

Supplementary Information

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Supplementary Information on the Nomination “Primeval Beech Forests of the Carpathians and Other Regions of Europe” as extension to the existing Natural World Heritage Site “Primeval Beech Forests of the Carpathians and the Ancient Beech Forests of Germany” (1133bis)



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PREAMBLE

This document provides supplementary information for the nomination dossier on the “Primeval Beech Forests of Carpathians and Other Regions of Europe” (as an extension to the existing World Heritage of the “Primeval Beech Forests of the Carpathians and the Ancient Beech Forests of Germany”).

This document responds to questions raised in the Progress Report of IUCN evaluation, which has been provided to the State Parties on 24th January 2017.

The State Parties of the mentioned nomination held a joint meeting in Vienna on 26th January to discuss the IUCN report and further steps. In November 2014 the Austrian Ministry of Agriculture, Forestry, Environment and Water Management assumed responsibility for the nomination process, and soon afterwards requested a meeting with the IUCN World Heritage Programme director in order to discuss some issues of the Progress Report and further steps. This meeting was held on 1st February in Gland, CH.

In response to the statements made by the IUCN to the first submission and also to the results of the meeting in Gland, this document of supplementary information was elaborated and approved by all State Parties involved in the nomination process and supported by the State Parties of the existing World Heritage Site (Germany, Slovakia, Ukraine).

Supplementary Information provided by the participating State Parties of

<p>Republic of Albania</p> 	<p>Republic of Austria</p> 
<p>Kingdom of Belgium</p> 	<p>Republic of Bulgaria</p> 
<p>Republic of Croatia</p> 	<p>Italian Republic</p> 
<p>Romania</p> 	<p>Republic of Slovenia</p> 
<p>Kingdom of Spain</p> 	<p>Ukraine</p> 



SUMMARY

This document provides supplementary information for the nomination dossier on the “Primeval Beech Forests of Carpathians and Other Regions of Europe”.

The main goal of this initiative is to preserve the last remnants of ancient and primeval European beech forests as examples of complete and comprehensive ecological patterns and processes of pure and mixed stands across a variety of environmental conditions in the still ongoing postglacial continental-wide expansion process. Ancient and primeval beech forests are under tremendous pressure in Europe. The nomination of a World Heritage (WH) will increase the awareness on this natural value and will strengthen the protection status of individual sites. The serial property will act as a pan-European network and a platform for policy making, knowledge exchange and joint management activities (e.g. corridor development, biomonitoring network, natural capital evaluation and preservation, sustainable development).

The nomination process is based on the decisions made by the UNESCO World Heritage Committee (WHC) at the 35th session 2011 in Paris where the WHC approved the “Ancient Beech Forests of Germany” as an extension to the “Primeval Beech Forests of the Carpathians, Slovakia and Ukraine”. In the context of this decision, the WHC recommended the three State Parties to continue with the nomination process and to assess the potential for a complete and finite nomination register for primeval and ancient beech forests for Europe.

During a 2.5 years lasting screening process (2012-2014), the first comprehensive overview on ancient and primeval beech forests in Europe had been elaborated. All relevant known primeval and ancient beech forests in Europe were gathered in a list of 126 sites (“Longlist”). Based on the criteria from the Operational Guidelines and the Outstanding Universal Value (representation of each Beech Forest Region) suitable sites for a World Heritage of European beech forests were selected (the so-called “Vienna Shortlist” of 64 sites). Each of the State Parties hosting at least one of these potential sites was invited to participate in the nomination process.

This current nomination would extend the existing World Heritage (15 component parts) to a total number of 79 component parts and an area of 92,000 ha in 12 States (82 % of the beech forest area of all 64 sites in the Vienna Shortlist). The remaining 18% of forests from the Vienna Shortlist are distributed on 17 sites in 11 States.

The latest inclusion of 12 State Parties (instead of 3 after the inscription of Germany) has provided a much more complete picture of the continental character, diversity and biogeographical distribution of beech forest. The proposed World Heritage of “Primeval Beech Forests of the Carpathians and Other Regions of Europe” showcasing the postglacial expansion process through a series of sites that demonstrate the most natural and undisturbed development history of European beech forest ecosystems as possible. Undisturbed development over time, completeness (i.e. distribution of all forest development phases) and adequate protection to ensure undisturbed development are some of the important selection criteria of sites. The proposed new sites together with the existing sites cover majority (more than 80 %) of the identified ancient and primeval beech forests area in Europe.

State Parties are aware that this nomination of a serial property covering over 60 component parts in more than 30 protected areas in 10 countries is a major challenge for the IUCN evaluation process, which is limited by human and financial resources and has to stick to the time schedule of the UNESCO World Heritage nomination process.

Given the fragile process of a transnational serial nomination procedure with 10 State Parties involved and the current pressure on primeval beech forests in several states, a delay in the procedure will have significant impact on the success of the whole project. By this nomination, the protection status of more than 80 % of the last remnants of primeval and old ancient European beech forests would be significantly improved and the public awareness about the natural beech forest ecosystem would be pushed to a global level. This would have an important influence on policy making and clearly empower nature conservation in a critical era for biodiversity and beech forest conservation.



INTRODUCTION

The State Parties of this nomination

- consider the importance of natural beech forests of existing and proposed World Heritage Sites (WHS) with Outstanding Universal Value as a key element of further protection of beech forest ecosystems in Europe and, more in general, of the temperate deciduous forest biome;
- attach significant importance to the protection of the integrity of the proposed World Heritage property “Primeval Beech Forests of the Carpathians and Other Regions of Europe”;
- are understanding the challenges faced during the IUCN evaluation process, given the time schedule of the UNESCO World Heritage nomination process, the limited human and financial resources available, and the ambitious proposal to have nominated a serial property covering over 60 component parts in more than 30 protected areas in 10 State Parties;
- remain committed, after an extensive scientific assessment of Europe’s beech forests, that a more systematic and representative selection of beech forest sites beyond the existing WHS of the “Primeval Beech Forests of the Carpathians and the Ancient Beech Forests of Germany” is necessary and certainly desirable if the processes and drivers of change to beech forests are to be fully understood, and if this unique ecosystem is to be safeguarded;
- are convinced, that by this nomination, the existing world heritage of the “Primeval Beech Forests of the Carpathians and the Ancient Beech Forests of Germany” is extended to give an outstanding comprehensive serial example and broader picture of the ongoing postglacial expansion process and different types of ancient or primeval European beech forest ecosystems at the continental scale.

It is important to mention that the elaboration of this nomination was agreed following the decisions made by the UNESCO World Heritage Committee at the 35th session in Paris 2011.

At this session, the World Heritage Committee (WHC) approved the “Ancient Beech Forests of Germany” as an extension to the “Primeval Beech Forests of the Carpathians, Slovakia and Ukraine”. The WHC stated that the “Primeval Beech Forests of the Carpathians and the Ancient Beech Forests of Germany” were to be a serial property comprising fifteen components and represent an “... *outstanding example of undisturbed, complex temperate forests and exhibit the most complete and comprehensive ecological patterns and processes of pure stands of European beech across a variety of environmental conditions. They contain an invaluable genetic reservoir of beech and many species associated and depend on these forest habitats*” (WHC 2011).

In the context of the above decision, the WHC recommended the three State Parties to continue with the nomination process and to assess the potential for a complete and finite nomination registry for primeval and ancient beech forests of Europe. “[*The WHC*] *commends the States Parties of Ukraine, Slovakia and Germany for their on-going commitment to ensure a comprehensive approach to conserving the primeval and ancient beech forests of Europe and for their exploration of the potential for the World Heritage Convention to further these efforts by cooperating with the support of IUCN and the World Heritage Centre, with other interested States Parties towards a finite serial transnational nomination in order to assure the protection of this unique forest ecosystem*” (WHC 2011).

Besides the recommendations made by the WHC, also the IUCN evaluation report on the German extension (May 2011) has been seen as a key-document for the extension process, which was launched in 2012. In the IUCN evaluation report (IUCN 2011) the protection status, the boundaries and the management of the German sites were approved under the Operational Guidelines. In the assessment of the threats, IUCN raised concerns about the viability of small remnant forested areas, but after careful consideration agreed that the nominated property met the conditions of integrity as outlined in the Operational Guidelines.

The overall conclusion of the IUCN Report on the German extension was: “... *that the components within the nominated property have the potential to meet this criterion, only when considered as an extension to the Primeval Beech Forests of the Carpathians, however there may be alternative sites of equivalent or greater value that should be considered in other States Parties.*” Furthermore, they gave recommendation to the WHC to defer the extension nomination “... *to allow the State Party to continue working with the States Parties of Ukraine and Slovakia and other interested States Parties, with the support of IUCN and the World Heritage Centre as required in order to define the scope of a finite and complete serial transnational nomination based on an extension of the existing property*”.

Based on the German nomination dossier and the IUCN Evaluation Report the screening and nomination process has been designed according to the Operational Guidelines.

This document provides a response to the questions raised during the IUCN review process and presented in the Evaluation Progress Report (January 2017). In the meeting in Gland on 1st February 2017 the representatives of the panel stated that the “story” of this World Heritage (the postglacial extension process of *Fagus sylvatica*) was not clear to many of the panel members and the approach of the extension process should be described in a more appropriate way (e.g. in a logical framework format).

The responses to issues raised by the panel are presented in the following three sections:

1. The Story
2. The Process
3. Answers to the Questions from the Progress Report



World Heritage Site in East Carpathian Biosphere Reserve, Ukraine

1. THE STORY

The German nomination clearly shifted the focus of the Outstanding Universal Value (OUV) within the criterion ix (*to serve as outstanding examples representing significant on-going ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of plants and animals*). During the initial nomination process the component parts in the Carpathians were targeted for demonstrating “best examples” of the attribute “natural processes” within beech forests. In the extension phase with the nomination of the German sites the emphasis was put on the postglacial and continental expansion process of beech forests. The ongoing ecological and biological processes are not visible and understandable in one or two component parts. It is needed to observe the whole series for understanding the justification of the OUV in a comprehensive view.

The latest inclusion of 12 State Parties (instead of 3 after the inscription of Germany) has provided a much more complete picture of the continental character, diversity and biogeographical distribution of beech forest. A complex narrative now emerges

of a species that exhibits distinctive and unique biogeographical provenance, climatic vulnerability as well as a certain degree of adaptation, and evidence of rapid shifts and change under the influence of human disturbance and climate change.

The “story” of the serial property is summarised as follows: During each glacial phase (ice ages) of the last 1 million years, European beech (*Fagus sylvatica*) survived the unfavourable climatic conditions (i.e. ice-caps and peri-glacial tundra in N- and C-Europe, and continental steppic conditions in S-Europe) in refuge areas in the southern parts of the European continent (mostly steep mountain areas hosting a high environmental heterogeneity and subject to Stau Effect, i.e. intercepting moisture from the sea). These refuge areas have been documented by scientists through palaeoecological analysis and using the latest techniques in genetic coding (Magri et al. 2006). After the last ice age, around 11,000 years ago, beech started expanding its range from these southern refuge areas to eventually cover large parts of the European continent.

The expansion process has temporal as well as spatial dimensions. *Fagus sylvatica* expanded into the mixed deciduous forests that had been built up by an aerial recolonization wave by Oak, Hornbeam, Lime and Hazel, and mostly established mono-dominant forests in the lowlands and mixed forests with *Abies alba* and *Picea abies* in the higher vegetation belts.

During this migration process, which is still ongoing, beech formed different types of plant communities while occupying largely different environments. The different climatic situations in different regions of Europe (moist Atlantic climatic zones in the West to dry Continental climatic zones in the East; summer-dry warm Mediterranean climate in the South and cold Baltic climate in the North) along with the different species pool available (different floristic regions) and with the different pace at which other species migrated, formed a high diversity of beech forest communities. That is, in different parts of Europe (but often even within a single mountain, because of the various elevation belts and bedrock types: Filibeck et al. 2015), the apparently homogeneous beech forest canopy features a bewildering variety of floristic assemblages in the understorey (Willner et al. 2017) and hence different ecosystem processes (Ellenberg 1998). Up to the medieval period, large territories of Europe

were dominated by these different types of beech forests, although human influence has played a role in managing the European landscapes for a much longer time. During the first 10,000 years of the postglacial expansion process, the development of different ecological sub-types of beech forest was mainly a natural evolutionary process and was not significantly altered by man. During the last 1,000 years, and mainly within the industrial revolution starting in the 18th century, forestry and agriculture changed the European landscape significantly. At the begin of the 21st century, only a few remnants of ancient or primeval beech forests are left in Europe, and the threat of harvesting timber in these last remnants is still not completely under control.

