

EUROPE / NORTH AMERICA

ANCIENT AND PRIMEVAL BEECH FORESTS OF THE CARPATHIANS AND OTHER REGIONS OF EUROPE

**BOSNIA AND HERZEGOVINA, CZECHIA, FRANCE, ITALY, MONTENEGRO,
NORTH MACEDONIA, POLAND, SERBIA, SLOVAKIA, SWITZERLAND**



Border Ridge and Gorna Solinka valley, nominated component part in Bieszczady National Park Poland
© IUCN / Ulrika Åberg

WORLD HERITAGE NOMINATION – IUCN TECHNICAL EVALUATION

ANCIENT AND PRIMEVAL BEECH FORESTS OF THE CARPATHIANS AND OTHER REGIONS OF EUROPE (BOSNIA AND HERZEGOVINA, CZECHIA, FRANCE, ITALY, MONTENEGRO, NORTH MACEDONIA, POLAND, SERBIA, SLOVAKIA, SWITZERLAND) – ID N° 1133quater

IUCN RECOMMENDATION TO WORLD HERITAGE COMMITTEE: To approve, as a significant boundary modification of the existing property, the modification of six existing component parts and the inclusion of 15 new component parts as an extension of the property.

Key paragraphs of *Operational Guidelines*:

Paragraph 77: Nominated property includes component parts that meet World Heritage criteria (but also component parts that do not).

Paragraph 78: Nominated property includes component parts that meet integrity, protection and management requirements (but also component parts that do not.).

Background note: In 2003, IUCN evaluated the Primeval Forests of Slovakia, nominated by Slovakia, as a serial natural property; however, the State Party withdrew the nomination and it was not discussed at the session of the World Heritage Committee (Suzhou, 2004). IUCN's evaluation, at that time, highlighted the need for the States Parties of Slovakia and Ukraine to work together to better conserve the remaining primeval Beech forests. In 2006, the States Parties of Slovakia and Ukraine jointly submitted a new nomination for a transnational serial natural property of key remnants of their remaining Carpathian Beech forests which was inscribed as the "Primeval Beech Forests of the Carpathians" in 2007 (Decision 31 COM 8B.16) after a positive IUCN recommendation.

In 2010, Germany nominated the Ancient Beech Forests of Germany as a transnational serial extension of the above site in Slovakia and Ukraine. This nomination modified the scope of the Outstanding Universal Value to include ancient (rather than only primeval) forests where past human activity had varying levels of prominence and in which historical forest use including logging, fuelwood collection, hunting and forest pasture had taken place. IUCN recommended deferral of this extension, but the World Heritage Committee approved the extension in 2011 creating an enlarged serial property shared across three countries and with a new name: Primeval Beech Forests of the Carpathians and the Ancient Beech Forests of Germany (Decision 35 COM 8B.13). In its Decision, the Committee encouraged the States Parties 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."*

In 2016, eleven States Parties submitted another transnational extension nominating 67 additional component parts; however, four component parts nominated by Poland were subsequently withdrawn from the nomination. IUCN again recommended deferral of this extension. The World Heritage Committee nonetheless approved also this extension resulting in the new property spanning 12 countries and comprising 78 component parts in total. The name of the new transnational serial property was adapted to "Ancient and Primeval Beech Forests of the Carpathians and Other Regions of Europe" (Decision 41 COM 8B.7).

The Committee's attention is also drawn to IUCN's previous evaluations of 2004, 2007, 2011 and 2017 (WHC-04/28.COM/INF.14B; WHC-07/31.COM/INF.8B.2; WHC-11/35.COM/INF.8B.2 and WHC/17/41.COM/INF.8B.2) which contain relevant analyses, and to the fact that the current inscribed site is to be considered in relation to State of Conservation issues under item 7B of the agenda of the same meeting at which this nomination is being made.

The Committee's attention is also drawn to the fact that the nomination under consideration originally included 37 component parts; however, on 28 February 2021, France withdrew the component part of *Py-Pas de Rotja* from the nomination.

1. DOCUMENTATION

a) Date nomination received by IUCN: February 2020

b) Additional information officially requested from and provided by the States Parties: Following the IUCN evaluation missions, a letter was sent to the States Parties on 12 January 2021 requesting further information regarding several component parts. In response to this letter, the States Parties provided additional information on 15 January 2021.

Following two sessions of the IUCN World Heritage Panel, a progress report was sent to the States Parties on 29 January 2021. This letter advised on the status of the evaluation process and requested supplementary information on the selection of component parts, component part buffer zones, and sought clarifications on proposed modifications to the component parts of *Massane and Grand Ventron* (France). The supplementary information was provided by the States Parties on 27 February 2021.

c) Additional literature consulted: IUCN's previous evaluations consulted a wide array of relevant reference material for the biology, ecology, protection and management as well as the comparative values of European Beech Forests. Comprehensive reference lists were compiled within IUCN's 2004, 2007, 2011 and 2017 evaluations which are available as referenced above. Further references included: Bergès, L., Pellissier, V., *et al.* (2013). Unexpected long-range edge-to-forest interior environmental gradients. *Landscape Ecology*, DOI 10.1007/s10980-012-9841-1; Burton, P.J. (2001). *Windthrow Patterns on Cutblock Edges and in Retention Patches in the SBSmc*. Conference: The Windthrow Researchers Workshop At: Richmond, B.C. Volume: B.C. Forestry Continuing Studies Network, Vancouver, B.C; Davies-Colley, R. J., Payne, G.W. & van Elswijk, M. (2000). Microclimate gradients across a forest edge. *New Zealand Journal of Ecology* 24(2): 111-121; Ewers, R.M. & Didham, R.K. (2008). Pervasive impact of large-scale edge effects on a beetle community. *PNAS*, 105(14); Gromke, C., and Ruck, B. (2018). On Wind Forces in the Forest-Edge Region During Extreme-Gust Passages and Their Implications for Damage Patterns. *Boundary-Layer Meteorol* 168, 269–288, <https://doi.org/10.1007/s10546-018-0348-4>; Ibisch, P. (2014) *Research and Development Project, European World Heritage Beech Forests, Final Project Report*. Eberswalde: Centre for Economics and Ecosystem Management; Knapp, H.D., Schroeder, C. & Schwaderer, G. (2013): *Report of the Excursion to Ancient Beech Forests in Albania and Macedonia*. July 14–19, 2013; Lachat, T., Wermelingera, B., *et al.* (2012). Saproxylic beetles as indicator species for dead-wood amount and temperature in European beech forests, *Ecological Indicators* 23: 323-331; Mikoláš, M., Ujházy, K., *et al.* (2019). Primary forest distribution and representation in a Central European landscape: Results of a large-scale field-based census, *Forest Ecology and Management*, Volume 449, <https://doi.org/10.1016/j.foreco.2019.117466>; Sabatini,

F.M., Burrascano, S., Keeton, W.S., *et al.* (2018). Where are Europe's last primary forests? *Divers Distrib.* 24:1426–1439, <https://doi.org/10.1111/ddi.12778>; Spracklen, B.D., & Spracklen, D.V. (2019). Identifying European old-growth forests using remote sensing: a study in the Ukrainian Carpathians. *Forests*, 10(2), 127; UNESCO and IUCN (2014). *Reactive Monitoring Mission – Slovak component sites of the World Heritage property Primeval Beech Forests of the Carpathians and the Ancient Beech Forests of Germany (Ukraine, Germany, Slovakia)*, 29 September – 3 October 2014. UNESCO and IUCN (2018). *Report on the Joint World Heritage Centre/IUCN Advisory mission to the Slovak components of the World Heritage property “Ancient and Primeval Beech Forests of the Carpathians and Other Regions of Europe” (Slovakia)*, from 16-19 October 2018. Paris, France and Gland, Switzerland: UNESCO World Heritage Centre and IUCN; UNESCO and IUCN (2019). *Report on the Joint World Heritage Centre/IUCN Reactive Monitoring Mission to the Albanian and Romanian components of the transnational World Heritage property Ancient and Primeval Beech Forests of the Carpathians and Other Regions of Europe (Albania, Austria, Belgium, Bulgaria, Croatia, Germany, Italy, Romania, Slovakia, Slovenia, Spain and Ukraine)*, 13 to 22 November 2019; Visnjic, Č., Vojnikovic, S., *et al.* (2009). Virgin Status Assessment of Plješevica Forest in Bosnia-Herzegovina. *Notulae Botanicae Horti Agrobotanici Cluj-Napoca*, 37(2), pp.22-27.

d) Consultations: 13 desk reviews received. The five missions necessary to undertake the evaluation of this nomination spent a combined 30 days in the field visiting all nominating States Parties. Given the dynamically evolving Covid-19 situation, the organisation of the missions was extremely challenging for all involved and required a very high degree of flexibility. Due to the constraints posed by Covid-19 and the geography of the 37 nominated component parts spread across the European continent, it was not possible to physically visit all component parts: However, the missions were able to gain a good sense of the nominated property on the ground and to interact with officials and stakeholders of all nominated component parts. The five missions were able to meet with national UNESCO Commissions, various elected officials, government officers at national, regional and local levels (in particular from ministries and specialised agencies), site management staff, scientists/researchers, and a wide range of stakeholders including NGOs, local communities, across the ten States Parties, albeit with limited participation in line with pertinent health advice.

e) Field Visits: Due to the high number of nominated component parts spread across the European continent and the complexity of this nomination, a total of five field missions was required. As a consequence of the unprecedented Covid-19 situation, the field missions were carried out over the period from September 2020 to early January 2021, in accordance with evolving travel and health advice:

Field mission 1: Slovakia, Poland and the Czechia, Ulrika Åberg, 13-21 September 2020;

Field mission 2: Switzerland and Italy, Jan Woollhead, 14-22 September 2020;

Field mission 3: Bosnia and Herzegovina, and Montenegro, Ulrika Åberg, 26-30 October 2020;

Field mission 4: Serbia and North Macedonia, Jan Woollhead, 2-6 November 2020

Field mission 5: France, Ulrika Åberg, 4-7 January 2021;

The delays caused by the Covid-19 pandemic necessitated additional sessions of the IUCN World Heritage Panel in January 2021.

f) Date of IUCN approval of this report: April 2021

2. SUMMARY OF NATURAL VALUES

The present nomination of the Ancient and Primeval Beech Forests of the Carpathians and Other Regions of Europe is an extension to the existing transnational serial property shared by Albania, Austria, Belgium, Bulgaria, Croatia, Germany, Italy, Romania, Slovakia, Slovenia, Spain and Ukraine. It is important to note from the outset that this extension nomination combines three distinct elements:

1. A significant boundary modification proposed for the four existing component parts in Slovakia, resulting in five component parts;
2. An enlargement of one existing Italian component part, including its buffer zone, and the enlargement of a buffer zone of another existing component part in Italy;
3. An extension of the existing property through the addition of 29¹ new component parts in Bosnia and Herzegovina, Czechia, France, Italy, Montenegro, North Macedonia, Poland, Serbia, Slovakia and Switzerland.

Therefore, the reported area of the 36 component parts included in the nomination total 18,973 ha with a combined buffer zone reported area of 67,922 ha.

The nomination seeks to enhance the integrity of the existing property by adding outstanding examples of the evolutionary and developmental processes of beech forests since the last Ice Age. All glacial refuge areas and genotypes of beech would be represented through this extension, “adding substantially all the attributes that express the Outstanding Universal Value”, according to the nomination file.

Following the last Ice Age, European Beech (*Fagus sylvatica*) spread rapidly from a few isolated refuges in the Alps, Carpathians, Mediterranean and Pyrenees to Central Europe, the Baltic Sea, and to the British Isles, Scandinavia and Poland in a short period of only a few thousand years. In an area extending from the north of Spain and the south of England and Sweden, to the east of Poland, the Carpathian Arc and south of the

Balkan and Apennine peninsulas European Beech forests span several biogeographical provinces according to Udvardy's classification: the Atlantic, Central European Highlands, as well as Pannonian and Balkan Highlands. In the site screening process for the previous 2017 extension nomination, experts refined these bioregions to settle upon twelve European Beech Forest Regions. This regional framework was used to identify beech forest sites that represent the spectrum of post-glacial expansion and development within different environmental gradients across the European continent.

