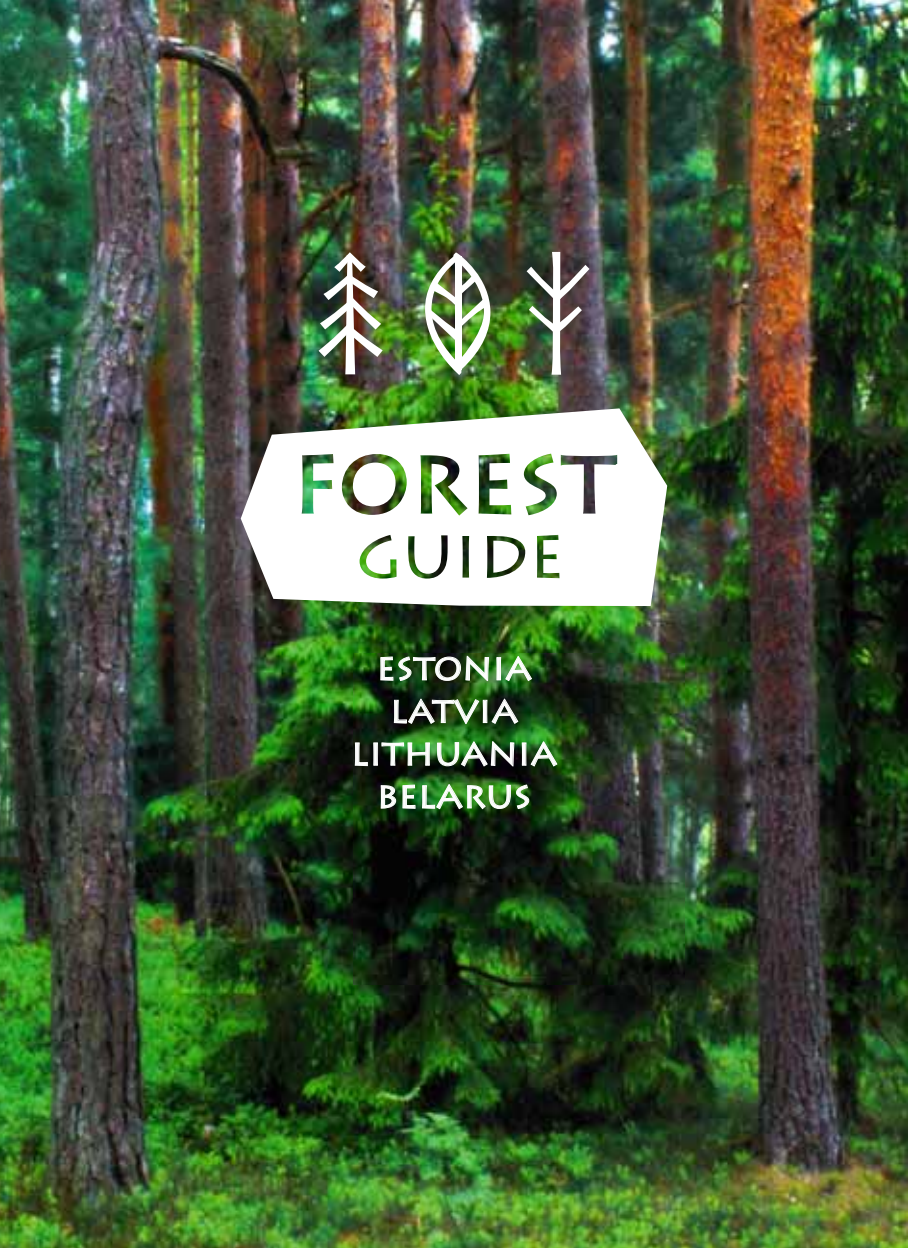

FOREST GUIDE

ESTONIA
LATVIA
LITHUANIA
BELARUS

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FORESTS IN THE BALTIC SEA REGION

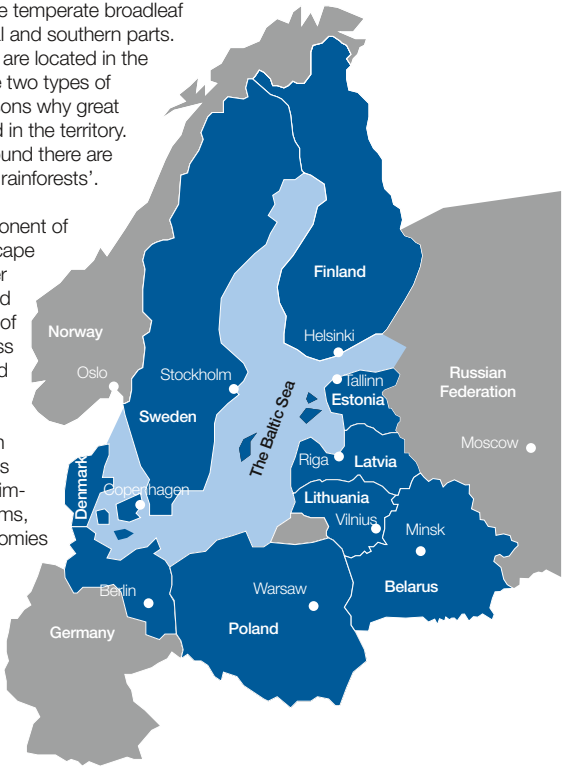
PROGRAMME AREA 2007–2013

Baltic Sea Region
Programme 2007–2013

The Baltic Sea region is the most wooded territory in Europe. Unlike other parts of the continent, this region saw the emergence of forests over the course of 12,000 years after the last so-called Baltic Ice Age. Since the region covers a fairly large part of Europe, it is rather diverse. Boreal coniferous forests dominate in the northern stretches, while temperate broadleaf forests are found in the central and southern parts. The Baltic States and Belarus are located in the transition zone between these two types of forests. This is one of the reasons why great biological diversity is observed in the territory. The swamp forests that are found there are often known as 'the Northern rainforests'.

The forest is an integral component of the Northern European landscape and cultural environment. Over the course of ages, forests and trees have served as sources of inspiration, leading to countless legends, stories, fairy tales and riddles as a very important part of the intangible folklore heritage of Northern European peoples. The forest has always been an important source of timber and non-timber (mushrooms, berries) resources in the economies of the Baltic countries.

This guide will help you to learn more about the unique aspects of our forest and its nature values.



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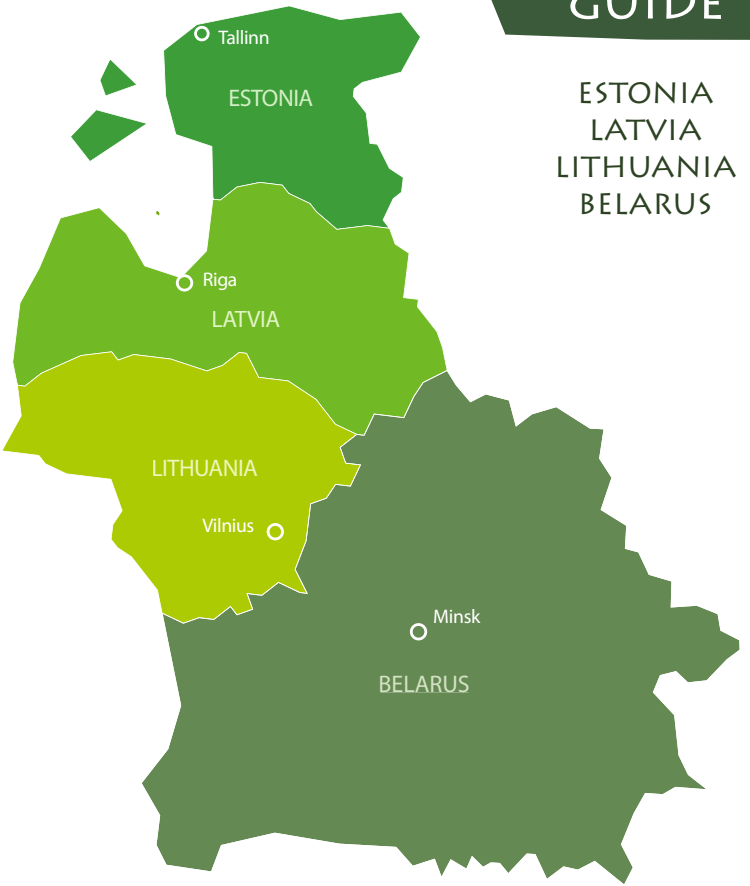


CONTENTS

INTRO

The Baltic States, Belarus and the Scandinavian countries are situated in the part of Europe most affluent in forests. Forests have played an essential role in the environmental, economic and social aspects of these countries. It is no accident that the forest is known as 'green gold'.

The emphasis is often put on the value of timber resources, but there is another no less important and not yet fully appreciated economic treasure – wild berries, nuts, mushrooms, medicinal plants and other gifts from the forest. The woods are not just an important resource for tourism and culture, but also a very important element in satisfying the emotional, aesthetic and informational needs of local residents. We do not head off to a clearing to spend our holidays! We cannot overvalue the role of the forest in producing oxygen, in stabilising the climate and the water regime and in preserving biological diversity. The woods improve air quality, tamp down noise around cities, protect populated areas against excessive wind, and reduce risks of floods and soil erosion. It offers habitats for many plant and animal species, which could not survive anywhere else. If you learn about these species, every visit to the forest will become an exciting and very informative adventure.

