



Old-growth beech forests - Joint Natural Heritage of Europe

Hans Dieter Knapp

Michael Succow Foundation; Ellernholzstr. 1/3 - 17489 Greifswald, Germany. hannes.knapp@t-online.de

Abstract: Ancient trees are witnesses of cultural and natural history. Old-growth forests are like the “backbone” or “lungs” of the Biosphere. The beech (*Fagus sylvatica*) is a miracle tree, and beech forests are an outstanding example for adaptation to diverse site conditions and for resilience in changing environment. The expansion of beech from their glacial refuge areas to large parts of our continent, the succession of beech forests, the change from mixed deciduous forests to beech dominated deciduous forests, and the co-evolution with the cultural history in Europe is a fascinating story. And, as a specific European phenomenon beech forests promote a common European identity. The inscription of European Beech forests in the UNESCO World Heritage List improves the public awareness for the value and importance of virgin forests and supports the movement for the protection of remaining old-growth forests in Europe.

Key words: beech forests; world heritage; old-growth forests; ancient trees.

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1. INTRODUCTION - WHY THIS POST?

This essay-like contribution is the written version of a presentation, that was given at the International Conference “Old-Growth Forests and Ancient Trees - A Treasure of Nature, Life and Culture” in memory of Saint Francis of Assisi in Vallombrosa in October 2025. St. Francis teaches us awe and reverence to all life - to birds and to flowers, and to trees. In our hectic time, this is often neglected or forgotten. And, currently we see growing pressure by industrial logging and global timber trade with dramatic consequences for the forest structure

and forest functions in the global biosphere. With this article I want to remind, that trees are the lifeform with the longest lifespan of all organisms on the Earth, that old-growth forests (as ecosystem, which is formed by trees) provide essential ecological services and have cultural significance. The main chapter is focussed on the importance of European beech (*Fagus sylvatica*) and of beech forests as a characteristic tree species and forest type in large parts of Europe. The inscription of the last remaining old-growth beech forests in the UNESCO World Heritage List demonstrates a prominent example for successful transnation-

al cooperation for the protection of joint natural heritage in Europe. At the end, some theses are formulated as “message of the beech.”

2. LIFESPAN OF TREES

All tree species have the potential to live longer as the oldest people. And many trees live longer as every Empire of human history. The oldest trees all over the World growth under extreme site conditions with short vegetation period, harsh winters and dry summers at the forest line in height elevation. Under such conditions trees growth very slowly, build narrow annual rings and dense hard wood. They are adapted to the limitations of growth and resilient against disturbances. And, they are able to survive crisis. The longest-lived tree species is the Great Basin bristlecone pine (*Pinus longaeva*), an endemic tree species of White Mountains in western North America. It forms open woodland at the forest line. The oldest are more than 5,000 years old. That is older as the Egyptian Pyramids exist.

In contrast to this phenomenon some relic species of Tertiary Period, which belong to the oldest trees, exist in very productive forests on fertile sites in warm temperate (alerce - *Fitzroya cupressoides*, redwood - *Sequoia sempervirens*, baldcypress - *Taxodium distichum*), or cool temperate (giant tree - *Sequoiadendron giganteum*) climate conditions. These “giant trees” growth up to huge dimensions in trunk diameter, height or volume. All these very ancient trees belong to the *Gymnosperm* families *Cupressaceae* and *Pinaceae* (Fig. 1).

From *Angiosperms* only two subtropical trees with verified age older 2,000 years are known, the African baobab (*Adansonia digitata*) and the “Buddha tree” (*Ficus religiosa*) from South Asia. The age of some olive trees (*Olea europaea*) in Portugal, Sardinia and Crete is es-

timated to be over 2000 and even 3000 years, but scientific evidence is lacking.

Reliable data about the age of trees exist, for example, for oak species (*Quercus ilex*, *Qu. petraea*) and Heldreich's pine (*Pinus heldreichii*) in Italy (Piovesan et al., 2018, 2020, Filibek et al., 2022). In comparison with the oldest trees, the beech (*Fagus sylvatica*) has a shorter lifespan. Previously thought to live for 300 to a maximum of 400 years. However, recent studies in high-altitude beech forests in Italy identified the oldest tree as being 622 years old (Piovesan et al., 2019).

