



### Uholka-Shyrokyi Luh, Carpathian Biosphere Reserve 2

Established in 1968, size of the WHS component part 11,860 ha, buffer zone 3,301 ha, Sea level: BR 360-1,501 m, WHS 400-1,350 m

Uholka-Shyrokyi Luh is the biggest site of primeval European beech forests world wide. It is here that the entire spectrum of phases and development levels of a primeval beech forest are represented. The largest part of the cluster is located on a huge, solid limestone block with well-developed karst. The karst caves are home to numerous endemic and rare species.

The Carpathian sites mentioned in the following are either located in the Uzhanskyi National Nature Park in south-western Ukraine or in the Poloniny National Park in the Slovak Republic. They create a unique homogenous, extensive (one of the biggest in Europe with 213,211 ha) and cross-border protected area, to which the Bieszczady National Park in Poland also belongs. This area is the “East Carpathians” Biosphere Reserve.

### Stuzhytsia-Uzhok, Uzhanskyi National Nature Park 3

Established in 1908, size of the WHS component part 2,532 ha, buffer zone 3,615 ha, Sea level: NNP 208-1,250 m, WHS 600-1,221 m

Stuzhytsia-Uzhok is the oldest European beech reserve (1908). It is exclusively here that well denoted beech dwarf forests can be observed (over 55 ha). It also includes the long term monitored areas of professor Zlatnik (from 1937). This area directly borders with protected forests in Poland and Slovakia.

### Stužica-Bukovské Vrchy, Poloniny National Park 3

Established in 1964, size of the WHS component part 2,950 ha, buffer zone 11,300 ha, Sea level: NP 260-1,210 m, WHS 512-1,210 m

This primeval beech forest is characterized by large differences in altitude (512 – 1,210 m a.s.l.). Here, 200 year old beech trees can be found, as well as 300 year old silver firs and sycamore trees. For some years, bison and elk have been spotted here once again.



Crookwood, Stuzhytsia-Uzhok

### Havešová, Havešová National Nature Reserve, Poloniny National Park 4

Established in 1964, size of the WHS component part 171 ha, buffer zone 64 ha, Sea level: NNR 442-741 m, WHS 442-741 m

This beech forest has the tallest beech trees in the world. The Havešová National Nature Reserve is located in the far east of Slovakia in the Bukovské Mountains (“Beech Mountains”!). On the fertile clay soil, the beech trees reach a height of about 56 metres. Due to the good growing conditions, the beech is the dominant tree species in this area. Only three other tree species exist in this area: sycamore, ash and elm.

### Rožok, Rožok National Nature Reserve, Poloniny National Park 4

Established in 1965, size of the WHS component part 67 ha, buffer zone 41 ha, Sea level: NNR 440-789 m, WHS 440-789 m

With its 67 ha, this part of the Poloniny National Park is the smallest Carpathian part of the UNESCO World Heritage Site in the Carpathians. Most of the beech forests here grow on fertile loam and clay soil, ensuring a high productivity (up to 1,000 m<sup>3</sup>/ha).



Morské oko, Vihorlat Protected Landscape Area

### Vihorlat, Vihorlat Protected Landscape Area 4

Established in 1973, size of the WHS component part 2,578 ha, buffer zone 2,413 ha, Sea level: PLA 157-1,076 m, WHS 571-1,076 m

The beech forests in this area grow on soil of volcanic origin with andesite bed-rock and nutrient-rich soils. Located in the middle of this area is the ‘Ocean Eye Lake’ (Morské oko). Together with hardwood species like sycamore trees and ash trees, the beeches form the so-called “scree forests”.

## Ancient Beech Forests of Germany

### The beech forests of the low mountain ranges

Low mountain beech forests characterize the core area of the European beech distribution. Depending on substrate, humidity, nutrient supply and elevation, they are subdivided into a variety of community characteristics. After their immigration 4,000 to 6,000 years ago, the low mountain beech forests became the dominant forest types in the hilly and low mountain ranges on silicate and limestone. In the special case of the acidic soil-beech forest, Germany carries a significant global responsibility.

### Hainich, Hainich National Park 5

Established in 1997, 7,500 ha, size of the WHS component part 1,573 ha, buffer zone 4,085 ha, Sea level: NLP 225-490 m, WHS 290-490 m

A low-mountain beech forest growing on limestone at a medium altitude. Here, the most valuable and species-rich beech forests of the low-mountain ranges grow on limestone. Its rich stocks of early blooms and the great diversity of tree species are impressive. Measuring 5,000 ha, it is the largest untouched deciduous forest in Germany.