The European Beech represents the main climax tree species in the temperate zone of Central Europe and its expansion process is still ongoing. The Beech's success is due to its flexibility and tolerance to different climatic, geographical and physical conditions. Natural monodominant European Beech forests display a wide spectrum of different plant associations and associated biodiversity underneath their canopies. However, since the late Holocene, human intervention has led to a drastic reduction of the coverage of Beech forests in general and primeval Beech forests in particular, leaving only very few and very small forest remnants with primeval and old-growth characteristics. Recent research suggests that known primary forests cover 1.4 million ha in 32 European countries on 0.7% of Europe's forest area. While 89% of these forests are protected, only 46% are subject to strict protection.

A brief description of the country component parts and clusters that make up the present nomination is as follows:

Bosnia and Herzegovina

The nominated *Prašuma Janj* component part is situated in the Illyric Beech Forest Region at an altitude of 1,180 m to 1510 m. It is located in the Republic of Srpska on the western slopes of Stolovaš Mountain in the municipality of Šipovo. The component part is a strict nature reserve (IUCN category Ia) under state ownership of almost 300 ha surrounded by a buffer zone of 380 ha, which has a sharp edge on its Eastern side along the border to the Federation of Bosnia and Herzegovina. Dinaric, Illyrian, Altimontane forests of beech, fir and spruce dominate the area on dolomite substrate, with individual trees of exceptional dimensions. The majority of the nominated component part consists of virgin forest.

Czechia

The *Jizera Mountains* component part (444.81 ha, with a buffer zone of 2,279.40) in the Czechia has developed in a wet area. The Jizera Mountains component part is located on the eastern extreme of the Subatlantic-Hercynic Beech Forest Region and displays a large variety of old-growth forest characteristics, hardly influenced by human use. At present, old-growth beech forest covers about 95% of the component part, hosting trees up to 290 years old. The nominated component part is congruent to the core area of a National Nature Reserve (IUCN category Ib) and has been exempt from any

¹ Initially, 30 new component parts have been included in the nomination; however, IUCN has been informed through supplementary information received on 27 February 2021 that one component part has been withdrawn by France: *Py-Pas de Rotja*.

management activities for more than 60 years. Previously, it has only marginally been affected thanks

to the hardly accessible, steep and rocky granite slopes.

Table 1 outlines the component parts of the nominated property. Existing component parts proposed for a boundary modification are marked with an asterisk. The areas of these component parts as currently inscribed are indicated in parentheses. Areas reported in the 2007 nomination that do not match the boundaries of the existing component parts are highlighted in *italics*, as applicable.

Component Part	State Party	Area of the Component Part (ha)	Area of the Buffer Zone (ha)
Prašuma Janj	Bosnia and Herzegovina	295.04	380.74
Jizera Mountains	Czechia	444.81	2,279.40
Aigoual	France	75.03	90.11
Chapitre	France	371.3	41.65
Chizé Component 1 North-West	France	93.69	571.92
Chizé Component 2 South	France	62.43	
Fontainebleau	France	248.48	152.2
Grand Ventron	France	319	1,328.00
Massane	France	239.5	1,432.30
Py-Pas-de-Retja (withdrawn)	France	246.03	4,049.87
Sainte-Baume	France	128.63	215.11
Saint-Pé-de-Bigorre	France	924.71	296.87
Falascione* (currently inscribed as “Foresta Umbra”)	Italy	254.3 (182.23)	3,486.29 (1,752.54)
Pavari-Sfilzi	Italy	667.13	
Cozzo Ferriero*	Italy	95.75 (95.74)	2,851.83 (482.61)
Pollinello	Italy	477.94	
Valle Infernale	Italy	320.79	2,191.36
Biogradska Gora 1	Montenegro	390.81	3,632.82
Biogradska Gora 2	Montenegro	1,913.48	
Dlaboka Reka	North Macedonia	193.27	234.7
Border Ridge and Gorna Solinka valley	Poland	1,506.05	24,330.52
Polonina Wetlinska and Smerek	Poland	1,178.03	
Terebowiec stream valley	Poland	201.00	
Wolosatka stream valley	Poland	586.66	
Fruška gora – Papratski do	Serbia	65.36	847.86
Fruška gora – Ravne	Serbia	93.43	
Kopaonik – Kozje stene	Serbia	451.47	959.89
Tara – Rača	Serbia	215.94	4,091.99
Tara – Zvezda	Serbia	1,873.67	
Havešová Primeval Forest*	Slovakia*	167.88 (171.3)	6,474.84 (63.99)
Rožok*	Slovakia*	74.37 (67.1)	1,138.89 (41.4)
Stužica - Bukovské Vrchy*	Slovakia*	1,742.47 (2,950)	5,694.84 (11,300)
Udava*	Slovakia*	455.82 (idem)	814.69 (idem)
Kyjevský prales	Slovakia	289.41	104.47
Vihorlat*	Slovakia*	1,553.06 (2,578)	854.08 (2,413)
Forêt de la Bettlachstock	Switzerland	195.43	1,094.16
Valli di Lodano, Busai and Soladino Forest Reserves	Switzerland	806.78	2,330.74
TOTAL for proposed extension and boundary modifications		18,972.92	67,922.27

France

There are nine different component parts to this nomination in France (following the withdrawal of one component part). The nominated component parts add to the representation of the Beech Forest Regions of the Alpic, Atlantic, Central-Mediterranean, Pyrenaic-Iberian, and Subatlantic-Hercynic. All nominated component parts are protected either as a Biological Strict Reserve (IUCN Category Ia) or National Nature Reserve (equivalent to IUCN Category I), with the exception of *Sainte-Baume* being a Biological Reserve (IUCN Category IV). Five component parts are under state ownership, while two are under municipal and one under state and municipal co-ownership. All the nominated French component parts qualify as old-growth forest according to the nomination, with the exception of *Aigoual*, which also harbours fragments of virgin forest.

The Alpic Beech Forest Region is proposed to be complemented by the *Chapitre* component part, located in the south-western margin of this Beech Forest Region and showing another isozyme group (i.e. another genetic variant of Beech). The nominated component part is subject to natural evolution since it has been taken out of silvicultural use 70 and 100 years ago, and has notable richness in saproxylic beetles and mushrooms. The nominated component part has a buffer zone with a strict protection regime “of 50 m when bordered by state forest and 100 m when in contact with privately owned land”. A second less strict “conservation buffer sub-zone is part of the national forest also managed by the National Forest Office”, according to the nomination dossier.² The northern and southern boundaries of the nominated component are marked by virtually vertical scarps and prominent ridges, which is why these sides of the nominated component part have no buffer zone.

Three component parts are proposed to improve representation of the Atlantic Beech Forest Region – *Fontainebleau*, *Chizé Component 1 North-West* and *Chizé Component 2 South* (all IUCN Category Ia). The two component parts of *Chizé* are at the range limit of the Atlantic Beech Forest Region and Beech in general. The nomination states that the Biological Strict Reserve has only “been under natural processes since 1994” and that “the rest of the reserve was exploited until 2002”, whilst the richness in deadwood “is especially the product of particular recent extreme events, in particular the storm of 1999”. *Fontainebleau* is located 50 km South-East of Paris, and is associated to an existing inscribed cultural World Heritage property Palace and Park of Fontainebleau. Whilst having been designated as an “artistic reserve” in the mid-19th century, the site also has a long legacy of land management and interventions, as well as cultural importance. Nevertheless, the nominated component part has not been logged in the last 150 years.

² The buffer zone is only partly indicated on the map shown in the nomination dossier.

The representation of the Subatlantic-Hercynic Beech Forest Region is proposed to be improved by the addition of *Aigoual*, which would be the only component part representing Beech from isozyme group 4 in the Subatlantic-Hercynic Beech Forest Region. The forest is out of use for more than 70 years. *Grand Ventron*, located in the centre of this Beech Forest Region underpins representation in Central Europe exhibiting an impressive naturalness for Central Europe with 350-year-old Beech trees coexisting with 250-year-old firs and maples. The nominated component part has been free of interventions for 70 years, with some areas unexploited since 300 years.

The nominated component part of *Sainte-Baume* is located on the North-western margin of the Central Mediterranean Beech Forest Region. It is presented as the only example of a refuge area that represents a well identified local genetic variety due to its isolation from other Beech Forests. *Sainte-Baume* is a Biological Reserve (IUCN Category IV), which is planned to be upgraded to a strict reserve equivalent to IUCN Category Ib. Silvicultural use was phased out 50 years ago with the exception of interventions for the improvement of habitats until the 1990s.

Finally, two nominated component parts are suggested to complete representation on the French side of the Pyrenaic-Iberian Beech Forest Region. The nominated *Massane* component part (IUCN Category I) represents Beech from isozyme group 4, which indicates a separate refuge area at the most eastern edge of the Pyrenees, with links to the Mediterranean Beech Forest Region. *Saint-Pé-de-Bigorre* (IUCN Category Ia) is characterised by beech of isozyme group 5, which may indicate the presence of another refuge area that is different from the eastern and western parts of the Pyrenees.

It should be noted that the State Party of France decided in the course of the evaluation process to expand the areas of the nominated component parts of *Grand Ventron* (from 257.09 ha to 319 ha) and *Massane* (from 121.49 ha to 239.5 ha).

Italy

The values of the existing component are noted in IUCN's previous evaluation of 2017 (document WHC/17/41.COM/INF.8B2). The proposal by Italy firstly suggests to expand the area of the existing *Foresta Umbra* component part from 182 ha to 254 ha (to be renamed to *Falascione*) and to add *Pavari-Sfilzi* as a new component part of 667 ha in an expanded and shared buffer zone amounting to 3,486.29 ha. Both nominated component parts are protected as Strict Reserves (IUCN Category I), under shared ownership by the region and the state. The nominated component parts boast pure and mixed Beech forests, including specimen up to 360 years old, and create an ecological corridor between cooler and warm-dry conditions at lower altitudes where Beech is subject to exceptionally warm conditions. Both nominated component parts are underpinned by regional and/or federal strict reserves and surrounded by naturally

evolving stands of mature beech forests, taken out of forestry use approximately 50 years ago.

In a similar fashion, it is secondly proposed to expand the buffer zone of the existing component part *Cozzo Ferriero* from 482.61 to 2,851.83 ha and to add *Pollinello* counting 477.94 ha within the same buffer zone. At an altitude of 2,200 m, extreme environmental conditions led to a complex forest structure, exhibiting highly variable individual growth histories, including the oldest Beech trees in the world, with several exceeding 600 years according to the nomination dossier. The nominated component part has been free of logging since 80 years. Both component parts are under municipal ownership.

Thirdly, *Valle Infernale* is proposed as a new component part of 320.79 ha encompassed by a buffer zone of 2,191.36 ha. Located within *Aspromonte National Park* in South Calabria, *Valle Infernale* would be the Southern-most component part of the serial transnational property featuring an important Pleistocene refuge area for forest flora and fauna, according to the nomination. There has been no logging since 55 years. It is protected through a Strict Nature Reserve (IUCN Category Ia) and buffered by forest areas that fall under IUCN Category I or II. Ownership is shared by the state and the municipality.

Montenegro

The Moesian-Balcanic Beech Forest Region shows a remarkable variability in geology, climate and beech genotypes. Both nominated component parts, *Biogradska Gora 1* and *Biogradska Gora 2* include complex ecosystems with a considerable number of rare and endemic species. While the national park has served as source of firewood in the 19th century, it could retain mainly primeval/virgin Beech forests inside the nominated component parts, containing examples of the successional stages and evolution of different forest communities. The two component parts combined cover an area of 2,304.29 ha of mixed and pure stands of Beech. They are situated inside *Biogradska Gora National Park*, which was designated in 1952 and which is owned by the Public Enterprise National Parks of Montenegro. The core zone of the national park is a Virgin Forest Reserve, which hosts the two nominated component parts.

North Macedonia

The nominated component part *Dlaboka Reka* is also located in the Moesian-Balcanic Beech Forest Region and contains old-growth Beech Forest situated on a steep slope in *Dlaboka Valley* in *Mavrovo National Park* (IUCN Category II), under state ownership and protected through a Forest Reserve (IUCN Category I). The nominated component part counts 234.7 ha, surrounded by a 193.27 ha buffer zone, and is located within the strictest protection zone of the national park. The Beech stands are influenced and diversified by the rough terrain and considerable snowfall during winter. There has been no known exploitation for 100 years, and some parts have probably never been subject to human use.

