason for the Criterion

Livestock grazing is not compatible with Wilderness.

Current situation

There is no domestic livestock grazing in the Wilderness zone.

Findings

There is no domestic livestock grazing in the Wilderness zone.

There used to be intensive grazing in the pastures of the Majella massif and its surrounding mountains before the National Park was established. During the last decades the park management was able to remove the majority of grazing in the National Park. However, extensive small-scale grazing of sheep still continues in some areas of the Restoration and Transition zone with the aim to phase these uses out in the near future.

There are signs of illegal grazing within the Wilderness zone, for example on Monte Porrone.

Strengths

The Wilderness zone has no domestic livestock grazing. The park management is consistent in the implementation of no grazing in the Wilderness zone..

Weaknesses

There is still some small-scale grazing in the core zone of Majella National Park. Visible signs of previous intensive grazing are visible all over the National Park, also in the Wilderness zone.
There are signs of illegal grazing within the Wilderness zone, such as on Monte Porrone.

Recommendations

The park management must continue to implement its communication strategy concerning the importance of having no livestock grazing in the Wilderness zone.	
Priority: High	Time Frame: Continuously
The park management must continue to monitor the remaining small-scale grazing activities to prevent influences on the Wilderness zone.	
Priority: High	Time Frame: Continuously
The park management has to increase the control and monitoring of illegal grazing within the Wilderness zone.	
Priority: High	Time Frame: 2020

Fig. VIII-23: There is no domestic livestock grazing in the Wilderness zone. Sheep grazing is still done in some parts of the Transition zone.

8.5.10. Criterion 5.10. The Wilderness zone has no agricultural activities

Reason for the Criterion

Agricultural activities are not compatible with Wilderness.

Current situation

There are no agricultural activities in the Wilderness zone.

Findings

There are no agricultural activities in the Wilderness zone.

8.5.11. Criterion 5.11. The Wilderness zone has no deadwood collection

Reason for the Criterion

Deadwood collection is not compatible with Wilderness.

Current situation

There is no deadwood collection in the Wilderness zone.

Findings

Deadwood collection has occurred in limited parts of the Wilderness zone (lower elevation) in the past centuries to supply fire wood for local people.

Deadwood is no longer collected in the Wilderness zone.

8.5.12. Criterion 5.12. The Wilderness zone has no commercial harvesting of berries, nuts or mushrooms

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

There is no commercial harvesting of berries, nuts and/or mushrooms in the Wilderness zone.
The collection of mushrooms, in particular truffles, is strictly regulated by the park management.

Strengths

There is no commercial harvesting of berries, nuts and/or mushrooms in the Wilderness zone.
There are strict regulations for the collection of mushrooms and truffles by the park management.

Weaknesses

There is mushroom collection in some lower altitude areas of the National Park core zones. This activity is strictly regulated by a regional law which regulates the quantity and the way of picking.

Recommendations

The park management must continue to monitor and control the collection of mushrooms and truffles in the Wilderness.

Priority: Medium | Time Frame: Continuously

Fig. VIII-24: There is no commercial harvesting of berries, nuts or mushrooms in the Wilderness zone, and the collection of truffles in the National park is strictly regulated by the park management.

8.5.13. Criterion 5.13. The Wilderness zone has no commercial collection of minerals

Reason for the Criterion

Commercial harvesting of minerals is not compatible with Wilderness.

Current situation

There is no collection of minerals in the Wilderness zone.

Findings

There is no collection of minerals in the Wilderness zone.

8.5.14. Criterion 5.14. The Wilderness zone has no commercial filmmaking

Reason for the Criterion

Commercial filmmaking is not compatible with Wilderness.

Current situation

Commercial filmmaking within Majella Wilderness is regulated by the National Park management. There are internal rules on locations and times when filming is allowed. The park management bases their decisions on these internal rules and the respective situation. .

Findings

The park management is currently developing a strategy including a map with detailed rules about filmmaking in the National park. The objective of this strategy is to set precise rules for commercial filmmaking, in particular in the core zone of the National Park, but to not completely ban it.

Strengths

The park management is working on a strategy to regulate commercial filmmaking in the National Park.

Weaknesses

Commercial filmmaking is allowed, with regulations, in Majella Wilderness.

Recommendations

The park management should create a Wilderness zone without commercial filmmaking. In particular the use of drones should be excluded from the Wilderness zone and strictly regulated in other parts of the National Park.

Priority: High Time Frame: 2021

8.6. Principle 6: Wilderness disturbances

This principle focuses on the removal of permanent and temporary infrastructure, creating well-planned tourism access with minimal impact as well as regulating and limiting road access to the Wilderness, in order to reduce the human impact in the 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 do not leave any 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.

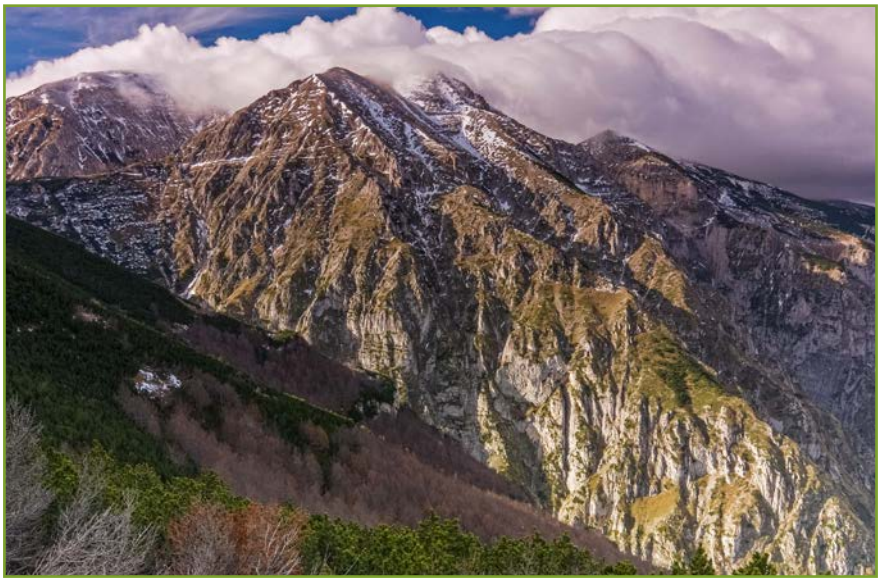


Fig. VIII-25: The Wilderness zone should not have any significant man-made disturbances.

8.6.1. Criterion 6.1. The Wilderness zone has no permanent infrastructure

Reason for the Criterion

Permanent infrastructure is not compatible with Wilderness [1].

Current Situation

There is permanent infrastructure in the Wilderness zone.

Findings

There are several permanent refuges located in the Wilderness zone, such as: Refugio Manzini close to the peak of Monte Amaro, accessible only via a touristic trail by foot. Refuge C.F.S and a forest house in the massif of Monte Ugni, accessible by gravel road and touristic trails. All these buildings are made out of stone, bricks and concrete.

There are two buildings (forest house and refuge) located in the Transition zone above the village of Santa Eufemia, accessible by gravel road and tourist trails. Both are made out of stone, bricks and concrete.
There are also two small bivouacs located in the Wilderness zone, Bivacco Fusco at the northern site of Monte Focalone which is made out of iron sheets, and Bivacco Pelino at the top of Monte Amaro which is made out of plastic blocks.

There are several water fountains and water pipes for drinking along the border of the Wilderness (from La Majellete to the pass below Mnt. Cavallo and also along the trail around Cima de Bandiera), located outside of the Wilderness zone. There are still remnants of foundations of old stone-made refuges, for example at the top of Monte Amaro.

There is a bridge, inherited from previous decades, in the upper part of Orfento Valley at the border of the Wilderness zone crossing the Orfento river.

There are no paved roads in the Wilderness. However, there are several dirt roads inherited from previous decades that run through the Wilderness zone. For example, the road at Monte Ugni is still in use with the permission of the park management. The road is closed for the public.

Strengths

There are no paved roads and no new permanent infrastructure was built in the Wilderness since the creation of the Majella National Park.

Weaknesses

There is inherited permanent infrastructure still partially maintained in Majella Wilderness. In particular, some permanent refuges and dirt roads are still randomly used.

There is maintenance work of permanent infrastructure, such as Refugio Manzini close to the peak of Monte Amaro, Bivacco Fusco at the norther site of Monte Focalone (using helicopters) and Refuge C.F.S in the massif of Monte Ugni (using vehicles).

[1] *This criterion is directly linked to the IUCN Protected Areas Category Ia and Ib quality which states: Category Ia - Distinguishing features of this Category are … limiting access by people and excluding settlement. Category 1b - Protected Area 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

The park management must develop and update maps and inventories of the permanent infrastructure e.g. abandoned old refuges/bivouacs and the network of old abandoned dirt roads in the Wilderness zone.	
Priority: High	Time Frame: 2020
The park management must monitor the permanent infrastructure e.g. abandoned old refuges/bivouacs and the network of old abandoned dirt roads and its impact on the Wilderness zone.	
Priority: High	Time Frame: Continuously
The park management should minimise and terminate the use of dirt roads in the Wilderness zone.	
Priority: High	Time Frame: 2020
The park management should strengthen their co-operation with the Alpine Club concerning the management and maintenance of refuges and bivouacs in the Wilderness zone.	
Priority: Medium	Time Frame: 2021

Fig. VIII-26: Refugio Manzini, close to the peak of Monte Amaro, is a permanent infrastructure in the Wilderness zone.

Fig. VIII-27: There are several water fountains located outside and at the borders of the Wilderness zone.

8.6.2. Criterion 6.2. Permanent infrastructure in the Restoration zone is removed according to the restoration plan, unless the removal is detrimental to the quality of the Restoration zone

Reason for the Criterion:

A part of the restoration process is to remove abandoned and disused infrastructure that is located in the Restoration zone.

Current Situation

There are several permanent infrastructures in the Restoration zone inherited from the past.

Findings

The park management is not removing and is not planning to remove any permanent infrastructures within the Restoration zone as these structures are mostly used for touristic purposes, for example bridges and water fountains.

Strengths

The permanent infrastructure is actively used by visitors, for example the water fountains along the hiking trails.

Weaknesses

There is no plan to reduce the number of permanent infrastructures within the Restoration zone.

Recommendations

The park management should map all permanent infrastructures within the Restoration zone and should assess their level of use and necessity.

Priority: Medium Time Frame: 2025

Fig. VIII-28: There is permanent infrastructure necessary for tourism activities in the Restoration zone.

8.6.3. Criterion 6.3. There is a management plan on how to deal with temporary structures (e.g. tents, picnic tables, housing containers, trailers, etc.) in the Restoration and Transition zone

Reason for the Criterion

Temporary structures in the Restoration and Transition zone can be used for various purposes (e.g. restoration work, interpretation and education). The management plan provides a framework for permitted types and sizes of these temporary structures to minimise negative impacts to the Wilderness zone.

Common temporary structures in the Restoration and Transition zone are tourist huts/shelters for visitors, which are equipped with orientation signs, maps, fire rings and interpretive panels.

Current situation

There are a few temporary structures in the Wilderness zone, the Restoration and Transition zone.
There are management documents dealing with these structures in the Restoration and Transition zone.

Findings

Along the hiking trails in the Wilderness there are a very limited number of simple and necessary orientation signs. There are also non-permanent bivouacs, meaning they are not made of stone or concrete but could be removed with a helicopter, in the Wilderness zone.

In the Restoration and Transition zone there are simple temporary structures, such as information signs, maps and interpretive panels, along the hiking trails. There are picnic tables and shelters in the Restoration and Transition zone.