Old trees are the key element for structure and dynamic of old-growth forests. With their crowns they form the canopy of the upper tree layer, and when they die, the deadwood becomes a habitat for a special biodiversity as well as a nutrient source for new life.

Beyond the ecological functions old trees are witnesses of human and natural history. In all ancient cultures, old trees are revered as sacred. They are symbols of immortality. Old trees are the prototype for natural monuments and in 19th century they stand at the beginning of nature conservation efforts in Europe.

Since 2011, a competition for the “European Tree of the Year” has been held in Europe. It focuses on remarkable individual trees. The official aim of the competition is not only to select a specific tree, but also to highlight the importance of trees for Europe's natural and cultural heritage and to raise awareness that they deserve our protection and care. This is expressed in the slogan “*Perché alle radici del mondo c'era un albero e solo gli alberi ci possono salvare!*” (For at the roots of the world stood a tree, therefore only trees can save us!) of the Italian Giant Trees Foundation. The German Dendrological Society put it this way: “Through this public competition, to demonstrate the significance of remarkable trees for us humans, for our

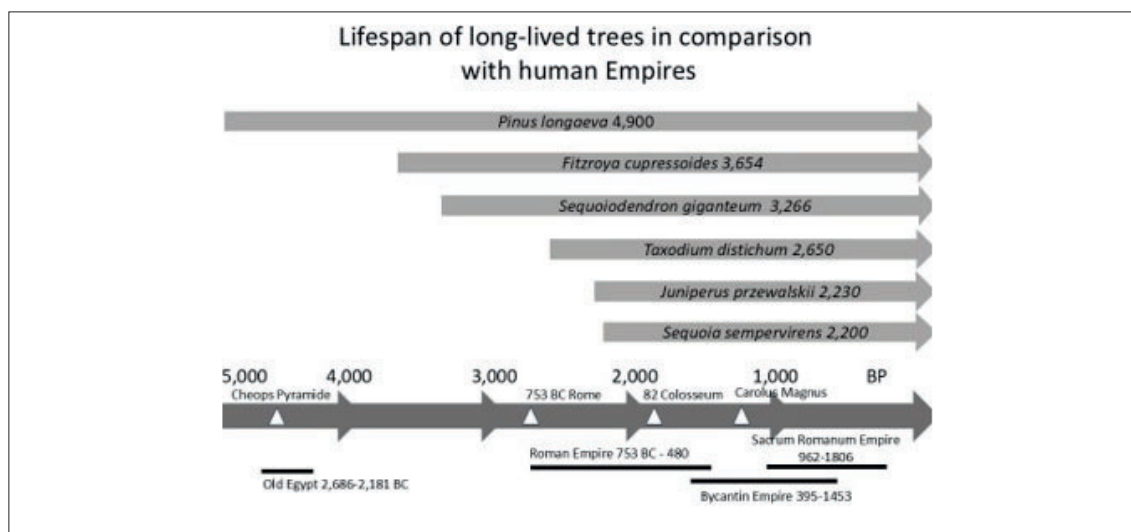


Figure 1 - Lifespan of long-lived trees in comparison with human Empire.

nature, and for our cultural heritage, and to ensure that they receive the respect, care, and protection they deserve.”¹

3. OLD-GROWTH FORESTS - “BACKBONE” AND “LUNGS” OF THE BIOSPHERE

Forests are highly important for the global and regional climate, for the stability of ecosystems and the entire biosphere, for biodiversity conservation and habitat connectivity. Forests further provide society with a variety of ecosystem goods and services, both of tangible and intangible nature. However, the long-lasting history of interaction of humans and nature led to substantial transformation of forests worldwide. The forest cover is strongly reduced by conversion to cultural landscapes, and the remaining forests have been degraded in species composition, age structure and ecosystem services. Today, only remote mountain areas still feature undisturbed forest ecosystems of high integrity, making them highly valuable.

These forests provide extremely essential ecosystem services like climate regulation, water purification, transpiration and storage, carbon sequestration, conservation of unique biodiversity, exceptional aesthetic, eco-education services, etc.