Poland

Poland contributed a cluster of four nominated component parts (*Border Ridge and Gorna Solinka valley*; *Polonina Wetlinska and Smerek*; *Terebowiec stream valley*; *Wolosatka stream valley*) to this nomination totalling 3,471.74 ha. All four are located inside *Bieszczady National Park* (IUCN Category II) whose remaining areas constitute a shared buffer zone of 24,330.52 ha. *Bieszczady National Park* is state-owned and borders existing component parts in Slovakia and Ukraine, effectively creating one large transboundary cluster. These existing and the newly nominated Polish component parts are all part of the Carpathian Beech Forest Region, which harbours the largest occurrence of Beech forests in Europe, with a significant share of virgin forests. The nominated component parts in Poland would add the north-facing slopes of the East-Carpathian Ridge. All the four component parts exhibit a high degree of naturalness and include a dwarf form of Beech due to the high altitude and climatic exposure. They are characterised by structural and dynamic characteristics close to those typical for primeval forests, including high densities of deadwood. *Bieszczady National Park* has large, contiguous natural areas and a high diversity in forest communities and species, especially mushrooms and mosses as well as large predators such as Brown Bear (*Ursus arctos*), Wolf (*Canis lupus*), Lynx (*Lynx lynx*) and Wild Cat (*Felis silvestris*), and their prey base. The last interventions at low intensity took place more than 70 years ago outside the nominated component areas, whilst the areas inside have never been subject to regular forest management.

Serbia

Serbia included five component parts to this nomination, located in *Tara National Park*, *Kopaonik National Park* (IUCN Category II) and *Fruška Gora National Park* (IUCN Category V). The nominated component parts are forest reserves (IUCN Category I), largely corresponding to level I protection regimes of these national parks, i.e. the strictest protection possible. The nominated component parts are mostly state-owned and add to the representation of the Moesian-Balcanic and Pannonic Beech Forest Regions, as well as on the transition between the Moesian-Balcanic and the Illyric Beech Forest Region. In all nominated component parts, Beech is mixed with coniferous trees.

Fruška Gora National Park, in *Vojvodina Province* in Northern Serbia, hosts the *Papratski do* and *Ravne* component parts on an island mountain in the Pannonian Plain. The former has been subject to strict protection for more than 60 years whilst the latter has been strictly protected since 2004. Beech grows on thick and moist soils on north facing secluded and humid slopes. The forest displays old-growth characteristics. *Kopaonik - Kozje stene*, located in southern Serbia covers the slopes of the *Samokovska River Gorge*, including the *Kozje Stene Reef*, *Kukavica Peak* and *Jadovnik Hill*. *Kopaonik - Kozje stene* boasts

virgin forest in most of its area, which is largely due to its difficult accessibility. The *Tara – Rača* and *Tara – Zvezda* component parts are located in Western Serbia along the Tara River, which marks the border to Bosnia and Herzegovina. Most of the two component parts is nearly inaccessible due to the topography, and has therefore never been used. Active geomorphological processes create clearances where new primary succession can be observed.

Slovakia

For natural values of the existing component parts the reader is referred to IUCN's previous evaluation of 2007 (document WHC-07/31.COM/INF.8B.2). The proposed significant boundary modification responds to the Reactive Monitoring process with a total of six Committee decisions dealing with concerns raised due to, *inter alia*, logging; significant discrepancies between the component parts' boundaries and hectare values, as inscribed in 2007; incomplete legal protection of the component parts; and lacking consultation of private landowners. In its Decision 42 COM 7B.71, the Committee has requested the State Party of Slovakia to submit a significant boundary modification and recommended the conditions this should fulfil. This process was supported through an IUCN Reactive Monitoring mission in 2014, a Joint World Heritage Centre/IUCN Advisory mission in 2018 as well as through various consultations between the State Party of Slovakia, the World Heritage Centre and IUCN.

The significant boundary modification, as proposed by the State Party of Slovakia, includes a southward extension of the *Stužica – Bukovské Vrchy* component part improving connectivity towards the *Rožok* component part. While the buffer zone is consolidated, the component part is proposed to be split up into two separate component parts, *Stužica - Bukovské Vrchy* and *Udava* as thus far no consent could be obtained from the landowners of a narrow strip of the existing component part stretching along the Polish-Slovak border. The component area of the remaining *Udava* component part is proposed to be extended westwards, covering additional old-growth stands contained in the Rydošová Nature Reserve. The *Rožok* and *Havešová* component parts are subject to minor alignments of the component part boundaries with the delineation of the respective Strict Nature Reserves, whilst the buffer zones of these component parts have been expanded and consolidated. All four nominated component parts are Strict Nature Reserves (IUCN Category I) located within Poloniny National Park (IUCN Category V).

The *Vihorlat* component part is located in the Vihorlat Protected Landscape (IUCN Category V). When inscribed in 2007, *Vihorlat* intersected with several small Strict Nature Reserves, but did not capture them systematically. In the current proposal, the component area and buffer zone has been consolidated and now encompasses all existing Strict Nature Reserves, which have been merged to form the new Vihorlatský Prales Nature Reserve. However, the buffer zone is proposed to be reduced. In addition, Slovakia

proposes the new *Kyjevský praes* component part containing primeval Beech Forest. *Kyjevský praes* is enveloped by a small buffer zone with a uniform width of 100 m. The area is part of a military district. The Slovak component parts are partly state-owned and partly owned by private landowner associations that consented to the World Heritage designation and the respective management regime.

Switzerland

There are two Swiss component parts in the nomination: *Forêt de la Bettlachstock* and *Valli di Lodano, Busai and Soladino Forest Reserves*, both under municipal ownership. The nominated *Forêt de la Bettlachstock* component part comprises an area of 195.43 ha, located on the Jura Mountain chain within the Natural Forest Reserve Bettlachstock–Hasenmatt (IUCN Category Ib) and surrounded by a buffer zone of 1,094.16 ha. Former meadows and pastures are included within the Bettlachstock component part, which are subject to succession since they were taken out of use 20 years ago. Beech reach an age of up to 200 years and are in the process of becoming an old-growth forest with increasing deadwood volumes and diversification in age. Low-intensity forestry management has been phased out more than 30 years ago. The recent return of the Lynx supports natural regeneration of the nominated component part thanks to regulating effects on Chamois and Roe Deer. Overall, the sub-montane Beech forest is in a natural stage and exhibits a high structural variety and quality of habitats with a high stock of living and dead wood, though still low when compared to primeval forests. The nominated component part is an important addition to the series due to its function as stepping stone for the northward expansion of Beech after the last Ice Age.

The nominated component part of *Valli di Lodano, Busai and Soladino Forest Reserves* (IUCN Category Ib) encompasses an area of 806.78 ha, dominated by Beech and Silver Fir on steep slopes. The buffer zone of 2,330.74 ha includes various types of forests with natural and cultural landscapes, all being subject to only very limited human use. The altitudinal gradient from 360 m to 2,100 m a.s.l. results in the presence of a wide variety of forest types ranging from low altitude floodplains forest of the Maggia River up to larch forests at subalpine level (2,100 m a.s.l.). The forest of the nominated component part has been out of use for 60-80 years, and 150-250 years in the areas of difficult accessibility, and is subject to natural processes since then.

3. COMPARISONS WITH OTHER AREAS

As an extension of an existing property, seeking coherence with the Committee's recommendation to realize a finite transnational serial property (Committee Decision 35 COM 8B.13), IUCN considers that further comparisons with other areas on a global basis are no longer a focus of the evaluation as the basis for recognition of the World Heritage List has been accepted, and the background discussion is already

addressed in IUCN's evaluations of 2004, 2007, 2011 and 2017 (documents WHC-04/28.COM/INF.14B; WHC-07/31.COM/INF.8B.2; WHC-11/35.COM/INF.8B2 and WHC/17/41.COM/INF.8B2).

The nomination contains an adequate comparative analysis in relation to the present nomination, which includes updates to Tentative List sites and to the World Heritage List since the previous extension nomination of 2016. Some of the Tentative List sites discussed in the comparative analysis of 2016 are now part of the present extension nomination. The conclusion of the present comparative analysis is identical to the one of the 2017 extension nomination stating that there is no similar property inscribed or in preparation, and that no other site has a comparable spatial dimension and a focus on the Pan-European expansion process of European Beech (*Fagus sylvatica*). The nomination further notes that some existing World Heritage properties (Pyrénées - Mont Perdu (France/Spain), and Plitvice Lakes National Park (Croatia)) include old-growth Beech forest that could add additional value to the existing World Heritage property, suggesting that these properties as well as pertinent Tentative List sites could be integrated into the existing property's network of cooperation and exchange. However, the nomination provides no comparative analysis as to how the newly nominated component parts compare with the existing ones, apart from the fact that they would enhance the existing series by (a) adding the Pannonic Beech Forest Region and (b) by improving representation of already represented Beech Forest Regions.

While the World Heritage Committee previously accepted the basis for Outstanding Universal Value (OUV) of the existing property, which has since undergone two extensions, IUCN recalls that the 2011 extension "changed the scope of the OUV to include ancient (rather than primeval) forests where past human activity had varying levels of prominence and in which historical forest use including logging, fuelwood collection, hunting and forest pasture had taken place." IUCN also recalls its concern previously raised about further conceptual broadening of the series, accepting particularly peri-urban forests through the 2017 extension (see document WHC/17/41.COM/INF.8B2). The present extension describes the state of naturalness as old-growth forest (synonymously used by the nomination with the term "ancient") for 17 nominated component parts and 15 nominated component parts as containing virgin forest (synonymously used by the nomination with the term "primeval"), which indicates a continued trend to include more "ancient" than "primeval" forest components in this property. The nomination defines "ancient / old-growth" as "forest stands which have been directly influenced by human activities in the past, but the last significant impact is dated back several decades". In this respect, IUCN notes that the nominated component parts of *Chizé Component 1 North-West* and *Chizé Component 2 South (France)* do not meet this requirement as the last significant human interventions took place less than three decades ago.

In summary, IUCN considers that the current nomination does include many areas of good quality European Beech forest, especially those containing virgin forests, potentially strengthening the Outstanding Universal Value and pan-European integrity of the existing World Heritage property. Whilst IUCN acknowledges that many of the nominated component parts exhibit values consistent with the established OUV, several do not and this is further discussed in section 4.2. IUCN considers that there is not adequate justification for the nominated component parts of *Chizé Component 1 North-West* and *Chizé Component 2 South* in relation to the established basis for OUV of the current property.

4. INTEGRITY, PROTECTION AND MANAGEMENT

4.1. Protection

The nomination notes that a strict non-intervention regime applies in all nominated component parts, banning forestry interventions and grazing from the nominated areas. The nomination further argues that the respective protective designations have already proven to be effective as the selection of component parts was limited to those areas that are already exempt from any use for a long time.

Regarding the significant boundary modification of the existing Slovak component parts, Decision 42 COM 7B.71 of the Committee requested the State Party of Slovakia to ensure that "all areas within the property are provided with an adequate legal protection regime". In this respect, IUCN notes that the State Party has issued a new Government Resolution and amendment of the Act on Nature and Landscape Protection, which has reinforced the protection levels of the component parts and their buffer zones. A new Strict Nature Reserve has been designated underpinning the Udava component part, and all reserves within the Vihorlat component part have been merged into one contiguous Strict Nature Reserve. All areas included in the revised component parts are subject to the strictest level of protection and a non-intervention regime to which the State Party of Slovakia has also unequivocally committed in supplementary information. Furthermore, the State Party reached a consensus between the relevant authorities, forest enterprises and private landowner associations, through a long and thorough participatory process. IUCN acknowledges that these considerable efforts by the State Party of Slovakia have resulted in a commendable and clear improvement for the protection of the Slovak component parts of the existing property. Therefore, IUCN considers that the protection requirements for this significant boundary modification are met, in line with Committee Decision 42 COM 7B.71.

Regarding the boundary modification of the existing Italian component parts, IUCN notes that they are all part of strict forest reserves, located within the strict protection zones of the surrounding national parks. The IUCN field evaluation mission concluded that adequate protection is in place.

Regarding the new nominated component parts, the nomination asserts that the prerequisite for the selection of nominated component parts was their exemption from any use ranging from decades to centuries. The nominated component parts are located within strict reserves and/or strict protection zones embedded in larger protected areas, such as national parks and Natura 2000 sites. Most of these protected areas are equivalent to IUCN Category II, whilst the protection of all but one nominated component parts is equivalent to IUCN Category II. Some of the nominated component parts are subject to shared ownership between the state and/or region and private entities. In such cases, long-term agreements ensure the protection of the component areas. All five IUCN field evaluation missions concluded that adequate protection is in place within almost all nominated component parts.