The proposed World Heritage of “Primeval Beech Forests of the Carpathians and Other Regions of Europe” showcasts the postglacial expansion process through a series of sites that include some of the glacial refuge areas and demonstrates the most natural and undisturbed development history of European beech forest ecosystems as possible. The main source refuge areas of postglacial colonisation (Figure 1) are included in the proposed extension. Undisturbed development over time, completeness (i.e. distribution of all forest development phases) and adequate protection to

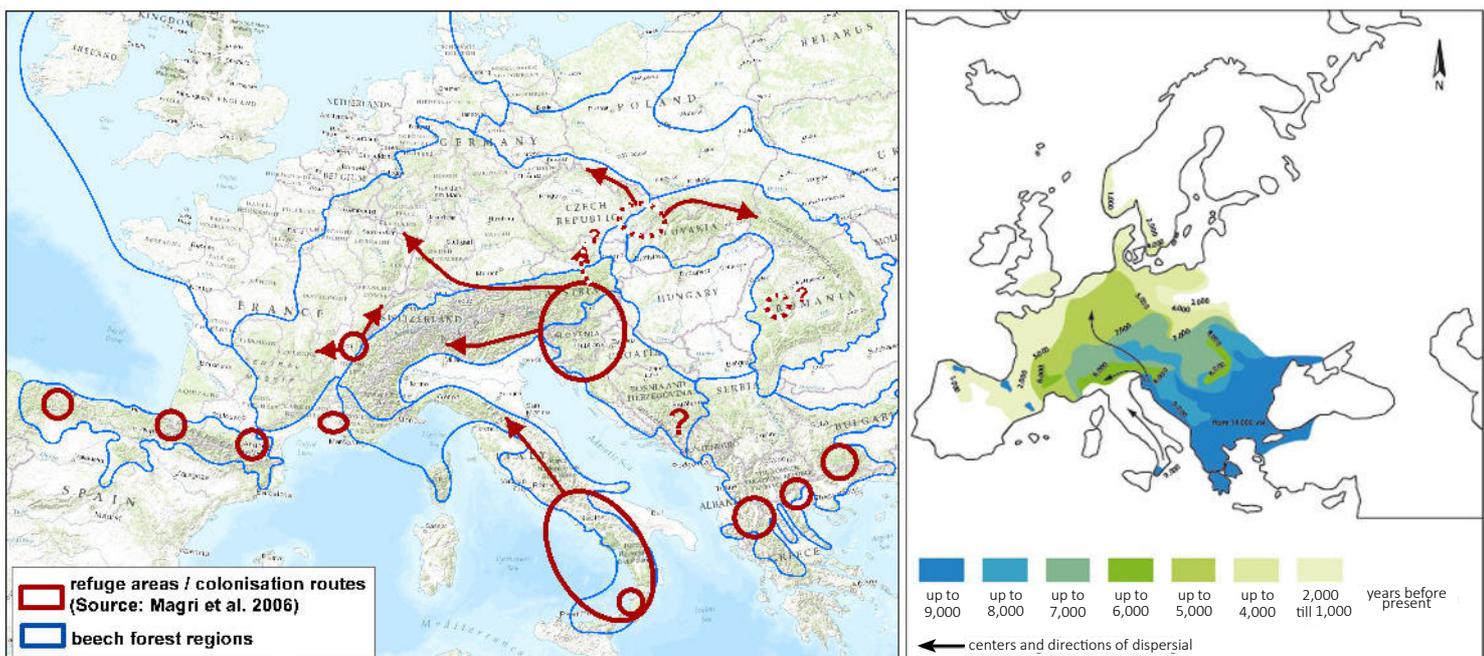


Figure 1: Refuge areas and postglacial expansion paths of European beech (*Fagus sylvatica*) (left: E.C.O. Institute of Ecology, right: LEIBNIZ INSTITUT FÜR LÄNDERKUNDE, both modified according to MAGRI et al. 2006).



World Heritage Site in Jasmund National Park, Germany

ensure undisturbed development are some of the important selection criteria of sites. The proposed new sites together with the existing sites cover the majority (more than 80 %) of the identified ancient and primeval beech forests area in Europe.

The set of selected sites covers the different eco-regions, which are characterised by specific climatic and floristic diversity. The spatial information is scientifically reflected by the delineation of “European Beech Forest Regions” (EBFR). The EBFR are describing spatial units within the distribution area of *Fagus sylvatica*, which are homogenous according to the predominant macroclimate and the floristic species pool. Therefore, the EBFR are an important selection criteria of serial sites. 10 of 12 EFBR are represented in the proposed extension, the two EFBR not included represent less than 1 % of the current beech forests in Europe.

As this proposed serial World Heritage property aims to demonstrate the still ongoing expansion process of beech forests, which is mainly driven by climatic factors, also the dynamic aspects are important for this heritage. The dynamic processes can be best observed at the edges of the current beech distribution. These are the rear edges, i.e. the southernmost and lowest-elevation (warmest) sites of the species range where refuge areas were located as well as the expanding edge, i.e. the northernmost, highest (coldest) and/or most continental (eastern) sites. Recent climatic models are predicting changes in precipitation also in the Atlantic climatic region, so high dynamics are expected there as well. At the limits of the distribution of the beech forests, beech does not form large climax forest ecosystems, but small, extra-zonal remnants or outposts. These forests are inherently small for biogeographic and demographic reasons connected to the still ongoing modification

in the species range: they must be included into the set of sites, because they are important to preserve genetic diversity and they are an open-air museum of the Pleistocene and Holocene vegetation history, that allows us to monitor, understand and demonstrate this ongoing process. It should be underlined that small rear-edge populations are often disproportionately important for the long-term survival and evolution of a biota, because they are the permanent, safe refugia of genetic diversity across the climate changes and they are hotspots of speciation processes.

The proposed World Heritage extension adds the crucial elements to the existing world heritage sites in the Carpathians and Germany for understanding the history of European beech. It represents the majority of the most valuable ancient or primeval beech forests of Europe and provides an excellent base for further protection of beech forests in Europe.

Due to climate change, there might be the risk that beech will withdraw from one or other regions of its current distribution in the next 200-500 years. However, since old-growth stands appeared to have an insulating effect delaying the impact of global warming in respect to managed forests, the presence of such rear-edge beech “stones” will enhance biodiversity persistence of vulnerable species in mountainous systems under climate warming (a sort of microrefugia). The importance of protecting small old-growth in moderately managed landscapes is becoming an important target in conservation biology. For demonstration and documentation of these processes, it is indispensable to have these sites within the serial property and this is not a threat or limitation of these component parts.



Expert meeting in Rakhiv (Ukraine), September 2013

Table 1:
Logical
Framework
nomination
process

2. THE PROCESS

The process of this extension was commissioned by the German Federal Agency for Nature Conservation together with experts from Slovakia and Ukraine in

2012 strictly following the recommendations of the IUCN Evaluation Report of the German extension from the very beginning (see also Ibisch et al. 2017).

	Logical Framework
Overall goal	Preserve the last remnants of ancient and primeval European beech forest as examples of <i>complete and comprehensive ecological patterns and processes of pure and mixed stands across a variety of environmental conditions</i> in a still ongoing postglacial continental-wide expansion process.
Purpose (benefit)	Ancient and primeval beech forest is under huge pressure in Europe. The nomination of a WH will increase awareness of this natural heritage and will foster the protection status of sites. The serial property will act as a network and a platform for policy making, knowledge exchange and trans-European best practice management activities (e.g. corridor development, biomonitoring network, natural capital evaluation and preservation, sustainable development).
Result 1	Clear and updated picture of the postglacial expansion process of <i>Fagus sylvatica</i> (refuge areas, genetic types, eco-regions). (accomplished in 2012)
Result 2	Longlist of existing ancient and primeval beech forests in Europe (location, size, protection status). (accomplished in 2013)
Result 3	Shortlist of sites suitable and representative for a European beech forest World Heritage. (accomplished in 2014)
Result 4	State Parties with relevant beech forests are informed, invited and participate in the process. (accomplished in 2014)
Result 5	National experts and local stakeholders as well as representatives on a ministerial level are involved. (accomplished in 2015)
Result 6	Properties and buffer zones are delineated and described following common principles. (accomplished in 2015)
Result 7	Common Integrated Management System is developed and agreed by all State Parties. (accomplished in Jan. 2016)

Activities	
R1 Clear picture of the postglacial expansion process of <i>Fagus sylvatica</i> (refuge areas, genetic types, eco-regions)	
R1.1	Literature research on the postglacial beech forest extension process (2012).
R1.2	Compilation of eco-regions of Europe (several European and national concepts) and combination with the natural vegetation of Europe (Bohn et al. 2004) to develop a map of European Beech Forest Regions (2012-2013).
R2 Longlist of existing ancient and primeval beech forests in Europe (location, size, protection status)	
R2.1	International expert meetings (in Vilm (DE; 2011, 2012, 2015), Viterbo (IT; 2012), Rakhiv (UA; 2013), Vienna (AT; 2014, 2x 2015, 2016) to bring together experts from 20 State Parties to nominate relevant beech forest sites.
R2.2	Setup of a spread sheet with all relevant sites and base characteristics (size, protection status, Beech Forest Region (BFR), altitudinal range, beech forest types, time of protection/non-intervention, age of trees, disturbance ecology). (2013-2014)
R3 Shortlist of sites suitable and representative for a European beech forest World Heritage	
R3.1	Development of selection criteria (2013).
R3.2	Selection of sites by an international working group (workshops in Rakhiv (UA; 2013) and Vienna (AT; 2014)).
R4 State parties with relevant beech forests are informed, invited and participate in the process	
R4.1	First international meeting of State Parties on ministerial level in Bonn to invite all State Parties to participate in the process of the extension nomination. (Nov. 2013)
R4.2	Follow-up meetings on ministerial and expert level to discuss the process and support the final national selection of sites. (May & Oct. 2014 in Bonn)
R4.3	Preparation of Tentative List Submission forms until end of January 2015
R5 National experts and local stakeholders as well as representatives on ministerial level are involved	
	Consultation of responsible protected area managements and national administrations. (Nov. 2014-Jan. 2016)
	International meetings on technical and policy making level to steer the nomination process. (Vienna, AT; July & Sept. 2015, Jan. 2016)
R6 Properties and buffer zones are delineated and described following common principles	
R6.1	Handbook for delineation of property and buffer zone developed and discussed in expert meetings. (May-July 2015)
R6.2	First draft of delineation developed by national experts together with local protected area administration. (July-Sept. 2015)
R6.3	Compilation of delineation in a Web-GIS system accessible to all experts involved from all State Parties. (July-Sept. 2015)
R6.4	Feedback from international expert level to national focal points on the delineation of property and buffer zones. (Sept. 2015)
R6.5	Discussion of recommendations from international experts on delineation on national level and elaboration of final delineation. (Oct. 2015-Jan. 2016)
R6.6	Description of each component part according to the Operational Guidelines by a team of national experts in the web-based database especially developed for this nomination process. (July 2015-Oct. 2015)
R7 A Common Integrated Management System is developed and agreed by all State Parties	
R7.1	First meeting on expert level on the Integrated Management System (IMS). (Sept. 2015)
R7.2	Development of the first draft of the IMS and different funding scenarios and draft of a joint declaration of intent on the joint transnational management. (Oct.-Dec. 2015)
R7.3	Second meeting on ministerial level on the Integrated Management System (IMS) with elaboration of the final version of the joint declaration of intent. (Jan. 2016)

This process was split up into **16 international meetings, 11 on expert level and 5 on ministerial level**. In total, **264 experts** from the local level of

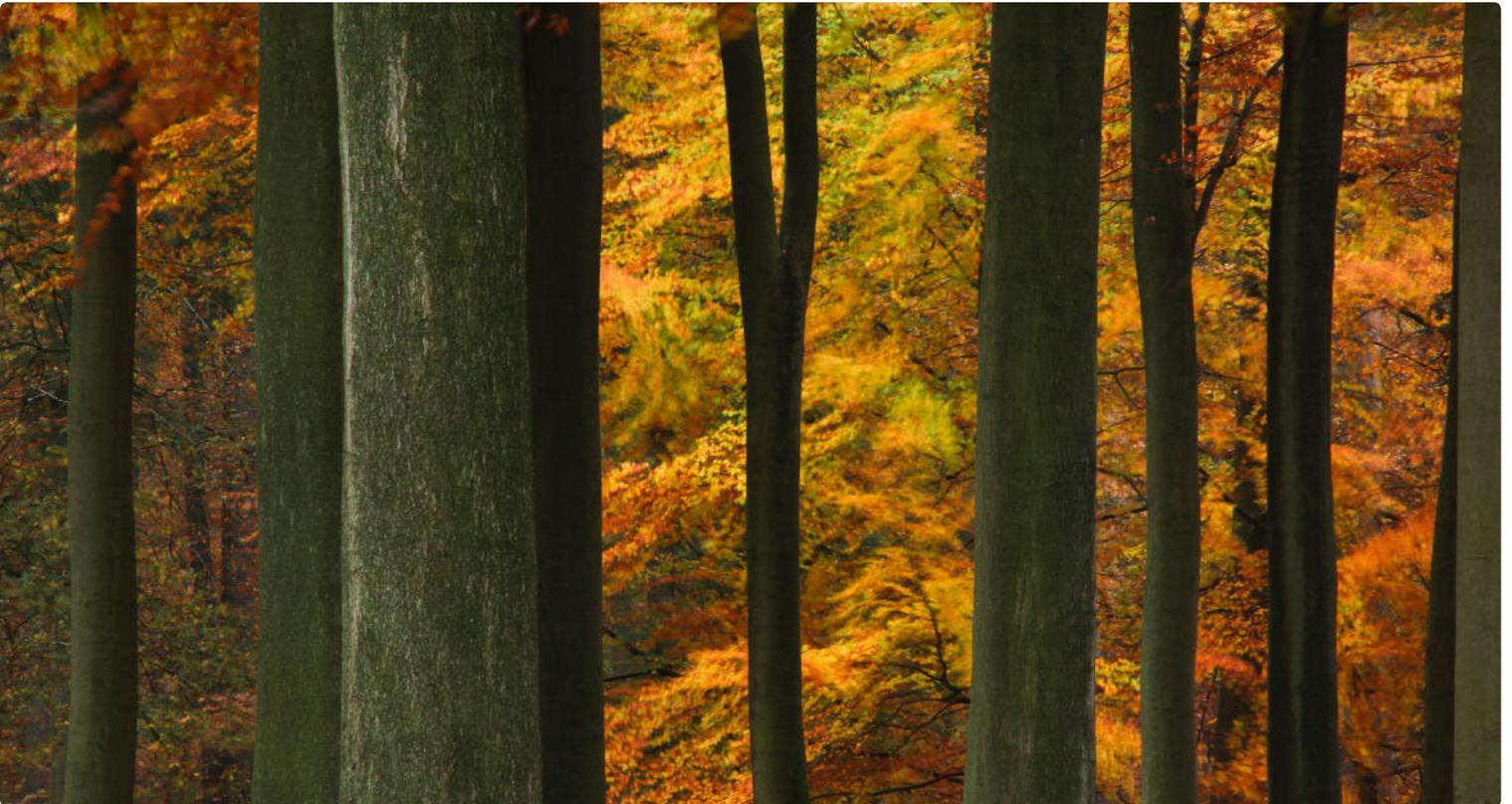
protected area management, experts on national and international level as well as experts from the relevant ministries were involved.