Strengths

The amount of temporary structures in the Wilderness is reasonable and sufficient to provide good information.

There are several information signs informing and encouraging visitors to act according to the European Outdoor Ethics.

There are signs at the borders of Restoration and Transition zone offering information for visually-impaired people.

Weaknesses

Some information signs, in particular the ones informing about the European Outdoor Ethics, are inappropriately located.

Recommendations

The park management must develop a strategy and management plan on how to deal with temporary structures in the Wilderness.	
Priority: High	Time Frame: 2022
The park management must develop a map and inventory of all existing temporary structures in the Majella Wilderness.	
Priority: High	Time Frame: 2022
The park management must continue to monitor the usage of the existing temporary structures in the Majella Wilderness.	
Priority: High	Time Frame: Continuously

Fig. VIII-29: There are a very limited number of simple and necessary orientation signs along the hiking trails in the Wilderness.

Fig. VIII-30: Only a few peaks in the Wilderness zone, for example Monte Amaro, have a cross.

8.6.4. Criterion 6.4. The Wilderness zone has no permanent settlements

Reason for the Criterion

Permanent settlements are incompatible with Wilderness.

Current situation

There are no permanent settlements in Majella Wilderness.

Findings

There are no permanent settlements in Majella Wilderness.

8.6.5. Criterion 6.5. There is a management plan how to deal with inherited settlements in the Wilderness zone

Reason for the Criterion

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

There are several options for the Wilderness managers:

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

Current situation

There are no inherited permanent settlements in Majella Wilderness.

Findings

There are no inherited permanent settlements in Majella Wilderness.

8.6.6. Criterion 6.6. 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 by international or national legislation defined as people having a set of specific rights based on their historical ties to a particular territory. Their cultural or historical distinctiveness from other populations are often politically dominant.

Indigenous people still live a traditional way of life (e.g. hunting and fishing to make a living, reindeer grazing in a traditional manner, etc.) in some parts of Europe.

Their way of life is a rare example of humans coexisting with nature and often with Wilderness.

This criterion creates an opportunity to include these large areas in the European Wilderness Network.

Current situation

There are no inherited indigenous gathering sites in Majella Wilderness.

Findings

There are no inherited indigenous gathering sites in Majella Wilderness.

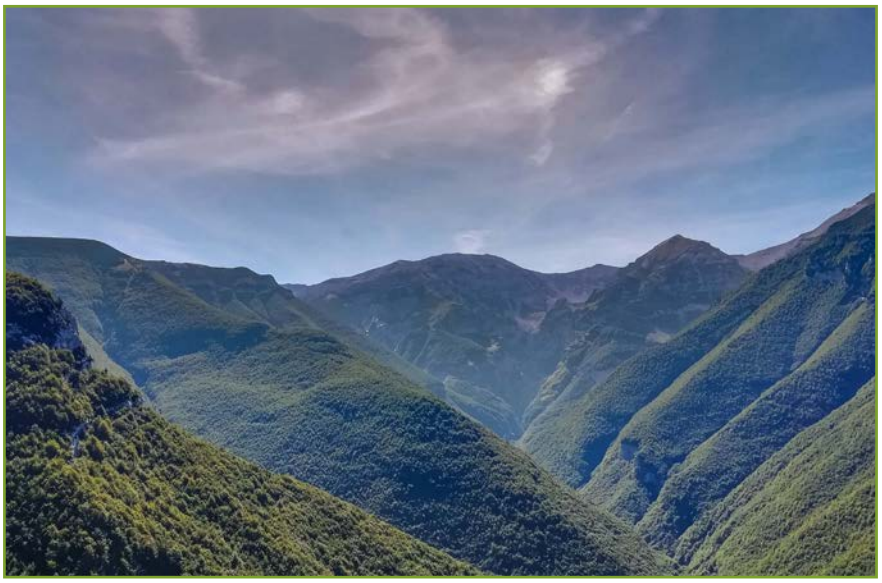


Fig. VIII-31: There are no inherited indigenous settlements or gathering sites in Majella Wilderness.

8.6.7. Criterion 6.7. There is a management plan how to deal with abandoned archaeological sites in the Wilderness zone

Reason for the Criterion

Wilderness sometimes hosts abandoned archaeological sites. Actively researched archaeological sites or those used by tourists should not be included in the Wilderness.

If archaeological sites are already a part of the Wilderness zone, the park management has to develop a plan to minimise negative impacts from research or the use as a tourist attraction.

Current situation

There are several archaeological sites, in particular hermitages and historically used caves, within Majella Wilderness zone.

Findings

There are numerous archaeological sites located in the Wilderness zone.

Strengths

There is no active archaeological research happening in the hermitages.

Weaknesses

Some of the hermitages are considered a visitor attraction and are highly frequented by visitors.

Recommendations

The park management has to develop a map with all archaeological sites, particularly hermitages, in the Wilderness zone.	
Priority: Medium	Time Frame: 2023
The park management has to monitor the use and visitor pressure on these archaeological sites, in particular hermitages, in the Wilderness zone.	
Priority: Medium	Time Frame: Continuously

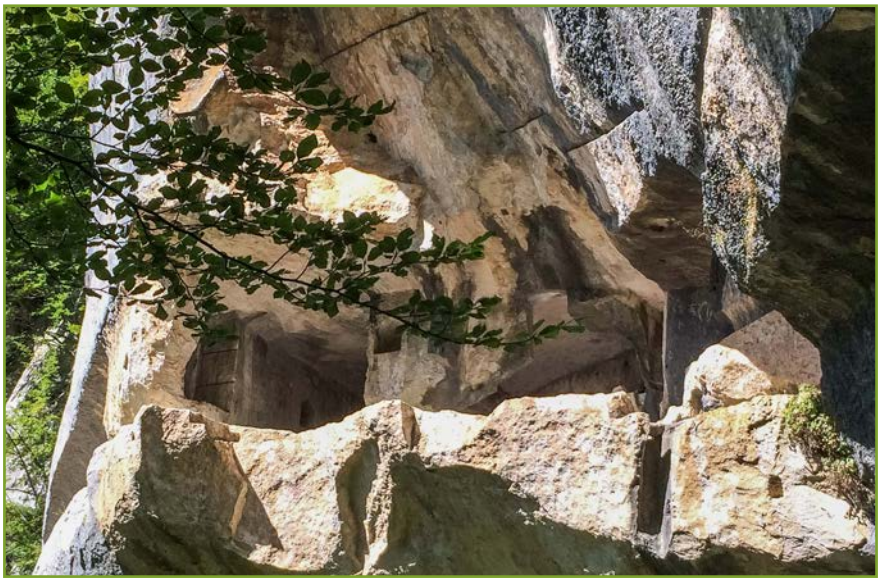


Fig. VIII-32: There are several hermitages within Majella Wilderness zone, such as Hermitage St. Giovanni.

8.6.8. Criterion 6.8. There is no motorised transport in the Wilderness

Reason for the Criterion

Motorised transport is incompatible with Wilderness.

Motorised access is completely excluded from the Wilderness zone, with the exception of rescue or if necessary to implement restoration activities.

Motorised transport is limited to the Transition zone.

Current Situation

There is limited motorised transport in the Wilderness zone, the Restoration and Transition zone. All motorised transport has to be authorised by the park management. All motorised transport is done for research, monitoring or safety reasons.

Findings

All motorised transport within the Wilderness zone is done or authorised by the park management.

Only Forestry guards and technicians of the Park management use these roads on a regular basis, for example the Monte Ugni road is used approximately once a week during the summer season.

Strengths

All motorised transport within the Wilderness zone is done or authorised by the park management.
Only Forestry guards and technicians of the Park management use these roads on a regular basis, for example the Monte Ugni road is used approximately once a week during the summer season.

Weaknesses

There is still limited motorised use in the Wilderness.

Recommendations

The park management should terminate all motorised use within the Wilderness.

Priority: High Time Frame: 2020

Fig. VIII-33: There is limited motorised transport in the Wilderness zone, the Restoration zone and Transition zone.

8.6.9. Criterion 6.9. There is free access by foot to the Wilderness

Reason for the Criterion

Access by foot is the main manner to visit the Wilderness, in particular the Wilderness zone. In addition, monitoring and patrolling of the Wilderness zone is conducted by foot.

Current Situation

The Majella Wilderness is widely accessible by foot through an extensive network of marked touristic trails.

Majella Wilderness contains several hiking trails. The existing trails are narrow, just broad enough for a single person, with a width of 40-50 cm. The trails are well maintained.

Findings

There are several marked trails providing access to the Wilderness zone. The existing trails are marked with coloured signs, either on trees, stones or with orientation signs.
Some trails have high visitor numbers, such as Majeletta, Monte Amaro, Monte Focalone and Orfento Valley.

Bikes and horses are not permitted in the Wilderness zone.

Strengths

Access to sensitive areas, such as rocky outcrops or some caves is not permitted.

The trails are maintained with simple instruments. The present level of trail maintenance and markings should be maintained at the current level. No new trails should be opened within the Wilderness zone.

The trails in Majella Wilderness offer an excellent Wilderness experience.

Bikes and horses are not permitted in the Wilderness zone.

Weaknesses

Some trails have high visitor numbers, such as Majeletta, Monte Amaro, Monte Focalone and Orfento Valley. These trails are regularly maintained but some spots have already signs of overuse and erosion.

Recommendations

The park management must avoid the installation of new trails in the Wilderness zone.	
Priority: High	Time Frame: Continuously
The park management must continue the monitoring of visitor impacts along the official trails in Majella Wilderness.	
Priority: High	Time Frame: Continuously

Fig. VIII-34: Majella Wilderness is widely accessible by foot through an extensive network of marked touristic trails.

Fig. VIII-35: Majella Wilderness contains around 200 kilometres of hiking trails.

8.6.10. 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.

Noise pollution has negative environmental consequences for Wilderness. Human-induced noise pollution is one of the many factors contributing to the depletion of wildlife populations. Noise pollution significantly intrudes on the environment and Wilderness experience.

Current Situation

There is minimal noise pollution in the Wilderness zone.

The noise intrusion is minimal and any kind of machinery is normally not heard in the area due to its remoteness and high altitude. Flights over the Wilderness travel at high altitudes and aircraft condensation trails are a regular sight but the acoustic impact is low. Any kind of low altitude flights, such as drones or helicopters, must be authorised by the park management.

Findings

There is minimal noise pollution in the Wilderness zone.
However, there are low flying helicopters "patrolling" over the Wilderness zone which significantly raise the noise pollution.

Strengths

The Wilderness and particularly the Wilderness zone have minimal noise pollution. This has been verified during several hikes and an overnight stay at the top of Monte Amaro.

None of the refuges and bivouacs in the Wilderness zone have electricity generators which would produce noise.

Weaknesses

The park management does not monitor noise pollution in the Wilderness zone. Low flying helicopters increase the noise pollution of the Wilderness zone.

Recommendations

The park management must develop a random monitoring scheme for noise pollution in the Wilderness zone.	
Priority: Medium	Time Frame: 2023
The park management must limit and control flights of any aircraft, in particular helicopters, over the Wilderness zone below a certain agreed flight altitude.	
Priority: High	Time Frame: 2023

Fig. VIII-36: There is minimal noise pollution in the Wilderness zone, deriving only from the creeks and occasional helicopter flights overhead.

8.6.11. Criterion 6.11. The Wilderness zone has no light pollution

Reason for the Criterion

It is important to exclude light pollution from the Wilderness as light pollution is incompatible with Wilderness.

Plants and animals depend on Earth's daily cycle of light and dark, a rhythm that governs life-sustaining behaviours, 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 of the light pollution in Wilderness is mostly from cities, machines, transport systems, motor vehicles or lone, remotely located tourism structures.