The only nominated component part that is currently not subject to IUCN Category I or II protection is *Sainte-Baume (France)*, which has Biological Reserve status (IUCN Category IV). While it is planned to partly upgrade the nominated component's area to a Biological Strict Reserve (IUCN Category Ib), IUCN notes that a section of the reserve will not be upgraded to provide for "occasional work in the understorey to facilitate beechnut harvesting", intended "for the conservation of genetic resources", according to the nomination file. In this respect, IUCN further recalls issues previously evoked by a lack of consistent and strict protection in case of the existing Slovak component parts, which are attempted to be solved by the present nomination. Against this background, IUCN considers that the protection regime of the nominated component part of *Sainte-Baume* is not consistent with the other nominated component parts and does currently not meet the protection requirements of the *Operational Guidelines*.

IUCN considers that the protection status of the nominated property meets the requirements of the *Operational Guidelines*, with the exception of the nominated component part of *Sainte-Baume (France)*.

4.2 Boundaries

The nomination presents a complex range of approaches and issues in relation to boundaries. The discussion in this section is structured as follows: (1) modifications to the existing Slovak component parts; (2) modifications to two of the existing Italian component parts; (3) boundaries of newly nominated component parts, comprising (a) convincing boundary designs, and (b) inappropriate boundary designs, the latter being laid out country-by-country.

IUCN firstly notes the significant boundary modification proposed by the State Party of Slovakia for the existing component parts of *Vihorlat, Hachešová Primeval Forest, Rožok, and Stuzica – Bukovské Vrchy*. Following inscription of these component parts, it was confirmed that the nomination of these component parts (a) had been submitted with incorrect area values (see also table 1); (b) were not fully owned by

the State; and (c) not subject to a protection regime equivalent to IUCN Category I or II; contrary to what IUCN was led to understand (see document WHC-07/31.COM/INF.8B.2). Therefore, it was necessary to consider a boundary modification of the Slovak component parts. Following the request of the Committee to prepare a significant boundary modification, (Decision 42 COM 7B.71) the State Party has conducted a comprehensive mapping of the naturalness of forest stands inside the component parts and in the surrounding areas, provided in supplementary information along with age class maps and maps showing the forest structure and tree species composition. The maps provided indicate a consistent design of component parts and buffer zones and that they are dominated by Beech. The component parts cover patches of 120+ year-old forest stands, assessed as "virgin forest", and "close to virgin forest".

Therefore, IUCN considers that the revised component part boundaries consistently capture all relevant areas and that the revised buffer zones capture semi-natural and natural areas that may function as stepping stones to enhance ecological connectivity, in line with the objectives discussed in section 4.3. The new boundary design further endeavours to improve ecological connectivity through corridors between the component parts. Similarly, the boundary design and width of buffer zones responds consistently to the topography of the landscape. IUCN further acknowledges that the revision of the boundaries and buffer zones largely follows the advice provided by the 2018 Joint World Heritage Centre/IUCN Advisory mission. Nevertheless, the 2020 IUCN field evaluation mission noted a weakening of the ecological connectivity due to the proposed excision of a 10 km strip along the Polish border, splitting the *Stuzica – Bukovské Vrchy* component part into two separate component parts. The excision is a consequence of the lack of consent from private landowners. At the same time, it deserves to be noted that the viability of the remaining *Stuzica – Bukovské Vrchy* component part would be considerably enhanced through the addition of the nominated component parts contained in the directly adjacent Bieszczady National Park in Poland. The viability of the remaining *Udava* component part is enhanced through a westward expansion. Overall, IUCN therefore considers that the proposed revision of the boundaries represents a clear improvement and provides a solid basis for a better protection of the OUV of the transnational property, in line with Committee Decision 42 COM 7B.71.

IUCN secondly notes the boundary modifications proposed by the State Party of Italy. The enlargement of the existing *Foresta Umbra* component part from 182 ha to 254 ha to become the renamed *Falascone* component part represents a significant boundary modification. The buffer zone is proposed to be expanded from 1,752.54 ha to 3,486.29 ha. This increase in area by almost 30 % and doubling the size of the buffer zone clearly improves the integrity of the existing component part in the view of IUCN. The minor boundary modification of *Cozzo Ferriero* includes a minor adjustment to the component part's reported area and an enlargement of the buffer zone

from 482.61 ha to 2,851.83 ha. In the view of IUCN, this almost six-fold expansion of the buffer zone significantly supports the connectivity through the creation of a corridor along the mountain ridge marking the border between Calabria and Basilicata. Both expanded buffer zones connect each of the existing component parts with a newly nominated component part, discussed below.

IUCN thirdly notes the following points regarding the boundary design of 29 nominated component parts proposed as additions to the existing transnational series. The design of the component part boundaries and buffer zones differs significantly across the ten countries. While some of the boundaries have been drawn meticulously to correspond to the current Beech Forest stands (e.g. the nominated component parts in Poland), others include areas with different species compositions or non-forested areas. In contrast, the *Forêt de la Bettlachstock* (Switzerland) and *Chapitre* (France) component parts for instance applied a less strict approach in that they also included mountain pastures above the Beech Forest stands. In light of the variety of approaches, IUCN took into account the specific context of each nominated component part seeking to clarify if the respective approach is adequate in the context of the surrounding landscape and the context to facilitate natural Beech Forest evolution. For the above-mentioned examples, IUCN considers the boundaries acceptable in spite of the different approaches taken as the natural succession of Beech into the surrounding areas is not constrained – in the case of Poland thanks to a wide zone of strict protection surrounding the nominated component parts and in the case of *Chapitre* (France) thanks to the possibility for Beech to move upwards with a treeline likely shifting due to climate change. Similarly, the new component parts of *Pavari-Sfilzi* and *Pollinello* (Italy), proposed by Italy, are embedded in a well-protected sparsely used wider landscape connected through a generous and strictly protected buffer zone to the respective existing component parts discussed here above. While not having a connection to an existing component part, *Valle Infernale* (Italy) enjoys similar levels of protection and remains undisturbed, being topographically well-sheltered in the steep valley of Butramo River.

In the context of the existing serial property, the boundaries of the following further component parts are considered appropriate in relation to integrity considerations, taking into account factors such as the topography, remoteness, difficult accessibility, minimal levels of land use or no land use at all, ecological characteristics, and/or wide and rigorous protection regimes surrounding the component parts provide for natural processes to evolve without interference, and to expand into the surrounding areas: *Prašuma Janj* (Bosnia and Herzegovina); *Jizera Mountains* (Czechia); *Dlaboka Reka* (North Macedonia); *Fruška gora – Papratski do*; *Fruška gora – Ravne*; *Kopaonik – Kozje stene*; *Tara – Rača*; *Tara – Zvezda* (Serbia); *Forêt de la Bettlachstock*; *Valli di Lodano*, *Busai* and *Soladino Forest Reserves* (Switzerland); *Chapitre* (France); *Grand Ventron* (France); *Massane* (France). Regarding the latter two, IUCN welcomes that, in the

course of the evaluation process, the State Party of France has decided to significantly expand the areas of the nominated component parts of *Massane* and *Grand Ventron*, to include areas enhancing the attributes of OUV, and providing important corridor functions.

Following the discussion of component part boundaries that are appropriate in their respective context, the following paragraphs lay out issues related to the boundaries of nine nominated component parts. Firstly, some nominated component parts are embedded within landscapes that are subject to significant levels of use and modification (e.g. *Chizé Component 1 North-West*, *Chizé Component 2 South* (France); *Fontainebleau* (France), *Sainte-Baume* – see also section 4.5, and to a lesser degree *Aigoual*, *Kyjovský prales* and *Saint-Pé-de-Bigorre*), or will likely be subject to more intensive use in future (e.g. *Biogradska Gora 1* (Montenegro); *Biogradska Gora 2* (Montenegro) – see section 4.5.). Secondly, the topographical situation of a number of nominated component parts would require a more generous approach to the design of component and buffer zone boundaries than what is being proposed in the present nomination (e.g. *Aigoual*; *Sainte-Baume*; *Chizé Component 1 North-West*, *Chizé Component 2 South* – see also section 4.5). In general, it remains important in the view of IUCN that maintaining ecological patterns and processes for European Beech across a variety of environmental conditions requires a configuration where component parts are ecologically viable, well-buffered and connected.

In terms of connectivity at broader scale, IUCN notes that almost all nominated component parts are situated in regions with a high degree of forest cover, linking the nominated component parts with the existing ones along the Pyrenees, Apennines, Alps, Central European low mountain ranges, the Carpathian Arc and the Dinaric Mountains. However, the nominated component parts of *Chizé Component 1 North-West*, *Chizé Component 2 South* and *Fontainebleau* (France) are situated in regions with a considerably lower levels of forest cover, with poorer levels of ecological connectivity such as forest stepping stones to other component parts. IUCN considers that these three nominated component parts do not sufficiently contribute to the integrity of the existing property at pan-European scale.

Furthermore, while the nominated component parts of *Chizé Component 1 North-West* and *Chizé Component 2 South* (France) may represent a Western outpost of Beech on the southern end of the Atlantic Beech Forest Region, the nomination dossier notes that the naturalness of both nominated component parts is still relatively low. Both nominated component parts are of small size, which, with their direct vicinity to agricultural lands, exposes them to wind-throw as evidenced by impactful storm events (see also section 4.5). The wider Biological Strict Reserve of Sylve d'Argenson is a fenced off, solitary forest stand in an open agricultural landscape, and thus not connected to a wider forest landscape unlike other existing and nominated component parts. The

viability of these two nominated component parts as part of this transnational series is further called into question when taking into account this nomination's justification for criterion (ix), setting out that the nominated component parts should be "largely undisturbed" and "exhibit comprehensive ecological patterns and processes" of Beech, whereas logging in the forest of the two component parts of the *Chizé* has only ceased 27 years ago (and less than 20 years ago in the remainder of the Reserve). The forest structure is still shaped by parallel even-aged strips and symmetrical forest roads, testifying to the recent intense use, along with still visible signs of its past use as military area. In light of this, IUCN considers that the nominated component parts of *Chizé* do not meet the requirement of integrity.

Similarly, due to its proximity to Paris the nominated *Fontainebleau* component part is embedded in dense peri-urban infrastructures with extremely high levels of visitation. As a medieval royal hunting ground of the Fontainebleau Palace, the site is also of cultural importance. IUCN further notes that a stand-alone nomination has also been considered for *Fontainebleau* (France) and could potentially be considered in relation to the possible extension of the existing World Heritage property, Palace and Park of Fontainebleau (France).

While *Aigoual* is larger than the 50 ha minimum referenced by the Committee in Decision 41 COM 8B.7, the nominated component part is very small, covering only 75 ha. The old-growth forest includes fragments of virgin forest according to the nomination dossier, which however benefits only from a very narrow buffer zone of approximately 100-150 m width. The buffer zone is designed irrespective of the topography. It was reported to the IUCN mission that the forest is still regenerating from past coppicing. The buffer zone remains partly subject to forest management, though under PEFC conditions. Further factors that were noted are nearby grazing and infrastructures, including a ski resort 500 m away and a road above the nominated component part. The nomination further states that the nominated component part "is part of a network of 5 forest strict biological reserves created or being created in the beech forest of the core area of the National Park". IUCN sought further information from the State Party on the nominated component part of *Aigoual*; however, no further information was received. On the basis of the information available, IUCN is not convinced that *Aigoual* currently meets integrity requirements.

While the nominated component part of *Sainte-Baume* is sheltered by a sharp scarp to the south, the small nominated area and buffer zone, which is very narrow towards the North and the West, does not ensure efficient buffering towards the infrastructures and agricultural areas in the North and West. This is exacerbated by the fact that the small nominated area is crisscrossed by maintained and highly frequented pedestrian tracks.

While *Saint-Pé-de-Bigorre* is the largest of the nominated component parts in France, it is surrounded

by a very narrow, uniform buffer zone, which is directly flanked by a high voltage power line on the Eastern and partly on the Northern side of the nominated component part, resulting in two linear strips of permanently cleared forest under that power line. The nomination claims *Saint-Pé-de-Bigorre* is "one of the most remarkable forests of the French Pyrenees, with a high level of naturalness". The nominated component part itself is marked by a gap inside the component area where consent from the landowner was not obtained. In this respect, IUCN recalls similar issues concerning a lack of consent by landowners in the existing Slovak component parts, which triggered the proposals submitted in the present nomination. Overall, IUCN therefore considers that that more work needs to be done to ensure the nominated component area does not have gaps in it, and to revise the buffer zone.