Natural vegetation including forests reflects the diverse climate conditions of the Earth and depends on them. Forests are the natural vegetation under humid and semi-humid climate conditions. Today they cover more than one third of the terrestrial surface of our planet, from sea shore to forest line in mountains, from tropics to subarctic tree line. However, they not only depend on climate, reverse they also have influence on it. On the one hand forests reflect the climate, on the other hand forests stabilize the climate. Forests provide shade, create cool climate, cool the biosphere, regulate the water balance, protect against erosion, promote cloud formation, control the weather, bind and store carbon. So, forests play an important role for climate balance, e.g. for the moderation of

¹ *Europäischer Baum des Jahres* - Wikipedia.

Tree of the year - Explore the trees with the most interesting stories.

extreme temperatures, and as sink and storage of carbon.

Forests are more effective for the climate, the older and more densely they are, the richer their structure and larger their biomass, and the higher their integrity as ecosystem. That are “Old-growth forests”!

Depending on climate, soil and topography settings forests are endless diverse in structure, species composition and ecological functions. Tropical rainforests, for example, are quite different from temperate deciduous forests, and they differ from sclerophyllous forests of the meridional zone, or from coniferous forests of the boreal zone. Within every zonal forest formation is a high diversity of types and variants, depending on regional climate variations, geological underground, hydrological, geomorphological and soil site conditions.

Forests are the most important terrestrial ecosystem for the use of solar energy for primary production by photosynthesis as basic and permanent ongoing ecological process. A part of the produced biomass is the base for all terrestrial animal life, whilst another part is accumulated as humus in soils. Forests contain more than a half of global biological diversity. They permanent sequester atmospheric carbon by photosynthesis, and they are the largest terrestrial storage of carbon in living biomass, in deadwood and in soil.

In Europe we can distinguish several main forest formations in the gradient of temperature from South to North (Bohn & Neuhäusl, 2000/2003, Schroeder, 1998): Mediterranean sclerophyllous forests, dominated by evergreen oak species (e.g. *Quercus ilex*), are the natural vegetation under semi-humid conditions with winter rain and dry summer period of the meridional zone. On special site conditions also xerophytic coniferous forests and woodlands occur, formed by pine or juniper trees (e.g. *Pinus halepensis*, *P. brutia*, *Juniperus excelsa*).

The natural forest cover of the nemoral zone is rough divided in mesophytic deciduous broad-leaved forests (beech forests, dominated by *Fagus sylvatica* in western and central parts; mixed lime forests (*Tilia cordata*) and mixed coniferous-broad-leaved forests in eastern and north-eastern parts) and thermophilous mixed deciduous broad-leaved forests, dominated by different oak species (e.g. *Quercus cerris*, *Qu. pubescens*, *Qu. robur*) together with many other trees in southern and south-eastern parts. In river floodplains and wetlands swamp forests occur, e.g. alder swamp forests of *Alnus glutinosa*.

The boreal zone in the North is covered by mesophytic and hygromesophytic coniferous forests in complex with mires. This “taiga” forests are dominated by pine (*Pinus sylvestris*) and spruce (*Picea abies*). In the easternmost parts also the Siberian pine, larch and fir (*Pinus sibirica*, *Larix sibirica*, *Abies sibirica*) are extended from Siberia to Europe.

The altitudinal gradient in mountains is reflected by different forest belts from sub-montane mixed deciduous forests or beech forests, over montane beech forests to upper montane beech-fir-forests and spruce forests. In any mountains also *Pinus cembra* and *Larix decidua* form the subalpine tree line, in some cases together with *Pinus mugo* and/or *Alnus viridis* as sub-alpine shrubland (*Krummholz*).

The here very short described differentiation of European forest cover was the primary situation before humans changed the natural forest vegetation. In Neolithic Period the change of primeval forest wilderness to cultural landscapes started, at first in Mediterranean region and Balkan Peninsula, later in Central and Western Europe, and finally in the North and in mountains. In a process of “cultivation” over several millennia the primary forests of Europe in most parts were destroyed and converted to agricultural land, the forest cover was strongly reduced, and the remaining forests

were degraded by livestock pasture and timber cutting.

The early agriculture used and consumed the natural fertility of humus accumulated under forest cover before. In Bronze Age the virgin forests had already disappeared in Mediterranean region and large parts of Central Europe. In the Migration Period forests extended and regenerated in abandoned cultural landscapes. But in the Middle Age forests were cut down even in a larger scale, and the remaining forests were plundered and degraded to scrubland by woodland pasture and intensive timber use about several hundred years. At the end of the 18th century, the low point of the forest condition was in many parts of Southern and Central Europe.