State Party	Number of involved experts (meetings, authors)
Albania	6
Austria	14
Belgium	16
Bosnia-Herzegovina	2
Brazil	1
Bulgaria	4
Croatia	9
Germany	21
Greece	3
Italy	27
Kosovo	2
Macedonia	4
Montenegro	2
Poland	4
Romania	56
Serbia	2
Slovak Republic	6
Slovenia	11
Spain	43
Sweden	1
Switzerland	4
Ukraine	25
United Kingdom	1
Total	264

Table 2:
Involved State
Parties and
experts

The selection and nomination process were based on the largest expert network on beech forests in Europe. This exceptional international cooperation therefore resulted already in the establishment of the “European Beech Forest Network” as a non-profit association to support research and

protection of European beech forest ecosystems (Feb. 2, 2017). One important objective of the association is the collaboration with the World Heritage of “Primeval Beech Forests of the Carpathians and Other Regions of Europe”.



Nominated component cluster Sonian Forest, Belgium

3. ANSWERS TO THE QUESTIONS FROM THE PROGRESS REPORT

3.1 General Concerns

3.1.1. IUCN: Property should provide ongoing dynamic evolutionary processes consistent with criterion (ix) and not simply a collection of remnant forest areas which lack the ecological development viability to retain the stated OUV

There are simply no other options to save the last natural remnants within existing protected areas. Operational guidelines request strict protection and buffer zones, so this limits the selection process to protected areas. Even if beech would die back in some of the WH component parts, this would be a demonstration of the ongoing process. Most of the component parts are located in mountainous areas where uphill movements caused by global warming are possible (clusters in Alps, Carpathians,

Pyrenees, Apennines, Balkan Range, Dinaric alps). Additionally, site variability (i.e. different geological bedrocks, exposition, inclination, water conditions) within each component part leads to high resilience to disturbances (like climate change).

The selected set of component parts (including the inscribed ones) are showing full ecological viability and are capable to demonstrate the historical and future development of European beech forest ecosystems. These sites, of course, do not cover the whole territory (and potential future territory) of beech, but are the last samples of natural forest development in 10 beech forest regions which are representing 99 % of the current beech forest distribution in Europe. The component parts are separated by managed forest ecosystems as well as agricultural lands, infrastructure and urban areas. The future development of the beech forests in Europe is exposed to human influence. This human influence could be direct (i.e. human-caused climatic change) or indirect (limited corridors

between the component parts). All natural world heritage sites are exposed to climatic change and WH managements are unlikely to handle this threat. While for several other natural WH properties (especially those nominated on biodiversity criteria) global change might be a threat, for the development process of beech forest ecosystems it is a driving factor.

Additionally, it is noteworthy that a World Heritage Property will represent a core component for the wider European Beech Forest Network and a continental conservation strategy for beech forests.

Figure 2: Difference of lowest and highest altitude within each component part/cluster (AL01-UA04 = abbreviation of clusters, first two letters = country code).

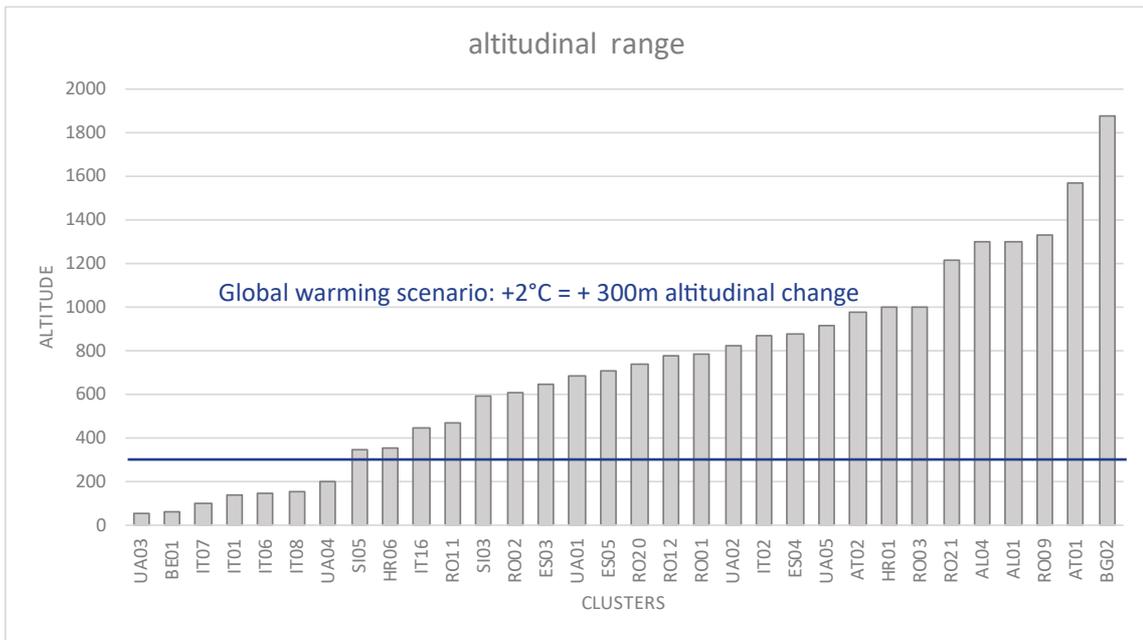
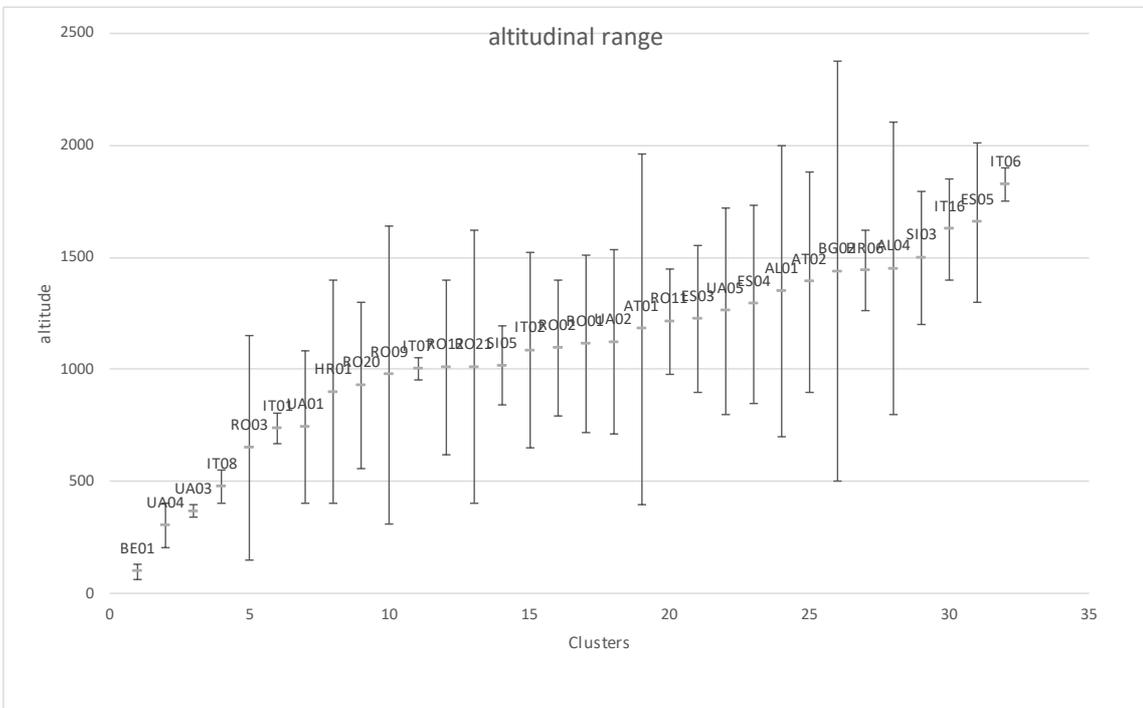


Figure 3: Absolute altitudinal range of each cluster (AL01-UA04 = abbreviation of clusters, first two letters = country code).



3.1.2 IUCN: Component parts are getting smaller

The size of the single component parts does not directly influence the overall story nor the criteria of completeness of the postglacial development process of European beech forests directly. The overall size of the extended property will exceed 90,000 ha. Even sites < 100 ha are demonstrating all forest development phases, as scientific papers clearly point out (see more details on the minimum size of beech forest ecosystems in the annex).

In Western Europe, almost no primeval (not even many ancient) beech forests are left. Nevertheless, those remnants (a good part included in this transnational series) are the last, extremely valuable representations of postglacial beech development, especially from the Iberian, Italian and Slovenian refuge areas, and only smaller areas with these genetic provenances of beech are present in Europe. To reflect the postglacial expansion process of beech, it is essential to have the Iberian, Central Mediterranean and Illyric Beech Forest Region represented by those autochthonous sites, even when they are inherently small because of the rear-edge phenomenon (see above).

The reason for including component clusters smaller than 300 ha is that these represent the rear edge of the ecological amplitude of beech. These “frontier posts” are naturally limited to small island-like patches. For fully representing the dynamic spatial development process, the variability of European beech forest and their ecological amplitude, it is important to have these outposts represented in the World Heritage Site.

Table 3 shows 8 cluster/component parts out of 32 that are smaller than 300 ha. Three out of them are embedded in a larger buffer zone (Foresta Umbra (IT), Hayedos des Navarra (ES) and Sonian Forest (BE)) and form a protected forest unit of 2,000-24,000 ha. These buffer zones are part of larger protected areas, having the same management

unit that is in charge of managing the WH component parts. Therefore, protection function, connective function and spatial development can be guaranteed in these buffer zones.

Two Italian sites (Monte Cimino and Monte Raschio) are naturally small beech forest islands on top of extinct volcanos. These two sites are close to each other (30 km) and they are connected by a forested landscape. The two sites are embedded into larger protected areas (a Natura 2000 site of 975 ha and a Regional nature reserve of 3,346 ha) and should be seen as twin-pair representing the Mediterranean beech forest on volcanic soils. Furthermore, their disturbance regime is characterised by the dominance of small gap openings (most <200 m²); stand-replacing disturbances (>5,000 m²) are not occurring. Actually, their estimated annual canopy area disturbance rate is less than 0.5 %/yr. Monte Raschio is representing the lowest-elevation occurrence of old growth beech forest in the Central Mediterranean region and is of exceptional scientific value since it is in close connection to the Mediterranean evergreen zonal vegetation, thus bearing witness of the so-called “no-analog” vegetation mixtures that were probably the zonal vegetation during the Pleistocene glacial phase because of steeper climatic gradients than present. As Monte Cimino has a similar climate and soils but higher altitude, it is important to keep both sites in the network to back up for global warming or large scale disturbance. Moreover, Monte Cimino tells a different part of the Pleistocene and Holocene climate story, as its soil and its flora bear a more marked footprint of a disappeared cold climate. Finally, because of the inherently small and fragmented nature of these refuge areas, to include two sites that are close to each other (and potentially connected through wind-mediated pollination) allows for better preservation of genetic patterns and processes.

The Slovenian component Krokár is embedded into the Natura 2000 site Kočevsko (10,7680 ha), of which forests are managed sustainably and close to nature without clearcutting. Primeval

State Party	Name of Cluster/ Component Part	Property size (ha)	Buffer size (ha)	Component + buffer
Italy	Monte Cimino	58	88	146
Italy	Monte Raschio	74	55	128
Slovenia	Krokár	75	48	122
Italy	Cozzo Ferriero	96	483	578
Italy	Foresta Umbra	182	1,753	1,935
Ukraine	Satanivska Dacha	212	559	771
Spain	Hayedos de Navarra	235	24,495	24,730
Belgium	Sonian Forest	269	4,651	4,920

Table 3: List of component parts/clusters with size smaller than 300 ha

forests of Krokar belong to the core of the Illyric refuge area of beech. About 80 % of the European beech trees originate genetically from this Illyric refuge area. The forest reserve is one of the rare primeval examples of Illyric forest in central Europe and links between the Alpic and Dinaric mountain ridges. Forest reserve Virgin Forest Krokar and other smaller virgin forest reserves in the area of Kočevsko were in the past used as an important lecture room for close to nature forest management in Slovenia and are in the future seen as core areas for potential enlargement of areas without felling.