The newly nominated component part of *Kyjevský prales* is located on the Valaškovce Military Territory, which includes active training grounds. It is surrounded by a uniform and narrow buffer zone. Supplementary information indicates that almost half of the most natural forest cover appears to be located in this very narrow buffer zone. While the nomination reports that the forest management entity, the state enterprise Military Forests and Estates of the Slovak Republic has agreed to apply only close-to-nature forest management in the surrounding forest areas, IUCN notes with concern that the valuable areas of natural forest are not buffered through any formal protection or through wider protected areas, unlike the other Slovak component parts and nominated component parts of this extension nomination. The width of the buffer zone has also been reduced compared to the proposal reviewed by the 2018 Joint World Heritage Centre/IUCN Advisory mission. Being located on the same forested ridge as *Vihorlat*, a significant expansion of the buffer zone to connect it with the buffer zone of the existing *Vihorlat* component part would greatly improve the connectivity between both component parts, especially as there are areas with old-growth forest between *Kyjevský Prales* and *Vihorlat* according to mapping provided in supplementary information.

Lastly, IUCN notes the approach of sub-zonation introduced by this nomination (see also section 5.2), dividing the buffer zone into two zones: a strict protection sub-zone and a much less strict landscape conservation buffer sub-zone. However, IUCN also notes that the States Parties of the existing transnational property reported in the 2021 update of the State Party report on the state of conservation that no agreement had been reached among the States Parties on the guidance document concerning the management of the property and buffer zones. Noting that this zonation approach is not in force for the existing property, and still subject to ongoing exchanges between the World Heritage Centre, IUCN and the States Parties in the framework of the Reactive Monitoring process, IUCN has focused its evaluation of this nomination only on the actual buffer zone configurations and surrounding protection regimes of each of the nominated component parts. It

is therefore important that this evaluation does not prejudice the wider processes underway to clarify the buffer zone design and regimes applying to the property as a whole. IUCN further notes that in some of the component parts recommended for approval in the present nomination, there may well be the need to revisit and extend buffer zone configurations, as approaches to secure more consistent and rigorous buffer zone arrangements across the property as a whole.

Overall, IUCN considers that the boundaries and buffer zones of the following nominated component parts would require significant revisions: *Aigoual (France)*; *Biogradska Gora 1*; *Biogradska Gora 2 (Montenegro)*; *Sainte-Baume*; *Saint-Pé-de-Bigorre (France)*; *Kyjevsky Prales (Slovakia)*. Furthermore, IUCN considers that the boundaries of the following nominated component parts do not meet the integrity requirements of the *Operational Guidelines*: *Chizé Component 1 North-West*; *Chizé Component 2 South*; *Fontainebleau (France)*.

IUCN considers that the boundaries of the nominated property and buffer zones meet the requirements of the Operational Guidelines in case of 27 nominated component parts, but not in case of nine nominated component parts.

4.3 Management

The nomination states that “in the component parts of the property, a strict non-intervention policy is implemented”. To ensure the undisturbed unfolding of natural processes within the nominated component parts, IUCN considers this approach vital in respect of criterion (ix), and therefore acknowledges this overarching management principle as adequate.

In its 2011 and 2017 evaluation reports however, IUCN stressed the importance of good buffer zone design and effectiveness as the only feasible way to protect the integrity of the small forest remnants being proposed as part of this series. Buffer zones play a key role in assuring the ecological viability of the nominated component parts and in mitigating any negative impacts from external threats, ensuring that surrounding forest management practices and other activities do not adversely impact on the property's Outstanding Universal Value (OUV). This is consistent with the objective of the Integrated Management System (IMS) for the transnational serial property which seeks “to maintain and *expand* the existing, *ecologically connected complex of primeval and natural beech forests* that encompass and connect (link) the component parts in 20 European countries. This should be achieved through the *conservation of other remaining natural beech forests within proposed corridors and/or stepping stones connecting the component parts and measures supporting the succession of managed semi-natural beech forests adjacent to and between the component parts*. In the long term, the expanded area should turn into a *continuous buffer zone, encompassing the component parts* that will support the exchange of biological

information between the properties. This network is supposed to serve as a *system of stepping stones, facilitating the exchange between species*, keeping the genetic reservoir and *enabling an ongoing migration process of species*” (nomination dossier, *emphasis added*).

In other words, buffer zones need to promote ecological connectivity and enable the lateral expansion and natural succession from the ancient and primeval component parts into the surrounding areas. This also implies a progressive rollback and minimisation of interventions and the existence of sufficient forest cover in these surrounding areas to avoid hard edge effects. In light of the considerable variety of buffer zone design and management approaches across the nomination, IUCN reviewed not only the buffer zone design (section 4.2) but also the management regime and effectiveness against the backdrop of above-mentioned objective and requirements.

Regarding the modification of the existing Slovak component parts, and considering Committee Decision 42 COM 7B.71, IUCN notes that the management regime inside the component parts is consistently based on the non-intervention principle and underpinned by the strictest protection level available. This is welcome as it addresses a significant and long-standing conservation issue, which has been subject to state of conservation reports since 2013. The protection levels applicable to the buffer zones have likewise been strengthened and the input from the State Nature Conservancy into approval processes has been reinforced. IUCN also acknowledges that revised legislation provides for enhanced protection of Poloniny National Park, in which the nominated component parts of *Stužica - Bukovské Vrchy*, *Udava*, *Rožok*, *Havešová* are located, significantly reducing the area subject to logging. National parks now have to ensure an undisturbed evolution of natural processes on at least 75 % of their area, with the short-term goal to create strict non-intervention zones on at least 50 % of their area.

Regarding the modification of the existing Italian component parts, IUCN notes that both component areas remain subject to a non-intervention regime and have a Management Plan in force. The buffer zones of *Falascione* and *Cozzo Ferriero*, surrounding the component parts are, for the most part, of generous proportions (see section 4.2) and are entirely consistent with a strict protection regime, equivalent to the strict protection sub-zone category suggested in the nomination dossier. Together with the buffer zones of the nominated component parts of *Valle Infernale* and *Dlaboka Reka*, the buffer zones of *Falascione* and *Cozzo Ferriero* are the only ones of this nomination following this simpler and more stringent approach, which IUCN generally supports.

Regarding the 29 newly proposed component parts, IUCN notes that all but four component parts have a management plan or management system in place demonstrating a management regime in line with the preservation of OUV. Based on the nomination,

supplementary information and field missions though, IUCN is not convinced that an adequate management system consistent with the protection of the suggested OUV is currently in place for the nominated component parts of *Fontainebleau*; *Sainte-Baume (France)*; *Biogradska Gora 1 (Montenegro)* and *Biogradska Gora 2 (Montenegro)*.

The nominated component part of *Fontainebleau* has undoubtedly a noteworthy history of protection, having instituted the world's first regulations for the preservation of nature and landscapes through an early ban on land clearing back in 1853, which was followed by a decree in 1861, creating an "artistic reserve". As such, and as part of the royal hunting grounds of the nearby Palace and Park of Fontainebleau World Heritage property, the site is also of cultural importance and has a long legacy of land management and interventions. For instance, the forest was kept open by cattle grazing due to the encouragement of both artists and hunters and the forest has been subject to the planting of Scots Pine, still dominating and spreading in a section of the nominated component part, which calls into question its integrity. The IUCN World Heritage Panel consulted ICOMOS on the cultural values of the nominated component part, and based on this, considers that the area was indeed historically and culturally part of the royal hunting grounds of Fontainebleau. IUCN considers that, should this area be included as an extension of the existing cultural property, the application of a non-intervention regime necessary to sustain undisturbed natural processes, might pose challenges in terms of the management of cultural values or possible OUV. Significant areas of historic forest and hunting grounds have survived, complementing the built premises and the gardens of the Fontainebleau World Heritage property, and which more appropriately warrant an active management regime.

While the management of *Sainte-Baume* is underpinned by a Regional Nature Park Management Plan, a National Forest Management Plan and a Natura 2000 Management Plan, these plans are obviously tailored to less strict protective designations. IUCN is concerned these plans may not prescribe the appropriate level of specific permanent and stringent management required. In this respect, IUCN further notes that the management regime is currently not complete yet as a new management plan is in preparation for a planned extension of the Biological Reserve to 318 ha. This situation, where the management regime does neither appear to be complete nor fully consistent with the permanent and stringent non-intervention regime required for this transnational property, is particularly concerning in light of maintained tracks inside the relatively small component area accommodating very high levels of visitation to an important pilgrimage site. It is not clear to IUCN if and how these high visitation levels and the cultural and spiritual values of the site and their respective management requirements could be reconciled with the strict non-intervention approach, championed by the nomination itself, and the premise of undisturbed natural processes. It was also reported

to the IUCN mission that the state of conservation is affected by forest dieback, requiring interventions. IUCN considers that this complexity of issues needs to be reconciled with non-intervention and appropriate buffering requirements, which is currently not the case.

In the case of *Biogradska Gora 1* and *Biogradska Gora 2 (Montenegro)*, the nomination notes that, as a Virgin Forest Reserve, the management of the nominated component areas are in line with a strict non-intervention regime. However, Biogradska Gora National Park, which encompasses both nominated component parts and which serves as buffer zone, is pending modifications to the boundaries and a re-zonation. The nominated component parts are not aligned with the strict protection zone of the national park, but separated through a corridor. The IUCN field mission noted rising pressure from tourism, including from a ski zone inside the proposed buffer zone and plans for accommodation facilities inside the national park, which do not appear to be regulated through a tourism management plan. The Plan of Temporary Facilities for Biogradska Gora National Park and the Special Purpose Spatial Plan Biogradska Gora National Park provide for these developments. The zoning of the spatial plan appears not to be aligned with the nominated component parts; moreover, the spatial plan expired in 2020. IUCN considers that there is insufficient regulation and limitation of future tourism development, uncertainty on the boundaries and future zonation of the national park, and an inappropriate gap left between both nominated component parts, contrary to the protection zoning of Biogradska Gora National Park.

In conclusion, IUCN considers that management requirements are not met in the following nominated component parts: *Biogradska Gora 1*; *Biogradska Gora 2 (Montenegro)*; *Fontainebleau*; *Sainte-Baume (France)*. However, management requirements are met within the other component parts of this nomination.

IUCN considers that the nominated property largely meets management requirements, but that four nominated component parts do not meet the requirements of the Operational Guidelines.

4.4 Community

Regarding the existing Italian and all newly nominated component parts, it can be noted that the nominated component parts are uninhabited with buffer zones with very limited use, if any, by local communities. Some buffer zones include areas of low-intensity grazing. The IUCN field evaluation missions did not note any particularly contentious issues with local communities, with the exception of the existing Slovak component parts. Following inscription of the existing Slovak component parts in 2007 without sufficient consultation and consent by affected local landowners, Slovakia has conducted a comprehensive and extensive consultation process, which has eventually resulted in a boundary modification proposal to which private landowners have provided their consent, where

their land is affected by the World Heritage designation. No agreements could be reached for a narrow section of the existing *Stužica – Bukovské Vrchy* component part resulting in its split-up into two separate component parts (see section 4.2). Based on the information available, IUCN considers that the State Party of Slovakia has met the condition set by the Committee in its Decision ensuring that “consultations have been held with relevant stakeholders through a participatory process” (Decision 42 COM 7B.71).

4.5 Threats

Recent research indicates that primary forests in Europe are prone to human disturbance, including consequences of past human disturbance, as many are not strictly protected and most are small and fragmented, reinforcing the need for stringent buffer zone arrangements. The IUCN field missions detected a wide range of threats potentially or currently affecting the nominated component parts to varying degrees, in a number of cases to a degree precluding the possibility of approval for inclusion on the World Heritage List. The threats can be subsumed under the following four main threads: logging in buffer zones; energy infrastructure; visitation levels; and threats related to significant modifications to the surrounding landscapes.