Light pollution significantly intrudes on the ecology and experience of Wilderness.

Current Situation

There is minimal light pollution in the Wilderness zone.

Findings

There is minimal light pollution in the Wilderness zone due to its distance from urban areas. During an overnight stay at the top of Monte Amaro distant lights of settlements were visible due to the high elevation of the bivouac (2793 m) but were not intruding the Wilderness experience.

Strengths

There is minimal light pollution in the Wilderness zone due to the distance from urban areas. There are no artificial lights or any electricity at the refuges and shelters within the Wilderness zone.

The Restoration and Transition zone have acceptable light pollution coming from settlements and villages located at the foothills of the mountains outside the boundaries of the Wilderness zone.

Weaknesses

There is a small amount of light pollution coming from settlements and villages located at the foothills of the mountains.

Recommendations

The park management must develop a random monitoring scheme for light pollution in the Wilderness zone.	
Priority: Medium	Time Frame: 2023
The park management should not increase the electrical infrastructure of refuges and bivouacs within the Wilderness zone to maintain minimal light pollution.	
Priority: High	Time Frame: 2023

Fig. VIII-37: There is minimal light pollution in the Wilderness zone, stemming from surrounding settlements.

7.6.12. Criterion 6.12. The Wilderness zone has no visual distractions on the horizon

Reason for the Criterion

It is important to exclude any visual distractions on the horizon from the Wilderness as they are incompatible with Wilderness.

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

The Wilderness zone has some visual distractions on the horizon.

Findings

The Wilderness zone has some visual distractions on the horizon.

From areas above the treeline surrounding settlements are visible in the distance. There is a TV reflector on Monte Pizzalto (1 968 m) which is visible from the ridge and peak of Monte Porrone within the Wilderness zone.

There are several TV towers and antennas located at the border of the Wilderness zone on Majelletta. These structures are visible from some parts of the Wilderness zone.
The bright yellow Bivacco Fusco on the way up to Monte Amaro as well as the red Bivacco Pelino on top of Monte Amaro are visible from far away and impact the Wilderness experience.

Weaknesses

The Wilderness zone has several visual distractions on the horizon impacting the Wilderness experience. In particular the TV reflector on top of Monte Pizzalto and the TV towers on Majelletta are major visual distractions.

Recommendations

The park management must carry out a visual distraction assessment with a focus on identifying visual disturbance, such as TV reflectors and towers, in the Wilderness zone.

Priority: High Time Frame: 2023

Fig. VIII-38: From areas above the tree line surrounding settlements are visible in the distance from the Wilderness zone.

Fig. VIII-39: The bright yellow Bivacco Fusco is visible from far away.

Fig. VIII-40: The red Bivacco Pelino on top of Monte Amaro impacts the Wilderness experience.

8.6.13. 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.

Garbage pollution has negative environmental impacts and lowers the Wilderness experience. The main source of garbage pollution is from visitors or previous land users (e.g. forestry, agriculture, tourism, hunters) who left debris or waste.

Current Situation

The Wilderness zone is fairly clean.

Findings

Garbage pollution is not a serious problem in the Wilderness zone. However, areas with a high concentration of people, such as along the trails, at water fountains and at the refuges and bivouacs within the Wilderness zone, are facing this problem.

Strengths

The Wilderness zone is fairly clean.

Weaknesses

The Majella Wilderness has no official carry-in carry-out policy, and therefore there is no information available asking visitors to carry out their waste. This particular comes into play at the refuges and bivouacs in the Wilderness zone. Garbage management is mentioned in the general park information.

Recommendations

The park management, together with the local partners, must continue with the current garbage management and monitoring in the Majella Wilderness.

Priority: High Time Frame: Continuously

The park management must focus on garbage management, in particular removal, in the surroundings of the refuges and bivouacs. Special emphasis should be put on the top of Monte Amaro.

Priority: High Time Frame: 2020

The park management should develop a strategy on how to deal with human waste in the surroundings of the refuges and bivouacs. Special emphasis should be put on the top of Monte Amaro.

Priority: High Time Frame: 2020

Fig. VIII-41: The Wilderness zone is fairly clean.

8.6.14. Criterion 6.14. There are no recreational fire pits in the Wilderness zone

Reason for the Criterion

Making fire pits in the Wilderness is a very complex issue throughout Europe due to the risk of fire, and consequently there are many additional local regulations. In many European countries camp fires, particularly in forests, are strictly forbidden or regulated.

Fire pits are suitable in the Transition zone to provide opportunities for visitors to have this type of Wilderness experience but need to be carefully planned.

Current Situation

Recreational fire pits are not permitted in the Wilderness zone.

Findings

Recreational fire pits are not permitted in the Wilderness zone. There are inherited fire pits in the Restoration and Transition zone around shepherd shelters.

Strengths

There are no recreational fire pits in the Wilderness zone and there is no pressure to develop such structures in the Wilderness zone or the Restoration and Transition zone.

Weaknesses

There are inherited and likely still used fire pits in the Restoration/Transition zone around shepherd shelters.

Recommendations

The park management must develop an inventory of the number and condition of inherited and still used fire pits in the Restoration and Transition zone of Majella Wilderness and must monitor these fire pits.

Priority: High Time Frame: 2023

Fig. VIII-42: There are no fire pits in the Wilderness zone but still some inherited fire pits in the Restoration and Transition zone around shepherd shelters.

8.6.15. 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 areas. Horses are usually used for patrolling in large Wilderness areas but they also help to implement various projects and support research and monitoring measures. Horses are also seen as a favourable way to experience Wilderness.

However, intensive use of horses can have negative impacts on trails (e.g. erosion, mud, damage of trail) as well as on the experience of hikers. Therefore, managers have to keep the conflicts that could arise with hikers in mind (e.g. hiking on muddy trails should not be part of their experience) before using horses in the Wilderness.

Management techniques should include:

- separation of hiking trails and horseback riding trails (where suitable)
- limit horseback riding groups
- exclude horseback riding from sensitive areas (e.g. wet areas, meadows)

Combining the use of horses and hikers in the Wilderness needs to be carefully planned.

Current situation

The use of horses is not permitted in the Wilderness zone.

Findings

The use of horses is not permitted in the Wilderness zone. The park management is currently developing a map for different uses within Majella National Park. Horses are only allowed on specifically designated trails.

8.6.16. 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.

Fencing has negative impacts on the environment and on the Wilderness experience. It creates barriers and can cause injury, even death, for animals.

Current situation

Fencing is not permitted in the Wilderness zone.

Findings

Fencing is not permitted in the Wilderness zone.

8.6.17. 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 the Wilderness can impact both the land, wildlife and the dogs themselves. An uncontrolled dog can injure other hikers and/or wildlife. To minimise these threats, rules for dogs (or any other pet) are necessary.

Dogs are allowed with regulations in some Wilderness areas whereas they are not permitted in others. Some Wilderness areas do not have regulations about dogs.

Current situation
Visitors are not allowed to take dogs or any other pets to the Wilderness zone.

Findings
Dogs are not allowed within the former Nature Reserves.

Fig. VIII-43: Dogs are not allowed in the Wilderness zone.

8.6.18. Criterion 6.18. The Wilderness has a minimal impact visitor and recreational use strategy

Reason for the Criterion

Visitors and recreation activities are becoming more risky in many protected areas in Europe. To combine Wilderness conservation with the opportunity to experience this unique environment the park management must implement and raise awareness about the concept of "European Outdoor Ethics".

Visitors and recreational activities in a Wilderness require careful planning and rules.

Current Situation

Tourism is a very important economic aspect of the Abruzzo region and Majella National Park. Consequently, the park has a highly developed and thought through visitor and recreational strategy. The number and behaviour of visitors have been subject to controls from the beginning and the trails are regularly monitored and maintained.

Findings

The park management has a properly working visitor guidance system with a modern and standardised network of orientation signs and maps, including an interactive map of the National Park (online application).
The hiking trails are well maintained and show no to minimal signs of erosion.
The park management informs visitors about certain aspects of the European Outdoor Ethics with signs, such as not disturbing wildlife and not picking flowers.

Strengths

Majella Wilderness has a standardised and modern network of orientation signs, including an interactive map which is available as an app.

The park management informs visitors about certain aspects of the European Outdoor Ethics with signs.

Weaknesses

The ski area at Campo di Giove has been closed for some years, but erosion has significantly impacted some parts of the slopes leading to underground cables and pipes being visible.

Recommendations

The park management should put a focus on minimal impact in their visitor and recreational strategy. This strategy should include the European Outdoor Ethics principles.	
Priority: High	Time Frame: 2021
The park management together with local stakeholders has to develop a strategy on how to handle the situation (soil erosion, abundant infrastructure) in the currently closed ski area of Campo di Giove.	
Priority: Medium	Time Frame: 2022
The park management must continue the maintenance of tourist trails as well as the cleaning of the touristic areas.	
Priority: High	Time Frame: Continuously

Fig. VIII-44: Majella Wilderness has a highly Developed visitor and recreational Strategy aiming at minimising impact.

Fig. VIII-45: The park management informs visitors about certain aspects of the European Outdoor Ethic with signs.

8.6.19. Criterion 6.19. The Wilderness has an integrated visitor and recreation strategy to support the Wilderness concept

Reason for the Criterion

Visitor management should always be corresponding with the overall site management objectives.

Wilderness managers are mandated to protect the Wilderness as pristine as possible but also allow people to visit the area. This balance requires complex activities that need time and resources to be implemented effectively.

The management plans need to be reviewed regularly to determine their impacts on the Wilderness experience. The numbers of people visiting Wilderness is increasing, so the impacts of their stays need to be monitored.

Current Situation

Majella National Park has a comprehensive integrated visitor and recreation strategy and Wilderness restoration and protection plays an important role within this strategy. This strategy developed out of the intensive work, investment and knowledge gained in the field since the establishment of the park. It is widely communicated to locals and visitors. This comprehensive integrated visitor and recreation strategy, and the role Wilderness plays in it, is an example for other protected areas in Italy and Europe.

Tourism is one of the priorities of the management of Majella National Park and Wilderness is an important factor for the tourism in the Park.

Findings

Majella National Park has a comprehensive integrated visitor and recreation strategy and Wilderness plays an important role within this strategy. This strategy deals with the touristic use of Majella Wilderness within Majella National Park. The park management co-operates with several NGO's to fulfil this task. In particular, Majambiente offers a diverse set of nature and Wilderness experiences, such as Wilderness tours.

The PAN Parks logo is present all over the park on signs, marketing material, door signs, etc.

Strengths

The integrated visitor and recreation strategy of Majella National Park is very successful, as numerous encounters with visitors during the field Audit proved. Visitors know about Majella Wilderness and the uniqueness of it and are aware that Majella Wilderness used to be part of the PAN Parks network.

Weaknesses

Majella National Park is still working with the old PAN Parks logo.

Recommendations

The park management must continue working with their integrated visitor and recreation strategy for Majella Wilderness.	
Priority: High	Time Frame: Continuously
The park management must continuously monitor the visitor impact on Majella Wilderness in general and particularly in the Wilderness zone.	
Priority: High	Time Frame: Continuously
The park management has to update their marketing strategy with the new European Wilderness Society logo, in particular on their homepage and other outreach sources.	
Priority: High	Time Frame: 2020

8.7. Principle 7: Natural dynamic processes

Natural dynamic processes, such as windstorms, fire, disease outbreaks or avalanches, are a critical aspect of Wilderness and are important sculptors of landscape and habitats. These processes should be given freedom in the Wilderness, without human influence. However, they are often considered problematic and undesirable by humans.