Virgin and old-growth forests only survived in the huge forest landscapes in the boreal zone and in remote mountain areas in Central and Southern Europe, like Carpathian, Balkan, Apennine and Pyrenees. Lack of wood became the trigger for the invention of sustainability at the beginning of the 18th century in Saxony. In the 19th century, the situation of the forests was significantly improved by separation of forest and pasture and by systematic afforestation in large scale, mainly with pine and spruce.

In the same time the exploitation of the boreal virgin taiga forests and the remaining old-growth mountain forests has started, in the Alps as well as in the Carpathian and Balkan Mountains, to satisfy the growing industrial demand for timber. As a result, Europe today is characterized by diverse cultural landscapes with different share of forests, as well as by urban and industrial agglomerations.

In the current period of globalized economy, the pressure on decreasing natural resources

is increasing dramatically. Despite international regulations for sustainable forest use, illegal logging and trade of timber is a profitable business, and often legal practices are not less destructive as illegal cuts. It is not only the case in tropical forests but also in the extended forest regions of the boreal zone in North America, Northern Europe and Siberia. Satellite images and maps of Global Forest Watch and Global Forest Change show a frightening picture.² The changes of forest cover and the extension of clear cuts, especially along railways, roads and rivers for transport of timber have huge dimensions. Inaccessibility is the main reason that remnants of old-growth forests in remote areas survived until today. But the construction of roads is the beginning of the destruction of forests in large scale.

Despite governmental declarations on sustainable development, and despite modern legislative frameworks forest destruction is a current phenomenon also in countries of the European Union, as examples in Slovakia, Romania and other member states demonstrate (EWS, 2016, EuroNatur, 2025).

The consequences for ecosystem functions, climate, soil and water balance in landscape scale are very serious. The carbon stock stored in the forest is mobilized and emitted into the atmosphere, the fixation of carbon by photosynthesis is strongly declined. The climate-stabilizing effect of old forest is reversed. The centuries long continuity of forest structure is destroyed, the biological diversity of plant and animal life heavily damaged. In mountain areas the soil is eroded. Any intervention in a primeval forest interrupts the continuity of millennia of its evolution. A virgin forest, once cut, is irreversibly destroyed. It can never be restored as "virgin forest". Although

² <https://www.globalforestwatch.org/>
<https://earthenginepartners.appspot.com/science-2013-global-forest>

temperate forests can regenerate to semi-natural structures in long periods of time, but the quality of the virgin forest would be lost forever.

In the current period of forest degradation and destruction by a globalized timber industry the protection of the remaining old-growth forests has to be a task of highest priority for nature conservation policy at national and international levels. But, in many countries, the effectiveness of protective measures is very limited, for example, if forestry is carried out even in protected areas.

With the disappearance of the last old forests, initiatives for their preservation emerged in several places of Europe. Local activities for the protection of remaining ancient forests started in 19th century in several countries of Europe (e.g. Germany, France, Italy, Austria, Slovenia...). Individual aristocratic forest owners, far-sighted foresters, scientists and artists campaigned for the protection of the last remnants of European primary forest nature. Also currently scientists, citizen initiatives and NGO try to save old-growth forests by diverse activities. For example, the Foundation EuroNatur provided the campaign "Save paradise forests" and supports projects for protection of old-growth forests in Romania and SE-Europe.

Primeval and old-growth forests are very rare today in all of Europe. After the destruction of virgin forests, they can never be restored to the former status, even within several generations. Today they take to the most valuable forest stocks from nature conservation point of view. They are part of the joint natural heritage of Europe (Smaliychuk & Gräbener, 2018; Knapp et al., 2021; Mikolaš et al., 2023).

4. THE WORLD HERITAGE CONVENTION AS AN EFFECTIVE TOOL FOR FOREST PROTECTION

The UNESCO World Heritage Convention from 1972 is the most effective international convention for the protection of the cultural and natural heritage of the World including forests. The conditions, the criteria and the procedure are regulated by the Operational Guidelines.³ The convention is looking from global perspective. Before a site can be inscribed on the World Heritage List by decision of the World Heritage Committee, a corresponding application must be submitted by the state party and a strictly regulated evaluation procedure must be completed. The justification and recognition of an "Outstanding Universal Value" (OUV) is a prerequisite for inscription.