We want every one of you to learn about the forest and the diversity of its plants and animals, and so the Latvian Country Tourism Association 'Country Traveller' has joined together with the Latvian Fund for Nature and the Belarusian Association of Rural and Ecotourism 'Country Escape' to implement a project co-financed by the European Union, AGORA 2.0. This informational and educational guidebook about the forests of the Baltic States and Belarus has been prepared under the auspices of that project.

WHAT WILL YOU FIND IN THIS GUIDEBOOK?

The History of the Forest: The development of the forest since the last Ice Age.

Why are Our Forests Interesting?: Things to focus on when you're in the forest.

The Forest and the Four Seasons: The forest is great not just during the summer.

Frequently Encountered and More Unique Forests: Descriptions and photos of the most interesting and easy-to-identify types of forests. For your convenience, every type of forest is marked with a symbol. In the next chapter, according to the symbol, you will be able to find the places, where this type of forest grows, and in the Field Guide to Species – descriptions and photos of the most characteristic species of fungi, lichens, plants and mammals.

Worth Seeing!: The most interesting national parks, nature parks and other territories where we can go on educational tours to learn about forests described in the previous chapter .

A Field Guide Species: Some 400 frequently seen fungi, plants and mammals, with photos and descriptions that will allow you to recognise them out in the wild. The type of the forest (its symbol) is indicated next to every description, where the species can be found most often.

Please remember!: Take this into account when setting off on your trip!

Green Advice: How to be friendly toward the environment and local residents while you travel.

SYMBOLS

- A NATURA 2000 territory
- A nature pathway for hikers
- A route for car travel
- A route for boating
- Wildlife watching: plants and animals
- A poisonous species
- A protected species

THE FOREST TYPES

- Pine forests
- Spruce and mixed spruce-deciduous forests
- Broadleaf forests
- Aspen forests
- Birch forests
- Grey Alder forests
- Bog forests
- Swamp forests
- Slope and ravine forests
- Coniferous forests on eskers
- Alluvial forests
- Wooded meadows and pastures
- Stands of juniper

A spruce forest unaffected by forestry work

THE HISTORY OF THE FOREST

Our forests evolved through close interaction between environmental processes and the economic activities of human beings. Plant cover in the Baltic region first evolved between 13,000 and 14,000 years ago. As ice melted, it left behind large lakes, rapid rivers and bare outcrops of sediment. Eventually plants typical of tundra began to appear – lichens, mosses, dwarf birches, dwarf willows, etc. The vegetation was poor, the climate was fierce, and the Ice Age had destroyed the any fertile soil layer.

The climate was still cold and dry, but pine and birch trees slowly colonised the southern and south-eastern shores of the Baltic Sea. The tundra plants, which require more light, moved north. As the climate became warmer, the first forests began to expand. They were mostly forests of birch, pine, or mixed species – birch, aspen, pine and other species typical of the tundra. Once the plants were there, birds, reindeers, elks, hares, foxes, wolves, lynxes and other animals followed.

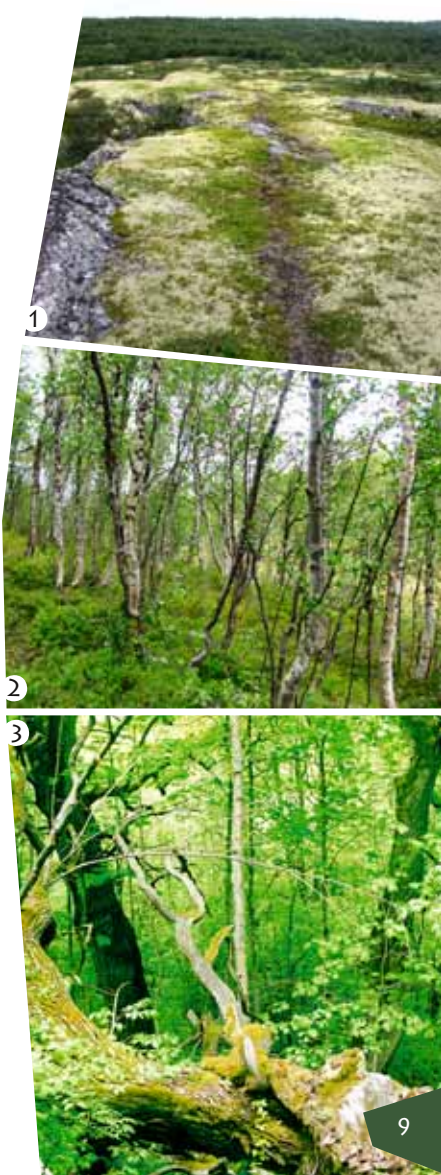
Some 7,500 years ago, the climate became considerably warmer and damper. The average air temperature was 2 to 2.5 degree Celsius higher than nowadays, and precipitation volumes were nearly one-third higher. Swamps evolved because of this large humidity. Water Chestnut colonised lakes, and Bog Myrtle appeared in wetlands. The proportion of pine trees in the forests declined in favour of hazels and alder trees, along with broadleaf trees such as oaks, limes and elms. The warm climate also allowed yews and hornbeams

to migrate into the region, though today they are more common in Central and Western Europe.

The climate began to dry up again 4,700 years ago. The scope of broadleaf trees, alder and hazel diminished, while the number of birch and spruce increased. During the last millennium, the proportion of spruce declined in favour of pines and birches. This time, the weather was not the only factor. Human activities were also of importance.

The first humans arrived in the Baltic territories toward the end of the Ice Age – more than 10,000 years ago. They were small tribes of reindeer hunters, who did not affect the environment much. Human influence on forests expanded with the development of agriculture 5,600 years ago. The forests were cut down and burned, and areas were cleared for fields and pastures. As they gained experience, people learned that the best place for fields was in broadleaf forests, thus those kinds of forests experienced the greatest harm. As people used the land, it became less fertile, and after abandonment, the broadleaf trees could not 're-conquer' them. Instead, birch, aspen and spruce took over on fallow land.

Despite the changes caused by slash-and-burn agriculture, forests maintained their primeval nature until the 12th or 13th century.



→

1. A tundra landscape with shrubs
2. This is the possible appearance of a birch forest 9,000 or 10,000 years ago
3. A broadleaf forest unaffected by forestry work

The felling of trees increased in the 14th and 15th century and later, when the shipping industry was developed, industry flourished, and the value of exported timber increased. Since oak was the most important timber, broadleaf forests suffered the greatest damage. Particularly damaged were pines used to create masts for ships, along with forests near populated areas and rivers suitable for timber rafting.

Over the past 500 years, the amount of forestland has both increased and decreased due to wars, epidemics and management forms dictated by political systems. There have been times when timber has been in short supply and firewood has had to be imported. At other times farmland became afforested, and abandoned land was overgrown with birch and alder trees.

As the timber industry developed, growing of trees and management of the forest became targeted processes. Wet areas were extensively dried. Pine and spruce forests were seen as being of the greatest economic advantage. These 'targeted trees', however, were not always grown in appropriate areas, and in place of areas native to broadleaf or mixed types of forests, there are areas in which only pine and spruce grow.

The great challenge today is to ensure sustainable and long-term forest management, which takes into account the economic, but also the ecological and social importance of the forest. This facilitates not just economic growth, but also human lives in a favourable environment in which climate change risks are reduced and biological diversity is preserved.

WHY ARE OUR FORESTS INTERESTING?

CLIMATIC AND GEOGRAPHIC CROSSROADS

The Baltic States and Belarus are the area where boreal coniferous forests meet nemoral broadleaf forests. This is a gradual transition. These geographic and climatic conditions, however, are the reason why there are both coniferous and broadleaf forests,

as well as mixed forests in which both kinds of trees grow. Examples include the presence of Northern Twinflower, which is a typical species of boreal forests, does not grow in central Europe, but is found in coniferous forests. Another example is Common Hornbeam, which is characteristic of European broadleaf forests, but is also found in Lithuania, Belarus and south-western Latvia. There is no point in looking for it in Scandinavia or in Estonia.

The region is also a place where western (Atlantic or coastal) and eastern (continental or inland) species come into contact. An example here is Cross-leaved Heath, which is found along the coastline of Latvia and Lithuania. The plant is common along the south-western coast of the Baltic Sea, as well as along the North Sea. It is not, however, found in the eastern parts of the Baltic States or in Belarus. Another example is Warty Spindle, which has its western limit in eastern Latvia, Lithuania and Belarus.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1. Northern Twinflower *Linnaea borealis*
2. Warty Spindle *Euonymus verrucosa*
3. Cross-leaved Heath *Erica tetralix*
4. A forest of Common Hornbeam *Carpinus betulus* ***in southern Lithuania***

EDGES OF FORESTS AND FOREST MEADOWS

Edges of forests are places where meadows border the forest. There are trees of various height, bushes and plants, which grow under varying conditions of light and moisture. There are species that are typical of forests and meadows, as well as species, which have adapted to the specific circumstances. Insects, which pollinate plants, are attracted to the edges of forests when flower are blooming. Because of the wealth of insects, many birds are also attracted to them. Many bird species nest in the shrubs and trees at the forest edge, and this is a good place for predatory birds to hunt. Edges of forests and forest meadows are also a good place to watch forest animals. Many animals, which live deep in the forest, seek out food at the edge of the forest or in forest meadows where they are easier to spot.