Reason for the Principle

Ecological disturbances through natural dynamic processes are a fundamental part of Wilderness dynamics.

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

Even though the implementation of a let it go-policy is difficult in human-dominated landscapes, neophyte and invasive species must not be managed in the Wilderness zone.

Fig. VIII-46: Ecological disturbances through natural dynamic processes are a fundamental part of Wilderness dynamics.

8.7.1. Criterion 7.1. There is a fire management plan for the Wilderness and the Wilderness zone. Fire must not be suppressed in the Wilderness zone

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. There is a growing recognition that fire plays an important role in natural ecosystems. Therefore, it is important to communicate the importance of fire and a let-it-burn policy.

Current Situation

The Italian government requires the suppression of forest fires. So, in practice the protected area is subject to fire control measures.

Fire ecology is a complex and difficult issue in Southern Europe. Mediterranean habitats, particularly pine forests, are generally prone to fire whereas beech and broadleaf forests are generally fire-resistant. However, there are conflicting opinions and the implementation of a let-it-burn policy (or even prescribed fire) is a difficult subject and a long-term process.

Findings

Majella Wilderness cannot implement a let-it-burn policy as it conflicts with national legislation. Fire management is a very difficult issue to communicate as the importance of fire ecology is still not commonly known.

There are numerous settlements and infrastructures around and also within the National Park. The park management cannot implement a let-it-burn policy as fire control is currently strictly controlled by the Italian state.

Majella National Park produces a yearly Fire Prevention Plan which sets rules for fire management.

Majella National Park is actively restoring some recently burnt areas to prevent erosion. This is done in a way as minimally invasive as possible. Most of the fires in the area, including the most recent fire on Monte Morrone in 2017, are man-made.

Certain habitats of Majella Wilderness are naturally fire-resistant, such as the beech forests.

Strengths

Interviewed members of the park management understand the importance of fire as an ecological process in Majella Wilderness.

Weaknesses

Certain habitats of Majella Wilderness are naturally less fire-resistant (mugo pine and pine forests) which demands additional effort to communicate and then implement a let-it-burn policy in the future. So far, there is no public communication in regards to this subject. Therefore, it would be a long-term goal that needs more time and education to improve the situation.

There is no fire management research or fire history documents about Majella National Park.

Recommendations

The park management must develop a fire history of the Majella Wilderness.

Priority: Medium Time Frame: 2025

The park management must monitor the frequency of fire in the Majella Wilderness.

Priority: High Time Frame: 2021

The Fire Prevention Plan of the park management should minimise and limit fire control measures to the Restoration and Transition zone in case they are necessary and only if these measures do not cause long-term impacts on the Wilderness zone.

Priority: High Time Frame: 2020

The park management must develop education and interpretation activities explaining the role of fire in ecosystem dynamics and consequently the role of fire management and a let-it-burn policy, with a focus on Wilderness managers, stakeholders, like the state and regional fire control authorities, the public and visitors.

Priority: High Time Frame: 2021

Fig. VIII-47: Certain habitats of Majella Wilderness are naturally less fire resistant, whereas habitats such as beech forests are highly resistant to fire.

8.7.2. Criterion 7.2. The Wilderness has a disease management plan

Reason for the Criterion

There is not always a good understanding of the ecological role disease plays in Wilderness. Consequently, 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 natural ecosystems. Wilderness is a place where a let-it-fly policy for disease management should be implemented and where its importance should be communicated to the public.

Current Situation

The Italian law requires the control of threats from disease outbreaks. In practice this means that Wilderness areas should have regular disease control monitoring measures. The park veterinarian is responsible for preventing the spreading of disease outbreaks beyond the territory of Majella National Park.

Findings

The Park management understands the importance of disease outbreaks for ecological processes.
The current legislation does not support the implementation of an animal disease let-it-fly policy inside the National Park. However, the park management implemented a let-it-fly policy for tree disease outbreaks within the core zone.

The reintroduced population of Apennine chamois is in a healthy state and there currently seems to be no genetic bottleneck within this population.

There is no disease control plan for Majella National Park.

Strengths

The park management understands the importance of disease outbreaks for ecological processes.

The park management implemented a let-it-fly policy for tree disease outbreaks within the core zone.

Weaknesses

The current legislation does not support the implementation of a let-it-fly policy for animal disease outbreaks.

There are a limited number of studies and monitoring projects providing solid arguments to support a let-it-fly policy inside the Majella Wilderness.

Recommendations

The park management must continue research on the history and dynamics of animal and tree disease outbreaks.	
Priority: High	Time Frame: Continuously
The park management must develop education and interpretation activities explaining the importance and the role of a let-it-fly policy to the stakeholders, visitors and the general public.	
Priority: Medium	Time Frame: 2025
The park management should limit disease management measures to the Restoration and Transition zone of Majella Wilderness.	
Priority: High	Time Frame: 2022

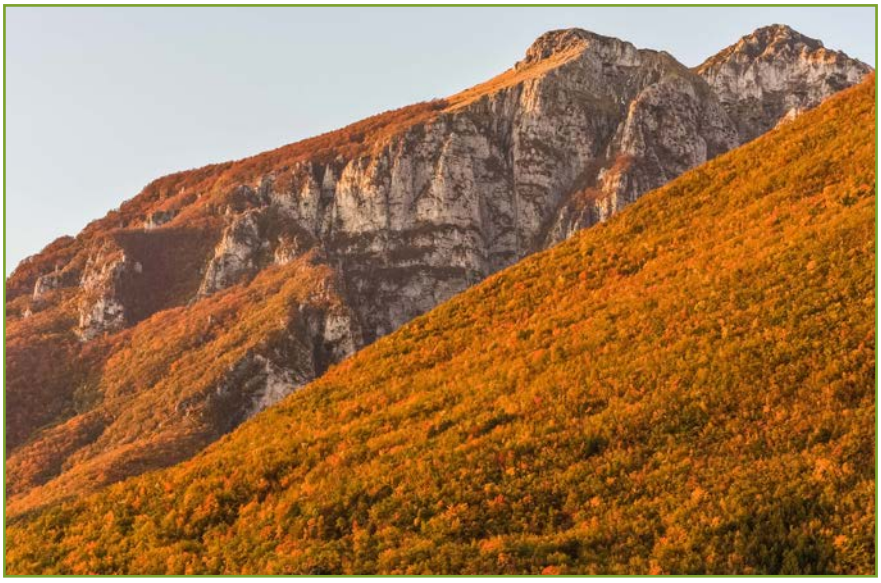


Fig. VIII-48: Wildlife diseases are currently not an issue in Majella Wilderness.

8.7.3. Criterion 7.3. A neophyte and invasive species management 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. An established population causes or is likely to cause environmental harm.

Nevertheless, attempts to control invasive species are often accompanied with considerable interventions into natural processes. Therefore, invasive species control is not allowed in the Wilderness zone and if absolutely necessary must be limited to the Restoration and/or Transition zone. An invasive species control plan provides strategies and recommendations for invasive species prevention, survey, detection and ultimately control. It also addresses appropriate habitat restoration, staff training and public outreach and education.

Current Situation

There are several invasive species in Majella National Park and some of them can be found in Majella Wilderness, such as Conyza canadensis and Robinia campanula.

Findings

Some areas of Majella Wilderness, known to the park management, show serious impacts of invasive species and active removal is happening with the resources available.
There are several small plantations of non-native trees scattered over the Wilderness, such as Greek Fir (Abies cephalonica) on the southern slopes of Monte Porrone.

Strengths

Management fully understands the complexity of inherited non-native plantations and invasive species inside the Wilderness zone.

Weaknesses

There are several small plantations of non-native trees scattered over the Wilderness, such as Abies cephalonica on Monte Porrone.

Invasive species attacks/outbreaks can occur spontaneously, therefore, it is important to be proactive by having an invasive species control plan. However, so far the park management does not have an invasive species control plan for Majella National Park.

Recommendations

The park management has to develop a map of all inherited non-native, neophyte tree plantations and invasive species in the Wilderness.	
Priority: Medium	Time Frame: 2020
The park management must continuously research and monitor neophyte and invasive species that threaten the Wilderness zone.	
Priority: High	Time Frame: Continuously
The park management must develop an invasive and neophyte species control plan to prevent further incursion of invasive species into the Wilderness.	
Priority: High	Time Frame: 2023

The park management must develop education and interpretation activities focusing on neophyte and invasive species.	
Priority: High	Time Frame: 2025
The park management should limit all neophyte and invasive alien species control activities to the Transition zone.	
Priority: High	Time Frame: 2021

Fig. VIII-49: There are several small plantations of non-native trees scattered over the Wilderness.

8.7.4. Criterion 7.4. There is a plan for natural dynamic processes

Reason for the Criterion

There is a number of natural dynamic processes besides fire and disease, such as wind, climatic extremes (e.g. drought, hailstorms and heat waves), floods, volcanic eruptions, and earthquakes that shape landscapes.

A natural dynamic process can cause loss of life or property damage and might leave some economic damage in its wake, but simultaneously these are important players of ecosystem dynamics.

Current Situation

Majella Wilderness is governed by natural dynamic processes and the park management strongly supports this development.

The current management plan provides a framework for daily management and includes short and long-term objectives that highlight the need to maintain ecosystem processes and biodiversity over the long term.

Findings

The interviewed management representatives understand the importance of natural dynamic processes and ecological disturbances and what role they play in ecosystem dynamics within the Wilderness.

Majella Wilderness provides a good opportunity to study and monitor impacts of natural disturbances.

Due to the character of the Wilderness zone there are a number of spontaneous, dynamic natural events, such as wind storms, fire, avalanches and climatic extremes.

Strengths

Majella Wilderness is governed by natural dynamic processes. The park management understands and strongly supports these processes. Natural rewilding through spontaneous restoration is the main tool for rewilding formerly used areas.

The protection of natural dynamic processes in the whole National Park, particularly the Wilderness zone, is included in the management documents. The Majella National Park further has several documents dealing with a long-term conservation strategy, non-intervention management in the core zone, ecological processes and the maintenance of biological diversity over the long-term.

Weaknesses

There is not enough knowledge in the public about what role natural dynamic processes, such as fire, avalanches and disease outbreaks, play within an ecosystem and how important they are for Wilderness. Some members of the public and politicians consider fire and burnt areas as a threat to the surrounding settlements. This lack of public knowledge about natural dynamic processes is complicating the work of the National Park.

Recommendations

The park management must continue to research and monitor natural dynamic processes, such as climatic extremes, and avalanches.	
Priority: High	Time Frame: Continuously
The park management must develop an information communication strategy explaining the role of natural dynamic processes in the Wilderness zone to the stakeholders, visitors and the general public as well as the partners of the European Wilderness Network.	
Priority: High	Time Frame: 2021

Fig. VIII-50: Majella Wilderness is governed by natural dynamic processes, such as avalanches and rock falls.

Fig. VIII-51: Water is an important factor for the natural dynamic processes of Majella Wilderness, in particular for karst processes.

8.7.5. Criterion 7.5. The Wilderness zone is impacted by permafrost

Reason for the Criterion

Permafrost is permanently frozen soil and occurs mostly in high-latitudes and in the high mountains. Permafrost stores massive amounts of carbon, and warming permafrost can bring negative consequences in terms of ecosystem and infrastructure damage.

As a result of climate change, permafrost is at risk of melting and releasing the stored carbon in the form of carbon dioxide and methane, which are powerful heat-trapping gases. In addition, permafrost is structurally important and its melting causes erosion, disappearance of lakes, landslides and ground subsidence. It might also cause changes in the plant species composition of high altitudes.

Current Situation

Some years ago researchers found sporadic permafrost on the top of Monte Amaro.