### Kellerwald, Kellerwald-Edersee National Park 6

Established in 2004, 5,738 ha, size of the WHS component part 1,467 ha, buffer zone 4,271 ha, Sea level: NLP198-626 m, WHS 245-626m

This low-mountain beech forest grows on acidic soils (slate and greywacke) and contains primeval forest relicts and valuable special biotopes. This area is intact, small parts have never been logged and is free of settlements – quite unusual, at least by German standards. On rocky slopes and in stone pits the beech reaches its natural tree line.



Hainich National Park

### The beech forests of the lowlands

The largest lowland beech forests in the world are located in north-eastern Germany. The last ice age significantly shaped the landscape and left narrow, small-scale interconnected waterways and moors. The soils range from poor sandy soils to alkaline-rich clay soils. The beech colonised this area only in recent geological time. It reached the Baltic coast of Ruegen just 800 years ago, about 4,000 years later than humans.

### Grumsin, Schorfheide-Chorin UNESCO-Biosphere Reserve 7

Established in 1990, 129,161 ha, size of the WHS component part 590 ha, buffer zone 274 ha, Sea level: BR 0-140 m, WHS 76-139 m

The largest remaining continuous lowland beech forests are found here.

The Grumsin beech forest is a lowland beech forest which grows on glacial sandy and clay soils. Here, bodies of water and forests are tightly interconnected. Lakes, swamps and moors in deep hollows alternate with prominent ridges.

### Serrahn, Mueritz National Park 8

Established in 1990, 32,000 ha, size of the WHS component part 268 ha, buffer zone 2,568 ha, Sea level: NLP 58-143 m, WHS 67-124 m

Serrahn contains one of the richest structured lowland European beech forests where all stages of forest development can be observed.

The beeches here grow on relatively nutrient-poor sands from the last ice age. For over 50 years the forest core has been untouched. Lakes and marshes enrich the forest landscape, creating varied habitats and are the basis for a large variety of species.

### Jasmund, Jasmund National Park 9

Established 1990, 3,072 ha, size of the WHS component part 493 ha, buffer zone 2,579 ha, Sea level: NLP 0-162 m, WHS 0-131 m

In Jasmund National Park, chalk and pebble clay form the basis of the nutrient-rich soils which support a variety of beech forest communities.

On the chalk coast, the forest is in direct contact with the sea. The richly structured, untouched slope forests are the ecologically most valuable core forests of this region.

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## UNESCO-WORLD NATURAL HERITAGE SITE

## Primeval Beech Forests of the Carpathians and the Ancient Beech Forests of Germany

– Network of European Beech Forests –



United Nations Educational, Scientific and Cultural Organization



Primeval Beech Forests of the Carpathians and the Ancient Beech Forests of Germany  
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## European beech forests

The European beech (*Fagus sylvatica*) is exclusively found in Europe. Without the influence of mankind, beech forests would dominate the landscapes of Central Europe.