←

1. The edge of the forest, rich with flowers
2. Parasol Mushroom Macrolepiota procera *is often found at the edge of the forest during the autumn*

SHORELINES

The shores of lakes, rivers and streams also are abundant in species. The shores of waterbodies and the water itself are important for the distribution and migration of species, particularly in places, where rivers cross extensive areas of farmland. Trees at the edge of waterways are often well-lit. A lot of light tolerant species of lichens and insects live in them. They also offer resting habitats for many water insects such as dragonflies, caddisflies, stoneflies and mayflies. Rivers and streams ensure the ongoing moisture that is needed for the survival of many insects, snails and slugs, fungi and mosses. Trees, which have fallen into the water, are also of great importance, because they change the flow of water and create a lot of places where fish and amphibians can live and hide.1. The diverse shores of the Viesata River in Latvia.

1. Shores of the Viesata River in Latvia
2. Rivers are often 'corridors' via which various species of bats migrate and feed
3. Fallen trees and stumps on the shores of the Skujaine River during spring flood

THE EDGE OF MIRES

There are also different species on the edges of mires than there are in the centre of mire or forest, just as is the case with the edges of forests and waterbodies. Many species use the edge of the mire to live, spend the winter, nest or feed. Forests at the edge of mire have been less affected by forestry, so lots of old, dried and fallen trees can be found there. These are needed by many species of mosses, fungi, lichens and insects. The large

4. Old and fallen trees at the edge of the forest and mire

trees along the edge of forests and on forest islands are great for the nests of Black Woodpeckers, Boreal Owls and predatory birds. Berry shrubs in such areas often offer food to Hazel Grouse, Wood Grouse and Black Grouse. Many typically tundra plants that grew in Latvia thousands of years ago are also found there, for instance, Cloudberry and Dwarf Birch.

←
1. Dwarf Birch Betula nana

SPRINGS AND WET AREAS IN FORESTS

Spring fens and wet depressions form 'islands' in homogeneous forests, which are of great importance in terms of biological diversity. Humidity and the air temperature are always different near springs. Such areas are cooler during the summer, and unfrozen streams of water are preserved even during very cold and snowy winters. They are reminiscent of green oases among the white snow. They provide ongoing air humidity and create appropriate conditions for mosses and other species that love wet areas.

←
2. Open spring fen within the woodland
3. Calcaerous fen in the Abava River valley in Latvia

AREAS FLOODED BY BEAVERS

Beavers are often seen as animals which harm forests and rivers, but that is not always true. The number of beavers has exploded because of all-encompassing melioration systems and a reduction in the number of wolves. Each activity by beavers must be analysed independently, but it cannot be denied that areas of woodland which are flooded by

beavers create a new living space with species related to wet areas. The high water level causes the death of trees, and forest plants disappear. Instead there are reeds, sedges, reedmaces, fish, dragonflies and other water insects. Storks and herons feed there, and appropriate nesting places are found by ducks, cranes and Whooper Swan. Insects find a home in deadwood, and that attracts different species of woodpeckers. If a beaver dam collapses, the water level restores to its previous height. Places flooded by beavers are not, contrary to popular opinion, 'dead' locations. On the contrary, the diversity of species in such areas is very extensive, indeed.

→
1. An abandoned beaver's territory
2. A beaver's hut

THE CONTINUITY OF THE FOREST

Sustainability (continuity) of forests is one of the essential characteristics, and this speaks to the amount of time that a forest has grown in a specific location without interruption. Natural forests can survive for centuries or even millennia. There are outstanding forests, which may have been there from the very start, without any interference by clearing for fields. The species of plants and animals also indicate the sustainability and natural features of the woodland. Ramsons and Sanicle are not among species that one can find in forests evolved in an abandoned farmland over the past century. Of particular importance in terms of the sustainability of forests are those species with limited distance of distribution. One example is door snails, many of which can only live in permanently wet and shady conditions. Clear cutting or excessive cutting of trees leads most snails to perish before they can find a new habitat for themselves.

↑ *3. A growth of Ramsons* *Allium ursinum*

→ *A forest with trees of various dimensions*

FOREST STANDS COMPOSED OF TREES OF DIFFERENT AGES AND SIZES

A forest in which there are both large and old trees and young or middle-aged trees is one in which there has been little human intervention. Even if there has been forestry work in such forests, it has been a gentle process that does not alter the natural structure of the forest. Here we are most likely to find the diversity that is typical of forests – open areas, trees with holes and slow growing trees, as well as dried or fallen trees which are the habitat of many rare and protected fungi, plants and animals.

OLD AND SLOWLY GROWING TREES

A large and old tree is like a home that is densely populated, and many fungi, plants and animals find homes in it. They can hide in such trees, find food or simply have a rest. Old trees with thick and wrinkled bark will have lichens and mosses, because it is easier for them to take a hold on such trees, and they dry out more slowly. Woodpeckers and other birds find food in tree trunks and cracks in their bark. Ravens, Black Storks and eagles build nests on the strongest branches of large trees.

↓ *1. The Kaive oak – one of the thickest Pedunculate Oak* Quercus robur *tree in Europe (more than 10 m in circumference)*
2. These small Scots Pine Pinus sylvestris *trees in mire can be more than 100 years old*

The age of a tree cannot always be assessed on the basis of the thickness or length of its trunk. A tree that is 100 years old can be thin, just a few metres high, and with a curved trunk. The age of a tree, however, can always be recognised by inspecting its crown and brunces.

DRIED AND FALLEN TREES

Of great importance in the forest ecosystem are large dry, broken and fallen trees. A dead tree, while it completely decays, is populated more densely than when it was alive. The only difference is that the species in the tree are different. Nearly every fourth species in the forest relates to dry or decaying wood. Some live there, others find food or refuge there.

Decaying is a slow and gradual process. A pine tree that is 250 to 300 years old can take as much as 150 years to decay. During each period, different species live there. Dying or recently dead trees are first populated by bark beetles. They are followed by polypore fungi which help to decay the tree and serve also as a food for other species of insects which are far more demanding. For instance, the pine borer can populate a fallen pine tree no sooner than five years after the tree has dried. Lucanid Beetle, in turn, usually only lives in fallen trees that have been on the ground for at least 10 years. Almost decayed wood becomes so porous that it is populated not just by animals which commonly live in trees, but also by ones which live on the ground – ground beetles, worms, snails, voles and shrews.

It is false to think that dried trees facilitate the increase in the r… other trees to die. On the contrary, dry and decaying wood is home to the natural enemies of bark beetles and other insects that are seen as harmful. These 'harmful' insects, in turn, tend to live in damaged, weak or dying trees, but they do not ever live in dry or decaying trees. European Spruce Bark Beetle, for instance, spends the winter under the bark of damaged trees or in the soil, while its natural enemies – ant beetles and braconids – only live in dry or fallen spruce trees. This means that the removal of dry or fallen trees facilitates the increase in 'harmful forest pests', as opposed to reducing their numbers. The abundance of insects in dead or damaged trees attracts birds, particularly woodpeckers, green woodpeckers and Eurasian nuthatch.

→
Large fallen trees and stumps are habitats for many insect, fungus and lichen species

Predatory birds use large stumps as 'hunting towers', while Ural Owl often nests there, as well. Severely decayed birch and Grey Alder stumps are the only ones in which the willow tit can establish appropriate holes. Lizards and other small animals use large fallen trees as a place to hide, find food or raise their young.


1


2

→

1. The large fallen trunks are of particular importance – they decay slowly and provide home to many species
2. Lesser Stag Beetle Dorcus parallelipipedus *– one of the bugs which larvae feed on decaying wood*

TREES WITH HOLES IN THE TRUNK

Tree-holes are of particular importance in the forest. They appear at places where branches or treetops break, via the decaying of wood because of the polypores and insects, or via the activities of woodpeckers.

Black Woodpecker is the most active driller of holes in our forests. In search of food, it seeks out dry and damaged wood, fallen trees, or old stumps. It pecks the wood in places where insects and their larvae have hidden more deeply inside the wood. The holes in which the bird raises its young are created by the woodpecker at a substantial height, usually involving old pine or aspen trees. Black Woodpecker creates larger holes than other woodpeckers do. The presence of Eurasian Three-toed Woodpecker is indicated by shallow holes. This woodpecker usually seeks food behind tree bark, removing it without making deep holes of the type that Black Woodpecker or White-Backed Woodpecker creates.

Because most of our woodpeckers make new nesting holes each season, they are important in excavating holes for other birds. Among the birds that seek holes made by woodpeckers, particularly Black Woodpecker, there are Rollers, Boreal Owls, Stock Doves and other birds that raise their young in holes but cannot excavate them themselves. The

holes are also used by squirrels, dormice, bats and many other small animals.

Those holes, which are not used by birds or animals, are home to many different beetles, ants, hornets, spiders, flies, mosquitoes, centipedes and other tiny creature. Some only spend some time in the holes, while others live there throughout their lives. Large and natural holes with decaying wood are particularly heavily populated by insects, though species which live in holes can also be found in holes that are just a few centimetres deep or ones that are constantly filled with sap. Trees, which have holes or are appropriate for the excavation of holes, have become very uncommon in intensively managed forests, therefore many species that live in holes have become rare and endangered.