Findings

Majella Wilderness is not visibly influenced or shaped by permafrost. There are no typical permafrost landscape forms, such as rock glaciers.

Recommendations

The park management should monitor permafrost in the high mountain areas of Monte Amaro.
Priority: Low — Time Frame: 2025

Fig. VIII-52: Majella Wilderness is not visibly influenced or shaped by permafrost, however, several years ago researchers found sporadic permafrost on the top of Monte Amaro.

8.8. Principle 8: Wilderness research and monitoring

Wilderness offers opportunities to study the unique attributes of nature and natural processes. High quality Wilderness research and monitoring allows park managers to make appropriate decisions regarding the Wilderness. Research and monitoring activities should never 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, stewarding, and monitoring Wilderness.

Wilderness research and monitoring explores complex, long-term natural and social issues related to Wilderness stewardship. It is a catalyst for synergistic, interdisciplinary activities that confront Wilderness stewards.

Fig. VIII-53: Majella National Park has a comprehensive and nationally and internationally recognised monitoring and research strategy.

8.8.1. Criterion 8.1. There is a Wilderness monitoring and research strategy

Reason for the Criterion

A Wilderness research and monitoring strategy is an important tool for the decision-making process. It helps to improve knowledge on Wilderness in order to implement management measures more effectively and to meet conservation objectives.

Any decision regarding Wilderness stewardship should have had research done prior to the decision being made. Research is the key to successful Wilderness stewardship.

Current Situation

Majella National Park has a comprehensive, nationally and internationally recognised monitoring and research strategy with a particular focus on the Park's flora and large animals. However, there is no Wilderness related research.

Findings

Majella National Park is part of the GLORIA climate change monitoring network.

Majella National Park operates two botanical gardens and several animal enclosures. The park's botanical gardens operate an internationally important seed bank.

The National Park employs numerous researchers and outside contractors doing research in the park. The park also co-operates with several universities, such as the University of l'Aquilla, the University of Florence, the University of Naples, the University of Tuscia, and additional international partners, for example in the Netherlands.

The majority of the research budget comes from the European Union and national and international universities.

Strengths

The research and monitoring strategy of Majella National Park is very comprehensive and the work is done in a very professional way. Many of the outcomes of the research and monitoring done in the park are of international importance.

Some of the research projects in the park focus on the natural restoration of grazed or burnt areas.

Weaknesses

There is no Wilderness related research or research focusing on natural dynamic processes in the park.
There is no long-term research dealing with the history and importance of fire in the park's ecosystems.
There is not sufficient funding for Wilderness related research and monitoring.

Recommendations

The park management must continue with their comprehensive research and monitoring work.
Priority: High Time Frame: Continuously

The park management has to find long-term funding sources for long-term Wilderness related research.
Priority: High Time Frame: 2025

The park management must develop a research and monitoring program focusing on collecting data on natural Wilderness restoration and natural dynamic processes.
Priority: High Time Frame: 2025

The park management must monitor the impact of research and monitoring activities, particularly in the Wilderness zone.
Priority: Medium Time Frame: 2025

The park management must focus on non-invasive monitoring methods and minimise all visible and ecological impacts of research and monitoring activities within the Wilderness zone.
Priority: Medium Time Frame: 2025

The park management must develop an information communication strategy explaining the importance of a Wilderness monitoring and researching strategy to the stakeholders, visitors and the general public as well as the partners of the European Wilderness Network.
Priority: Medium Time Frame: 2025

Fig. VIII-54: Research and monitoring are some of the most important aspects of the Majella National Park management.

8.8.2. Criterion 8.2. There is a monitoring system which documents activities and extractive uses in the protected area

Reason for the Criterion

A monitoring system for activities and extractive uses in a protected area is an important tool for the decision-making process. It helps to improve knowledge on activities and uses within and around the Wilderness and how these activities and uses impact the Wilderness in the short and long-term. This enables management measures to be implemented more effectively and to meet conservation objectives.

Current situation

The park management has a monitoring system in place monitoring all extractive uses in the core zone of the National Park, particularly grazing, fire wood collection and water extraction.

The park management monitors species-rich semi-natural ecosystems that developed because of the traditional use. Intervention might be necessary to maintain these priority habitats and is allowed with permission of the park management.

The park management is collecting some data on visitor numbers and impact.

Findings

The park management has a monitoring system in place monitoring all extractive uses in the core zone of the National Park, particularly grazing, fire wood collection and water extraction.

Strengths

The park management has a monitoring system in place monitoring all extractive uses in the core zone of the National Park, particularly grazing, fire wood collection and water extraction.

Weaknesses

The visitor monitoring of the park is still incomplete and is particularly needed in the Wilderness zone.

Recommendations

The park management should continue monitoring previously used and now naturally restoring areas in the Wilderness zone.

Priority: Medium Time Frame: Continuously

Fig. VIII-55: The park management has a monitoring system in place monitoring all extractive uses in the core zone of the National Park.

7.8.3. Criterion 8.3. There is a monitoring plan to document indigenous people livelihoods and their impacts

Reason for the Criterion

In 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, often in places with high Wilderness quality.

This situation creates an opportunity to include these, often large, areas as part of the European Wilderness Network.

Current Situation

There are no indigenous people living in Majella National Park.

Findings

There are no indigenous people living in Majella National Park.

8.8.4. Criterion 8.4. There is a plan for cooperation with scientific institutions and universities

Reason for the Criterion

Cooperation between protected areas and scientific institutions and universities is fundamental for successful Wilderness stewardship.

Scientific institutions and universities can bring knowledge and innovative approaches to the stewardship of Wilderness areas. Very often they provide information on the importance of Wilderness and how to better protect it.

Collaboration with scientific institutions or universities can be either of formal or informal nature.

Current Situation

There is a plan dealing with the cooperation with scientific institutions and universities.

Findings

The National Park employs numerous researchers and outside contractors and co-operates with several universities, such as the University of l'Aquilla, the University of Florence, the University of Naples, the University of Tuscia, as well as international partners, for example in the Netherlands.

Strengths

The management team actively cooperates with national and international research and monitoring partners from various European countries (the Netherlands, etc.)

Weaknesses

There is no national or international co-operation concerning Wilderness related research or monitoring.

Recommendations

The park management should focus on national or international co-operation concerning Wilderness related research or monitoring projects.	
Priority: Medium	Time Frame: 2025
The park management should continue with national and international research and monitoring co-operations.	
Priority: High	Time Frame: Continuously

8.9. Principle 9: International relevance and importance of the Wilderness

The importance of Wilderness is finally being recognised in Europe. More people and initiatives are beginning to work to protect and expand Wilderness.

A Wilderness should be internationally recognised by the IUCN, UNESCO, EU as well as other relevant international organisations.

Reason for the Principle

This principle is a link between local efforts to protect Wilderness and global initiatives to protect Wilderness heritage and biodiversity.

8.9.1. Criterion 9.1. The Wilderness is internationally recognised (IUCN, Natura 2000, UNESCO, other certifications)

Reason for the Criterion

International recognition should demonstrate that a Wilderness meets a certain international standard.

According to the IUCN Protected Areas category system, category 1a and 1b (strict nature reserve and wilderness area, respectively), 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

Majella National Park is a National Park according to IUCN category II. It was established between 1991 and 1995. Majella Wilderness is part of the PAN Parks Network since 2005 and the European Wilderness Network since 2014. Furthermore, the area is part of the Natura 2000 network.

The Majella Wilderness is a model of a well-managed Wilderness that can motivate other protected areas, in particular in Italy and the Mediterranean, to:

- create Wilderness
- enlarge their Wilderness zones
- improve the quality of Wilderness
- naturally restore previously used areas

Findings

According to the auditors, the site assessment showed that Majella Wilderness would partially meet the quality standard for IUCN category Ib.

Majella National Park, in particular Majella Wilderness, has significant international relevance. The research work the National Park is doing, particularly the two botanical gardens, is internationally recognised and of great importance. Since 2005 Majella Wilderness has been part of the PAN Parks Network and widely communicates this achievement. In 2014 it was transferred to the European Wilderness Network and is now one of the leading Wilderness areas in the Mediterranean.

Majella Wilderness provides favourable habitats for several threatened species, such as the Marsican bear, the Apennine wolf, the lynx, the Apennine chamois, the otter as well as numerous birds.

Strengths

The Majella Wilderness is a critical element of the European Wilderness Network as it is the leading Wilderness area in the Mediterranean with excellent examples of spontaneous naturally rewilding areas. The area provides favourable habitats for several threatened species and is a hotspot for biodiversity.

The management of Majella Wilderness is heavily working on increasing the Wilderness quality of Majella Wilderness. A lot of effort is put on protecting the habitats of rare, endangered and endemic species living in that area.

Recommendations

The park management should share their knowledge concerning internationally recognised Wilderness protection and stewardship within Italian protected areas and the European Wilderness Network.

Priority: Medium Time Frame: 2023

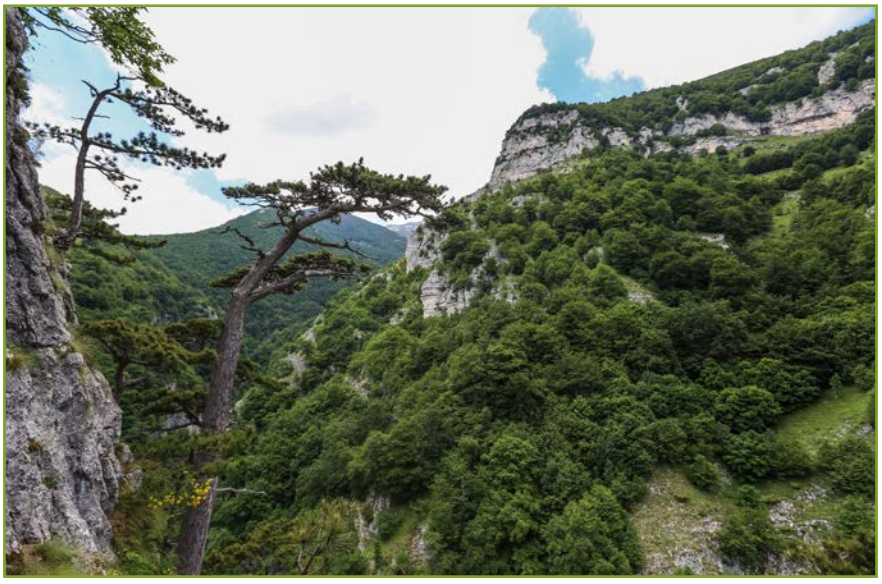


Fig. VIII-56: Majella Wilderness provides favourable habitats for several rare and threatened species, and is a hotspot for biodiversity.

8.9.2. Criterion 9.2. There is a plan to become part of the Natura 2000 network (where relevant and according to the Wilderness objectives)

Reason for the Criterion

Natura 2000 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 Natura 2000 legislation but applying a Wilderness approach to the management of Natura 2000 sites is compatible with the provisions of the Directives.

Current situation

Majella Wilderness is already part of the Natura 2000 network.

Findings

Majella Wilderness is already part of the Natura 2000 network.

8.9.3. Criterion 9.3. The Wilderness supports the protection of internationally threatened species

Reason for the Criterion

Wilderness can be an important type of protected area to guarantee the protection of internationally threatened species. Large and contiguous Wilderness creates space and a natural environment for species, particularly during critical periods of their life (e.g. mating and breeding season, raising litters).

Current Situation

Majella Wilderness is a biodiversity hotspot and offers suitable habitats and refuge for numerous nationally and internationally threatened species.