The Ukrainian component part Satanivska Dacha is located at the continental edge of beech distribution. As already described, beech naturally forms only small islands, but they are very important to demonstrate the dynamic expansion process. The Italian site Cozzo Ferriero is embedded into the Pollino National Park (171,100 ha). As it is the most southern component part, it is an important contribution to the serial WH. Foresta Umbra as well has a very large buffer area, mostly made of beech high-forests.

3.1.3 IUCN: What will constitute a finite series of components?

From the design of the OUV, the postglacial expansion process is the main “story” behind the serial WH property. As explained above the refuge areas as well as the different climatic zones are the main factors for the development of different beech forest types during the expansion process. The main target of the selection process was the representation of the 12 European Beech Forest Regions represented by ancient and primeval

forests in the WH, because these regions stand for the different refuge areas and/or bio-climatic zones. Within each Beech Forest Region, there is still variability (e.g. diversity of geological bedrocks, soils, altitudinal zones). If available, we would have chosen more than one component part per BFR in order to represent this variability within all Beech Forest Regions. This led, in areas with large geographic and evolutionary heterogeneity (e.g. Italy), to the selection of a higher number of sites. For a World Heritage describing the postglacial expansion process of beech forests it was desirable to have at least one representative of each Beech Forest Region.

With exception of the Euxinic Beech Forest Region (it would have been represented by the Crimea Nature Reserve) and the Pannonic Beech Forest Region (which would have been represented by the Papratzki do in Frusca Gora NP in Serbia) all other regions are represented by either existing World Heritage component parts or component parts of the current extension nomination. Because of geo-political reasons these two sites are not part of this extension nomination. The Euxinic BFR is characterized by *Fagus orientalis* and intermediate forms like *Fagus taurica* on Crimea Peninsula. The Euxinic BFR is not really part of the geographical scope of the nomination, because the main part is located in West Asia. The Pannonic BFR is characterised by its continental climate and beech forests mainly occur in small azonal fragments. As the Euxinic and the Pannonic Beech Forest Regions represent less than 1 % of the current beech forests in Europe, the fact, that these two regions are not included, is not a significant restriction to the OUV.



Nominated component cluster Abruzzo, Lazio and Molise, Italy

3.1.4 IUCN: There are still areas not included in the series in other countries

During the 2.5 years lasting screening process, the first comprehensive overview on ancient and primeval beech forests in Europe has been elaborated. Based on the criteria from the Operational Guidelines and the OUV (representation of each Beech Forest Region) all suitable sites for a World Heritage of European beech forests have been gathered in the so-called “Vienna Shortlist” (see Table 71, p. 204 in the dossier and the updated version in the annex of this document). The Vienna

Shortlist was selected from a “Longlist” of 120 sites. The selection process was done based on the size of sites, age of trees, protection regime and ecological representativeness (to avoid duplication) during several expert workshops.

The existing and nominated sites would cover 82 % of sites of the area of ancient and primeval beech forests listed in the updated Vienna Shortlist. The update covers the already inscribed sites as well as an update of size and names of the sites included in the nomination.

From the total number of 64 sites in the updated Vienna Shortlist, 15 (= 24 %) are already inscribed, 32 (= 50 %) are nominated and 17 (= 26 %) are not participating.

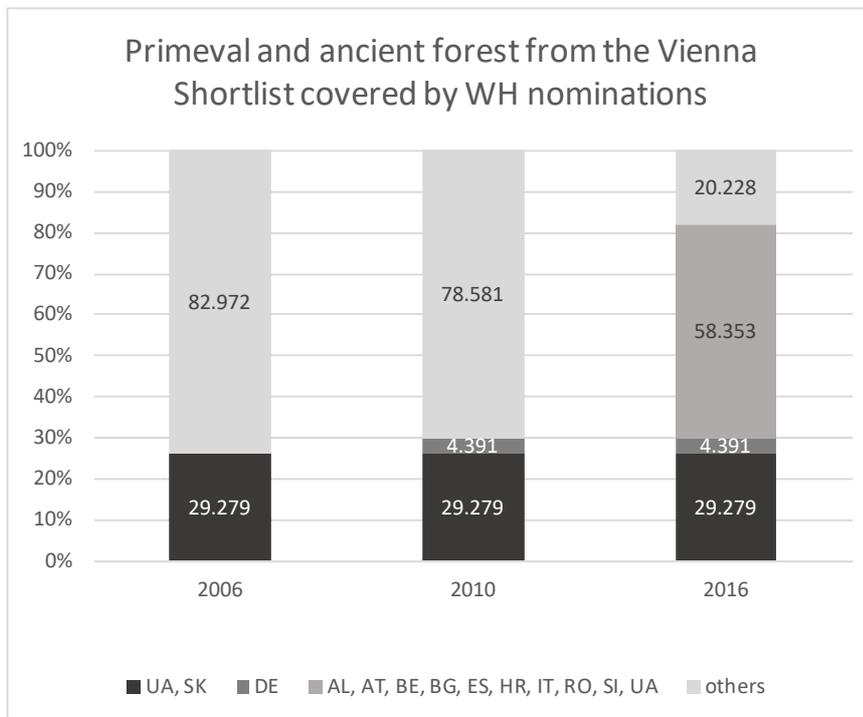
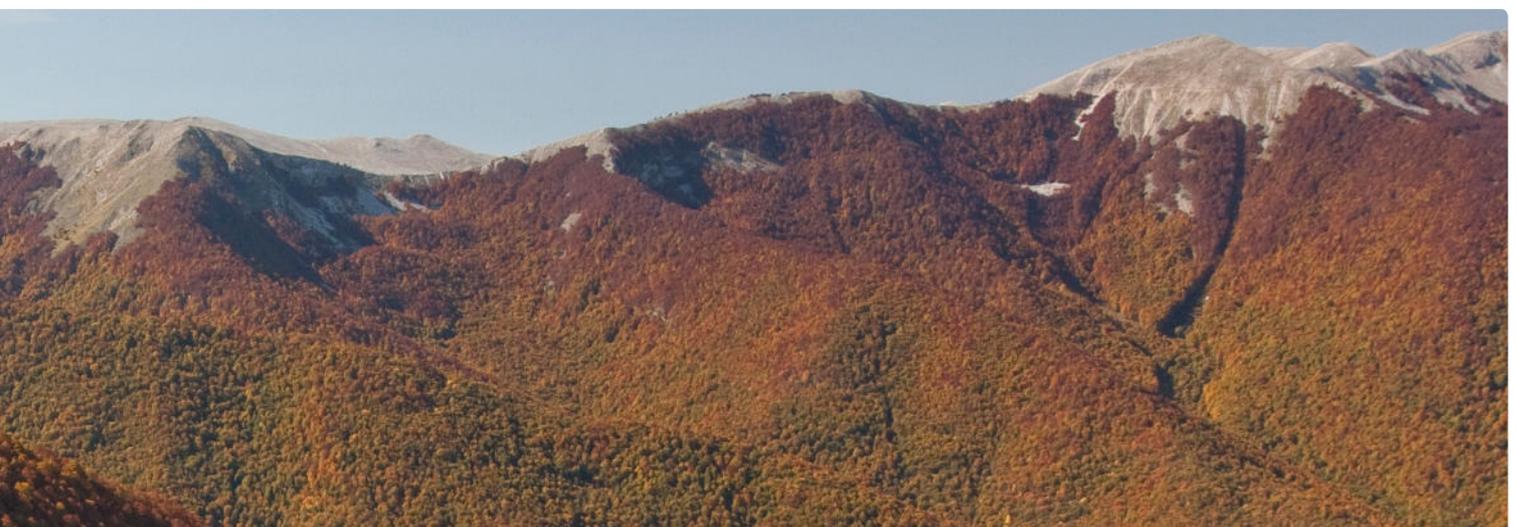


Figure 4: The Vienna Shortlist was updated by the already inscribed sites to give a comprehensive overview on how much of potential ancient and primeval beech forest is covered by inscribed and nominated component parts (size in ha).



State Party	Name of identified candidate area	Status
Bosnia & Herzegovina	Janj Forest Reserve	Was invited, but showed no interest in nomination.
Bosnia & Herzegovina	Plješivica virgin forest	
Bosnia & Herzegovina	Perucica	
Montenegro	Part of NP Biogradska gora	Participated in the preparation of the tentative list submission format, but did not proceed.
Kosovo	Bjeshket e Nemuna	No ratification of the WH convention.
Macedonia	Dlaboka Reka	Participated in the preparation of the tentative list submission format, but did not proceed.
Greece	Cluster of Rhodope - Nature Monument Chaidou Rhodope	Participated in the selection on preparation process on expert level, but did not deliver tentative list submission format.
Greece	Cluster of Rhodope - Virgin forest Frakto Rhodope	
Greece	NP Olympos	
Greece	NP Pindos	
Switzerland	Montricher, Combe de la Verrière	Participation in the screening process, but did not proceed.
Switzerland	Valle di Lodano	
Serbia	Papratzki do (in Frusca gora NP)	Participation in the screening process, but did not proceed.
Poland	Part of Bieszczady NP (former reserves: "U zrodel Solinki", "Wetlina", "Puszcza Bukowa" and others)	Was part of the nomination, but withdrew.
United Kingdom	Part of New Forest NP	Was invited, but showed no interest in nomination.
Sweden	Söderasen NP	Was invited, but showed no interest in nomination.
Ukraine	Crimea NR	Could not participate with this site.

Table 4:
Overview on potential candidate sites not included in this nomination

All 11 State Parties listed in Table 4 were invited to participate into the nomination process. Kosovo dropped out because of technical reasons (ratification of WH Convention). All other states did not put this issue on priority or were not able to take decisions in the given timeframe.

The sites listed in Table 4 would be worth to be integrated into the WH "Primeval Beech Forests of the Carpathians and other Regions of Europe" for nature conservation reasons and to densify the network. But only Serbia (Papratzki do in Frusca gora NP) and the Crimea National Nature Reserve

in Ukraine would add representatives from Beech Forest Regions not documented by the current extension.

Any further delay within the nomination process would severely endanger the whole project in terms of political will, motivation and huge investments (financial and human resources) already taken.

In addition, the economic pressure on forests in some states is increasing.

An additional phase of extension can be considered.



Brown bear in the nominated component part Codrul secular Șinca, Romania

3.1.5 IUCN: Selection should be checked according replication forest values within the clusters and individual components within the series

The nomination tried to integrate as large component parts as possible. Because of human management or infrastructure, some components are fragmented into sub-polygons. Within clusters, the different component parts reflect the variability of different stand conditions along altitudinal gradients, different geological bedrocks and meso-climatic conditions.

Also within the same Beech Forest Region, more than one component part or component cluster was nominated to cover the high variability of geology and altitudinal belts within the same macroclimatic area. Areas with large surfaces of ancient and primeval beech forests are represented by more and larger component parts. This makes the total serial world heritage more reliable and resistant and acts as a better documentation of the beech distribution evolution process.

3.1.6 IUCN: A number of components does not pass the standards on values, integrity and/or protections and management

It appears to be difficult to respond to this concern, as the concrete criteria for this statement are not given. During the selection process, the Operational Guidelines and the already inscribed component parts were used as references to reach the standards for all given criteria.

3.1.7 IUCN: Panel will not “pick and choose”, this needs reflection by the nominating and other State Parties

See above. We see the set of selected sites as an important coherent continental-wide dynamic network. No pieces should be removed in order to not reduce comprehensiveness, spatial distribution and connectivity.

3.2 Specific Questions for Clarification on Protection

3.2.1 IUCN: Maps with boundaries of protected areas & component parts and buffer zone are needed to understand the protection context

The spatial information on all component parts and their buffer zones are accessible through the Web-GIS system (<http://worldheritage.e-c-o.at/map/?mapset=welterbe>). Maps of existing protected areas are available on the World Database of Protected Areas (PA). We will integrate the boundaries of existing PA into the worldheritage.e-c-o.at site.

3.2.2 IUCN: Feasibility of simplifying the buffer zones (e.g. amalgamation of individual component buffer zones or alignment with existing protected area zoning systems)

In all components and component clusters the property and the buffer zone are located within an existing protected area with a functional management. Usually, the borders of the buffer zone are already aligned with existing PA zoning systems. Only in two (out of 32) clusters it is the case, that two or more component parts belong to the same protected area but are not connected by buffer zones (no amalgamation of buffer zones). The one case is **Central Balkan National Park** with 9 component parts, each of a size of 600-2,500 ha and a buffer zone, which is even larger (11,000 ha in total). The proposed nomination and buffer zones were considered during the meetings of the Central Balkan Public Advisory Council and Scientific Council where scientists and different users of the park were also present. The participation of Bulgaria in the serial nomination with the proposed property and buffer zone was finally subject of consideration at a meeting of the Council of Ministers of Bulgaria. Only after the positive decision of this Council of Ministers the nomination was signed by the Bulgarian Ambassador for UNESCO. We would like to stress that the decision about the proposed property and buffer zone has been consulted with the interested stakeholders at national, regional and local level (see additional information in the

annex). Buffer zones and component parts are formed by the strictest zone of protection in the park. All component parts are situated within the Balkan National Park (Bulgaria) and connected by forests without any forest management. There are no threats and no management needs to connect the components by additional buffer zones, as they are already embedded in the same park.