→

1. Holes made by Black Woodpecker *Dryocopus martius*
2. Tracks of the work of Eurasian Three-toed Woodpecker *Picoides tridactylus*
3. A partly closed Black Woodpecker *Dryocopus martius* **hole in an old pine tree**

THE FOREST, CULTURE AND HISTORY

Because forests covered most of Northern Europe quite recently, there are countless bits of historical evidence therein – cult locations, places of ancient battles, single-family farms, old beehives and other objects, many of which have been given the status of cultural monuments. There is also oral history focusing on legends, stories, fairy tales, folk songs, beliefs and traditions, which relate to the forest and what it provides. This is a globally important element in the intangible culture of people who have populated forests.

THE FOREST AND THE FOUR SEASONS

The diversity of the forest is seen in four very different seasons of the year.

SUMMER

During the summer we will find the greatest range of plants and insects, with differences between the early and the late summ.

AUTUMN

During the autumn, we can go look at the pretty leaves of trees, watching the way they become coloured on various types of trees and bushes. We will also find berries and fruits. We can watch migrating birds and look for mushrooms, which are in the greatest supply during the autumn.

WINTER

During the winter, the forest is frozen and completely peaceful. We can learn to identify various trees on the basis of their silhouettes, and we can spot footprints and excrement in the snow. Animals are easier to spot, because vegetation do not camouflage them. We will see various species of titmice and woodpeckers, especially if feeders are installed in the forest. During warm winters with no snow, there will be various species of mushrooms. The season can also be used to learn more about lichens and fungi. The winter is great for longer or shorter hikes or cross-country skiing. If you leave ski tracks in the forest, others will follow them.

SPRING

The spring is the perfect season to learn about various inhabitants of the forest. Life returns to the forest, and animals make preparations for their next generation. Migratory birds which have returned to the forest and various types of insects will be particularly active. They will be far more visible and audible than usual, so keep your eyes and ears open. We can visit wetland forests in which the scene will be much different than it is during the summer.

THE FOREST TYPES

THE FOREST TYPES

This is a popular, not scholarly guidebook, and the traditional methods for classifying various types of forests are not used here. Instead we are taking a simpler approach, dividing the forest up into groups that are easy to recognise. Please remember, however, that only the most typical types of forests are described here, but in the nature, the forest gradually changes from one type of forest to another. That can make it more difficult to specify each type of forest.

For convenience, each forest type is marked with own symbol. In the following chapter the symbol shows the sites where particular types of forest can be explored. The species finder chapter contains descriptions and photos of fungi, lichen, plants and animals that are typical for forests of each type.

DRY FORESTS

PINE FORESTS

Dry pine forests are found all along the eastern shore of the Baltic Sea, on sandy inland lowlands and on dunes. These forests are found in those places that are driest and with the least nutrients. Other species find it hard to compete.

In places where the soil is poorest, there are light and open pine forests with junipers, heathers, crowberries, cowberries and a thick ground cover of Reindeer Lichens and green mosses. These are typical species in northern boreal forests, and they have adapted to light, dry and low-nutrition circumstances in places where there are substantial variations in air temperature. In areas that have more moisture and nutrition, there are more productive pine forests that sometimes also include Norway Spruce and Silver Birch trees. These forests are the best place to find chanterelles, Rufous Milk-caps, Penny Buns, bilberries and cowberries. They are important winter grazing places for Roe Deer, Elk and Red Deer. Pine forests growing on the loamiest soil also include birch, aspen, spruce, rowan and Alder Buckthorn trees, with the ground cover dominated by Bracken, Golden-rods, Wood-sorrel and anemones.

Dry pine forests have often burned over the course of history, and plants and animals have adapted to the periodical effects of forest fires. The thick bark of the pine protects older trees, and in places where the ground cover burns away, young pine trees can quickly take root. Other light-seeking plant species often take over land that has been made bare by a fire as well, and their seeds stay in the soil until the fire heats up the ground and opens up areas of sand. One such plant is Bohemian Crane's-bill *Geranium bohemicum*, which can grow only when the seeds have been heated up to 50–60 degrees Celsius. In terms of the animal world, there is Fire Bug, which larvae can only develop in seared timber. Insects have specific receptors on their antennae that are used to perceive infrared radiation, and they can identify a forest fire from a distance of many kilometres.

Pine forests have seldom been cleared for agricultural purposes, because the soil is poor and inappropriate for grains. It is also not advantageous to try to grow other kinds of trees at such locations. Pines, by contrast, have been utilised as building materials and firewood for centuries. That is why the only place where old and natural pine forests can be found is along the shoreline, on the islands of mires, and in places where commercial forest management is limited by natural circumstances or nature protection requirements. Such forests are easy to recognise because there are a lot of trees of different ages, the oldest have flat crowns, thick bark, scars from fires, fat dry trees with a lot of sap and woodpecker holes, large fallen trees and a variety of species that are only found in such forests. Such old and natural pine forests are protected. A lot of them are included in nature conservation areas.

Pines in Latvia, *Pinus sylvestris var. rigensis*, have thin trunks and highly valuable timber. For centuries they have been much appreciated. Tradesmen and foresters have bought not just the timber, but also the seeds of the trees.

Pine is used as firewood and to make furniture and other products. Pine trunks were initially used to keep bees.


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1. A pine forest with ground cover of lichens and green mosses
2. A pine tree emptied of sap in the Karula National Park in Estonia

1. A pine forest with bilberries and cowberries
2. A pine forest on richer soil
3. Pine trees with 'crocodile skin' bark in the Gauja National Park in Latvia
4. Wooded coastal dunes in the Ragakāpa Nature Park in Latvia
5. Scots Pine trees with scars from a recent fire

Because the pine grows straight, it has always been used to produce ship masts, telephone poles and railroad ties. Until recently, the pine was used to extract sap, turpentine, pitch and oil. Pine needles offer vitamins and aromas. Pine forests are an outstanding place for active or passive leisure, and many pine forests in Europe have sanatoriums or spas. These make a major investment in the economies of the relevant countries.

SPRUCE AND MIXED SPRUCE-DECIDUOUS FORESTS O

Dark and shady spruce forests or slightly lighter and more diverse spruce and deciduous forests are found throughout the north-eastern parts of the region, particularly in highlands, where soil and moisture conditions are diverse because of the terrain. These are typical northern (boreal) coniferous forests with a distinct green moss ground cover and species that have adapted to life in shady conditions.

The largest areas of spruce forest are ones in which rowan and hazel can be found in the understory, a lot of Wood-sorrels in ground cover and Wood moss, Feather moss, Wind-Blown moss, and Haircap moss in the moss layer. Some pine, aspen and birch trees can be found in such areas


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1. A typical boreal spruce forest with a thick green moss ground cover
2. A thick spruce stand with sparse ground cover in the Zvārde forests

as well. Where the soil is loamier, there can also be Small-leaved Lime, Pedunculate oak, Norway Maple and Ash trees. In some places of Belarus, Lithuania and the south-western parts of Latvia, there are hornbeams. Understory of such forests consists of rowans, hazels, honeysuckles and spindles, while the herb layer is made of Yellow Archangel, Liverleaf, Greater Stitchwort, Lily-of-the-valley and ferns. In sparse areas there will be bilberries, and in dense places, the ground cover will only be made up of scattered mosses.

As late as in the latter half of the 19th century, noblemen considered the spruce and the birch to be 'weeds'. It was only toward the end of the century, as the pulp and paper industry developed, that the spruce was first appreciated. Since the beginning of the 20th century, the spruce has been one of the target species of trees in our forests. In many places, spruce was planted in areas cleared of broadleaf forests, as well as in areas of dried bog woodlands. Although the total area covered with spruce has increased, old and natural spruce forests are rare. They can be recognised by large trees covered with mosses and lichens, trees with woodpecker holes and large dried and fallen trees of various ages. Such old and natural spruce and spruce-deciduous forests are protected. A lot of them are included in nature conservation areas.

Spruce timber has been used to build wooden buildings. It is appropriate for fencing, floorboards and finishing boards. When outdoors, the pale wood of the spruce takes on a lovely grey and silvery tone with a time.

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1. A typical spruce-deciduous forest in Zvärdein Latvia
2. Spruce and spruce-deciduous forests in the landscape, here seen from the Suur Munamägi hill in the Haanja Nature Park in Estonia

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1. An old spruce-aspen forest at the Nature Reserve 'Dūres Forest' in Latvia
2. A mixed spruce-deciduous forest in the Zemgale lowlands
3. A spruce forest in the Zemgale lowlands

BROADLEAF FORESTS

Broadleaf forests in the Baltic States and Belarus are found in those places where the soil is rich and where farming has not developed. These are the richest forests, with oak, lime, ash, elm and maple trees in many different combinations. In addition to the broadleaf trees, there are also often birches, aspens and spruces. More common such forests are in Lithuania and Belarus. Fairly common in those countries, too, are forests in which pine trees grow alongside broadleaf trees. Such locations in Latvia are only found along the banks of the Gauja River and around the town of Tērvete.