Firstly, the nomination dossier notes logging as a key threat even for the small patches of primeval forests remaining in Europe. According to the nomination, logging involves very high impacts on the forest ecosystem “as forest management, such as extraction of biomass by logging, changing structure by thinning or harvesting timber and driving on forest floors with heavy machinery, has the most relevant impact on the natural process cycle, it is of uppermost importance that these forest management activities are effectively prohibited.” In light of these impacts, the nomination also attaches a high importance to buffer zone design and management. However, based on the nomination, field missions and supplementary information, IUCN considers that a number of buffer zones are not yet effectively protecting the nominated component parts from this threat, and in some cases are the area where this threat originates.

In this respect, IUCN notes that the buffer zones of the nominated component parts in Serbia are subject to forest management as provided for by level II and III protection regimes of the respective national parks. These less strict protection regimes partly border the nominated component parts or a very narrow, so-called, protection buffer sub-zone. The IUCN field mission noticed a newly constructed and wide forest road in proximity of the nominated *Tara-Zvezda* component part. In supplementary information, the State Party of Serbia clarified that the purpose of this road is fire protection and forest management. The forestry approach applied in the buffer zone aims to achieve, “through selective management and continuous experimentation, (...) a condition of equilibrium at maximum productive capacity.”

However, IUCN is concerned that this focus on maximising productive capacity is not in line with the required purpose of the buffer zones, which shall provide an additional layer of protection supporting undisturbed natural processes of the nominated property, which do not necessarily result in a maximisation of productive capacity. This is especially relevant in light of significant conservation issues of the existing property related to logging in buffer zones (see Committee decisions 37 COM 7B.26, 38 COM 7B.75, 39 COM 7B.19, 41 COM 7B.4, 42 COM 7B.71, 43 COM 7B.13). While Tara National Park and Kopaonik National Park limit interventions to “selective harvests”, more extensive “shelterwood forest management” is implemented in Fruška Gora National Park on 21 ha out of 97 ha of the likewise very narrow buffer sub-zone for strict protection bordering the nominated component parts. This approach is even more dominant in the remaining parts of the buffer zone. Against this background, IUCN considers that there is a need for the State Party of Serbia to provide further and more detailed information on the type, scale, frequency and extent of any logging and forestry operations that may be implemented in the buffer zones in future and their potential impacts on the existing property's OUV, together with a plan and related commitments to minimize logging in the entirety of the defined buffer zones, before the Serbian component parts could be considered for inclusion into the transnational series.

Secondly, the issue of energy infrastructures in proximity of nominated component parts has been raised through IUCN's field evaluation and Panel deliberations in IUCN's interim letters to the States Parties. These energy infrastructures include a planned wind farm nearby the nominated *Forêt de la Bettlachstock* (Switzerland) component part and a planned transmission line nearby the *Valli di Lodano, Busai and Soladino Forest Reserves* (Switzerland). Regarding the former, the State Party of Switzerland submitted an Environmental Impact Assessment (EIA) with supplementary information demonstrating that no significant impacts on the forests contained in the *Forêt de la Bettlachstock* component part are to be expected. Regarding the latter, the State Party confirmed that, while the planning procedure is still ongoing, the technical Advisory Board clearly favours an underground solution well outside the nominated component part and its buffer zone. IUCN therefore considers that the integrity of both nominated component parts is currently not threatened, but in reaching this view it is essential that the above-mentioned conditions are upheld fully in any implementation of these projects.

Further energy infrastructures for which IUCN requested supplementary information concerned the possibility of hydropower projects nearby the nominated *Kopaonik – Kozje stene* (Serbia), and *Dlaboka Réka* (North Macedonia) component parts, the latter having been raised by third parties. Concerning the former, the State Party of Serbia confirmed that a water pipeline is planned to pass through the buffer zone of the nominated *Kopaonik – Kozje stene* (Serbia) component part, including

sections directly adjacent to the nominated component part, to feed a new hydropower plant at the entrance of the Kopaonik National Park. While the State Party has submitted an EIA in Serbian, including a summary in English, IUCN is not clear on the potential impacts of this hydropower project on the attributes contained in the nominated component part. Therefore, IUCN recommends the State Party of Serbia to provide more detailed information on the potential impacts on the Beech forest contained in the nominated component part, including its integrity, natural processes and any hydrological impacts. Concerning the nominated component part of *Dlaboka Réka* (North Macedonia), IUCN takes note of the confirmations by the State Party of North Macedonia in supplementary information of January and February 2021 that “there is no concern that a hydropower plant or pipelines are going to be built inside the component part nor in the buffer zone of Dlaboka Reka” and that “there are no pipeline management activities and hydropower plants in the vicinity of the Mavrovo National Park and the Mavrovo National Park environment and spatial planning.” Based on these confirmations, IUCN therefore considers that the integrity of the nominated *Dlaboka Reka* component part does currently not appear to be threatened.

Thirdly, IUCN has noted that the nominated component parts are affected by visitation to varying degrees. While some nominated component parts are subject to very low levels of visitation thanks to their remoteness or difficult accessibility (e.g. *Chapitre* (France); *Dlaboka Reka* (North Macedonia)) or to medium levels of visitation (e.g. Italy; Poland), there is a number of nominated component parts that are subject to significant levels of visitation. The forest in which the nominated component part of *Sainte-Baume* is located reaches 500,000 visitors per year. The forest in which the nominated component part of *Fontainebleau* is located is subject to 3,420,000 to 10,330,000 visits per year according to estimates. Importantly, the nominated component part of *Fontainebleau* is criss-crossed by a very large number of paths and tarmacked roads, accommodating – despite regulations and closures – enormous levels of visitation. A major highway intersects the component part's very narrow buffer zone. These factors clearly preclude any possibility for the nominated component part to meet integrity requirements. In IUCN's view, these levels of visitation and fragmentation are not credibly reconcilable with the premise of undisturbed natural processes that are the basis for OUV of the transnational series.

Fourthly and lastly, IUCN has noted various threats related to the current and/or prospective degree of modification of the surrounding landscapes. Above-mentioned fragmentation by road/track infrastructure in and around the nominated component parts of *Sainte-Baume*, and *Fontainebleau* is also an issue of *Chizé Component 1 North-West* (France) and *Chizé Component 2 South* (France), though in this case these symmetrical infrastructures are a legacy of past use. However, the surrounding landscape of *Chizé* is marked by open agricultural lands. The richness in deadwood is not explained by the age of the forest but

by the effects of extreme storm events, whose significant impacts are however not necessarily due to natural processes but to edge effects from the surrounding agricultural landscape as wind throw may in fact be more nuanced beyond the actual windward edge of a forest, i.e. inside the nominated component part, as recent research suggests. Hence, due to the recent exploitation and modified landscape in its immediate vicinity, the nominated component parts of *Chizé* do not appear to meet the requirements for being “undisturbed” that have been established in the existing series. Regarding *Biogradska Gora 1* (Montenegro), and *Biogradska Gora 2* (Montenegro), the prospect of tourism development in Biogradska Gora National Park, including nearby ski areas already being expanded, and planned accommodation facilities are of concern. IUCN considers that the threats to the nominated parts in Montenegro could partly be mitigated if both nominated component parts were merged, supported by the zoning of Biogradska Gora National Park, thereby significantly enhancing the integrity of the two *Biogradska* component parts.

In summary, IUCN considers that whilst the condition and protection of many individual components is good, buffer zones are not adequate for some component parts and the integrity requirements of the *Operational Guidelines* are not met by a number of component parts.

5. ADDITIONAL COMMENTS

As in the evaluations of previous extensions of the existing property, the selection of nominated component parts and their design are central considerations, including the effectiveness of the buffer zone configurations. IUCN reiterates its fundamental concerns raised in its previous evaluations, noting a trend towards smaller, less viable component parts with evident inconsistencies in the design of buffer zones (though all nominated component parts of this submission are larger than the established minimum size of 50 ha). IUCN recalls that 68 out of 78 existing component parts have been inscribed against IUCN's advice as these component parts did not meet, in IUCN's view, the requirements for World Heritage listing at the time of inscription. Out of the ten component parts for which IUCN had recommended inscription back in 2007, at least four component parts later on turned out to not meet the requirements of the *Operational Guidelines*. This overall situation has also led to a significant number of conservation issues being subject to the Reactive Monitoring process. Against this background, one key focus of IUCN's evaluation was to assess in how far the present nomination addresses these issues and in how far it would improve the configuration of the existing property. In light of the great complexity of the nomination, and the degree to which past inscriptions have departed from norms in the inscription of natural sites on the World Heritage List, IUCN is of the view that reaching a conclusion of the present series is in the interests both of the existing series and the proposed new additions, as well as in terms of the

wider questions the nomination raises in terms of credibility.

5.1 Consideration in relation to serial properties

a) What is the justification for the serial approach?

The almost entirely cultivated and modified landscape of Europe has led to the degradation of formerly primeval Beech forests which are nowadays confined to very few small remnants of intact primeval and ancient Beech forest. Therefore, only a series of separate component parts and clusters can demonstrate Outstanding Universal Value (OUV). Against this background, previous evaluations and Committee decisions established that a serial approach is needed to convey a pan-European story of OUV for the post-glacial expansion and development of European Beech, culminating in the Committee's encouragement to the States Parties to define what constitutes "a finite serial transnational nomination" (Decision 35 COM 8B.13). Based on this call by the Committee, this nomination raises for the third time the question of what would constitute a finite series for European Beech forest and modified the "Vienna shortlist" of protected areas that had been presented in the last extension nomination in 2016, to include five new sites (*Saint-Pé-de-Bigorre; Valle Infernale; Py-Pas de Rotja; Chapitre; Kyjovsky prales*) and moving ten sites from a long list of 2016 to the revised Vienna shortlist of 2020 (*Aigoual; Chizé; Fontainebleau; Grand Ventron; Massane; Sainte-Baume; Kopaonik; Tara Zvezda; Tara Raca; Forêt de la Bettlachstock*).

In supplementary information, the States Parties explained these changes to the Vienna shortlist with a lack of information and/or interest at the time of the initial screening for the 2016 nomination, and with new research having become available since then. However, three of the four studies mentioned in the supplementary information focus on Slovakia, Romania and Ukraine only. The only study focusing on the entire European continent (Sabatini, *et al.*, 2018) appears to support the choice of most of the nominated component parts, however, none of the mentioned studies supports the choice of *Chizé*. Several studies also note a lack of precision of some research methods and inconsistent field-based inventories of primary forests noting the risks of incomplete or inaccurate mapping, increasing the vulnerability of primary forest systems to clearing and land-use change.

Based on the bibliography provided, IUCN therefore notes a limited level of scientific confidence backing the shortlist and also notes the States Parties' clarification that the "main selection criteria were the protection status, size and duration of protection or age of the forest stands in each Beech Forest Region" (emphasis added). However, as raised previously by IUCN, the component parts should be selected in a highly rigorous manner including only the most natural remaining areas, as the purpose of inscription under criterion (ix) is fundamentally about recognising naturalness, not the adaptation of natural systems to

past human use, which does not necessarily appear to be ensured if only above-mentioned criteria are applied. This also became apparent in this nomination, and in particular insufficient screening of the sites for integrity requirements, resulting in disparities in quality of the nominated component parts that are even more nuanced than in the previous 2016 extension nomination. IUCN nevertheless recognises that a large number of nominated component parts do fill important gaps in the series towards the complete representation of glacial relic sites and post-glacial development of European Beech, with integrity and protection and management conditions being met.

In light of these more pronounced disparities between the nominated component parts of the present nomination, the IUCN World Heritage Panel decided to approach its recommendation considering each component part or cluster on its own merits. This differentiated approach makes it possible to improve, on the one hand, the boundaries of six existing component parts and to complement the existing property with new component parts that meet World Heritage requirements and that enhance the integrity and credibility of the existing property. On the other hand, a differentiated approach to evaluation of the different component parts provides States Parties with the opportunity to critically reconsider the selection of those nominated component parts not meeting World Heritage requirements, including the possibility to take, where applicable, appropriate action to comply with integrity and/or protection and management requirements before the potential inclusion of these component parts into the existing property.

b) Are the separate component parts of the nominated property functionally linked in relation to the requirements of the *Operational Guidelines*?