The same applies to the second cluster in **Paklenica National Park** (Croatia). Like in Bulgaria, both component parts have a size of about 1,000 ha and they are embedded in the same national park. A change of the buffer zone would rather be a formal amendment as the habitat between the two component parts at the moment consists of others than beech forests. In both cases, discussions on this issue already took place in 2015 and based on a participatory approach, the decision on national level has to be accepted as long as this is in line with the Operational Guidelines and the functional needs of protection of the site.

3.2.3 IUCN: Information on how the proposed buffer zones will operate in practice

192,000 ha of buffer zone have been designated to protect the 58,000 ha of component parts in this nomination. All buffer zones are under the full control of the protected area management authorities that are responsible for the management of the component parts. Most of the areas are part of national parks, nature parks, Natura 2000 sites or other categories of protected areas. The management of the protected area, where the component parts are located, is in charge of management of the buffer zones as well and can therefore assure the protective function as well as the developmental function. A detailed conceptual approach of the buffer zone design is given in the nomination dossier in the Chapter "Buffer Zone Management" (page 265).

3.2.4 IUCN: How will the buffer zones ensure the mitigation of potential surrounding threats?

In total, the component parts of the extension nomination are covering more than 58,000 ha of high quality (primeval or old growth) beech forest. To ensure there is room for future development there are additionally 192,000 ha of designated buffer zone. This results in a 1:3 ratio of property on buffer zone. In the already inscribed WH sites the ratio of component parts is 1:2. In the

evaluation report of IUCN there was no remark on this issue of buffer zones. There is a description of the buffer zone approach and functionality in the nomination dossier (page 265). It was an important issue for the delineation of buffer zones that the buffer zones are under the control of the protected area management in charge of the component part, so they can be managed accordingly to their protective function. The smaller component parts in the central and western parts of Europe are embedded within large buffer zones. The larger the component parts, the smaller the buffer zone can be, as the component part itself has high resilience against disturbances.

With the exception of the Sonian Forest (Belgium) and a few sites in Italy, all other component parts are located in very remote areas. Potential threats, if any, are addressed in the relevant section of the dossier for each cluster/component part as well as the design of the buffer zone. The world heritage status will help to cause important investments in connectivity of the selected component parts within a cluster (and even the nomination phase has already done so).

3.2.5 IUCN: How do you ensure there is room for the continued evolutionary development of relevant forest values?

As already discussed above and scientifically pointed out in the two notes in the annex on the minimum size of beech forest ecosystems, all component parts exceed the minimum size and are examples of viable beech forest ecosystems.

In western parts of Europe, where only small fragments of old growth beech forests are left, large buffer zones are nominated to enable future expansion and evolutionary developments. When component parts are large enough to cover evolutionary development within themselves or when there are natural borders to the development (rivers, rocks, ...), only small buffer zones are given. The most likely future development is a change in species composition because of global warming. As described in chapter 5.1.1 of this document, the altitudinal range in most of the sites exceeds 300 m. Given a warming of +2°C, a long term shift of about 300 m in altitude can be expected. But as beech trees can grow for 300 (up to 600) years, the process of retreat of beech would take several hundred years. As described above, even the case of retreat because of climatic changes would be within the OUV of this property, as the ongoing process and not a static state of the ecosystem.



Nominated component cluster Central Balkan National Park, Bulgaria

Additionally, most of the sites are not located at the lower edge of the beech distribution. So, there is much more buffer than the 300 m to cover the next several hundred years of climatic change. It is impossible to predict the future climatic change. A more severe climatic change will not only affect the European beech forests but all World Heritage Sites Properties that comprise living and functional ecosystems being the fundamental of their OUV (and even many of the cultural sites too).

3.3 Specific Questions for Clarification on Management

3.3.1 IUCN: How will an effective coordination be achieved across the transnational serial property (operationalisation of the IMS)?

As the IMS of the existing WH of the “Primeval Beech Forests of the Carpathians and the Ancient Beech Forests of Germany” was accepted by IUCN and UNESCO in 2011, this scheme of the IMS was taken and developed further. A significant improvement is the position of a coordinator in charge of the coordination on international level.

The activities of the coordinator:

- Arranges yearly Joint Management Committee meeting
- Develops drafts for yearly action plans for joint activities
- Raises awareness and public relations
- Maintains the World Heritage website

- Creates and maintains a data platform for the whole WH property
- Coordinates project proposals on international cooperations
- Coordinates the UNESCO reporting procedure

As the same to all transnational serial WH properties, the operational management of the component parts is in the hand of the State Parties and therefore operational management plans on the level of component parts are not part of the IMS. The IMS will take over the responsibility to coordinate and link the activities in the State Parties and to steer the whole process.

In the meanwhile, there is a commitment by Austria to finance this position for the first three years. Other State Parties (BE, ES, GE) have already expressed their will to take over the following periods. So, the position of a coordinator is guaranteed for the first 12 years.

3.3.2 IUCN: More explicit information on the proposals to establish an effective property-wide management scheme and ongoing management process

The IMS approach was up-scaled from the existing schema. The Operational Guidelines do not give specific standards for the property-wide management schema. In the approach explained in the dossier, the Joint Management Committee (JMC) takes over the role of an international steering board, while national steering bodies and PA management are responsible for the implementation.

A Joint Declaration of Intent has been worked out and was agreed by all State Parties (representatives on ministerial level) on the content of the joint management. This Joint Declaration of Intent is included in the digital annex of the Dossier and can be found in the annex of this document as well. The declaration is ready to be signed as soon as the sites are inscribed in the WH list.

3.3.3 IUCN: Measures to guarantee adequate and stable funding for the long term, which is essential for the coordinator and cooperation required between all State Parties

The legal frameworks of most of the State Parties do not enable binding financial contribution before their sites are listed on the WH List. Because of this fact, no funding schema could be established before nomination. Austria expressed its will to take over the funding of the coordinator for the first 3 years. A common INTERREG EUROPE project is under development to support cooperation and development. Still there is the need that the State Parties ensure their national budget for the component part management. It will take several years after the inscription for international treaties to be signed and to enable a joint WH fund with a joint budget financed by all State Parties.

3.3.4 IUCN: A reflection on how the existing site fits the nomination, and include consideration of the existing and current state of conservation issues that are being considered by the WHC

The expert network of the nomination process was involved in IUCN mission to Slovakia and actively contributed in the discussion process. The difficulties of the local participation process have been one driving factor to foster cooperation in this field. The process in Slovakia clearly points out the importance that sites like Poloniny National Park are embedded in an international category of protection and can rely on support for other participants of this network.

3.4 Time Schedule

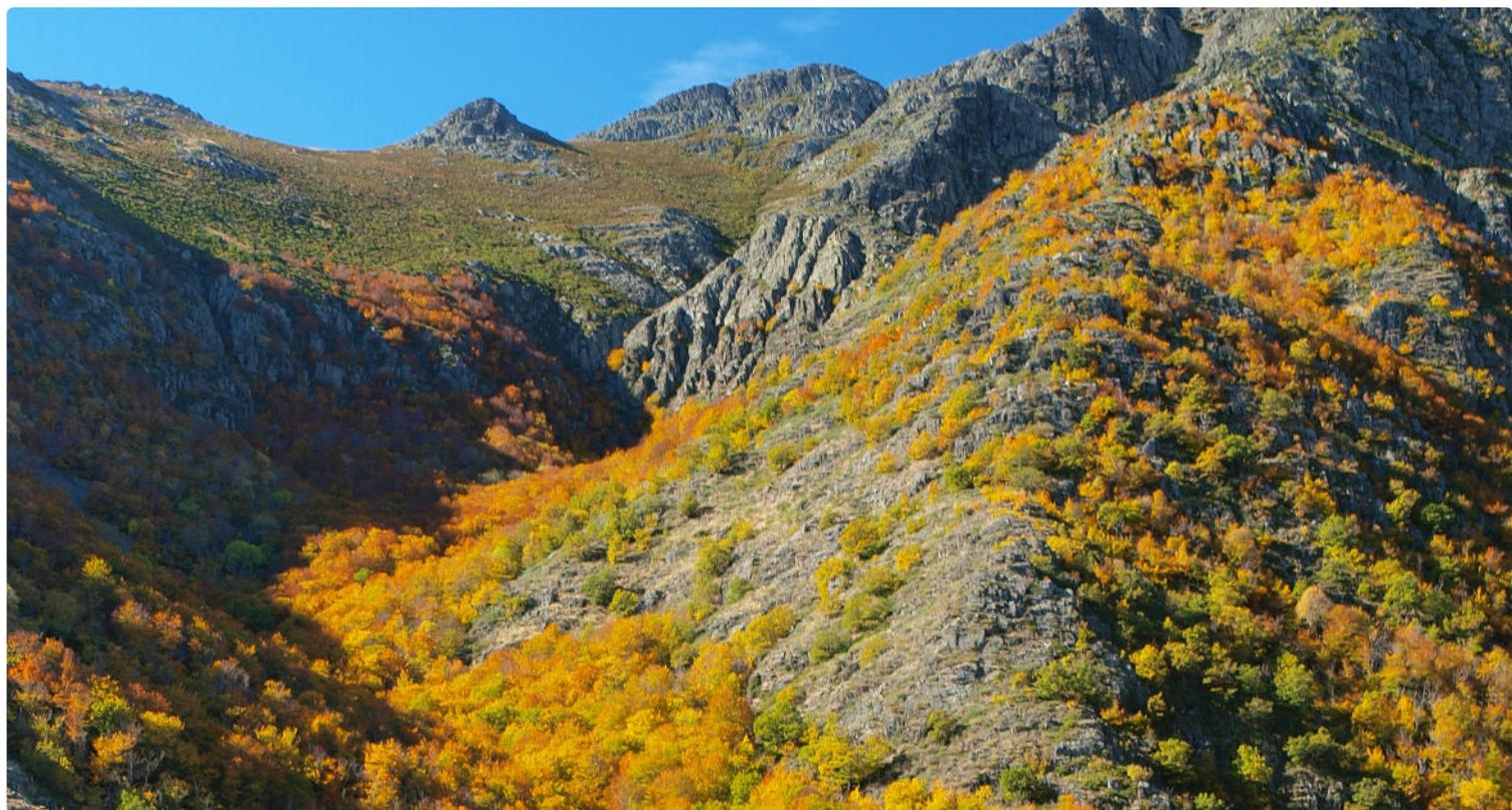
3.4.1 IUCN: The Panel was firmly of the view that the range and scope of issues raised extend beyond the timelines for the statutory deadline for supplementary information (28th February 2017) and believes at this point in time a process of deeper dialogue would appear to be required, before a more precise set of request could be made across many components within this complex serial nomination.

State Parties are aware that this nomination of a serial property covering over 60 component parts in more than 30 protected areas in 10 State Parties is a challenge to the IUCN evaluation process, which is limited by human and financial resources and has to stick to the time schedule of the UNESCO WH nomination process.

Given the fragile process of a transnational serial nomination procedure with 10 State Parties involved and the current pressure on primeval beech forests in several states, a delay in the procedure will have significant impact on the success of the whole project. By this nomination, the protection status of more than 80 % of the last remnants of primeval and old ancient European beech forest would be significantly fostered and the public awareness about natural beech forest ecosystems would be brought to a global level. This would have an important influence on policy making and clearly empower nature conservation in a critical era for biodiversity and beech forest conservation.