Broadleaf forests are distinguished by a large diversity of mosses and lichens which grow on tree trunks and fallen trees. Since various species require different light and moisture conditions, each has its own place on the trunk of the tree. Light-loving lichens are closer to the tops of the trees, because they can survive without moisture for longer periods of time. The base of the tree is often covered with a thick 'moss boot', because the moisture which mosses need is closer to the ground. The more shady part of the trunk, usually on its northern side, dries less, and the 'moss boot' tends to be distinctly higher there.

During the spring, when branches of trees remain bare, there is a lot of light in broadleaf forests. Liverleaf, Yellow and Wood Anemones, celandines, Stars-of-Bethlehem, Bird-in-a-bush and Bitter Pea-vine take advantage of this fact. In late April and early May, when leaves appear on the trees, these plants no longer bloom, and by the latter half of the summer, most of them are gone from the ground cover. They are replaced with Dog's Mercury, Ground Elder and ferns.

During natural forest development, when a broadleaf tree is torn up by the wind or dies when it is old, glades are formed in such openings. Red Deer, Elks, Roe Deer and other forest animals graze on young trees and plants there, thus preventing the glade from overgrowing. Large grazers such as wisents and wild horses were of importance in antiquity in broadleaf forests. Over the course of time, they were replaced by domestic livestock which created open areas via grazing. Today, livestock grazes only in small areas of woodland, and broadleaf forests have become far denser. Many light tolerant species have become uncommon or endangered.

Since the slash and burn agriculture, broadleaf forests have been transformed the most. Spruces and fields have replaced broadleaf trees, and old and natural broadleaf forests have become rare. Such areas can be recognised by trees of different ages and ones that are old, full of holes, covered with mosses, lichens and polypores, in many cases, they are very large, indeed. There are glades formed due to large, fallen trees, lots of decayed wood, and species which live specifically in such forests. Old and natural broadleaf forests are protected, in many cases in nature conservation sites.

← *A broadleaf forest in spring, with lots of blooming flowers*





1. Lungwort Lobaria pulmonaria *is only found in old and natural forests*
2. A broadleaf forest with oak trees in the Zemgale lowlands
3. An Oak stand in the Rāzna National Park in Latvia
4. Tree trunks with a wealth of moss
5. A broadleaf forest in Belarus

Hardwood oak boards were once used to build ships, and today they are used to produce ceiling beams, barrels, parquet and furniture. Bees most often settle in oak trees, and large oaks served as bee-hives in olden days. Ash timber is hard but flexible and is used to produce wheels, handles for tools, hockey sticks and chairs. Lime timber is soft and appropriate for furniture and wood carvings. Maple timber has for centuries been known as the best wood for musical instruments.

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1. Since antiquity, this system has been used to climb trees so as to harvest honey
2. A broadleaf forest in the Belovezhskaya Pushcha in Belarus, where the largest population of wisents in Europe lives

ASPEN FORESTS ☼

Aspens are among those trees which grow first in places that have burned, in windfalls, in clearings, as well as on abandoned fields and grasslands, provided that the soil is not too poor in nutrients or too wet. Pure stands of aspens are found in many places, but the aspen does not produce long-lasting forests. After old aspens dry, they are replaced with spruces or broadleaf forests. This means that plants which are only typical of aspen forests cannot really take root, and instead it is more likely to find species that are more typical of grasslands, coniferous forests and broadleaf forests. Such species speak to the origins of the forest and its ongoing development.

The aspen grows quickly – far more quickly than other trees. At the age of 80 or 90, the aspen is an old tree full of mosses, lichens and polypores, and their cores will be rotted. That is why stands of aspens that are less than 100 years old will have many high and fat stumps, fallen trees and trees with woodpecker holes. These are populated by many

birds, insects, mosses, mushrooms and lichens, including some that are rare and protected. The flying squirrel lives in holes in such spruce-aspen forests with old aspen trees. It is mainly found in north-eastern Estonia and may no longer be present in Latvia, Lithuania and Belarus.[1] Old aspen forests are included into nature conservation sites to protect this diversity of forests.

The aspen has been used for many different purposes since antiquity. It has been used to carve boats and to make tiles for roofs. The related fast-growing poplar was used in Soviet times as ornamental tree in green areas and alleys. Today aspen is used to produce matches, pulp and paper. Aspen firewood has been used since antiquity by potters in their kilns, because aspen does not crackle and burns with a homogeneous flame.

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1. Large aspen trees in aspen forest
2. The droppings of the Flying Squirrel *Pteromys volans* *are easy to spot in early spring when the snow is melting*
3. An aspen forest with undergrowth typical of broadleaf forests
4. A natural, rich spruce-aspen forest in the Nature Reserve 'Zvārdes Forest' in Latvia

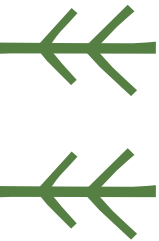
[1]Should you spot a flying squirrel or any trace thereof, please contact zoologist Valdis Pilāts at Valdis.Pilats@daba.gov.lv.

BIRCH FORESTS

Silver Birch is one of the most common species of trees, which can grow in various habitats and in combination with other types of trees. Birches quickly colonise appropriate free areas. They are found on abandoned farmland and meadows, and they appear quickly after storms, fires and cutting of trees.

Stands of birch are a common rural sight, and although they are usually pure stands of birch, young spruce trees feel fine in their shadow, and spruces gradually replace birches over the course of time. Birches, therefore, do not create long-lasting forests, and the species that are typical of such forests will not be found there. Depending on the place and the history of the forest, birch forests will contain plants that are typical of grasslands, coniferous forests and broadleaf forests. Many species which usually grow along the edges of forests will be found there, including the endangered Butterfly-orchids and Marsh-orchids.

Despite the fact that the birch is so very common, intensive use of it has meant that there are very few old and natural birch forests that are appropriate for rare or protected species.
Birch timber has always been in much demand as firewood, as well as wood to produce furniture, plywood and pulp. Since antiquity, birch has been used to make cradle poles and to produce birch sap. Birch has also been seen as the best timber to produce carts and sleds. Today the birch is often used to afforest abandoned farmland.



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1. A stand of young birch trees on a former farmland
2. There are many folk songs about stands of birches
3. A birch forest full of fallen deadwoods and stubs
4., 5. A dried birch trunk is a home to various polypores and birds
6. A flooded and dried birch forest at the age of the Great Ķemeri Mire in Ķemeri National Park


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GREY ALDER FORESTS

Most Grey Alder forests in the Baltic region have evolved during the last several decades as abandoned fields and grasslands have become overgrown. This is the first generation of rapidly growing Grey Alders, which does not have a long life, and it is gradually being replaced by spruce, birch or broadleaf trees. Species which are typical of Grey Alder forests cannot be found there, thus, species that have grown there before alders remain as undergrowth, and bare soil is often found under the thick crowns of the trees. Grey Alder forests have usually been seen as being less valuable in forestry and biological terms, so they receive no specific protections.

A different situation exists with old Grey Alder forests in river flooplains and on the spring rich slopes of the valleys, where generation after generation of Grey Alder has grown. During the early spring, such forests are full of anemones, lungwort, Bird-in-a-bush and Stars-of-Bethlehem. By mid-summer, you will find Broad-leaved Chervil, Common Nettle, Marsh Hawk's-beard and Wood Horsetail. Such Grey Alder forests are rare and protected.

Grey Alder has always been mostly used as firewood. It is irreplaceable when it comes to the traditional smoking of meat.

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1. A Grey Alder forest on former farmland
2. An old and natural Grey Alder forest in the Daugava floodplain in Latvia
3. A Grey Alder forest along the banks of the Slocene River in Ķemeri National Park in Latvia
4. Common Nettle – a species characteristic of Grey Alder forests

WET FORESTS

BOG WOODLAND

Bog woodland grows between hillocks, on the edge of mires and in overgrown raised bogs – places where the soil is periodically or permanently wet. These are typical northern forests of pine, spruce and Downy Birch, sometimes also including aspens and Black Alders. Due to the constant moisture and in the absence of oxygen, the remnants of plants decay very slowly to produce a peat. The layer of peat is as much as five metres deep in some areas of bog woodland.

Bog woodland is sparse, with sedges, cotton-grasses, heather, Labrador-tea, Bog Bilberries, bilberries and cranberries. Bog-moss is typical in such forests, which are often home to Haircap moss, Feather moss and Wind-blown moss. Old and natural bog woodland has many elements that are of key importance in protecting biological diversity – trees of various ages, lots of dried and fallen trees, many trees with woodpecker holes, ridges, depressions, as well as openings around fallen trees. Such forests are home to several species for which the Baltic States and Belarus are the very edge of their distribution area. Near the sea-coast, bog woodland hosts protected Cross-leaved Heath and Bog-myrtle. In eastern forests, there will be Dwarf Birches and Drooping Wood-reed.

Trees in such forests grow slowly, and they are hard to manage because of the wet soil. Many such areas have been drained to improve the quality of the timber. This, however, means the loss of many elements which are needed for the existence of lots of plants and animals. The most important bog woodland areas are in nature conservation areas so as to ensure that they are not changed.