Today (2025) 1240 World Heritage Sites exist in 170 of 196 State Parties. 235 of them are inscribed as Natural Heritage, 41 as Mixed Sites. With 61 properties (55 cultural, 6 natural) Italy is the State Party with the largest number of UNESCO World Heritage Sites. It also contributes to the transnational serial World Heritage Site "Ancient and Primeval Beech Forests of the Carpathians and other Regions of Europe" (UNESCO, 2025).

Thirty years ago, forests in Europe were represented in the World Heritage List by very few examples only. Because of the long cultural history in which forests were cleared and forest wilderness was transformed into cultural landscapes there are almost no primeval forests left in Europe. So, the potential for World Heritage nominations of forests is very low. The virgin forests of Białowieża in Poland were inscribed 1979 and extended 1992 to Belarus. They represent the Central and Eastern European nemoral mixed deciduous forests.

³ UNESCO World Heritage Centre - The Operational Guidelines for the Implementation of the World Heritage Convention.

The Virgin Komi Forests in Russia, inscribed in 1995, are one of the most extensive areas of virgin boreal coniferous forests remaining in Europe. They include a vast wilderness area of 3.28 million ha (UNESCO, 2025).

The last remaining stock of primeval beech forests survived in the Ukrainian Carpathians. In 2007, 10 stands from Ukraine and Slovak Republic were inscribed as “Primeval Beech Forests of the Carpathians” in the UNESCO World Heritage List. In 2011 it was enlarged by five additional component parts of “ancient” beech forests from Germany (Steering Group, 2009). The World Heritage Committee recommended in its decision to search for further old-growth beech forests in Europe “towards a finite serial transnational nomination in order to assure the protection of this unique forest ecosystem” (WHC, 2011).

In an ongoing process of numerous field visits and 8 expert workshops “Beech Forests - Joint Natural Heritage of Europe” at the International Academy for Nature Conservation Isle of Vilm, Germany, in Soriano nel Cimino and Villavallelonga, Italy, in the Carpathian Biosphere Reserve in Rakhiv, Ukraine, and in Vienna, Austria, the knowledge about old-growth beech forests was compiled, discussed and recommended for further nomination (Knapp & Fichtner, 2011, 2012).

The second extension nomination with 63 components from 11 countries (Kirchmeir & Kovarovics, 2016) was inscribed in 2017 (Ibisch et al., 2017). After a third extension 2021 the “Primeval and Ancient Beech Forests of the Carpathians and other Regions of Europe” today form a network of 93 component parts with old-growth beech forest in 18 European countries, covering nearly 99,000 ha, surrounded by more than 290,000 ha of protected buffer zones (Table 1, Fig. 2).

13 of the 93 component parts are located in Italy (Castellano, 2022). That are (from North

to South) Sasso Fratino, Monte Cimino, Monte Raschio, 5 components in Abruzzo, Lazio & Molise National Park, two components in Gargano National Park, two components in Pollino National Park and Valle Infernale in National Park Aspromonte in Calabria, in total covering more than 3,600 ha, surrounded by nearly 18,000 ha buffer zones (Table 2).

The inscription in the World Heritage List improves the public awareness for the value and importance of virgin forests and supports the movement for the protection of remaining old-growth forests in Europe. The Beech Forest Network of scientists and protected areas in Europe could be a model for an Old-growth Forests Network for all forest types.

The process from the idea to the current status is documented as “Ecodiamonds of Europe. History of Beech Primeval Forests Nomination to the UNESCO World Heritage List” by the long-time director of the Carpathian Biosphere Reserve in Ukraine, Prof. Fedir Hamor (Hamor, 2019, 2023).

The inscription of European beech forests in the World Heritage List is based on criterion (ix) of the Operational Guidelines as an outstanding example representing significant on-going ecological and biological processes in the evolution and development of terrestrial ecosystems.