3.5 References

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Nominated component cluster Hayedos de Ayllón, Spain

4. ANNEX

4.1 Updated Vienna Shortlist, European Beech Forest Regions

EBFR: Pyrenaic-Iberian

Spain

		property size (ha)
Hayedos de Navarra - Aztaparreta	nominated	235.03
Cluster Hayedos de Ayllón	nominated	327.3
Hayedos de Picos de Europa	nominated	323.23

EBFR: Central Mediterranean

Italy

		property size (ha)
Monte Raschio	nominated	73.73
Cozzo Ferriero (Pollino NP)	nominated	95.74
Foresta Umbra (Gargano NP)	nominated	182.23
Mt. Cimino	nominated	57.54
Sasso Fratino	nominated	781.43
Cluster of NP Abruzzi, Lazio & Molise	nominated	936.63

EBFR:	Illyric		
	Bosnia & Herzegovina		property size (ha)
	Perucica	not nominated	1434
	Janj Forest Reserve	not nominated	295
	Plješivica virgin forest	not nominated	38.8
	Croatia		
	Hajdučki i Rožanski kukovi	nominated	1289.11
	Part of NP Paklenica	nominated	2,031.78
	Slovenia		
	Krokar	nominated	74.5
	Zdrocle	nominated	720.24
EBFR:	Moesian-Balcanic		
	Albania		property size (ha)
	Lumi I Gashit	nominated	1,261.52
	Rajca	nominated	2,129.45
	Bulgaria		
	Cluster of CBNP	nominated	10,988.91
	Greece		
	Cluster of Rhodope - Virgin forest Frakto Rhodope	not nominated	207
	NP Olympos	not nominated	242
	NP Pindos	not nominated	554
	Cluster of Rhodope - Nature Monument Chaidou	not nominated	88
	Kosovo		
	Bjeshket e Nemuna	not nominated	6,750
	Macedonia		
	Dlaboka Reka	not nominated	144
	Montenegro		
	Part of NP Biogradska gora	not nominated	1,600
EBFR:	Subatlantic - Hercynic		
	Germany		property size (ha)
	Kellerwald	inscribed	1,467.1
	Hainich	inscribed	1,573.4
	Switzerland		
	Montricher. Combe de la Verrière	not nominated	100
EBFR:	Alpic		
	Austria		property size (ha)
	NP Kalkalpen	nominated	5,251.66
	Wilderness area Dürrenstein	nominated	1,867.45
	Switzerland		
	Valle di Lodano	not nominated	300
EBFR:	Pannonic		
	Serbia		property size (ha)
	Papratzki do (in Frusca Gora NP)	not nominated	62
EBFR:	Carpathian		
	Poland		property size (ha)
	Part of Bieszczady NP (former reserves: "U zrodle	not nominated	3,307.02

Romania		property size (ha)
Izvoarele Nerei (Semenic-Cheile Carasului NP)	nominated	4,677.21
Cozia	nominated	3,389.16
Cluster Cerna Valley / Domogled - Valea Cernei	nominated	9,732.26
Cluster: Strambu Baiut	nominated	598.14
Codrul Secular Slătioara	nominated	609.12
Codrul Secular Şinca	nominated	338.24
Cluster: Grosii Tiblesului	nominated	346.37
Banat cluster - Cosava Mica	nominated	4,292.27
Slovakia		
Havesova	inscribed	171.3
Vihorlat	inscribed	2,578
Stuzica-Bukovske Vrchy	inscribed	2,950
Rozok	inscribed	67.1
Ukraine		
Synevyr	nominated	2,865.04
Stuzhytsia-Uzhok	inscribed	2,532
Uholka-Shyrokyi Luh	inscribed	11,860
Svydovets	inscribed	3,030.5
Maramorosh	inscribed	2,243.6
Kuziy-Tribushany	inscribed	1,369.6
Chornohora	inscribed	2,476.8
Zacharovanyi Krai	nominated	1,258.13
Gorgany	nominated	753.48
EBFR: Atlantic		
Belgium		property size (ha)
Part of Foret de Soignes	nominated	269.31
England		
Part of New Forest NP	not nominated	2,481
EBFR: Baltic		
Germany		property size (ha)
Serrahn	inscribed	268.1
Jasmund	inscribed	492.5
Grumsin	inscribed	590.1
Sweden		
Söderasen NP	not nominated	1,625
EBFR: Polonic-Podolic-Moldovan		
Ukraine		property size (ha)
Roztochya BR	nominated	384.81
Satanivska Dacha	nominated	212.01
EBFR: Euxinic		
Ukraine		property size (ha)
Crimea NR	not nominated	1,000

4.2 Joint Declaration of Intent

Joint Declaration of Intent

between

Ministry of Environment of the Republic of Albania,
 Federal Ministry of Agriculture, Forestry, Environment and Water
 Management of the Republic of Austria,
 Government of Lower Austria,
 Government of Upper Austria,
 Government of Flanders,
 Government of Wallonia,
 Government of Brussels Capital Region,
 Ministry of Environment and Waters of the Republic of Bulgaria,
 Ministry of Environmental and Nature Protection of the Republic of Croatia,
 Federal Ministry for the Environment, Nature Conservation, Building and
 Nuclear Safety of the Federal Republic of Germany,
 Ministry for the Environment, Land and Sea Protection of the Italian Republic,
 Ministry of the Environment of Poland,
 Ministry of Environment, Waters and Forests of Romania,
 Ministry of Environment of the Slovak Republic,
 Ministry of the Environment and Spatial Planning of the Republic of Slovenia,
 Ministry of Education, Culture and Sport of the Kingdom of Spain and
 Ministry of Ecology and Natural Resources of Ukraine

concerning

the Cooperation on the Protection and Management of the Joint World Heritage Property “Primeval Beech Forests of the Carpathians and Other Regions of Europe”

The ministries and/or governments of all State Parties, hereinafter referred to as Participants,

- consider the importance of natural beech forests with Outstanding Universal Value as a key element of forest ecosystems of Europe;
- acknowledge the importance of the protection of the integrity of World Heritage property “Primeval Beech Forests of the Carpathians and Other Regions of Europe” and
- note the significant role of natural beech forests, first of all those of the World Heritage Property “Primeval Beech Forests of the Carpathians and Other Regions of Europe” in supporting biodiversity and mitigating effects of climate change.

The Participants recall the relevant objectives of:

- the UNESCO Convention Concerning the Protection of the World Cultural and Natural Heritage (1972),
- the Convention on the Conservation of European Wildlife and Natural Habitats (1979),

- the Convention on Biological Diversity (1992),
- the Framework Convention on the Protection and Sustainable Development of the Carpathians (2003),
- the Convention on the Protection of the Alps (Alpine Convention) (1991).

The Participants also recall the results of the tri- and multilateral meetings that took place between 2007 and 2015 on beech forests as World Natural Heritage;

note Decision 31 WHC 8B.16, Decision 35 WHC 8B.13 and [WHC Decision on the inscription of the “Primeval Beech Forests of the Carpathians and Other Regions of Europe” on the World Heritage List] of the UNESCO World Heritage Committee and

reaffirm their willingness to contribute to their implementation.

The Participants share the view that this Joint Declaration of Intent should serve as a basis for the multilateral cooperation on the protection and management of the Joint World Heritage Property “Primeval Beech Forests of the Carpathians and Other Regions of Europe”.

1. AIM OF THE COOPERATION

The Participants express their intention of mutual support and cooperation concerning the protection, conservation, presentation and transmission to future generations of the Joint World Heritage Property “Primeval Beech Forests of the Carpathians and Other Regions of Europe”.

2. INSTITUTIONAL ARRANGEMENTS

2.1. The State Parties have decided to establish the Integrated Management System for the Joint World Heritage Property “Primeval Beech Forests of the Carpathians and Other Regions of Europe” to ensure its protection and effective management.

To coordinate the overall management of the joint property the State Parties decided to establish the Joint Management Committee.

In order to achieve the assigned tasks specified in Number 2.2, a coordinator of multilateral Joint Management will be appointed by the Joint Management Committee to coordinate the activities within the Joint Management System.

An agreement on the organisational infrastructure and financing of the coordinator will be made after the inscription into the World Heritage List. All State Parties will contribute according to their capabilities to common funding for the coordinator.

The State Parties share the opinion that all of them contribute to the cooperation under this Joint Declaration of Intent according to their capabilities, unless agreed otherwise by the Participants.

Coordination of the national management rests with the National Steering Committees/National Steering Group.

2.2. The tasks of the Joint Management Committee should include:

- to promote, steer and manage the implementation of this Joint Declaration of Intent especially in the areas of cooperation as specified in number 3;
- to jointly establish and to further develop a working programme and to oversee its implementation.

2.3. The Participants share the view that the Joint Management Committee may establish by mutual consent multilateral working groups to address, inter alia, topics of the different areas of cooperation as specified in number 3. The protected areas’ authorities, or authorities responsible for the individual components, may establish further working groups.

2.4. The permanent members of the Joint Management Committee should be the representatives of the Ministries for Environment and/or Nature Conservation at the national level, and/or corresponding levels of federal states, and eventually representatives of the relevant protected areas/component parts and/or experts. Irrespective of the number of representatives, any State Party has only one vote when decisions or recommendations are made. By mutual consent of the Participants of this Joint Declaration of Intent, representatives of other institutions/organisations may be invited to the meetings.

2.5. Meetings of the Joint Management Committee:

- Meeting frequency: One regular meeting per year (and additional extraordinary meetings if required and by prior consent of all Participants);
- Chair: the chair of the Joint Management Committee is assumed by a State Party on a rotational basis, starting with the founding State Parties and, after that, in alphabetical order of the name of the State Party in English starting with Albania;
- Meeting venue: to be proposed by the chair;
- Language: Meetings should be held in English unless agreed otherwise.
- Conclusions: to be taken by consensus.
- Meeting Documents: to be distributed six weeks in advance before a meeting;

At its next meeting the Joint Management Committee should consider the need for further rules of procedures and may adopt such rules of procedures.

3. AREAS OF COOPERATION

The Participants intend to cooperate, inter alia, on the following topics:

- 3.1. Implementation of common principles and objectives based on the defined Outstanding Universal Value of the joint property;
- 3.2. Establishment and effective implementation of the Integrated Management System for the joint property;
- 3.3. Establishment and implementation of cooperative and transnational monitoring plans in order to monitor and report on the transnational serial property as a whole;
- 3.4. Establishment and implementation of cooperative and transnational research programmes and projects (including inventories, research on natural forest ecosystems, anthropogenic impact assessments, response to climate change, etc.);
- 3.5. Training and capacity building (including training institutions, exchange among specialists, etc.);
- 3.6. Establishing a common web-based information platform to inform the public and to exchange data among the managements of the component parts;
- 3.7. Finding, and possibly, securing adequate resources;
- 3.8. Communication, education, public awareness and local community engagement;
- 3.9. Sustainable tourism;
- 3.10. Sustainable development in the areas adjacent to World Heritage Property.

4. DURATION

The Participants share the view that the cooperation under this Joint Declaration of Intent should be valid when it is signed by each Participant and inscribed on the World Heritage List. The State Parties intend to cooperate on the basis of this Joint Declaration of Intent until it is unanimously decided to do otherwise.

[Date and Signatures of Participants]

4.3 Scientific Discussion on Minimum Size of Beech Forest Ecosystems

4.3.1 Minimum sizes required for shifting mosaic dynamics in natural beech forests

By: Kris Vandekerkhove, Research institute for Nature and Forests (INBO), Belgium. 14th February, 2017

Strict forest reserves and other strictly protected non-intervention forests are aimed to develop natural forest dynamics, if possible to their full extent, both for scientific study of these dynamics, and for the conservation and development of related biodiversity.

For this purpose, reserve sizes should be large enough to incorporate all developmental phases of a forest, and the shifting mosaic dynamics between them.

Several scientific papers and guidelines contain suggestions and conclusions for minimum sizes that are required for this. Required size will be dependent of the dominant disturbance regime of the forest. Forest types that are characterized by large stand-replacing dynamics (like boreal forests) may require much larger reserves to fully incorporate the different developmental phases and the size-range of disturbances.

Beech forests however, are characterised by small-scale gap dynamics. Several studies in natural beech forests show that small gaps (<200 m²) are the dominant driving force of forest dynamics (e.g. Rugani et al. 2013; Tabaku & Meyer, 1999; Zeibig et al., 2005). Large gaps (>1,000 m²) are very rare, but do exceptionally occur (Pontailleur et al. 2007).

For Germany, minimum sizes for lowland beech forest reserves are set at 20 ha (Projektgruppe Naturwaldreservate, 1993). In Austria, Mayer (1974), Zukrigl (1990) and Tichy & Frank (1995) suggest minimal sizes of 20 ha, but preferably 50 ha.

The required minimum size for a continuous shifting mosaic steady state in beech forests was set at 25-40 ha for beech-fir forests (Korpel, 1993) and 10 ha, resp. 15-25 ha for lowland beech forests (Emborg et al., 2000; Koop & Hilgen, 1987).

Bücking (1994) suggests a minimum required size for beech forest types in Germany of 50 ha.

Paluch (2007), however, concludes that the minimum area required for a continuous shifting mosaic steady state may even be much lower than previously suggested, based on the random pattern domination and the small-scaled spatial variation of the basal area of live and dead trees in the forests he studied. This conclusion is also drawn for mountain beech forests in the Apennines (Piovesan et al., 2005).

For biodiversity conservation and development, larger areas are generally preferred, as stable and durable populations of species may require vast areas of undisturbed forest. One breeding pair of White-Backed woodpecker may require at least 50 ha of beech forest with standing dead wood amounts of at least 30 m³/ha (Müller & Butler, 2010). A viable population of this species thus requires at least several hundreds of hectares of interconnected suitable habitat. This however is often not achievable in densely populated (especially lowland) areas, where forests over time have become fragmented and have been undergoing high public pressure.

Götmark F. & Thorell M. (2003) found that the quality of forest habitat (especially densities of large trees and amounts of dead wood) is significantly higher in smaller reserves than in large ones, as creating larger conservation areas subsequently requires to include areas of lower quality.

The overall conclusion, based on literature, is that minimum sizes for strictly protected beech forest areas in order to fully develop natural forest dynamics (continuous shifting mosaic steady state) can be set at 20-50 ha, or according to some studies, even less.

However, for biodiversity conservation and development, larger areas (of sufficient quality) are preferred if available and of sufficient overall quality.