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Bog-myrtle *Myrica gale*





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1. Bog woodland with rich stands of Labrador-tea Ledum palustre
2. Bog woodland with Black Alder Alnus glutinosa *trees and bog-moss on the groundcover*
3. Bog woodland wit Norway Spruce Picea abies *and bog-moss on the groundcover*
4. Bog woodland with Downy Birch Betula pubescens
5. Bog woodland with sedge in the Grīņu Nature Reserve in Latvia

SWAMP FORESTS

Swamps grow on wet and fertile wetland in which the level of groundwater is regularly replenished. These are the wettest places around springs, along creeks, in overflowing depressions, and in the floodplains of rivers and lakes. Black Alder is the most common tree in such areas, but there are also ashes, Grey Alder, Downy Birch and spruces.

The most typical element of swamps is trees growing on ridges, and regularly flooded areas. Even during a dry summer, when pools dry out, their presence will be indicated by empty or sparsely vegetated areas of land. At the top of the ridges there are Wood-sorrels, bilberries and Buckler-ferns, while at the foot of the ridges and between them, there are sedges, Bog Arum, Marsh Cinquefoil, Marsh Fern, Bittersweet, Cabbage Thistle, and Yellow Iris. During the spring, before leaves sprout on the trees, the foot of the ridges will be covered with Marsh-marigold and Lesser Celandine.

The best areas for Black Alder are in Latvia, Lithuania, Belarus, eastern Poland and north-western Ukraine, but intensive drainage of land has meant that areas of swamps are not too large. That is why swamps are protected, and their most important areas are in protected sites. Many species which have adapted to life in places with a lot of shadow, constant soil moisture and a wealth of decaying wood find older swamps to be the only appropriate place where they can live. Many mosses and lichens which grow on old Black Alder stumps and fallen trees are protected.

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1. A swamp forest with ridges and bare soil in places which were flooded for a long time
2. A young Black Alder swamp forest in the Nature Reserve 'Pededze' in Latvia

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1. A flooded Black Alder swamp forest in a spring time
2. A Black Alder swamp forest when Marsh-marigold blooms in the Ķemeri National Park in Latvia
3. An old swamp forest with large ridges, fallen trees and overflowing depressions

FORESTS RELATED TO THE TERRAIN

SLOPE AND RAVINE FORESTS △

Unusual forests are found in ravines and on steep slopes where there is permanent shade, along with lower temperatures, high humidity and less wind than at flatland forests. There are often springs at the foot of slopes, and the ravines have streams or brooks. There are often piles of large boulders, as well as areas of bare soil or rock that are the result of landslides or water erosion. Curved tree trunks are an interesting element of such forests. In order to stretch up to the light, the trunks of trees are curved at their base.

Trees at slope and ravine forests include maples, ashes, limes, oaks, elms, sometimes together with Grey Alder, aspens, spruces and birches. Typical forests with dominant broadleaf trees have plants which bloom in the spring – White and Yellow Anemone, Liverleaf, Lesser Celandine, Bitter Pea-vine and Bird-in-a-bush. Shady ravines, slopes faced to the North and the foot of slopes are always wetter, cooler and shadier, so they have a wealth of snails and slugs, fallen trees covered with rare mosses, and plants which love moisture and fertile soil. Warmer, drier and lighter slopes (those facing the South) are denser with light tolerant herbs, as well as lichens on trees.


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Since slope and ravine forests are difficult to access and harvest, such forests are less transformed. Many contain signs of a natural forest – old and large trees and bushes, many dried trees, many woodpecker holes and lots of fallen trees. Many rare and endangered mosses, snails and slugs, and lichens find refuge in such forests. Because of the specific terrain conditions, slope and ravine forests are rare and protected. The most important areas of this kind are in protected nature sites. Outstanding slope forests can be found along the banks of the largest rivers in the Baltic States – the Gauja, Daugava, Venta and Nemuna, as well as in highlands.

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1. Thanks to the diverse habitats, ravine forests are abundant in species
2. A slope forest in the Blue Hills of Šlītere in the Slītere National Park in Latvia
3. A slope forest with oaks on the banks of the Daugava River in the Nature Park 'Daugavas loki' in Latvia

↑ *1. The protected Perennial Honesty* Lunaria rediviva *is quite often found on the slopes of river valleys*
2. Damp and fertile foot of a slope

CONIFEROUS FORESTS ON ESKERS

There are banks in Latvia which are named as 'kangari', that word coming from the old Liv word 'kangar', which refers to a bank or range of hills. These are eskers which date back to the end of the last Ice Age, and they are made up of layered sand with limy gravel and pebbles. The limy and pebbled soil and the height, angle and placement of the banks have led to the emergence of forests which are typical of such sites.

At the foot of eskers and on the north-facing slopes, there are wet and shady spruce forests, while the tops of the eskers and the southern slopes receive lots of sunshine, and there you will find pine forests which are sparse and light and have groundcover made of juniper, Bloody Crane's-bill, Angular Solomon's Seal, Wild Strawberry, and Mountain Everlasting. Since the southern sides of eskers are always warmer, drier and more sunny, species which are typical of edges of forests, dry grasslands and even steppes will be found here, the highly protected Eastern Pasqueflower, Northern Dragon's-head and Hungarian Sainfoin among them. On the wet and limy soil at the foot of the eskers you will sometimes find the highly protected Lady's-slipper orchid.

The Great Kangari, the Small Kangari, the Blue Hills of Ogre, the Grebļa Hill and other eskers and esker-type banks are well known, but this is terrain which is fairly uncommon

at the Baltic level. The sand and gravel which make up the eskers are of economic value, and so many eskers have been dug away partly or in full. The eskers that remain are protected nature sites now.

Eskers also have great esthetic, cultural and historical value. In ancient times, roads were installed along the tops of the banks, because those locations were drier and higher than the surrounding mires. Some of those roads have been preserved to this very day.

↓ *4. The Nature Reserve 'Grebļa Hill' on an esker-type bank in Latvia*

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1. A pine forest with Eastern Pasqueflower Pulsatilla *patens in the Blue Hills of Ogrein Latvia*
2. The highly protected Northern Dragon's-head Dracocephalum ruyschiana *can be found in light pine forests on eskers*
3. The rare and protected Lady's-slipper orchid Cypripedium calceolus *is found at the foot of a wooded esker*

ALLUVIAL FORESTS ▲

Unique types of forests are found in the floodplains of rivers and lakes. Such forests regularly become flooded, and then they are 'drained' in a natural way. The fertile soil is enriched by the floodwaters. There are oxbows, depressions created by the floods, as well as fields and piles of sand. Particularly outstanding are forests which were evolved naturally as rivers twisted and turned and washed away their banks. The first plants to appear here are herbs and willows, Grey Alders, but eventually they are replaced with mixed forests, unaffected by human activity. In today's highly managed landscape, these are a rarity.

ITypical trees in gallery and alluvial forests include Black Alder, Grey Alder, willows, ashes and elms. There are many Bird-cherry trees and hops, along with Black Currants. As is always the case in broadleaf forests, White and Yellow Anemones, Lesser Celandines and Marsh Marigolds grow here in the spring. During the summer they are replaced by Broad-leaved Chervil, Common Nettles, Meadowsweets, Cabbage Thistles and sedges.

Old and often flooded gallery and alluvial forests have trees with higher roots and trunks covered with mosses and lichens. The lower parts of trunks are often covered with bits of soil that have been carried by the floodwaters, which means that they have fewer mosses than on the central part of the trunk. This provides good evidence of the effects of flooding and also indicates the level of the floodwaters.

Due to land reclamation in many river areas, the area of flooded land has been reduced substantially. For this reason, gallery and alluvial forests are fairly uncommon and are protected. Specially protected nature sites which include vast areas of river floodplains are particularly important in this regard.

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1. A flooded alluvial forest in the Soomaa National Park in Estonia
2. An alluvial forest after springtime flooding on the banks of the Pededze Riverin Latvia
3. An alluvial forest flooded by the Dviete River the Nature Reserve 'Dvietes floodplain'in Latvia
4. To the left of the Gauja River in this photo is an alluvial forest with the silvery crowns of willows in the Gauja National Park in Latvia
5. An alluvial forest in the Ķemeri National Park in Latvia
6. Meadowsweet Filipendula ulmaria is often found in alluvial forests


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NEITHER FOREST NOR GRASSLAND

WOODED MEADOWS AND PASTURES

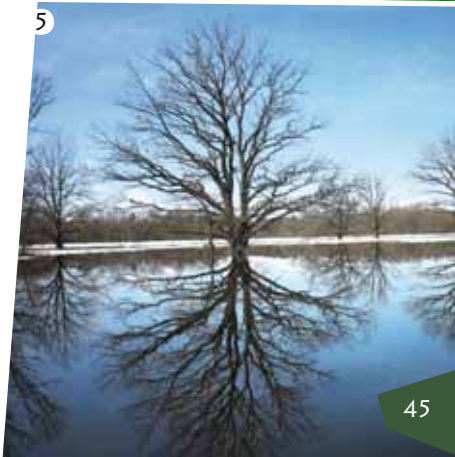
Wooded meadows and pastures offer a very beautiful and unique landscape. There will be scattered and old trees, groups of trees and bushes, and open areas which have evolved over the course of the centuries as livestock has grazed in forests and along their edges. This is one of the oldest types of landscapes in our climatic zone, and people have interacted with nature here at least since the Bronze Age 3,500 years ago. This remains true even today.