Findings

Majella Wilderness is a biodiversity hotspot and offers suitable habitats and refuge for numerous nationally and internationally threatened species. Worth mentioning are particularly the Marsican bear, with 3-4 individuals who live in the area year round, the Apennine wolf, with a population of about 100 individuals, the Apennine chamois, with over 700 individuals, as well as numerous bird, amphibian, insect and plant species.

Strengths

Majella Wilderness is of national and international importance when it comes to the protection of threatened species. The area also offers important habitats for migrating birds.

Together with the neighbouring protected areas, Abruzzo National Park, Grand Sasso National Park and

Sirente-Velino Regional Park, Majella Wilderness is of great importance for protecting native Apennine habitats and species. There is a systematic monitoring and research programme in the Wilderness which is implemented by committed staff.

Majella Wilderness is also home to numerous endemic species.

Recommendations

The park management should maintain their pioneering role in Wilderness stewardship and the protection of threatened species within Italy and the Mediterranean.

Priority: High Time Frame: Continuously

The park management should continue their education and marketing activities which focus on Wilderness and the protection of internationally threatened species.

Priority: Medium Time Frame: Continuously

Fig. VIII-57: The mugo pine formations of Majella Wilderness represent the southern limit of the distribution of this rare species.

Fig. VIII-58: Majella Wilderness is home to several internationally threatened and endemic species.

9. 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 to assist managers in their strategically planning for the Wilderness.

Zoning of the European Wilderness Quality Standard and Audit System

The European Wilderness Quality Standard and Audit System and the Majella National Park use their own zoning systems. The European Wilderness Quality Standard and Audit System zoning system is based on the Definition of European Wilderness and Wild Areas. The Majella National Park zoning system is based on the Italian legislation. The following table shows the compatibility of the two systems.

For the purpose of this report the Majella Wilderness is zoned according to the European Wilderness Quality Standard and Audit System.

Fig. IX-1: Compatibility of the European Wilderness Quality Standard and Audit System and the Majella National Park zoning systems.

	European Wilderness Quality Standard and Audit System (EWQA)	Majella National Park	Compatibility between European Wilderness Quality Standard and Audit System and Majella National Park
Widerness[1)]	Wilderness zone[2)]	Core zone (A)	Compatible. EWQA Wilderness zone is part of Majella National Park Core zone
	Restoration zone[3)]	Core zone (A)	Parts of Majella National Park Core zone as well as parts of the Traditional zone are EWQA Transition zone
		Traditional zone (B)	
	Transition zone[4)]	Core zone (A)	Parts of Majella National Park Core zone as well as parts of the Traditional zone are EWQA Transition zone
		Traditional zone (B)	

9.1. Principle 1: Wilderness zoning and size

Wilderness has a defined boundary and should have three zones: The Wilderness zone (where there is no human intervention and natural dynamic processes govern), the Restoration zone (where restoration and/or expansion is undertaken) and the Transition zone (where further expansion of the Wilderness is planned). If this is not the case, additional measures to ensure the protection and functioning of the Wilderness must be implemented. The size of the Wilderness zone depends on the predominant habitat type.

Recommendations	Priority			Time
	Low	Medium	High	
Criterion 1.1. The Wilderness has three zones: The Wilderness zone, the Restoration zone and the Transition zone				
The park management has to increase visibility of the Wilderness borders along public trails, in particular at popular touristic entry points to the Wilderness.			√	2020
The park management has to develop a strategy on how to communicate the borders and zoning of Majella Wilderness zone to its employees and the public.		√		2020
The park management should develop a uniform layout on how to combine the European Wilderness Society and Majella National Park logos (e.g. maps, signs in the field, PR material).			√	2020
Criterion 1.2. The Wilderness has clearly defined boundaries				
The park management together with the Carabinieri Forestale have to train their field employees on the adapted borders and zoning system of Majella Wilderness.		√		2020
The Park management has to increase the amount of publicly available information on the importance of Wilderness, Wilderness in Majella and the context and importance of Majella Wilderness in Europe.		√		2022
Criterion 1.3. The minimum size of the Wilderness zone depends on the predominant habitat type. Wetlands typically have a minimum Wilderness zone of 500-1 000 ha while other habitats have a Wilderness zone between 2 000-10 000 ha				
The park management has to develop a proposal to connect the separated units of the Wilderness zone (identify and include areas that fulfil Wilderness Quality Standard).		√		2023

[1] Wilderness areas can be categorised into three 'zones,' with a core area 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 the 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/core 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 core is not initially large enough to allow complete ecological processes. (Definition of European Wilderness, 2013)

[3] The Restoration/buffer zone, with a relatively low impact of human presence, surrounds and protects the core 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 core 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 of timber, animals (hunting & fishing) and plants (berries, fruits, mushrooms), together with organic agriculture is possible. (Definition of European Wilderness, 2013)

9.2. Principle 2: Natural processes and biodiversity

Wilderness must have a Wilderness zone, where natural dynamic open ended processes can take place without human intervention, in order to contribute to the conservation of regionally threatened species and to enable the Wilderness to become a leading example of undisturbed habitats.

Recommendations	Priority			Time
	Low	Medium	High	
Criterion 2.1. The Wilderness zone has undisturbed natural dynamic processes				
The next management plan should include a Wilderness Stewardship plan with a focus on natural dynamic processes.			√	2020
The park management should develop a training programme for employees on the natural role of fire within Mediterranean forest ecosystems.		√		2025
The park management should develop an information and interpretation programme for the public on the natural role of fire within Mediterranean forest ecosystems.		√		2025
The park management should develop a fire management strategy for the Wilderness.		√		2025
Criterion 2.2. The Wilderness zone contributes to the support of Wilderness-indicator species				
The park management has to monitor visitor numbers to avoid increased visitor pressure to Majella Wilderness and in particular to avoid negative impacts to Wilderness-indicator species.			√	2020
The park management must provide information on Wilderness-indicator species as well as endemic, red-listed, vulnerable and rare species depending on and living in the Wilderness, and particularly in the Wilderness zone, to visitors.		√		2022
The park management must develop and implement a communication plan explaining the importance of Wilderness-indicator species depending on and living in the Wilderness to stakeholders, visitors and the general public.		√		2022
The park management must continue research and monitoring on large herbivores and carnivores as well as on endemic, red-listed, vulnerable and rare species.			√	Continuously
Criterion 2.3. The Wilderness zone contains examples of undisturbed natural dynamic processes and ecosystems				
The park management must continue with the passive rewilding of coppices in the forests of the Wilderness.		√		Continuously
The park management must monitor the influences of the water extractions to the natural karstic river ecosystems in the Wilderness.			√	2020
The park management must develop and implement an information communication strategy informing the local, national and international audience on the importance of undisturbed ecosystems.			√	2022

Criterion 2.4. The Wilderness has a plan to restore natural dynamic processes in the Restoration zone				
The park management should stop all grazing activities in the Restoration zone.			√	2020
The park management must continue restoring natural dynamic processes in the Restoration zone.			√	Continu-ously
The park management must develop an information communication strategy aimed at the local, national and international audience focusing on the necessity of continuing restoring natural dynamic processes in the Restoration zone.		√		2022

9.3. Principle 3: Wilderness Stewardship

Wilderness Stewardship is a holistic approach to Wilderness management where managers first determine whether there is the need for any management action before implementing an action plan.

Recommendations	Priority			Time
	Low	Medium	High	
Criterion 3.1. The Wilderness is protected by law in accordance with national legislative frameworks for an indefinite period of time				
The park management must develop and implement a long-term Wilderness Stewardship plan to guarantee the legal protection of the Wilderness (e.g. specific Wilderness focused legislation and stewardship, develop a concept of long-term agreement with the Carabinieri Forestale). This should be done as a part of the new management plan of Majella National Park.			√	2023
The park management must put further emphasis on the co-operation with the Carabinieri Forestale to further improve the quality of Wilderness stewardship in Majella Wilderness.			√	2020
The park management should share their knowledge and experience with legal frameworks to implement Wilderness protection within a protected area with other protected areas in Italy and the Mediterranean region.		√		2025
Criterion 3.2. The Wilderness has a detailed Wilderness Stewardship Plan of at least 10 years				
The Wilderness Stewardship Plan must be a separate document or chapter of the overall management plan and must include an English summary.			√	2023
The Wilderness Stewardship Plan should follow the template published on the EWS Website.		√		2023

The park management must develop a Wilderness focused information communication strategy explaining the importance of Wilderness to stakeholders, visitors and the general public and must share the summary of the Wilderness Stewardship Plan with the stakeholders and the partners of the European Wilderness Network.			√	2023
The Wilderness Stewardship Plan should focus on research and monitoring projects in Wilderness.		√		2023
Criterion 3.3. The Wilderness has a sufficiently large and trained full time management team				
The park management, in co-operation with the Carabinieri Forestale, must develop a Wilderness-focused training plan based on Wilderness stewardship best practice examples. This training plan should be aimed at the management team, particularly to the employees working with and in Majella Wilderness. (Possible training subjects may include: Wilderness in Europe, Wilderness and ecological processes and biodiversity, Wilderness and large predators, Wilderness rangers, Wilderness and visitors and locals).			√	2022
Majella National Park, in co-operation with the Carabinieri Forestale, has to develop a strategy on future co-operation concerning field work, communication, public information and visibility.			√	2020
The park management should consider opportunities to invite colleagues and experts from other protected areas within and outside of Italy on the subject of Wilderness protection.		√		2021
The park management should consider organising internal trainings to improve the English language skills of the park employees.		√		2022

9.4. Principle 4: Wilderness Restoration

Wilderness restoration is an intentional activity that initiates or accelerates the recovery of a 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. These activities should be implemented once and not continuously.

Recommendations	Priority			Time
	Low	Medium	High	
Criterion 4.1. The Wilderness has a Wilderness restoration plan to enlarge and improve the Wilderness zone				
The park management must develop a Wilderness restoration plan focusing on spontaneous natural restoration in Majella Wilderness.			√	2023
The park management should focus on reducing the current fragmentation of Majella Wilderness through natural restoration and enlargement of the Wilderness zone.		√		2025

The park management should share their experience with spontaneous natural Wilderness restoration with other protected areas.		√		2025
The park management must develop an information communication strategy explaining the need of Wilderness restoration and enlargement to the stakeholders, visitors and the general public as well as the partners of the European Wilderness Network.		√		2025
Criterion 4.2. The Wilderness zone should be enlarged with the help of Wilderness restoration measures in the Restoration zone				
The park management has to continuously monitor and research the spontaneous natural restoration of abandoned formerly used areas.			√	Continuously
The park management has to develop an information and interpretation programme to inform visitors, locals and stakeholders about the importance of spontaneous natural restoration for the development of Wilderness.		√		2023

9.5. Principle 5: Wilderness extractive and intrusive uses

The European Wilderness definition 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				
The park management must strictly enforce the rule of no extractive or commercial uses in the Wilderness zone.			√	Continuously
The park management must monitor possible breaches of this principle.			√	Continuously
The park management must continue education and interpretation activities which focus on the impact of extractive uses (i.e. grazing, forestry, water extraction) or commercial uses (i.e. guiding visitors, collecting truffles) outside of the Wilderness zone to enable spontaneous natural dynamic processes inside the Wilderness zone.			√	Continuously
Criterion 5.2. The Wilderness zone has no forestry operations				
The park management must continue to prohibit all forestry operations in the Wilderness zone, including sanitary logging, active fire and erosion prevention measures.			√	Continuously
The park management must develop and implement an information communication strategy explaining the importance of stopping all forestry operations to enable natural dynamic processes to function freely in the Wilderness zone. This strategy has to be targeted to stakeholders, visitors and the general public.			√	2021