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4.3.2 Discussion of the Criterion “Size” for the Two Component Parts Monte Cimino and Monte Raschio

By Alfredo Di Filippo & Gianluca Piovesan, Università della Tuscia, Viterbo, Italy

The low-elevation old-growth beech forests of Monte Cimino and Monte Raschio are rear-edge populations, fundamental “stones” in beech range dynamics (Jump et al. 2009). Although they cover a smaller area (i.e. 58 and 74 ha, respectively) in comparison to mountain stands, their conservation is not at risk because they host well-structured, viable beech populations. These old-growth beech forests, as the others in the network, have a disturbance regime characterised by the dominance of small gap openings (most of them <200 m²), while larger scale disturbances are very rare and generally do not exceed 3-5,000 m² (Hobi et al. 2015). Fire is an ecological disturbance generally not interesting beech forests, even at low elevation. In temperate old-growth forests, the annual disturbance rate is 0.5-2 % (Pickett & White 1985), with beech forests at the lower margin of this range (0.5-1 %; Henbo et al. 2004). The low level of disturbance is a typical trait of a pure beech ecosystem and it is the main cause for the competitive exclusion from the stand of other tree species. Monitoring studies demonstrated that 10 ha are enough to provide the complex structural features enclosed in an old-growth forest covering thousands of hectares (Peck et al. 2015) and, in advanced old-growth forests, the finely-textured steady state structure may be realised even on patches smaller than 1 ha! (Alessandrini et al. 2011).

Studies based on gap monitoring in Monte Cimino and Monte Raschio beech forests confirm that most gaps are less than 200 m²; very large gaps (<1,000-2,000 m²) are rarely observed. On Monte Cimino, canopy tree death has been monitored since the 70s, resulting in an average death rate of 7 canopy trees/year in the entire forest (1‰ of the 7,590 canopy trees with DBH≥17.5 cm currently present in the forest). Tree mortality varies from recurrent years when few or no trees die (but small gaps deriving from large branch fall can occur), to exceptional years when extreme climatic events (wind or glaze storm) may also kill 50 trees. Considering that the average crown area of a dominant beech tree in Monte Cimino is around 150 m², and an average of 7 trees dying annually within the entire forest area (58 ha), we can expect to have 1,080 m² of canopy disturbed each year, corresponding to a canopy disturbance rate of 0.2 %/yr, a value in the range of beech forest disturbance ecology. It, therefore, takes several centuries to complete the canopy replacement of the entire forest, and the viability of the overall population is ensured by the fact that, in each canopy disruption event, only few canopy beech trees are killed and new beech cohorts establish in the gaps. This regeneration process based on gap dynamics will determine the transition to a fine-grained mosaic of trees with very different age (from seedlings to wildlife trees close to maximum lifespan) as forecasted in the natural development phases of the beech forest life cycle.

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4.3.3 Statement on Zoning of Central Balkan National Park

By Tsvetelina Ivanova & Sergey Aleksandrov

The Bulgarian proposal for inclusion in the existing serial WHP is primary, unaffected or relatively unaffected by human activity beech forests which occupied proposed parts of the 9 reserves within the territory of the park. The age of the reserves significantly exceed the age of the park (CBNP scored twenty-fifth anniversary in the fall of 2016). Therefore, signs of human presence in some of the areas outside the reserve zone do not correspond to the idea of preservation of most representative primary beech forests, although the compliance with the principle of nonintervention management.

The above mentioned makes the assembling of the proposed component parts into a single component proposal impossible.

The status of the park, which does not allow commercial use of wood as well as change of habitat types, not just completely provides buffer function but also sets a far higher degree of protection due to non-human intervention in natural processes in ecosystems. However, buffer zones are designated according

to the recommendations and requirements. Only in the case, that borders are formed by cliffs ridges which are providing protection to influences from outside, no buffer zone is needed. In most cases a buffer is used the rest part of the reserves zone, which was not proposed as WHP (does not contain representative beech forests) and parts of the human limited impact zone of the park. The determination of the buffer in this case is rather a form of reinsurance.

Each of the 9 components in its own way is different and unique and brings added value to the proposed property. Different are the represented plant associations and habitats. Their composition reflects differences in conditions of their formation – the nature of the bedrock and soil, orographic characteristics of the relief, exposure, moisture and climatic factors. Therefore, the cluster component includes all these parts, offering a more complete picture of the forests from Moesian-Balcanic beech region.

4.4 Longlist

Table 4: Longlist, Nr. = Number, PA-Name = Name of PA / potential candidate area, Site name = Name of core / non-intervention zone (if existing), Status = World Heritage status (I = inscribed, N = nominated), BFR = Beech Forest Region, State = Name of State Party, Size = Size of core zone / non-intervention area (ha), Buffer = Size of protected area / buffer (ha), PA-status = Protection status (year of declaration)

Nr.	PA name	Site name	Status	BFR	State	Size	Buffer	Altitude	PA-status
1	Natural Park Ponga	Pelono Partial Nature Reserve		Pyrenaic-Iberian	Spain	112	20000		Nat 2000; part of Natural Park Ponga (since 1999); 20,000 ha IUCN Ia
2	Natural Park Redes	Brañagal-lones		Pyrenaic-Iberian	Spain	100	15000		Nat 2000; part of Natural Park Redes (declared in 1996); 15,000 ha; IUCN Ia
3	Picos de Europa National Park	Canal de Asotín	N	Pyrenaic-Iberian	Spain	88	10490		Part of NP Picos de Europa (1995), 67,000 ha; former NP Covadonga, 1918); IUCN II
		Cuesta Fría	N			185			
4	Roncesvalles-Selva de Irati (Hayedos de Navarra)	Lizardoia Integral Reserve	N	Pyrenaic-Iberian	Spain	100	18000	850-1125	Ib (Reserva integral); 1987; 18,000 ha
5	Larra-Aztaparreta and Larrondo-Lakartxela Reserves (Hayedos de Navarra)	Aztaparreta Integral Reserve	N	Pyrenaic-Iberian	Spain	175	3900 (2600)	1212-1726	Ib (Reserva integral); 1987; 18,000 ha
6	Biosphere Reserve Sierra del Rincón (Hayedos de Ayllón)	Montejo de la Sierra	N	Pyrenaic-Iberian	Spain	270	15000		Sitio Natural de Interés Nacional (1974); Core zone of Biosphere Reserve "Sierra del Rincón" (since 2005); 15000 ha; IUCN Ia
7	Tejera Negra Natural Park (Hayedos de Ayllón)		N	Pyrenaic-Iberian	Spain	295	12947	1600-1950	Tejera Negra Natural Park (1978)
8	Montseny Natural Park			Pyrenaic-Iberian	Spain			800-1700	
9	Reserve Naturelle de la Foret de la Massane			Pyrenaic-Iberian	France	180	336	600-1168	IUCN IV; Reserve Naturelle, since 1973

10	Abruzzi, Lazio & Molise National Park (nominated World Heritage component part - cluster of five forests)	Valle Cervara	N	Central Mediterranean	Italy	100	300	1600-1850	IUCN Ia; National Park since 1922; 49,715 ha
		Coppo del Principe	N			200	250	1500-1750	
		Coppo del Morto	N			100	160	1800-1900	
		Coppo Vad-emogna	N			350			
		Val Fondillo	N			200			
11	Mt. Cimino (cluster: Tuscia low-elevation beech forests on volcanic soils)	-	N	Central Mediterranean	Italy	62	50	950-1050	Natural Monument; SPA 1999, Natura 2000, 100 ha
12	Regional Natural Park Lago di Bracciano & Martignano (cluster: Tuscia low-elevation beech forests on volcanic soils)	Mt. Raschio	N	Central Mediterranean	Italy	100			IUCN V; Part of Regional Natural Park "Lago di Bracciano & Martignano"; Natura 1999; 16,882 ha
		Oriolo				30	200	400-500	
13	Pollino National Park	Cozzo Ferriero	N	Central Mediterranean	Italy	80	171320	1700-1850	IUCN II, Part of Pollino NP (171320 ha); Since 1993
14	Natural Reserve Abetina di Rosello	Rosello		Central Mediterranean	Italy	211	400	950-1100	IUCN IV, Regional Natural Reserve "Abetina di Rosello"
15	Gargano National Park	Foresta Umbra-Falascione	N	Central Mediterranean	Italy	448	118229		IUCN II; Gargano NP; 118,229 ha
16	Foreste Casentinesi, Monte Falterona e Campigna National Park	Sasso fratino	N	Central Mediterranean	Italy	781	651	650 – 1520	IUCN Ia; Foreste Casentinesi, Monte Falterona e Campigna NP (since 1993), 31317 ha
17	Massif de la Saint-Baume	Sainte Baume		Central Mediterranean	France	200			Forest Biological Reserve since 1973, IUCN IV
18	Kozara National Park	Zofik		Illyric	Bosnia and Herzegovina	50	3400	500 - 700	IUCN Ib
		Gumline		Illyric		50	3400	450-650	IUCN Ib
19	Sutjeska National Park	Perucica		Illyric	Bosnia and Herzegovina	1434	9000	700-1400	IUCN Ia, Part of Sutjeska National Park since 1965, 17,500 ha
20	Janj Forest Reserve	-		Illyric	Bosnia and Herzegovina	295	500	1200-1500	IUCN Ia
21	Lom Forest Reserve	-		Illyric	Bosnia and Herzegovina	50	240	1400-1500	IUCN Ia
22	(Proposed) Igman-Treskavica-Visocica National Park	Ravna vala		Illyric	Bosnia and Herzegovina	45			IUCN IV, 1980
		Durmisvica		Illyric		44			

23	Zuca Ribnica-primeval reserve	Zuca-Ribnica		Illyric	Bosnia and Herzegovina	32,5 (30)			IUCN IV, 1955
24	Una National Park	Pljesivica mountain virgin forest		Illyric	Bosnia and Herzegovina	38,8 (50)	13500	1120m	2008 NP, Pljesivica: IUCN IV, national cat., 1961, managed nature reserve
25	Notranjski Sneznik Nature Reserve	Snežnik – Ždrcle	N	Illyric	Slovenia	157		up to 1800	IUCN Ia; Part of Notranjski Sneznik Nature Reserve 1964, IUCN Ib (since 1969); 794 ha
26	Rashenavski Rog Forest Reserve	Rashenavski Rog		Illyric	Slovenia	51			IUCN Ia
27	Pecka Forest Reserve	Pecka		Illyric	Slovenia	60			IUCN Ia
28	Krokar Forest Reserve	Virgin Forest Krokar	N	Illyric	Slovenia	74			IUCN Ia
29	Plitvice Lakes National Park	Corkova uvala		Illyric	Croatia	80	29628		IUCN II, NP Plitvička jezera, since 1949
30	Paklenica National Park (nominated World Heritage component part)	-		Illyric	Croatia	2000	9506		IUCN II, NP since 1949; located in North Velebit Nature Park; 9,506 ha
31	Risnjak National Park	Javorov kal		Illyric	Croatia	-	6342		IUCN II, NP Risnjak; since 1953
32	North Velebit National Park	Hajdučki i Rožanski kukovi	N	Illyric	Croatia	1296	11100		IUCN Ia, Strict Reserve since 1969; Sjeverni Velebit National Park since 1999;
33	Bijele i Samarske stijene Nature Reserve	-		Illyric	Croatia	1125		1000-1400	IUCN Ib, Strict Reserve since 1985
34	Muski Bunar Na Psunju Special Reserve	-		Illyric	Croatia	59		750-800	IUCN Ib
35	Velika Pljesivica - Drenovaca Special Reserve	-		Illyric	Croatia	156			IUCN IV, Special reserve since 1961
36	Javornik-Tisov vrh Special Reserve	-		Illyric	Croatia	126			IUCN IV, Special reserve since 1961
37	Mileševka Nature Reserve	Ravnista		Moesian-Balcanic	Serbia	138	456	740-1730	IUCN Ia; Mileševka Nature reserve (IUCN II)