Wooded meadows and pastures have oak, lime, elm and ash, with smaller numbers of Black Alder, birches and pines. Lush rowans, hazelnuts and Crab Apple trees find a place in the shadows of the trees. On the ground there are plants which are typical of grasslands and the edges of forests – Cowslips, Cow-wheat, Orchids, Wild Strawberries and Lily-of-the-valley.

In our region, specifically these wooded meadows and pastures have the largest diversity of species. There are herbs, trees and bushes in the grasslands, and many species live on the trunks, branches and leaves of trees, under their bark, in holes and on fallen trees. In an area of just 25 m^2 one can find as many as 60 species of herbaceous plants, and on the trees there will be nearly 200 different species of lichens. This is a very important place for rare and protected species such as polypore ***Hapalopilus croceus***, Hermit Beetle, and the light-tolerant lichens which grow on the trunks of oak trees. Dried and fallen trees have for many decades been a home for various species that rely on dead wood.

Management of wooded meadows and their landscapes is of decisive importance. When grazing ends, most wooded meadows and pastures become overgrown. That is why most wooded meadows are included in protected nature sites. The best wooded meadows in the region can be found along the banks of the Gauja, Pededze and Halliste rivers.

Wooded meadows and pastures were traditionally used for grazing of livestock and less often to produce hay. They were also used to collect timber, acorns, apples, berries and nuts. Managed wooded meadows are of very high aesthetic, cultural and historical value.



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1. A typical wooded meadow with large Pedunculate Oak Quercus robur *trees*
2. Wooded meadows with Sots Pine Pinus sylvestris *trees*
3. Wooded meadows become overgrown if they are not managed, and eventually they turn into forests
4. Oak trees in wooded meadows and pastures tend to have low branches and large crowns
5. Flooded wooded meadows in the Soomaa National Parkin Estonia

STANDS OF JUNIPER

Unique stands of juniper develop in river valleys, on the slopes of hillocks, and in the coastal flatlands and coastal dunes, where the soil is limy but not particularly appropriate for intensive farming. Particularly large areas of juniper shrubs can be found along the seashore of Estonia, on Swedish islands, and in a small part of Russia to the west of St Petersburg – on the alvars.

Growing among them there can be roses, hawthorns and crab-apples. Occasionally there will be a pine or a deciduous tree. On the ground will be species that are typical of limy grasslands, dunes and heath. In wetter areas, they are replaced by plants which find a home in temporary pools, rich fens and spring fens.

Juniper growths were often used for grazing purposes in the past, and that facilitated their existence. As traditional farming declines and areas of grazing land shrink, historical stands of juniper have often disappeared among threes and other bushes. Stands of juniper are protected in order to preserve them, and management of such stands has been started anew in many locations.

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1. A stand of junipers on the bank of the Ancient Abava River Valley in Latvia
2. Stands of juniper in the Ķemeri National Park in Latvia
3. Stands of juniper in the Nature Reserve 'Gudenieki' in Latvia
4. Bird's-eye Primroses are often found in stands of juniper

Juniper wood has always been very popular for the production of household items, particularly for the kitchen. Juniper berries are eaten with meat, added into alcoholic beverages and used for medicinal purposes. People used to burn juniper branches to scare off evil spirits.


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1. Juniper 'berries'
2. Stands of juniper in the Vilsandi National Park in Estonia


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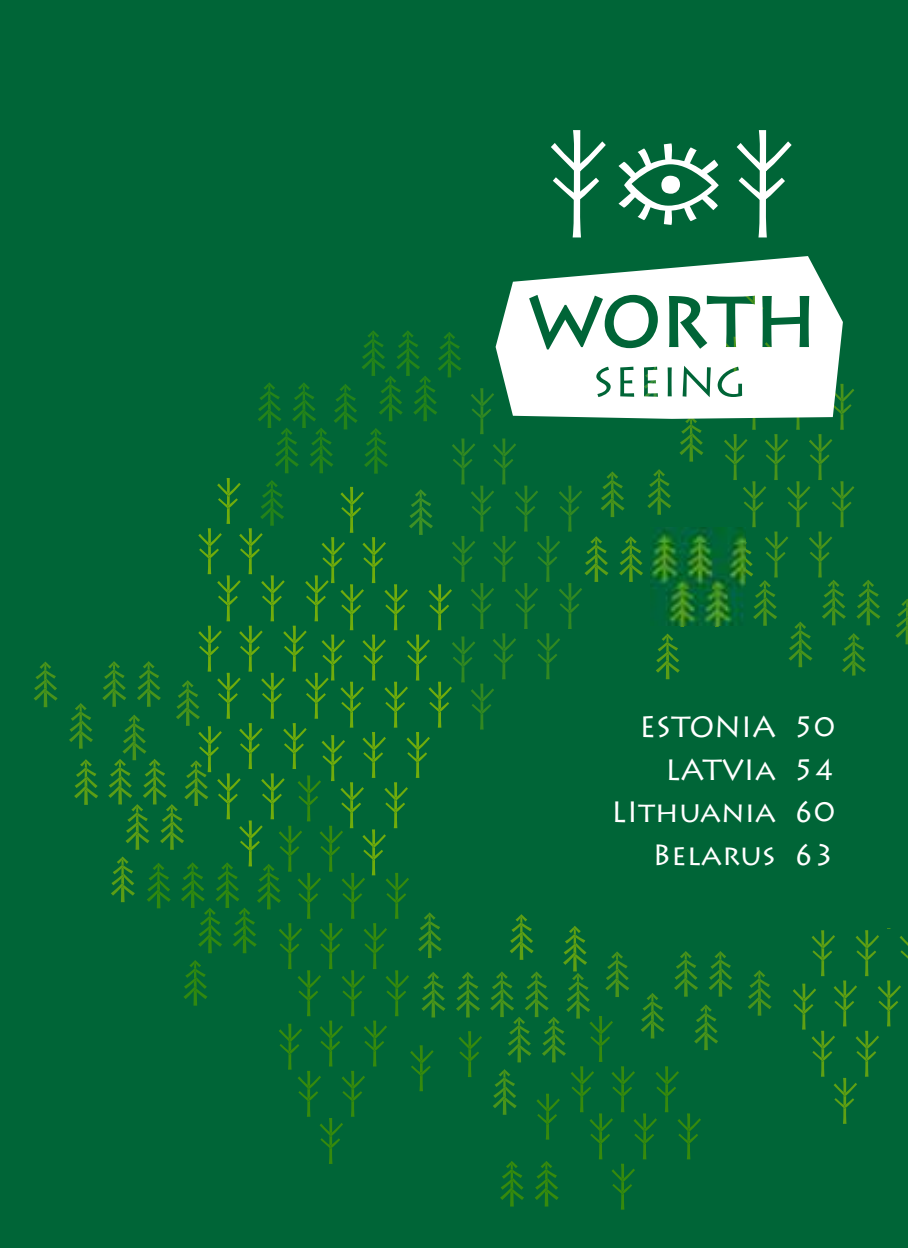


WORTH SEEING

THE FOREST TYPES

- Pine forests
- Spruce and mixed spruce-deciduous forests
- Broadleaf forests
- Aspen forests
- Birch forests
- Gray Alder forests
- Bog forests
- Swamp forests
- Slope and ravine forests
- Coniferous forests on eskers
- Alluvial forests
- Wooded meadows and pastures
- Stands of juniper

Here's a list of places in the Baltic States and Belarus where you can examine various forest habitats and their inhabitants, either individually or with the help of a guide. There you will find and enjoy the nature of the Baltic States and Belarus. In most cases, you will find nature trails, tourist routes and other infrastructure related to visitors.

ESTONIA

1 Aegna Island *Aegna saar*

Forests: Mostly ◉, ○, ⊡.
Information: www.aegna.ee.

A forested island in the Gulf of Finland, approximately 14 km to the north of Tallinn. There is a network of small roads and trails on the island. A ferry to the island departs from the port at Pirita.
Hike around the shore of the island, where you will find all kinds of the coast – dunes, sandy and rocky shores, reed-beds (~9 km).

2 Lahemaa National Park *Lahemaa rahvuspark*

Forests: Mostly ◉, ○, ⩛, ⩡, △, ⊡.
Information: www.lahemaa.ee.

The word 'Lahemaa' means 'the land of gulfs' in Estonian. This was the first national park set up in Estonia to protect the coastal environment and its many diverse cultural monuments. There is a visitor centre in Palmse.
The Pikanõmme-Majakivi trail) starts at the western edge of the Aabla mire (Aabla raba), where you will find a dune covered with pine trees and a viewing tower offering an outstanding sight at the raised bog. Wooden pathways cross the mire and other wet areas. The other end of the trail is at the edge of the Leesi–

Virve road. Here you will find the Majakivi boulder, which is the third largest boulder in the Baltic States (584 m3, the height ~7 m and the circumference 32 m).
The Viru mire trail (Viru raba matkarada) (3.5 km) crosses the Viru mire from north to south. The trail starts at the Vahastu–Loksa road. There is a wooden viewing tower, from which the typical landscape of a raised bog can be surveyed. There is a small lake, and the bog has many pools. There is also bog woodland in the area.
The Kesmu peninsula has a dense network of forest trails appropriate for hikes and bike rides of various lengths. There are impressive fields of stones in the forest at the northern end of the peninsula.