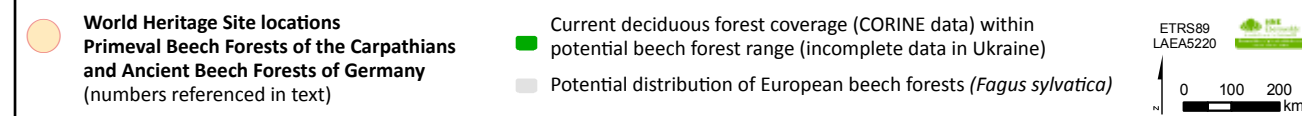
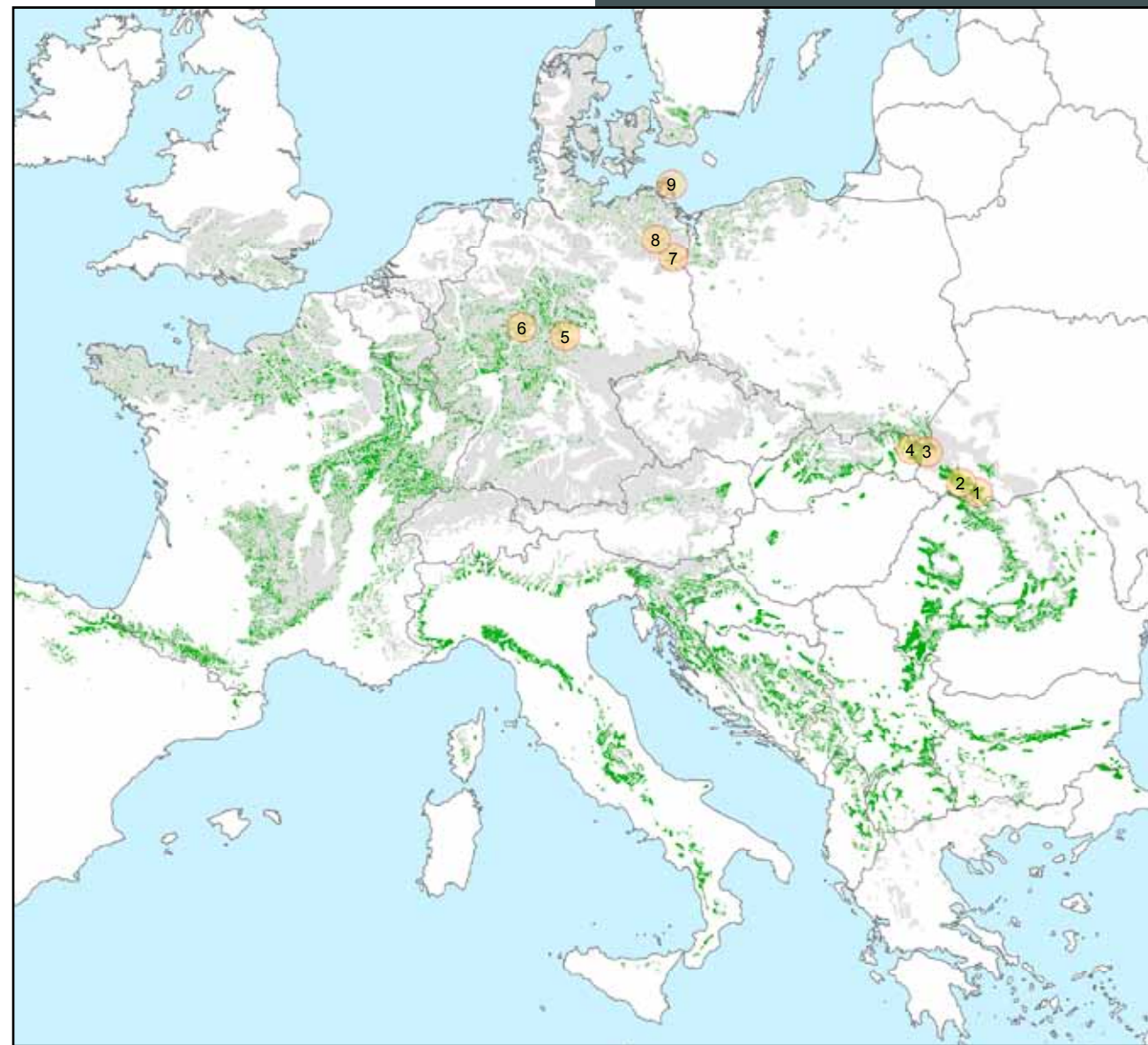
The beech survived the last ice age in small refuges in the south and south-east of Europe and went on to colonise large parts of the continent. This dominance has developed within the last 4,000 years – a relatively short time period.

Beech forests thrive in a wide spectrum of locations and are part of diverse forest communities from the sea coast of North-West Europe to the main European mountain ranges. They provide a natural habitat for more than 10,000 species of animals, plants and fungi.

The post ice age colonisation of the landscape by the beech took place parallel to the settlement of land by humans and the formation of a more complex society. It is therefore not surprising that the beech has become an important element in European culture. Words like 'book' are linked to the beech, and numerous names of landscapes and towns in Europe can be traced back to their association with the beech.



Uholka-Shyrokyi Luh primeval forest



Map of beech forests' distribution

## The common UNESCO-World Natural Heritage Site “Primeval Beech Forests of the Carpathians and the Ancient Beech Forests of Germany”

The most valuable remnants of natural beech forests in Germany have been inscribed on the UNESCO-World Heritage List since June 2011 as “The Ancient Beech Forests of Germany”. Now they form, together with the since 2007 existing UNESCO-World Natural Heritage “Primeval Beech Forests of the Carpathians” in Ukraine and Slovakia, the joint World Natural Heritage Site. The German areas with their lowland and medium altitude beech forests are a significant addition to the Carpathian mountain beech forests.