The European beech, *Fagus sylvatica*, is a common and typical tree species for large parts of Europe. It is wide distributed in the temperate zone of Europe, from the British Islands in the West to the Eastern foothills of the Carpathians in Ukraine and Moldavia, from Southern Norway and Sweden to Calabria and Sicily, from Northern Spain to Greece. Long time it was without any interest for nature conservation, because of uniform stands in managed, mainly young forests. However, the life history shows up as an unusually exciting tree species.

Table 1 - The extension from the “Primeval Beech Forests of the Carpathians” (2007) to the “Primeval Beech Forests of the Carpathians and Ancient Beech Forests of Germany” (2011) and the “Ancient and Primeval Beech Forests of the Carpathians and Other Regions of Europe” (2017, 2021).

Year of inscription * Minor change	Nr.	State Party	Count of component parts/cluster	Size [ha]	Buffer [ha]
<i>Inscription 2007</i>					
	1	Ukraine (2017+)	15	28,281.97	38,034.85
	2	Slovakia (2021*)	5	3,993.60	14,977.30
<i>1st Extension 2011</i>					
	3	Germany	5	4,411.20	13,709.60
<i>2nd Extension 2017</i>					
	4	Albania	2	3,390.97	11,547.23
	5	Austria (2021*)	5	8,332.73	17,287.02
	6	Belgium	5	269.31	4,650.86
	7	Bulgaria	9	10,998.48	11,520.87
	8	Croatia (2021*)	2	3,325.92	10,694.11
	9	Italy (2021+)	13	3,665.34	17,922.52
	10	Romania	12	23,982.77	64,476.66
	11	Slovenia	2	794.74	176.70
	12	Spain	6	885.57	52,628.38
<i>3rd Extension 2021</i>					
	13	Bosnia-Herzegovina	1	295.04	380.74
	14	Czech Republic	1	444.81	2,279.40
	15	France	3	929.80	2,801.95
	16	North Macedonia	1	193.27	234.70
	17	Poland	4	3,470.74	24,330.52
	18	Switzerland	2	1,002.21	3,424.90
			93	98,668.40	291,080.30
<i>Tentative List</i>					
		Montenegro	1		
		Serbia	3		
		France	3		

Source: https://en.wikipedia.org/wiki/Ancient_and_Primeval_Beech_Forests_of_the_Carpathians_and_Other_Regions_of_Europe
<https://www.europeanbeechforests.org/world-heritage-beech-forests>

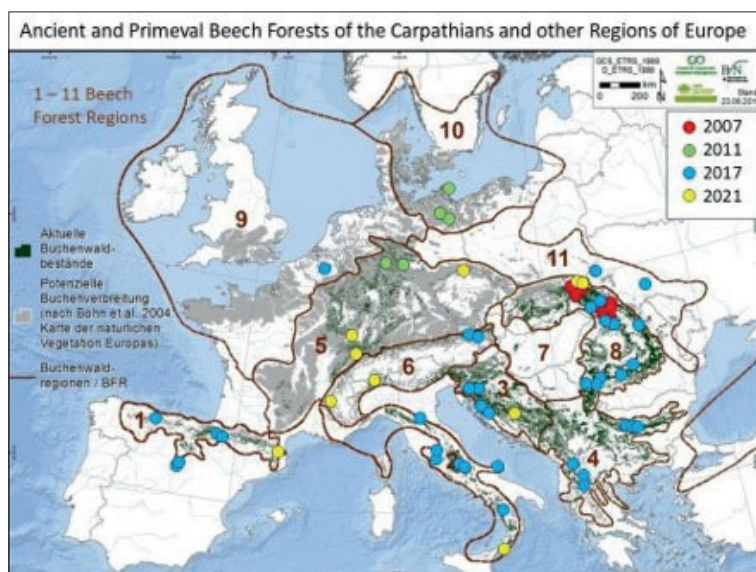


Figure 2 - The Distribution of the transnational serial World Heritage Site “Ancient and Primeval Beech Forests of the Carpathians and Other Regions of Europe”.

The expansion of beech from their glacial refuge areas to large parts of our continent, the succession of beech forests, and the change from mixed deciduous forests to beech dominated deciduous forests and the co-evolution with the cultural history in Europe is a fascinating story. And, beech forests as a mainly European phenomenon promote a common European identity.