The park management should share their experience with stopping all forestry operations in the Wilderness zone with the partners of the European Wilderness Network.	√			2023
Criterion 5.3. The Wilderness zone has no hunting and/or game management				
The park management must develop an information communication strategy explaining the importance of having a hunting free zone within the Wilderness zone to stakeholders, visitors and the general public.			√	2021
The park management must continuously monitor the impact of poaching in the Majella Wilderness.			√	Continu-ously
The park management must continue to emphasise the communication of the importance of having carnivores like Marsican bear, Apennine wolves and lynx in the Wilderness zone.		√		Continu-ously
Criterion 5.4. The Wilderness zone has no extractive fishing or management of fish populations				
The park management must continue to monitor and control extractive illegal fishing activities		√		Continu-ously
The park management must develop an interpretation programme with a focus on native fish species.		√		2023
Criterion 5.5. The Wilderness has a fish and game management plan for the Restoration and Transition zones				
The park management must continue with the monitoring and controlling of extractive fishing activities and game management in the surroundings as well as their impact on the Wilderness zone.		√		Continu-ously
Criterion 5.6. The Wilderness zone has no active mining				
n/a				
Criterion 5.7. The Wilderness zone has abandoned old mining sites				
n/a				
Criterion 5.8. Park management has implemented a restoration plan for previous mining sites in the Restoration zone				
n/a				
Criterion 5.9. The Wilderness zone has no domestic livestock grazing				
The park management must continue to implement its communication strategy concerning the importance of having no livestock grazing in the Wilderness zone.			√	Continu-ously
The park management must continue to monitor the remaining small-scale grazing activities to prevent influences on the Wilderness zone.			√	Continu-ously
The park management has to increase the control and monitoring of illegal grazing within the Wilderness zone.			√	2020

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. The Wilderness zone has no commercial harvesting of berries, nuts or mushrooms				
The park management must continue to monitor and control the collection of mushrooms and truffles in the Wilderness.		√		Conti-nuously
Criterion 5.13. The Wilderness zone has no commercial collection of minerals				
n/a				
Criterion 5.14. The Wilderness zone has no commercial filmmaking				
The park management should create a Wilderness zone without commercial filmmaking. In particular the use of drones should be excluded from the Wilderness zone and strictly regulated in other parts of the National Park.			√	2021

9.6. Principle 6: Wilderness Disturbances

This principle focuses on the removal of permanent and temporary infrastructure, creating well-planned tourism access with minimal impact as well as regulating and limiting road access to the Wilderness, in order to reduce the human impact in the Wilderness zone.

Recommendations	Priority			Time
	Low	Medium	High	
Criterion 6.1. The Wilderness zone has no permanent infrastructure				
The park management must develop and update maps and inventories of the permanent infrastructure e.g. abandoned old refuges/bivouacs and the network of old abandoned dirt roads in the Wilderness zone.			√	2020
The park management must monitor the permanent infrastructure e.g. abandoned old refuges/bivouacs and the network of old abandoned dirt roads and its impact on the Wilderness zone.			√	Continu-ously
The park management should minimise and terminate the use of dirt roads in the Wilderness zone.			√	2020
The park management should strengthen their co-operation with the Alpine Club concerning the management and maintenance of refuges and bivouacs in the Wilderness zone.		√		2021

Criterion 6.2. Permanent infrastructures in the Restoration zone are removed according to the restoration plan, unless the removal is detrimental to the quality of the Restoration zone				
The park management should map all permanent infrastructures within the Restoration zone and should assess their level of use and necessity.		√		2025
Criterion 6.3. There is a management plan on how to deal with temporary structures (e.g. tents, picnic tables, housing containers, trailers, etc.) in the Restoration zone and Transition zone				
The park management must develop a strategy and management plan on how to deal with temporary structures in the Wilderness.			√	2022
The park management must develop a map and inventory of all existing temporary structures in the Majella Wilderness.			√	2022
The park management must continue to monitor the usage of the existing temporary structures in the Majella Wilderness.			√	Continu-ously
Criteria 6.4. The Wilderness zone has no permanent settlements.				
n/a				
Criterion 6.5. There is a management plan to deal with inherited settlements in the Wilderness zone				
n/a				
Criterion 6.6. There is a management plan for the Wilderness to deal with inherited indigenous gathering sites (e.g. traditional reindeer herding sites in Nordic countries)				
n/a				
Criterion 6.7. There is a management plan to deal with abandoned archaeological sites in the Wilderness zone				
The park management has to develop a map with all archaeological sites, particularly hermitages, in the Wilderness zone.		√		2023
The park management has to monitor the use and visitor pressure on these archaeological sites, in particular hermitages, in the Wilderness zone.		√		Continu-ously
Criterion 6.8. There is no motorised transport in the Wilderness				
The park management should terminate all motorised use within the Wilderness.			√	2020
Criterion 6.9. There is free access by foot to the Wilderness				
The park management must avoid the installation of new trails in the Wilderness zone.			√	Continu-ously
The park management must continue the monitoring of visitor impacts along the official trails in Majella Wilderness.			√	Continu-ously

Criterion 6.10. The Wilderness zone has no noise pollution				
The park management must develop a random monitoring scheme for noise pollution in the Wilderness zone.		√		2023
The park management must limit and control flights of any aircraft, in particular helicopters, over the Wilderness zone below a certain agreed flight altitude.			√	2023
Criterion 6.11. The Wilderness zone has no light pollution				
The park management must develop a random monitoring scheme for light pollution in the Wilderness zone.		√		2023
The park management should not increase the electrical infrastructure of refuges and bivouacs within the Wilderness zone to maintain minimal light pollution.			√	2023
Criterion 6.12. The Wilderness zone has no visual distractions on the horizon				
The park management must carry out a visual distraction assessment with a focus on identifying visual disturbance, such as TV reflectors and towers, in the Wilderness zone.			√	2023
Criterion 6.13. The Wilderness has no garbage pollution				
The park management, together with the local partners, must continue with the current garbage management and monitoring in the Majella Wilderness.			√	Continu-ously
The park management must focus on garbage management, in particular removal, in the surroundings of the refuges and bivouacs. Special emphasis should be put on the top of Monte Amaro.			√	2020
The park management should develop a strategy on how to deal with human waste in the surroundings of the refuges and bivouacs. Special emphasis should be put on the top of Monte Amaro.			√	2020
Criterion 6.14. There are no recreational fire pits in the Wilderness zone				
The park management must develop an inventory of the number and condition of inherited and still used fire pits in the Restoration and Transition zone of Majella Wilderness and must monitor these fire pits.			√	2023
Criterion 6.15. There are rules for the use of horses in the Wilderness zone				
n/a				
Criterion 6.16. The Wilderness zone has no fencing				
n/a				
Criterion 6.17. There are rules about dogs in the Wilderness zone				
n/a				

Criterion 6.18. The Wilderness has a minimal impact visitor and recreational use strategy				
The park management should put a focus on minimal impact in their visitor and recreational strategy. This strategy should include the European Outdoor Ethics principles.			√	2021
The park management together with local stakeholders has to develop a strategy on how to handle the situation (soil erosion, abundant infrastructure) in the currently closed ski area of Campo di Giove.		√		2022
The park management must continue the maintenance of tourist trails as well as the cleaning of the touristic areas.			√	Continuously
Criterion 6.19. The Wilderness has an integrated visitor and recreation strategy to support the Wilderness concept				
The park management must continue working with their integrated visitor and recreation strategy for Majella Wilderness.			√	Continuously
The park management must continuously monitor the visitor impact on Majella Wilderness in general and particularly in the Wilderness zone.			√	Continuously
The park management has to update their marketing strategy with the new European Wilderness Society logo, in particular on their homepage and other outreach sources.			√	2020

9.7. Principle 7: Natural dynamic processes

Natural dynamic processes, such as windstorms, fire, disease outbreaks or avalanches, are a critical aspect of Wilderness and are important sculptors of landscape and habitats. These processes should be given freedom in the Wilderness, without human influence. However, they are often considered problematic and undesirable by humans.

Recommendations	Priority			Time
	Low	Medium	High	
Criterion 7.1. There is a fire management plan for the Wilderness and the Wilderness zone. Fire must not be suppressed in the Wilderness zone				
The park management must develop a fire history of the Majella Wilderness.		√		2025
The park management must monitor the frequency of fire in the Majella Wilderness.			√	2021
The Fire Prevention Plan of the park management should minimise and limit fire control measures to the Restoration and Transition zone in case they are necessary and only if these measures do not cause long-term impacts on the Wilderness zone.			√	2020

The park management must develop education and interpretation activities explaining the role of fire in ecosystem dynamics and consequently the role of fire management and a let-it-burn policy, with a focus on Wilderness managers, stakeholders, like the state and regional fire control authorities, the public and visitors.			√	2021
Criterion 7.2. The Wilderness has a disease management plan				
The park management must continue research on the history and dynamics of animal and tree disease outbreaks.			√	Continuously
The park management must develop education and interpretation activities explaining the importance and the role of a let-it-fly policy to the stakeholders, visitors and the general public.		√		2025
The park management should limit disease management measures to the Restoration and Transition zone of Majella Wilderness.			√	2022
Criterion 7.3. A neophyte and invasive species management plan has been developed for the Wilderness				
The park management has to develop a map of all inherited non-native, neophyte tree plantations and invasive species in the Wilderness.		√		2020
The park management must continuously research and monitor neophyte and invasive species that threaten the Wilderness zone.			√	Continuously
The park management must develop an invasive and neophyte species control plan to prevent further incursion of invasive species into the Wilderness.			√	2023
The park management must develop education and interpretation activities focusing on neophyte and invasive species.			√	2025
The park management should limit all neophyte and invasive alien species control activities to the Transition zone.			√	2021
Criterion 7.4. There is a plan for natural dynamic processes				
The park management must continue to research and monitor natural dynamic processes, such as climatic extremes, and avalanches.			√	Continuously
The park management must develop an information communication strategy explaining the role of natural dynamic processes in the Wilderness zone to the stakeholders, visitors and the general public as well as the partners of the European Wilderness Network.			√	2021
Criterion 7.5. The Wilderness zone is impacted by permafrost				
The park management should monitor permafrost in the high mountain areas of Monte Amaro.	√			2025

9.8. Principle 8: Wilderness research and monitoring

Wilderness offers opportunities to study the unique attributes of nature and natural processes. High quality Wilderness research and monitoring allows park managers to make appropriate decisions regarding the Wilderness. Research and monitoring activities should never be invasive in their character.

Recommendations	Priority			Time
	Low	Medium	High	
Criterion 8.1. There is a Wilderness monitoring and research strategy				
The park management must continue with their comprehensive research and monitoring work.			√	Continuously
The park management has to find long-term funding sources for long-term Wilderness related research.			√	2025
The park management must develop a research and monitoring program focusing on collecting data on natural Wilderness restoration and natural dynamic processes.			√	2025
The park management must monitor the impact of research and monitoring activities, particularly in the Wilderness zone.		√		2025
The park management must focus on non-invasive monitoring methods and minimise all visible and ecological impacts of research and monitoring activities within the Wilderness zone.		√		2025
The park management must develop an information communication strategy explaining the importance of a Wilderness monitoring and researching strategy to the stakeholders, visitors and the general public as well as the partners of the European Wilderness Network.		√		2025
Criterion 8.2. There is a monitoring system which documents activities and extractive uses in the protected area				
The park management should continue monitoring previously used and now naturally restoring areas in the Wilderness zone.		√		Continuously
Criterion 8.3. There is a monitoring plan to document indigenous people livelihoods and their impacts				
The park management must develop a plan to intensify collaboration with scientific institutions and universities focusing on Wilderness conservation.		√		2020
The park management has to seek possible funding (e.g. Erasmus) to share their experience with the scientific community and the partners of the European Wilderness Network.			√	2020

Criterion 8.4. There is a plan for cooperation with scientific institutions and universities				
The park management should focus on national or international co-operation concerning Wilderness related research or monitoring projects.		√		2025
The park management should continue with national and international research and monitoring co-operations.			√	Continuously

9.9. Principle 9: International relevance and importance of the Wilderness

The importance of Wilderness is finally being recognised in Europe. More people and initiatives are beginning to work to protect and expand Wilderness. A Wilderness should be internationally recognised by the IUCN, UNESCO, EU as well as other relevant international organisations.