The complete World Heritage Site contains a wide range of beech forest types. It is a special example of deciduous forest which has little been affected by humans and plays a key role in understanding the historical development of the European beech.

## 15 parts form a European cooperation network

The trilateral cooperation between Germany, Ukraine and Slovakia is exemplary. In addition to the set-up of an integrated management system and the establishment of joint or cooperative research and monitoring programmes, the development of a European network of beech forest competence and information centres in all areas is pursued. This is to be the basis for the international exchange of information and experiences, joint research, and the transfer of knowledge.

The World Heritage Committee has linked the inclusion of the German areas with the obligation to work on a pan-European process of beech forest conservation. Germany, the Slovak Republic and Ukraine will strongly encourage this.

## Mountain and high mountain beech forests / Primeval Beech Forests of the Carpathians

In the Carpathians, the European beech almost reaches the north-eastern limit of its distribution. This species builds the majority of the forest canopy; in the Carpathian Mountains around 30 %, and in the Ukrainian Carpathians almost 40 %. Due to this, one of the greatest mountainous regions of Ukraine is called ‘Bukovyna’, which is translated into English as «the beech land». The beech forests cover a great span of altitudes – from 300 to 1,550 m a.s.l. They are represented both by pure beech and also mixed beech forests. However, the biggest areas are covered by beech-dominated communities.

Due to the great diversity of climatic, geological, geomorphological and soil conditions, the beech forests of the Carpathians are characterized by a rich and diverse flora. Within the mountainous part of the UNESCO-World Heritage Site alone, there are around 500 plant species, quite large percentage of which are rare or endemic to these forests or are unique for other reasons.

Although the Carpathian fauna is characterized by the presence of most of the typical European forest species, it also displays certain differences. Due to enormous undisturbed areas of forest, the Carpathians shelter viable populations of various large mammals such as bear, lynx and wolf.



Primeval beech forests on limestone bedrock in Uholka-Shyrokyi Luh

## Primeval Beech Forests of the Carpathians

### Chornohora, Carpathian Biosphere Reserve ①

Established in 1968, size of the WHS component part 2477 ha, buffer zone 12,925 ha, Sea level: BR 600-2,061 m, WHS 640-1,550 m

Historically, the first primeval forest reserve of Chornohora was established in 1912.

Here, the largest distribution of beech within the UNESCO site at an altitude of over 1,500 m a.s.l. can be found. The European mink (*Mustela lutreola*), which is already extinct within most of its natural habitat, is found here.

### Maramorosh, Carpathian Biosphere Reserve ①

Established in 1990, size of the WHS component part 2,244 ha, buffer zone 6,230 ha, Sea level: BR 440-1,937 m, WHS 600-1,470 m

For the first time in history the Maramorosh primeval forest became especially protected in 1907.

Maramorosh is the only component part on metamorphic rocks, which has formed a very specific soil and vegetative cover.

In this area, highly productive fir-beech primeval forests can be found (> 1,000 m<sup>3</sup>/ha). This massif directly borders the Romanian nature park “The Maramures Mountains” together comprising a single homogeneous natural territory.

### Svydovets, Carpathian Biosphere Reserve ①

Established in 1997, size of the WHS component part 3,031 ha, buffer zone 5,640 ha, Sea level: BR 600-1,881 m, WHS 720-1,500 m

Here pure beech forests grow up to 1,380 m a.s.l., thus representing the highest range of pure beech forests within the World Natural Heritage site. The peculiarity of the fauna of the Svydovets lies in the fact that all 10 woodpecker species of European deciduous forests are represented here.

### Kuziy-Trybushany, Carpathian Biosphere Reserve ①

Established in 1990, size of the WHS component part 1,370 ha, buffer zone 3,163 ha, Sea level: BR 340-1,409 m, WHS 420-1,087 m

This component part is characterized by relatively warm climate conditions. Oak species like *Quercus robur* and *Quercus petraea*, which are part of the local mixed beech forests, grow at the highest altitude within the site – about 1,100 m a.s.l. Another peculiarity is the presence of numerous limestone rock formations where a unique and rare species of thermophilic flora has developed.