Within their wide distribution area beech and beech forests cover a wide span of altitudinal belts from sea shore of the Baltic Sea through the lowlands and mountains up to the forest line in Central and Southern European mountains (Fig. 3-5). They have a broad habitat amplitude and almost no edaphic boundaries, because they grow on pure chalk and limestone, on heavy clay as well as on acid silicate rocks and bare sand, and even on peat and volcanic lava.

The beech has the tendency to form predominating beech forests as natural vegetation. It is an extraordinary phenomenon, to find a great diversity of different forest types beneath the canopy of one dominant tree species. The map of natural vegetation of Europe

(Bohn & Neuhäusl, 2000) differs 29 beech forest types on oligo-mesotrophic sites and 56 types on eutrophic sites. The beech is mostly dominant but associated with almost all tree species in Europe. It grows not only alongside other European deciduous trees such as hornbeam (*Carpinus*), oak (*Quercus*), elm (*Ulmus*), ash (*Fraxinus*), and maple (*Acer*), but also alongside evergreen sclerophyllous trees such as holm oak (*Quercus ilex*) and holly (*Ilex aquifolium*). Beech trees are also associated with conifers, for example in mixed mountain forests with fir (*Abies alba*) and spruce (*Picea abies*), on sandy or rocky sites with Scotch pine (*Pinus sylvestris*), at the tree line in the Alps with larch (*Larix decidua*) and even mountain pine (*Pinus mugo*), and in the Apennines with Helderich's pine (*Pinus heldreichii*). Yew (*Taxus baccata*) is a typical but rare conifer in beech forests within their entire areal.

Beech forests have an exceptional regeneration power. The cycle from growth up of seedlings to decay of ancient trees takes 300 to 600 years, depending from the special site situation. The beech tree is also capable of regeneration and exhibits diverse growth forms.

Table 2 - The Italian component parts of the transnational serial World Heritage Site “Ancient and Primeval Beech Forests of the Carpathians and other Regions of Europe”.

PROTECTED AREA	COMPONENT PART	SIZE [ha]	BUFFER [ha]	YEAR
Foreste Casentinesi National Park	Sasso Fratino	781.43	6,936.64	2017
Mt. Cimino Strict Reserve	Monte Cimino	57.54	87.96	2017
Bracciano-Martignano Regional Nature Park	Monte Raschio	73.73	54.75	2017
Abruzzo, Lazio & Molise National Park	Valle Cervara	119.70	751.61	2017
	Selva Moricento	192.70		
	Coppo del Morto	104.71	415.51	2017
	Coppo del Principe	194.49	446.62	2017
	Val Fondillo	325.03	700.95	2017
Gargano National Park (Foreste Umbra)	Falascione	254.30	3,486.29	2017/2021
	Pavari-Sfilzi	667.13		2021
Pollino National Park	Cozzo Ferriero	95.75	2,851.83	2017/2021
	Pollinello	477.94		2021
National Park Aspromonte	Valle Infernale	320.79	2,191.36	2021
<i>Total:</i>	<i>7</i>	<i>13</i>	<i>3,664.71</i>	<i>17,923.52</i>

It typically grows upright with columnar trunks and regularly formed crowns, reaching heights of up to 50 meters. Its root system is correspondingly robust. On steep mountain slopes, the trunk bases are often curved in an arc. On windy sea coasts, the beech tree forms dense thickets of countless twisted trunks and so-called wind-bent trees. At the forest line in the mountains, it can form low-lying bushes similar to mountain dwarf pines. Two or more trunks can also grow together to form one tree.

Beech forests are characteristic part of Europe’s biodiversity, and they host an important diversity of flora, fauna, and habitats, such as vascular plants, mosses and lichens, small mammals, and large herbivores, carnivores, insects and molluscs, as well as an impressive diversity of mycorrhiza and xylophagous fungi. All these organisms are interconnected in food chains and nutrient cycles of produc-

ers, consumers, and decomposers. This short statement about beech is based on any own research (Knapp & Spangenberg, 2007; Steering Group, 2009; Knapp, 2008, 2024; Knapp & Fichtner, 2011, 2012; NuL, 2007).

5. “MESSAGE OF THE BEECH”

Virgin and old-growth forests belong to the last remnants of original wild nature in Europe. They are the heart piece of the European natural heritage. But they are like small islands of pure nature with high integrity within an ocean of managed and degraded, segregated and commercialized, exploited, wounded and polluted landscapes.