Many of the existing component parts of the Ancient and Primeval Beech Forests of the Carpathians and Other Regions of Europe World Heritage property are linked across Europe through the common post-glacial development of a single species (*Fagus sylvatica*). A large number of the newly nominated component parts are equally representing the natural development of European Beech in the post-glacial. Some of the newly nominated component parts are linked in as important stepping stone in the post-glacial expansion process or as refuge area at the altitudinal and/or latitudinal/longitudinal edge of the range of Beech. A number of nominated component parts add forest stands virtually untouched over a period of time that is remarkable in European contexts. Some nominated component parts improve representation of Beech Forest Regions and/or isozyme groups of Beech, whilst others are spatially linked to existing component parts across borders, or located within the same protected areas and landscape. Almost all of the nominated component parts are located in regions with a high share of forest cover. Nevertheless, a few of the component parts included in this nomination do not support the representation of outstanding natural ecological processes and exhibit a compromised integrity, and are therefore not considered to contribute to this Outstanding Universal Value.

c) Is there an effective overall management framework for all the component parts of the nominated property?

As noted in IUCN's previous evaluation, there is a strong history of cooperation between the existing and nominating States Parties of this property through the processes of site selection, and preparing the nomination, but also through the European Beech Forest Network, and the Reactive Monitoring process. Following the last extension in 2017, the Integrated Management System (IMS) has been expanded to include all twelve States Parties of the transnational property. The IMS describes the mechanism for multilateral cooperation across this transnational series. The States Parties of the existing property, and the eight States Parties newly joining this nomination, have signed a Joint Declaration of Intent. A Joint Management Committee (JMC) is operational for the existing property and would be joined by the new States Parties in case of approval of the extension. The role of JMC is to oversee the integrated transnational management across the transnational property. A project-based coordination office rotating every four years between the States Parties facilitates and coordinates the work of the JMC. The coordination office is currently based in Belgium.

While IUCN had raised concerns about the transnational management arrangements in its previous evaluation, because these arrangements were subjected to approval of the 2017 extension, IUCN recognises that the existing property has a functional transnational management framework in which revised and new component parts can be embedded. An instance of the functional cooperation between the nominating States Parties is the highly effective coordination and cooperation in the present evaluation process, including the rapid provision of substantial supplementary information, in the context of significant disruptions caused by the Covid-19 pandemic. Nevertheless, IUCN also notes significant conservation issues of the existing property, which are subject to the Reactive Monitoring process and which can partly be attributed to a lack of cohesive transnational management. While the present nomination alone cannot solve these fundamental conservation issues for the existing property, IUCN acknowledges that this nomination endeavours to address long-standing conservation issues of existing component parts, to improve management effectiveness and to enhance the integrity of existing component parts.

5.2 Management of buffer zones

As mentioned above, IUCN has focused its evaluation of buffer zones on their current management and protection regime rather than on the sub-zonation approach presented in the nomination, as (1) its implementation varies considerably across the States Parties, as (2) the States Parties of the existing transnational property have not yet reached an agreement on any buffer zone guidelines and since (3) this topic is subject to ongoing exchanges in the Reactive Monitoring process of the existing property.

Nevertheless, IUCN has noted in case of some nominated component parts that the buffer zone design and/or management would need to be enhanced to fulfil the intended function of a buffer zone as a "layer of additional protection", as per the *Operational Guidelines* (see also section 4.2). The nomination notes for instance research conducted in New Zealand indicating microclimatic edge effects up to 50 m inside the forest stand (Davies-Colley et al. (2000)). However, recent research from New Zealand, investigating edge effects on beetle species, also indicates more significant edge effects larger than 250 m, including effects for some species reaching as far as 1 km into habitat patches. The nomination frequently refers to saproxylic beetles as indicator species for naturalness, but factors other than standard widths derived from knowledge on microclimatic effects do not appear to play a decisive role in determining buffer zones. Factors that do not appear to be systematically considered in the buffer zone concept include meso-climatic effects, deadwood connectivity, fungi, keystone species, etc. In supplementary information, the States Parties argue that large vertebrate species have some influence on forest ecosystems, "but the main ecological functional processes of growth, decay and regeneration within forest ecosystems do not depend significantly on the presence of these". However, the nomination notes elsewhere the negative effects of ungulates, which may inhibit regeneration, requiring regulation through hunting in some of the nominated component parts, or through the reintroduction of *Lynx* as in the case of *Forêt de la Bettlachstock*. Overall, it appears to be pertinent to take into account the fauna, as well as other factors in identifying how the buffer zones can provide an additional layer of protection in line with the *Operational Guidelines*. In this respect, IUCN welcomes that the States Parties have signalled in supplementary information their willingness and openness to adapt future management approaches based on new evidence and with a view to improving connectivity in managed forest, including reflections on how to leverage the new EU Biodiversity Strategy.

6. APPLICATION OF CRITERIA

The **Ancient and Primeval Beech Forests of the Carpathians and Other Regions of Europe** have been nominated as an extension to the existing World Heritage property of the same name under natural criteria (ix).

Criterion (ix): Ecosystems/communities and ecological/biological processes

The nomination firstly proposes a significant boundary modification under criterion (ix) for the four existing component parts in Slovakia, resulting in five component parts. The State Party of Slovakia has implemented all conditions set out in Committee Decision 42 COM 7B.71 and largely implemented all pertinent recommendations of missions in the Reactive Monitoring process. The nomination secondly proposes a significant enlargement of one of the existing component parts in Italy and the extension of

the buffer zone of another Italian component part. These modifications improve the integrity of the respective component parts:

- *Vihorlat (Slovakia)*, as a boundary modification of the existing component part of the same name;
- *Havešová Primeval Forest (Slovakia)*, as a boundary modification of the existing component part of the same name;
- *Rožok (Slovakia)*, as a boundary modification of the existing component part of the same name;
- *Udava (Slovakia)* and *Stužica - Bukovské Vrchy (Slovakia)*, as a boundary modification of the existing component part *Stužica – Bukovské Vrchy (Slovakia)*;
- *Cozzo Ferriero (Italy)*, as a boundary modification of the existing component part of the same name;
- *Falascone (Italy)*, as a boundary modification of the existing component part *Foresta Umbra (Italy)*;

IUCN considers that the significant boundary modification proposed for five existing component parts, and the minor boundary modification proposed for one component part, as noted above, meet this criterion.

The nomination thirdly proposes an extension of the existing transnational serial property through the addition of 29 new component parts in Bosnia and Herzegovina, Czechia, France, Italy, Montenegro, North Macedonia, Poland, Serbia, Slovakia and Switzerland. The following nine nominated component parts of this extension improve the representation of primeval and ancient Beech forests, completing the series with near-natural old-growth Beech Forests, whilst exhibiting convincing levels of integrity and appropriate protection and management requirements:

- *Valle Infernale (Italy)*;
- *Prašuma Janj (Bosnia and Herzegovina)*;
- *Forêt de la Bettlachstock (Switzerland)*;
- *Valli di Lodano, Busai and Soladino Forest Reserves (Switzerland)*;
- *Jizera Mountains (Czechia)*;
- *Chapitre (France)*;
- *Grand Ventron (France)*;
- *Massane (France)*;
- *Dlaboka Reka (North Macedonia)*;

Similarly, the following six nominated component parts, located nearby to existing component parts, strengthen the connectivity and completeness of the existing property:

- *Pavari-Sfilzi (Italy)*;
- *Pollinello (Italy)*;
- *Polonina Wetlinska and Smerek (Poland)*;
- *Border Ridge and Gorna Solinka valley (Poland)*;
- *Terebowiec stream valley (Poland)*;
- *Wolosatka stream valley (Poland)*;

IUCN considers that these fifteen newly nominated component parts meet this criterion.

The following six component parts have the potential to meet criterion (ix), but have not demonstrated yet that they fully meet integrity requirements:

- *Fruška gora – Papratski do (Serbia)*;
- *Fruška gora – Ravne (Serbia)*;
- *Kopaonik – Kozje stene (Serbia)*;
- *Tara – Rača (Serbia)*;
- *Tara – Zvezda (Serbia)*;
- *Kyjovský prales (Slovakia)*;

These six component parts are not recommended for inclusion in the serial property at the present time.

Five further component parts exhibit more significant issues related to integrity and/or protection and management, which require more fundamental reconsideration in relation to the possibility to meet criterion (ix):

- *Aigoual (France)*;
- *Sainte-Baume (France)*;
- *Saint-Pé-de-Bigorre (France)*;
- *Biogradska Gora 1 (Montenegro)*;
- *Biogradska Gora 2 (Montenegro)*;

These five component parts are also not recommended for inclusion in the serial property at the present time.

Finally, the nomination includes component parts that clearly do not meet criterion (ix) and therefore are not recommended for inclusion in the serial property:

- *Chizé Component 1 North-West (France)*;
- *Chizé Component 2 South (France)*;
- *Fontainebleau (France)*.

7. RECOMMENDATIONS

IUCN recommends that the World Heritage Committee adopts the following draft decision:

The World Heritage Committee,

1. Having examined Documents WHC/21/44.COM/8B and WHC/21/44.COM/INF.8B2,

2. Recalling decisions **31 COM 8B.16**, **35 COM 8B.13**, **41 COM 8B.7**, **42 COM 7B.71** and **43 COM 7B.13** adopted at its 31st (Christchurch, 2007), 35th (UNESCO Headquarters, 2011), 41st (Krakow, 2017), 42nd (Manama, 2018) and 43rd (Baku, 2019) sessions respectively,

3. Approves the significant boundary modification of the **Ancient and Primeval Beech Forests of the Carpathians and Other Regions of Europe, Albania, Austria, Belgium, Bulgaria, Croatia, Germany, Italy, Romania, Slovakia, Slovenia, Spain, Ukraine**, on the basis of **criterion (ix)**, through the addition or modification of the following nominated component parts in Bosnia and Herzegovina, Czechia, France, Italy, North Macedonia, Poland, Slovakia, Switzerland:

- *Vihorlat (Slovakia)*, as a boundary modification of the existing component part of the same name;
- *Havešová Primeval Forest (Slovakia)*, as a boundary modification of the existing component part of the same name;
- *Rožok (Slovakia)*, as a boundary modification of the existing component part of the same name;
- *Udava (Slovakia)* and *Stužica - Bukovské Vrchy (Slovakia)*, as a boundary modification of the existing component part *Stužica - Bukovské Vrchy (Slovakia)*;
- *Cozzo Ferriero (Italy)*, as a boundary modification of the existing component part of the same name;
- *Falascone (Italy)*, as a boundary modification of the existing component part *Foresta Umbra (Italy)*;
- *Pavari-Sfilzi (Italy)* [new component part];
- *Pollinello (Italy)* [new component part];
- *Valle Infernale (Italy)* [new component part];
- *Prašuma Janj (Bosnia and Herzegovina)* [new component part];
- *Forêt de la Bettlachstock (Switzerland)* [new component part];
- *Valli di Lodano, Busai and Soladino Forest Reserves (Switzerland)* [new component part];
- *Jizera Mountains (Czechia)* [new component part];
- *Chapitre (France)* [new component part];
- *Grand Ventron (France)* [new component part];
- *Massane (France)* [new component part];
- *Dlaboka Reka (North Macedonia)* [new component part];
- *Polonina Wetlinska and Smerek (Poland)* [new component part];
- *Border Ridge and Gorna Solinka valley (Poland)* [new component part];
- *Terebowiec stream valley (Poland)* [new component part];
- *Wolosatka stream valley (Poland)* [new component part];

4. Adopts the following Statement of Outstanding Universal Value for the property as a whole, including the modified and newly added components outlined above:

Brief synthesis

The “Ancient and Primeval Beech Forests of the Carpathians and Other Regions of Europe” are a transnational serial property comprising 94 component parts across 18 countries. They represent an outstanding example of relatively undisturbed, complex temperate forests and exhibit a wide spectrum of comprehensive ecological patterns and processes of pure and mixed stands of European beech across a variety of environmental conditions. During each glacial phase (ice ages) of the last 1 million years, European beech (*Fagus sylvatica*) survived the unfavourable climatic conditions in refuge areas in the southern parts of the European continent. These refuge areas have been documented by scientists through palaeoecological analysis and using the latest techniques in genetic coding. 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. During this expansion process, which is still ongoing, beech formed different types of plant communities while occupying largely different environments. The interplay between a diversity of environments, climatic gradients and different species gene pools has and continues to shape this high diversity of beech forest communities. These forests contain an invaluable population of old trees and a genetic reservoir of beech and many other species, which are associated with and dependent on these old-growth forest habitats.