38	Central Balkan National Park	Dzhen-dema Reserve	N	Moesian-Balcanic	Bulgaria	1490	72745	500-1100	IUCN Ib; Part of CBNP (72,745 ha)
		Tsarichina Reserve	N	Moesian-Balcanic	Bulgaria	1431	72745	900-1600	
		Sokolna Reserve	N	Moesian-Balcanic	Bulgaria	990	72745		
		Severen Dzhendem Reserve	N	Moesian-Balcanic	Bulgaria	880	72745	900-1600	
		Steneto Reserve	N	Moesian-Balcanic	Bulgaria	2488	72745	600-1100	
		Boatin Reserve	N	Moesian-Balcanic	Bulgaria	1271	72745	900-1600	
		Kozia Stena	N	Moesian-Balcanic	Bulgaria	637	72745	900-1600	
		Stara Reka	N	Moesian-Balcanic	Bulgaria	634	72745	500-1100	
		Peeshti Skali Reserve	N	Moesian-Balcanic	Bulgaria	1041	72745	900-1600	
39	Belasitza Nature Park	Kongura Reserve		Moesian-Balcanic	Bulgaria	646	665		IUCN Ib; since 1988; Part of Belasitza Nature Park (since 2008, IUCN V)
40	Tara National Park	Crvene Stene		Moesian-Balcanic	Serbia	46	19175	850-1180	IUCN Ia; within NP Tara (IUCN II), since 1981
41	Pindos National Park	Valia Kalnta		Moesian-Balcanic	Greece	554	3616	1590	National Park Pindos (Valia Kalnta); IUCN II; (since 1966); Natura2000
42	Olympos National Park	NP Olympos		Moesian-Balcanic	Greece	242	3231	1600	NP Olympus (1938); IUCN II; Natura2000 site
43	Nature Monument of "Frakto"	Virgin forest Frakto Rhodope		Moesian-Balcanic	Greece	207	1145	1560	Nature Monument of "Frakto" (1979 & 1980); (protected as strict nature reserve) IUCN Ia
		Nature Monument of Chaidou		Moesian-Balcanic	Greece	88	80	1400	
44	National Park Shebenic-Jablanica	Rajca	N	Moesian-Balcanic	Albania	4700	33928	700-2000	IUCN II; Part of Shebenic-Jablanica NP
45	Lumi I Gashit	Lumi I Gashit	N	Moesian-Balcanic	Albania	500	1000	1000-2100	Strict Protected Area, IUCN Ia (3000 ha); 1996
46	Mali Sharr National Park	Prrocka e Durrës, Bistra, Lumbar-dhi, Gryka, Maja e Arnenit, Rusenica, Pashallare, Lëndina e Shenjtë		Moesian-Balcanic	Kosovo	2300	53469	900-1600	IUCN II: (Part of the NP Mali Sharr since 1986),
47	Bjeshket e Nemuna National Park	-		Moesian-Balcanic	Kosovo	6750	62488	800-1500 (1600)	IUCN II
48	Mavrovo National Park	Dlaboka Reka		Moesian-Balcanic	Macedonia	400	73100		IUCN II, Part of - Mavrovo NP; since 1949
49	Biogradska Gora National Park	-		Moesian-Balcanic	Montenegro	1600	5400		IUCN II; since 1878

50	Kopaonik National Park	Duboka		Moesian-Balcanic	Serbia	97	11819	1020-1780	IUCN Ia
		Jelovarinik		Moesian-Balcanic	Serbia	57		1150-1780	
		Barska Reka		Moesian-Balcanic	Serbia	89		1350-1590	
		Jelak		Moesian-Balcanic	Serbia	59		1100-1490	
51	Hainich National Park		I	Sub-Atlantic-Hercynic	Germany	1573	4085	290-490	IUCN II
52	Kellerwald - Edersee National Park		I	Sub-Atlantic-Hercynic	Germany	1467	4271	245-626	IUCN II
53	Harz National Park			Sub-Atlantic-Hercynic	Germany	3000	24732		IUCN II
54	Bavarian Forest National Park			Sub-Atlantic-Hercynic	Germany	4370	24250	700-1150	IUCN II
55	Eifel National Park			Sub-Atlantic-Hercynic	Germany	1750	11000		IUCN II
56	Biosphere Reserve Röhn			Sub-Atlantic-Hercynic	Germany		185262		
57	Nature Park Pfälzerwald	Head-waters of Wieslauter		Sub-Atlantic-Hercynic	Germany	2296	180000		
58	Regional Nature Park Vogese du Nord			Sub-Atlantic-Hercynic	France		130000		
59	Biosphere Reserve Vessertal-Thüringer Wald	Vessertal		Sub-Atlantic-Hercynic	Germany	296	17000		
60	Hohe Schrecke			Sub-Atlantic-Hercynic	Germany	2000	7350		
61	Boubínský prales National Nature Reserve			Sub-Atlantic-Hercynic	Czech Republic	677		874 – 1200	1933 (but protected by the landowners from 1858)
62	Žofínský prales			Sub-Atlantic-Hercynic	Czech Republic	102			1933 (partly protected since)
63	Bettlach-stock			Sub-Atlantic-Hercynic	Switzerland	230	790	800-1250	IUCN Ib; strict forest reserve since 1985 (103 ha around Bettlachstock)
64	Montricher			Sub-Atlantic-Hercynic	Switzerland	100	1000	800-1250	
65	Sihlwald			Sub-Atlantic-Hercynic	Switzerland	918	443	467-915	
66	Parc Naturelle Regional de la Montagne de Reims	Les Faux de Verzy		Sub-Atlantic-Hercynic	France	37	20000		Natura2000 (1.725 ha)
67	Cévennes National Park			Sub-Atlantic-Hercynic	France				

68	Kalkalpen National Park		N	Alpic	Austria	5250	16200	390 - 1400	National Park (IUCN II) 1997; Ramsar, NATURA2000
69	Wilderness area Dürrenstein	Rothwald	N	Alpic	Austria	1965	3500	680 - 1880	Wilderness Area IUCN Cat. Ia + Ib;
70	Biosphere Reserve Wiener Wald			Alpic	Austria	1000	105645		5000 ha in 37 core zones; mainly beech forests, but also other forest types; estimation of beech area in core zones
71	Timau			Alpic	Italy	20	50	800-1500	"protection forest", property of the township
72	Valle di Lodano			Alpic	Switzerland	300	1000	700 - 2050	Strict forest reserve since 2010; compliance with IUCN 1b
73	Frusca Gora National Park	Papratzki do		Pannonic	Serbia	62	25393	360-380	IUCN Ia since 1955; Part of Frusca gora NP (IUCN V, since 1960)
74	Kekes Eszak Forest Reserve			Carpathian	Hungary	63	79		Legally protected since 1986, Forest reserve since 1990
75	Cheile Nerei – Beușnița National Park	Cheile Nerei Beusnita	N	Carpathian	Romania	4294	36706	400-800	Included in Nature Reserve « Cheile Nerei – Beușnița
76	Semenic - Cheile Carașului National Park	Izvoarele Nerei	N	Carpathian	Romania	4728	36706	620-1400	Included in "Izvoarele Nerei" Nature Reserve, which has an area of 5,028.0 ha, Semenic - Cheile Carașului National Park (SCCNP), 1990 (IUCN II)
77	Cozia National Park	Masivul Cozia	N	Carpathian	Romania	2280	16720	300-1640	2000; IUCN II
		Lotrișor	N	Carpathian	Romania	1126		300-1500	
78	Domogled - Valea Cernei National Park	Domogled - Coronini – Bedina	N	Carpathian	Romania	5153	61211	160-1300	(IUCN II), since 1982
		Iauna Craiovei	N	Carpathian	Romania	3517		400-1560	
		Ciucevele Cernei	N	Carpathian	Romania	1650		775-1620	
79	Codrul secular Șinca		N	Carpathian	Romania	338		780-1480	Ministerial Order no. 3397/2012 for the protection of virgin forests
80	Codrul secular Slătioara		N	Carpathian	Romania	609		790-1353	strict forest reserve since 1934
81	Grosii Tiblesului	Izvorul Șurii	N	Carpathian	Romania	210		1050-1450	strictly protected through Ministerial Order no. 3397/2012 for the protection of virgin forests
		Preluci	N	Carpathian	Romania	135		980-1100	
82	Strambu Baiut		N	Carpathian	Romania	630		700-1270	strictly protected through Ministerial Order no. 3397/2012 for the protection of virgin forests
83	Padurea Plesu Nature Reserve and Rusca Montana Nature Reserve	Padurea Plesu		Carpathian	Romania	1353	1535	600-1320	Government Decision no. 2151 / 2004 (IUCN IV)

84	Retezat National Park	Geme-nele-Retezat		Carpathian	Romania	344	38117	775-1450	Included in Gemelele Scientific Reserve, part of Retezat National Park; Journal of Ministries Council no. 593/1935.
85	Buila – Vanturita National Park	-		Carpathian	Romania	1375	4490	550-1866	Governmental Decision no. 2151/2004
86	Rodna Mountains National Park	Corongiș-Cobășel		Carpathian	Romania	990	47207	900-1650	Journal of Ministries Council no. 1949/1932) and validated by Law no. 137/1995
87	Djerdap National Park	Veliki i Mali Strbac		Carpathian	Serbia	1843	63600	100-700	IUCN Ia
		Čoka Njalta		Carpathian	Serbia	639	63600	200-600	IUCN Ia
88	Poloniny National Park	Stuzica-Bukovske Vrchy	I	Carpathian	Slovakia	2950	11300	512-1210	
		Havesova	I	Carpathian	Slovakia	171	64	442-741	
		Rozok	I	Carpathian	Slovakia	67	41	440-789	
89	Vihorlat Protected Landscape Area	Vihorlat	I	Carpathian	Slovakia	2578	2413	571-1076	
90	Carpathian Biosphere Reserve	Kuziy-Trybushany	I	Carpathian	Ukraine	1370	3163	420-1087	
		Uholka-Shyrokyi Luh	I	Carpathian	Ukraine	11860	3301	400-1350	
		Svydovets	I	Carpathian	Ukraine	3031	5640	720-1500	
		Maramarosh	I	Carpathian	Ukraine	2244	6230	720-1470	
		Chornohora	I	Carpathian	Ukraine	2477	12925	640-1550	
91	Uzhansky National Natural Park	Stuzhytsia-Uzhok	I	Carpathian	Ukraine	2532	3615	600-1221	
92	Synevyr National Natural Park	Darvaika	N	Carpathian	Ukraine	1588	503	800 - 1400	IUCN II, 43,000 ha
		260							
		Kvasovets				561	587		
		Vilshany				260			
93	Gorgany Nature Reserve		N	Carpathian	Ukraine	1396	3995	900 - 1250	IUCN I, 1996, 5,344 ha
94	Zacharovanyi Krai National Nature Park	"Velykyi Di"l and "Irshavka"	N	Carpathian	Ukraine	1257	1275	400-1085	6101 ha
95	Bieszczady National Park	Former reserves: "U zrodel Solinki", "Wetlina", "Puszcza Bukowa" and others		Carpathian	Poland	2120	27080	700-1260	IUCN II; Bieszczady NP (29,200 ha), since 1973 as national park, since 1952 as natural reserves
96	New Forest National Park	-		Atlantic	Great Britain	2481	29000		IUCN V; NP since 2005, 57100 ha; SPA; SSSI
97	Cotswolds Beech-woods			Atlantic	Great Britain	200	585		ASNW legal protection; SSSI status
98	South Downs National Park			Atlantic	Great Britain	100	162500		SSSI; Natura.2000, SAC; NP: IUCN V

99	Chilterns Beech-woods			Atlantic	Great Britain	350	1276		SSSI; Natura.2000, SAC
100	Wye Valley Woodlands			Atlantic	Great Britain	100	916		SSSI; Natura.2000, SAC, A on B
101	Sonian Forest	Zwae-nepoel and Grip-ensdellet	N	Atlantic	Belgium	272	5000	80	IUCN Ia; Natura 2000, protected landscape (since 1959), forest reserve (Gripensdelle: since 2007)
102	Boucles de la Seine normande Regional Nature Park	Foret de Brotonne		Atlantic	France	160	7630		
103	Pays de Fontainebleau Biosphere Reserve			Atlantic	France	260			IUCN Ia since 1953; Part of Pays de Fontainebleau MAB
104	Foret domaniale de Chize	Foret de Chize		Atlantic	France	2579	3435		
105	Scarpe-Escaut Regional Nature Park	Foret de Raismes-Saint-Amand-Wallers		Atlantic	France	70	4600		
106	Foret de Compiègne			Atlantic	France	120	14417	30-148	
107	NP Jasmund		I	Baltic	Germany	493	2579	0-131	
108	NP Müritz	Serrahn	I	Baltic	Germany	268	2568	67-124	
109	Biosphere Reserve Schorfheide-Chorin	Grumsin	I	Baltic	Germany	590	274	76-139	
110	Biosphere Reserve Südost-Rügen	Granitz		Baltic	Germany	723	23500		
111	Feldberg Lake District Nature Park	Heilige Hallen		Baltic	Germany	68			
112	Woliński NP			Baltic	Poland	165			
113	Gribskov			Baltic	Denmark	1457	1977		Natura2000
114	Lille Vildmose	Tofte Skov		Baltic	Denmark	239	902		
115	Bjurkärr Nature Reserve			Baltic	Sweden	238	150		IUCN IV
116	Biskopstorp Forest Reserve			Baltic	Sweden	907	550		
117	Söderasen National Park			Baltic	Sweden	1625	40	50-170	NP (2001)
118	Roztochya Natural Reserve		N	Polonic-Podolic-Moldovan	Ukraine	384	598	300-360	IUCN I
119	Podilsky Staniv Toutiy	Satanivskadacha	N	Polonic-Podolic-Moldovan	Ukraine	211	559	300	IUCN I, II
120	Gelycky Blydnyky NPP			Polonic-Podolic-Moldovan	Ukraine	487		250	IUCN I, II
121	Plaiul Fagului Natural Reserve			Polonic-Podolic-Moldovan	Moldova	32	5387	408 max	IUCN I

122	Ojcowski National Park			Polonic-Podolic-Moldovan	Poland	251	2145		IUCN II
123	Świętokrzyski National Park	Święty Krzyż, Łysica, Czarny Las		Polonic-Podolic-Moldovan	Poland	1500	7626		IUCN II
124	Strandzha Natural Park	Vitanovo Strict Reserve		Euxinic	Bulgaria	957	118225		IUCN Ib
125	Crimea Nature Reserve			Euxinic	Ukraine	1000	30000	780-1200	IUCN I
126	Yalta Mountain-Forest Natural Reserve			Euxinic	Ukraine	300	10000	900-1200	IUCN I