Development of ancient trees and old-growth forests need long time. The time of non-intervention is a key criterion for integri-



Figure 3 - Beech forests and chalk cliffs at the Baltic Sea shore on Rügen Island, Jasmund National Park, Germany (foto: H. D. Knapp).

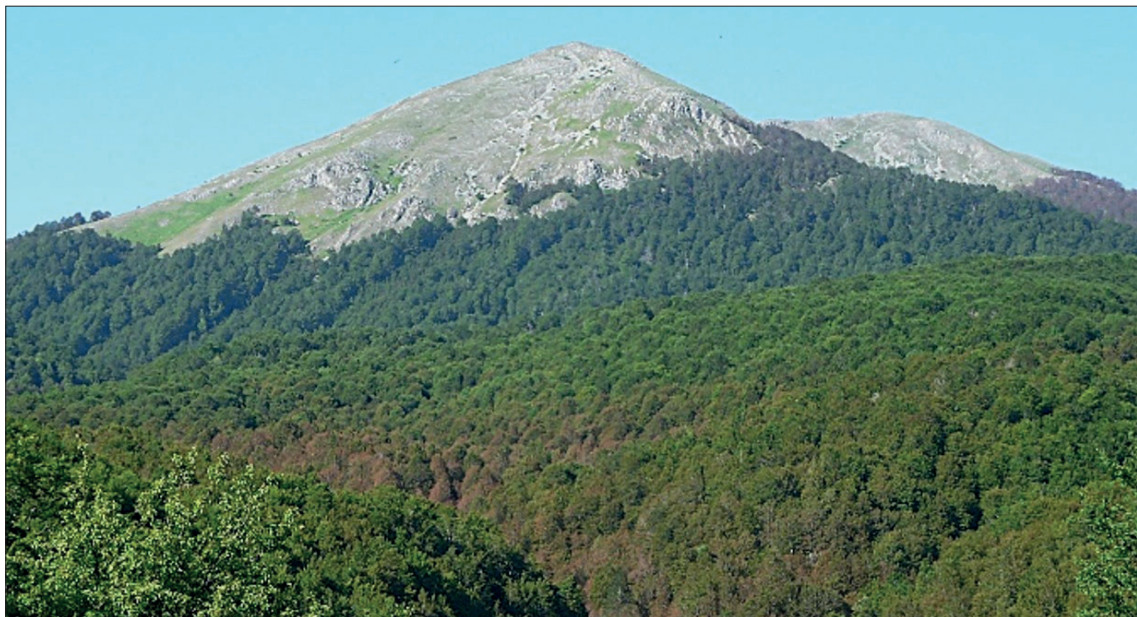


Figure 4 - Beech forests form the forest line, Valle Cervara in Abruzzo, Lazio & Molise National Park, Italy (foto: H. D. Knapp).

ty. The time of non-intervention development can be substituted by nothing. Ancient trees and old-growth forests are of irreplaceable value, because they cannot “made”.

Virgin and old-growth forests can teach us to respect living nature and its laws in general as subject with intrinsic value behind the value as natural resource. They can teach us to ac-



Figure 5 - The most Southern stands of beech are located on lava rocks of Mt. Aetna on Sicily, Italy (foto: H. D. Knapp).

cept the limitation of the availability of natural resources and to manage commercial forests with respect to trees in a really sustainable way.

They invite us to marvel and share in the experience of fascinating forest wilderness, to look with our eyes and to feel with our senses the wonders of natural forests, to understand the ongoing cycle of life and death, from seedlings to centuries old giants of trees, to deadwood and finally to humus as base for rebirth of new tree generations, to feel the wild beauty and exciting harmony of untouched forests.

All remaining old-growth forests are too valuable for pellets and planks. They have to be strictly protected. The humankind is able to fly to the Moon, but it cannot make a virgin forest. That is the reason, why we have to safeguard carefully the remnants of virgin forests, in the Carpathians, in Apennine and Balkan, in all over Europe and in the World.

The change from forest wilderness to cultural landscapes and further degradation and

destruction of virgin forests in the past were a prerequisite and condition for the development of European civilisation, primary based on agriculture. Today the protection of the remaining old-growth forests is a condition for the persistence of cultural civilization.

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