Criterion (ix): The property is indispensable for the understanding of the history and evolution of the genus *Fagus* which, given its wide distribution in the Northern Hemisphere and its ecological importance, is globally significant. These largely undisturbed, complex temperate forests exhibit comprehensive ecological patterns and processes of pure and mixed stands of European beech across a variety of environmental gradients, including climatic and geological conditions, spanning almost all European Beech Forest Regions. Forests are included from all altitudinal zones from coastal areas to the treeline and, include the best remaining examples from the range limits of the European beech forest. Beech is one of the most important features in the Temperate Broadleaf Forest Biome and represents an outstanding example of the re-colonization and development of terrestrial ecosystems and communities since the last Ice Age. The continuing northern and westward expansion of beech from its original glacial refuge areas in the eastern and southern parts of Europe can be tracked along natural corridors and stepping stones spanning the continent. The dominance of beech across extensive areas of Europe is a living testimony of the tree’s genetic adaptability, a process which is still ongoing.

Integrity

The selected component parts represent the diversity of ancient and primeval beech forests found across

Europe in terms of different climatic and geological conditions and altitudinal zones. The property includes component parts, which convey its Outstanding Universal Value (OUV), and represent the variability of European beech forest ecosystems. Together these component parts contribute to the integrity of the property as a whole. Additionally, each component part needs to demonstrate integrity at the local level by representing the full suite of natural forest development processes in its particular geographical and ecological setting within the series. Most of the component parts are of sufficient size to maintain such natural processes necessary for their long-term ecological viability.

The most significant threats to the property are logging and habitat fragmentation. Logging activities in the vicinity of component parts can cause microclimatic changes and nutrient mobilising effects, with negative impacts on the integrity of the property. Land use change in the surrounding landscapes can lead to increased habitat fragmentation, which would be of particular concern for smaller component parts. Infrastructure development is a potential threat only in the surroundings of a few component parts.

Climate change already poses a risk to some component parts and further impacts can be anticipated, including changes in species composition and habitat shifting. However, it should be noted that one of the attributes of the Outstanding Universal Value of the property is its demonstration of the ability of beech to adapt to different ecological and climatic regimes throughout its range. Therefore, potential future changes need to be monitored and documented in order to better understand these processes.

The above-mentioned threats may affect the integrity of the component parts to a different extent and in different ways, for example through the reduction of structural diversity, fragmentation, loss of connectivity, biomass loss and changed microclimate, which reduce ecosystem functionality and adaptive capacity as a whole. To cope with these threats, buffer zones are established and are managed accordingly by the responsible management bodies.

Protection and management requirements

A strict non-intervention management is essential for the conservation of the OUV of this serial property across all its component parts. The majority of the 94 component parts are protected by law as strict forest reserves, wilderness areas, core areas of biosphere reserves or national parks (IUCN category I or II). Some of the component parts are protected and managed by Forest Management Plans (with regulations ensuring no logging in old-growth forests). As it is of uppermost importance to guarantee strong protection status in the long term, the protection status will be improved where needed.

To ensure the viability of the four component parts smaller than the established minimum size of 50 ha, an enlargement of the component parts with further non-intervention management will be considered by the States Parties. Additionally, an effective management of buffer zones to protect the property from external

threats and to safeguard its integrity is of uppermost importance.

The integrity of each component part is the responsibility of the State Party and is ensured by the relevant local management units. For the coherent protection and management of the property, as well as to coordinate activities between the management units and the 18 States Parties, a functional organisational structure should be established. To ensure this aspect, an Integrated Management System was developed during the nomination process and will be maintained to allow effective and coordinated management and protection of the property as a whole. The Joint Management Committee, comprising representatives of all States Parties, formulated a Joint Declaration of Intent. This Declaration regulates and structures the cooperation between all the States Parties whose territory is included in the property and ensures the commitment to protect and strengthen the Outstanding Universal Value of the property. The position of a coordinator will be established and maintained to support the Joint Management Committee and the States Parties in their work.

The Integrated Management System and the management plans of the component parts will ensure a non-intervention management approach for the component parts while the buffer zones will be managed to avoid negative impacts on the Outstanding Universal Value of the property with a specific focus on ensuring integrity remains intact. To harmonise the management approach across the 94 component parts, the States Parties will develop common objectives and coordinated activities which will cover property and buffer zone management, monitoring and research, education and awareness raising, visitor management and tourism as well as financial and human capacity building. It is proposed to establish a coherent monitoring system based on selected ecological (proxy) indicators of integrity within all component parts to compare long-term development. It is imperative that each State Party provides clear and committed long-term funding arrangements, to support consistent national site management as well as coordinated management.

Special attention is required to ensure the configuration of the property such that each component part retains ongoing viability to evolve with unimpeded ecological and biological processes and without the need for substantial interventions. This includes the integration of surrounding forest ecosystems to provide sufficient protection and connectivity, especially for small component parts. All component parts have buffer zones of various configurations including surrounding protected areas (national parks, nature parks, biosphere reserves and others). These buffer zones will be regularly monitored to ensure protection under changing environmental conditions such as climate change. The boundaries of buffer zones should, where possible, be aligned with existing protected area boundaries and should be expanded to connect component parts where they are in close proximity. Finally, where appropriate, special ongoing emphasis is needed to ensure effective ecological connectivity

between beech forests and the surrounding complementary habitats to allow natural development and adaptation of the forest to the environmental change.

5. Takes note of the following component parts in the present nomination, which are not recommended for inclusion in the serial property at the present time:

- *Fruška gora – Papratski do (Serbia)*;
- *Fruška gora – Ravne (Serbia)*;
- *Kopaonik – Kozje stene (Serbia)*;
- *Tara – Rača (Serbia)*;
- *Tara – Zvezda (Serbia)*;
- *Kyjovský prales (Slovakia)*;
- *Aigoual (France)*;
- *Sainte-Baume (France)*;
- *Saint-Pé-de-Bigorre (France)*;
- *Biogradska Gora 1 (Montenegro)*;
- *Biogradska Gora 2 (Montenegro)*;

and recommends, before considering potential resubmission of these component parts in any future nomination:

- a) the State Party of Serbia to provide more detailed information on the type, scale, frequency and extent of any logging and forestry operations that may be implemented in the buffer zones of the nominated component parts in Serbia and their potential impacts on the property's OUV, together with a plan to minimize logging in the entirety of the defined buffer zones,
- b) the State Party of Slovakia to expand the buffer zone of the nominated Kyjovský prales component part and to connect this buffer zone to the buffer zone of the existing Vihorlat component part;
- c) the State Party of France, with the support of the World Heritage Centre and IUCN if requested, to significantly revise the nominated component parts of *Aigoual (France)*, *Sainte-Baume (France)* and *Saint-Pé-de-Bigorre (France)* to enhance their integrity and to re-design and enlarge their buffer zones,
- d) the State Party of Montenegro, with the support of the World Heritage Centre and IUCN if requested, to merge the nominated component parts Biogradska Gora 1 and Biogradska Gora 2, and to align the zonation of the Biogradska Gora National Park in light of this and to revise current regulations, especially the Special Purpose Spatial Plan for Biogradska Gora National Park in order to align them with the protection of the nominated property's OUV. It is further recommended to develop an appropriate tourism management plan for the resulting area;

6. Also takes note of the following nominated component parts which are not recommended for inclusion in the serial property:

- *Chizé Component 1 North-West (France)*
- *Chizé Component 2 South (France)*

- *Fontainebleau (France)*;

7. Notes that the *Fontainebleau* nominated component part could potentially be considered in relation to the possible extension of the existing World Heritage property: Palace and Park of Fontainebleau, France;

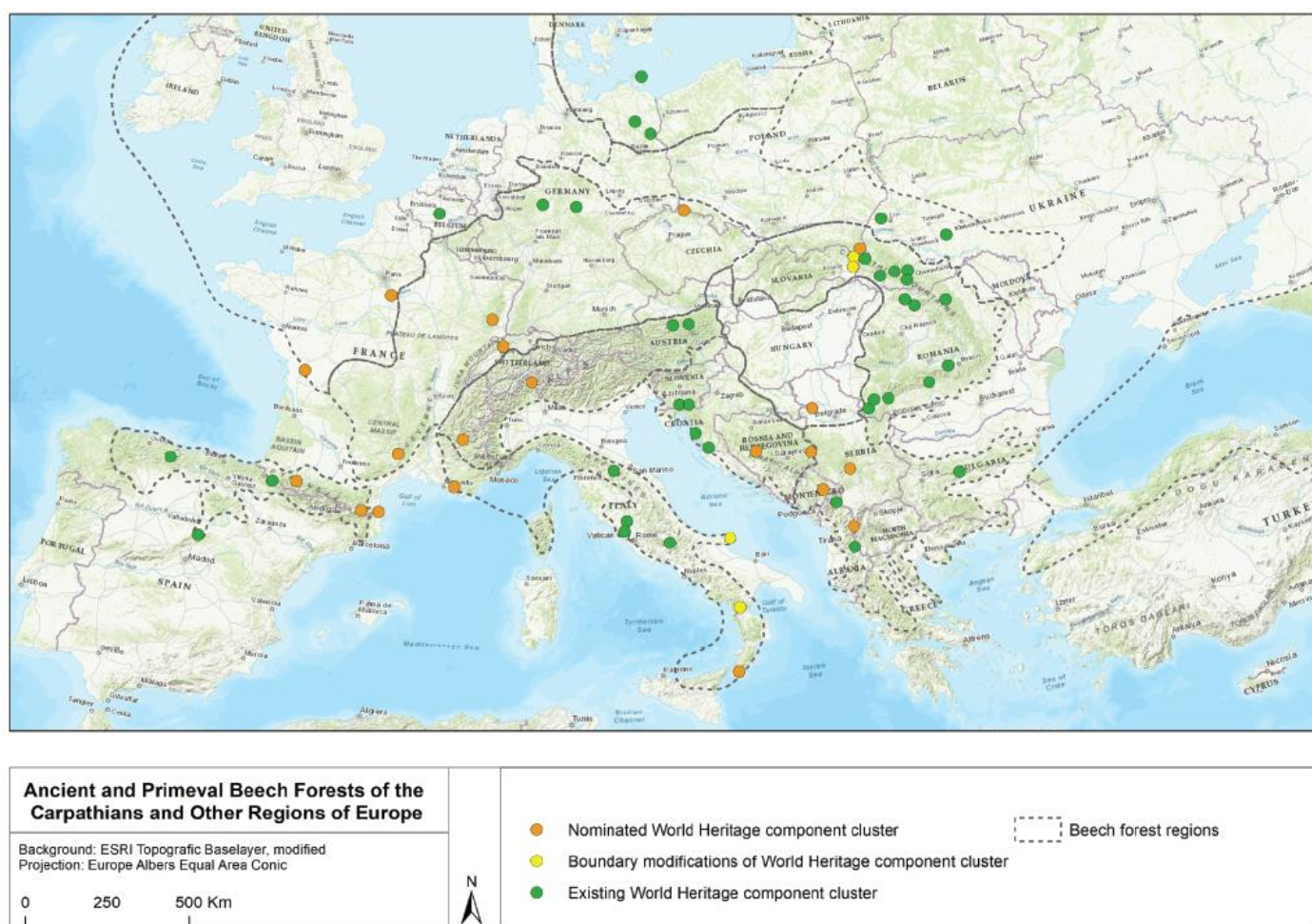
8. Reiterates its requests to all States Parties involved in this transnational serial property, to ensure that buffer zone management supports undisturbed natural processes with special emphasis on dead and decaying wood, including ongoing monitoring of threats and risks, in line with Decision **41 COM 8B.7**, with a clear, strict and consistent approach to buffer zone design and management, in line with Decision **42 COM 7B.71**, as the only feasible way to protect the integrity of the small forest remnants included in this property, in line with Decision **43 COM 7B.13**;

9. Also requests all States Parties involved in this transnational serial property to undertake a review of the consistency of component part design and buffer zone configurations across the entire transnational serial property, allowing for the expansion of undisturbed natural processes into the surrounding areas, so as to ensure the natural evolution and continued recovery of Beech Forests within the component parts and towards the surrounding areas, and to consider the proposals to strengthen the property accordingly;

10. Further requests the States Parties to submit to the World Heritage Centre, by **1 December 2023**, a joint report on the state of conservation of the property as a whole, and the implementation and the review of boundary and buffer zone consistency, for examination by the World Heritage Committee at its 47th session in 2024;

11. Welcomes the enhanced cooperation between a large number of European States Parties to preserve primeval, ancient and old-growth Beech Forests across the continent.

Map 1: Location of the nominated and existing component parts in Europe



See the detailed maps of each component parts in the nomination dossier, pp. 17