Recommendations	Priority			Time
	Low	Medium	High	
Criterion 9.1. The Wilderness is internationally recognised (IUCN, Natura 2000, UNESCO, other certifications)				
The park management should share their knowledge concerning internationally recognised Wilderness protection and stewardship within Italian protected areas and the European Wilderness Network.		√		2023
Criterion 9.2. There is a plan to become part of the Natura 2000 network (where relevant and according to the Wilderness objectives)				
n/a				
Criterion 9.3. The Wilderness supports the protection of internationally threatened species				
The park management should maintain their pioneering role in Wilderness stewardship and the protection of threatened species within Italy and the Mediterranean.			√	Continuously
The park management should continue their education and marketing activities which focus on Wilderness and the protection of internationally threatened species.		√		Continuously

10. Wilderness Awarding

10.1. History of the cooperation between Majella National Park and the European Wilderness Society

The co-operation between Majella National Park and the European Wilderness Society dates back to 2005, when the decision to formally protect Wilderness in Majella National Park was made and the park was included in the PAN Parks Network. During several audit missions in the following years the Wilderness potential and stewardship of Majella Wilderness was confirmed. When PAN Parks transformed to the European Wilderness Society in 2014 and the European Wilderness Network was founded, Majella Wilderness was one of the first partners to join. In 2018 a Re-Audit of Majella Wilderness was carried out to evaluate the past developments within the Wilderness and the current Wilderness stewardship. This successful Re-Audit confirmed the high quality of Majella Wilderness and consequently the ongoing partnership for another 10 years.

Fig. X-1: Majella Wilderness has been a PAN Parks partner since 2005, which was transformed to the European Wilderness Network in 2014

10.2. International Audit and Awarding Processs

Between 2005 and 2009 several international audit teams from PAN Parks visited Majella Wilderness to carry out the site assessments according to the European Wilderness Quality Standard. An initiation meeting in May 2018 set the starting point for a Re-Audit of Majella Wilderness. This Re-Audit was carried out by the European Wilderness Society in May and September of 2018. These field assessments included several excursions and an overnight stay within the Wilderness. The European Wilderness Society team verified 25 895 ha of the Majella Wilderness, which was awarded a Platinum Wilderness Certificate.

The European Wilderness Society will continue to work with Majella Wilderness in an effort to enlarge the Wilderness and increase the Wilderness quality, as well as to improve the Wilderness stewardship effectiveness.

Fig. X-2: Majella Wilderness certificate, valid until October 2028

11. Monitoring and Evaluation

After the international audit and verification, monitoring is done for a period of 10 years. This is the regular process of collecting and analysing data in order to make decisions and track the progress towards reaching the objectives of a particular Wilderness.

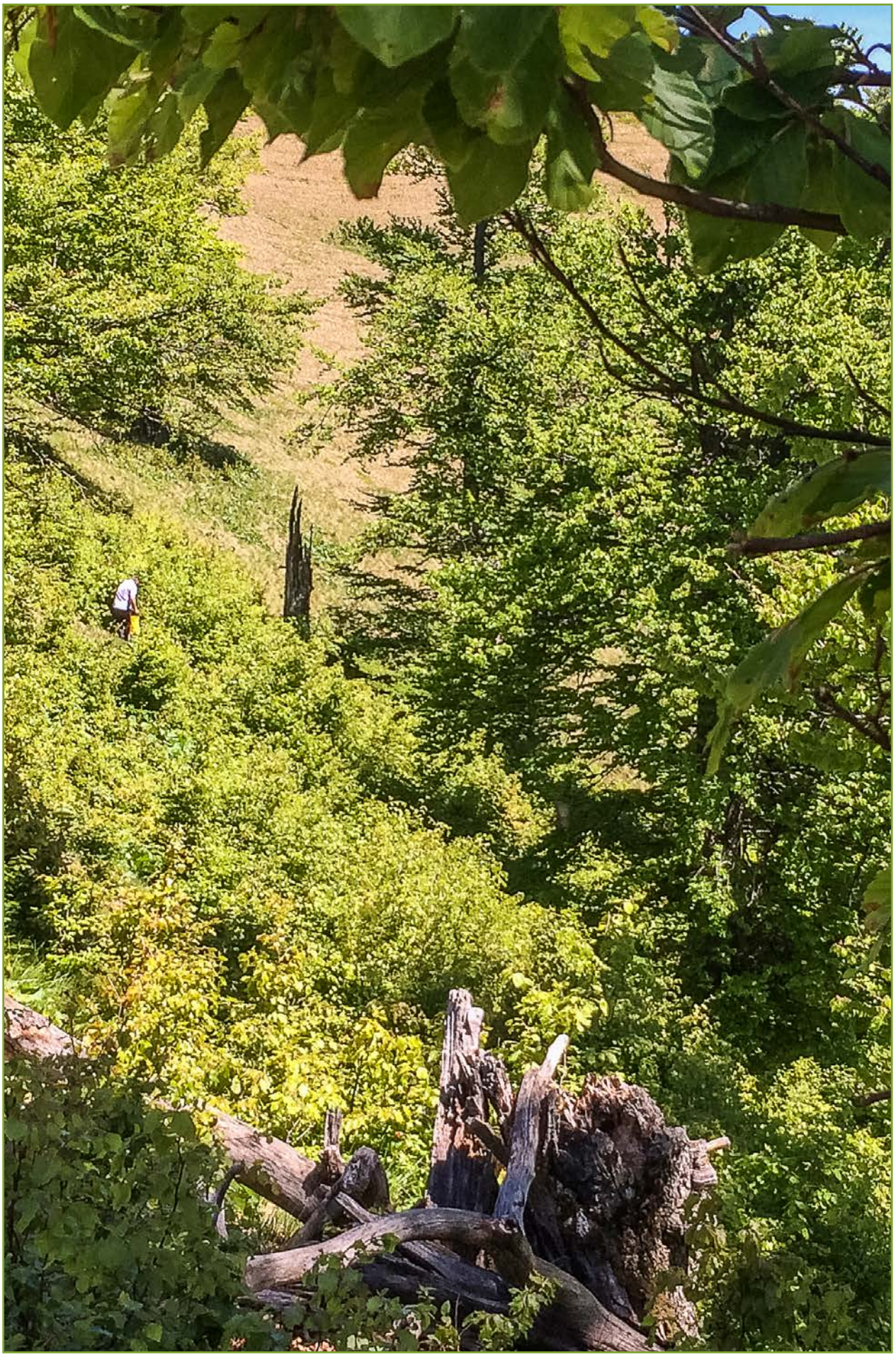
The monitoring focuses on processes such as when and where recommended activities are implemented. In addition, the data from monitoring can also be applied to other Wilderness sites in Italy and throughout Europe.

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 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 interventions 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 stewardship

Table XI-1: Monitoring Programme for Majella Wilderness

Year	Activity
2018	Re-audit and Wilderness certification
2019	Delivery of Full Audit reportt
2022-2028	Random site monitoring and assessments, collecting and analysing data to track progress towards reaching objectives of the Wilderness stewardships
2028	Site assessment, delivery of verification report and awarding a new Wilderness certificate valid for 10 years



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13. List of figures

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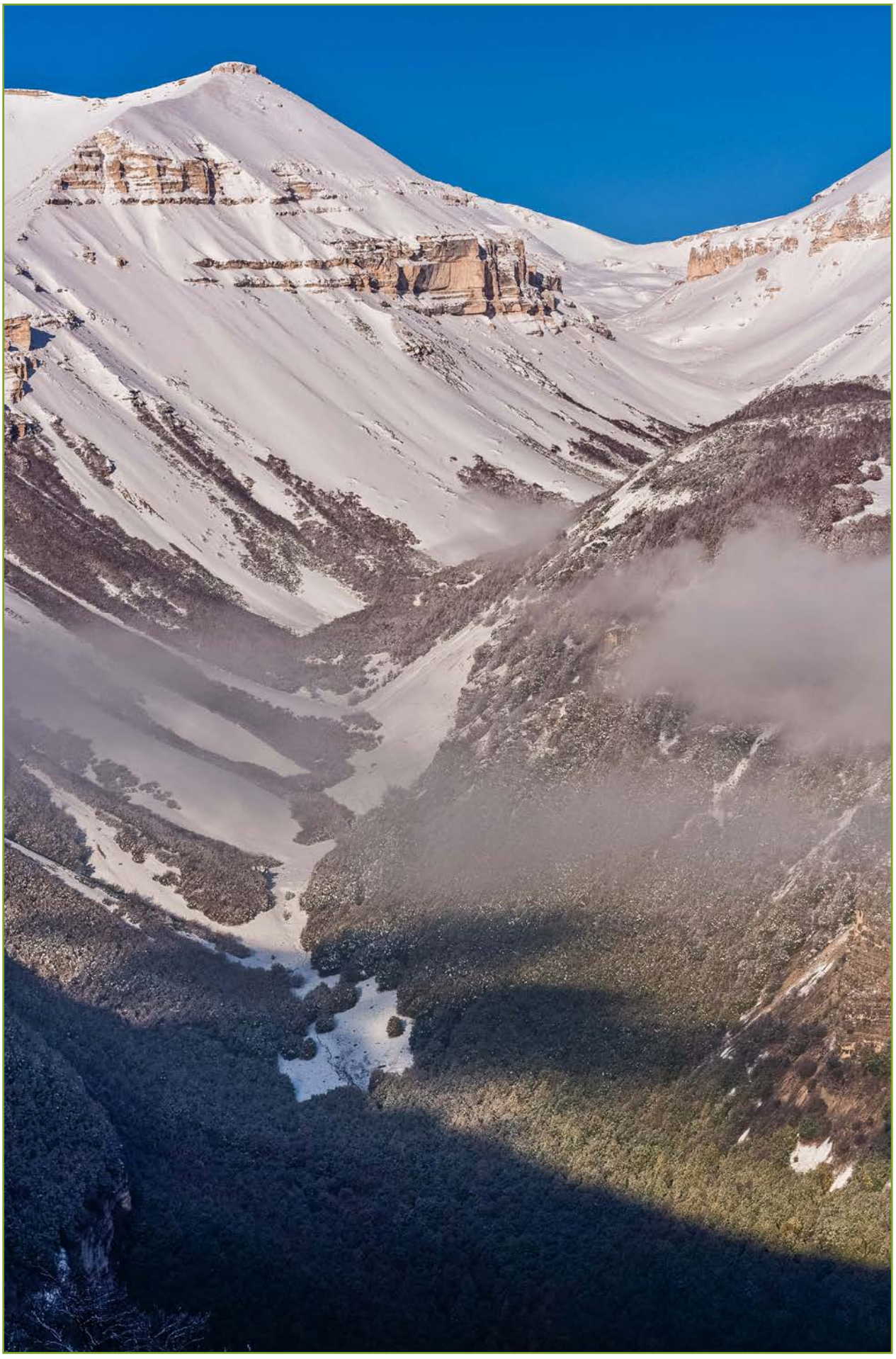
14. List of tables



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