3

Vilsandi National Park *Vilsandi rahvuspark*

Forests: Mostly ●, ▣.
Information: www.vilsandi.ee.

Vilsandi National Park includes 150 small islands, with the Vilsandi Island being the largest one. The Vaika islands (Vaika saared) were the first protected nature area in the Baltic States, with the Vaika Islands Reserve being established in 1910. There is a visitor centre at the Loona Estate (Loona mõis).
The Elda cliff (Elda pank) and peninsula offer a beautiful area of land covered with stands of juniper. The seashore is interesting here because of sediment layers dating back to the Silurian Era. Other islands of the archipelago can be seen from the tip of the peninsula.

4

Viidumäe Reserve *Viidumäe looduskaitseala*

Forests: Mostly ●, ○, ⩛, △.
Information: www.viidumae.ee.
The reserve was established to protect the wetlands, forests and flora (including endemic plants), which have developed on the eroded ancient coast of Lake Ancilus – a stage of the development of the Baltic Sea. There is a visitor centre in the village of Audaku.
The Viidumäe nature trail (Viidumäe õpperada), which is 1.2 km long, weaves along the upper part of the steep ancient coast of Lake Ancilus. There is a viewing platform there. **The Audaku hiking trail (Audaku matkarada)** is 2.8 km long and circular. Here you will find various forest habitats, wooded meadows, plants and tracks of animals.

5

Abruka *Abruka*

Forests: , , , , .
Information: www.abruka.ee.

It is the 11th largest island in Estonia. A broadleaf forest (limes, oaks, ashes, etc.), more than 100 years old, is located at its centre. On the shores of the island you will find grasslands and small wetlands. There is a village at the north of the island, and only a few tourists visit it.
Hike across the island and along its north-eastern shore (7 km).

6

Endla Reserve *Endla looduskaitseala*

Forests: Mostly , , .
Information: www.endlakaitseala.ee.

The reserve was established to protect the Endla mire and its surrounding wetlands and forests. You must register with the reserve's visitor centre in the village of Tooma before visiting the reserve.
The Endla mire information trail weaves through bog woodland and the raised bog (2 km). There is a viewing tower for your convenience.

7

Soomaa National Park *Soomaa rahvuspark*

Forests: Mostly , , , , , .
Information: www.soomaa.com.

In Estonian, the word 'Soomaa' means 'the land of mires'. This is one of the largest wetlands in Estonia, and the outstanding infrastructure here is all about visitors. There are many environmental and cultural tourism products in the park. There is a visitor centre in Tõramaa.
The Riisa mire trail (Riisa rabarada) is an excellent circular trail (4.5 km) with wooden pathways leading across the Riisa mire (Riisa raba). You will see bog lakes, pools and bog woodland.
The Meiekose hiking trail (Meiekose matkarada) is between 3 and 5 km in length, leading along an old road on the left bank of the Tõramaa River (Tõramaa jõgi). The trail leads through wet forests and floodplain grasslands which are underwater during the flooding season. **The Ignatsi hiking trail (Ignatsi matkarada)** is 4.5 km long, leading along the former narrow-gauge railway line and through various types of forests. The rail line was used to transport timber during the mid-20th century.

From there, the trail leads along the Suistna mire (Suistna raba), where you will find a viewing tower. **The Lemmjõe hiking trail (Lemmjõe matkarada)**) starts where the Lemmjõgi and Raudna rivers come together. The trail passes through floodplain grasslands and old and very wet forests which are among the largest forests of their type in Estonia. **The Kuuraniidu nature trail (Kuuraniidu õpperada)** is 1.7 km long and circular, passing through various forest habitats and providing information about their inhabitants and the basic principles of forest management. There are wooden footpaths and a small viewing tower. **The Beaver trail (Koprarada)** is a circular 2 km trail, which starts at the national park's visitor centre in the village of Tõramaa and leads you along the Mardu stream (oja) so that you can see what beavers are doing. **The Öördi trail (Öördio rada)** is 1.2 km long and leads you through bog woodland to the Örđi mire (Örđi raba) and Lake Örđi (Örđi järv), which is situated at the eastern end of the mire.

8

Karula National Park *Karula rahvuspark*

Forests: , , , , .
Information: www.karula.ee.

The park was established to protect the environment and cultural landscapes of the Karula highlands. The visitor centre is in the village of Ähijärv.
The Pärajärve forest trail (Pärajärve metsarada) is 4 km long, marked and circular, leading through a large forest and allowing you to study plants, animals and forestry traditions. The trail starts at the village of Pärajärve. **The Rebäse landscape trail (Rebäse maastikurada)** is a circular 7 km trail leading through various lovely habitats – forests, grasslands and small wetlands.

9

Otepää Nature Park *Otepää looduspark*

Forests: , , , .
Information: www.otepaaloodus.ee.

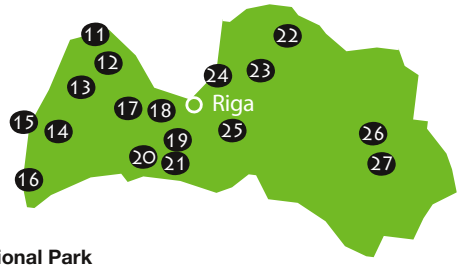
The park was established to protect the landscapes, species and habitats of the Otepää highlands. This is a very important recreational area with infrastructure for sports and leisure. The park has a dense network of trails, hiking routes, bike routes and cross-country ski routes.

10

Haanja Nature Park *Haanja looduspark*

Forests: ●, ○, ⩛, △.
Information: www.haanjapark.ee.

The park was established to protect the landscape and cultural heritage of the Haanja highlands. The highest hill in the Baltic States stands at the centre of the park – the Suur Munamägi hill (318 m above sea level), as well as the second highest hill, the Vällamägi hill (304 m above sea level). The Ancient Rõuge River Valley (Rõuge ürgorg) is 7.5 km long and up to 60 m deep. The valley, which was formed by the Ice Age glaciations, has seven lakes, including Lake Rõuge (Rõuge Suurjärv), which is Estonia's deepest lake (38 m).
Vällamäe nature trail. The 2.2km long trail is the highest nature trail in the Baltic countries. It introduces the slope forests on the Vellamegi hill. **The Reuges (Rouge) primeval valley hiking route.** 10km long route offering scenic landscapes. One of the attractions is the Himi kanyon plank-way trail.



LATVIA

11

Slītere National Park
Slīteres nacionālais parks

Forests: ●, ○, ◉, ⚙, ⁂, ⁂, ⩛, ⩒, △, ⊡.
Information: www.slitere.lv.

In terms of diversity of plants and habitats, this is one of the most outstanding sites in Latvia. It has more than 90 years of experience in environmental protection.
The Šlītere nature trail (Šlīteres dabas taka) is a circular trail, but starting from the second half of 2012 it will only be available in accompaniment of a guide, because it is within a nature reserve. Steep stairs run down of the slope of the shore of the ancient Baltic Ice Lake. You will see broadleaf forests, a spring fen, a rich fen, the remnants of old land reclamation ditches, and decaying stumps of spruces, which have been there since a massive storm in 1969. The trail is 1.2 km long and starts at the Šlītere lighthouse. **The Pēterezers nature trail (Pēterezera dabas taka)** is one of the loveliest trails in northern Kurzeme,

leading through a unique landscape of dunes and dune slacks. The dunes are covered by dry pine forests, while in the slacks there are fens and transitional mires. The Great and Small Pēterezers lakes are located in one of the largest dune slacks. The slacks have wooden pathways, and stairs lead up and down the slopes of dunes. The trail is 3.5 km long. The infrastructure is currently being renewed, and it is to be available in 2013. **The Kolkasrags pine trail (Kolkasraga priežu taka)** is a circular trail that is 1.2 km long and has wooden pathways, which allow you to study dune habitats, forests and very old sand-borrowed pine trees. Human activities have led to the cutting down of shoreline forests, and there have often been forest fires. This has led to wandering sand, which has buried trees and endangered seashore farms. In the direction of Kolkasrags there is a good place for bird watching. The trail is currently being renovated and will again be available to visitors in 2013. **The Ēvaži cliff and nature trail (Ēvažu stāvkrasts un dabas taka)** offers a look at one of the rare coastal cliffs along the Gulf of Rīga (up to 15 m high), as well as at the coastal forests. Stairs lead to an unusual and narrow sand beach, which disappears under the waves, when there is a storm. The trail is 300 metres long.

12

Laumu Nature Park *Laumu dabas parks*

Information: www.laumas.lv.

Family leisure and learning about the nature are available in this park. Look at life through the 'eyes' of a bee, check out ancient beekeeping methods, examine a queen bee and learn about plants and birds in the area. There are several trails – the Bee trail (Bišu taka) (0.5 km), the Bird trail (Putnu taka) (0.5 km), the Plant trail (Augu taka) (0.8 km), the Forest trail (Meža taka) (2.3 km), and the Sports trail (Sporta taka) (0.5 km).

13

Stiklu Mire Nature Reserve *Dabas liegums „Stiklu purvs"*

Forests: O, V, V u. c.

The reserve was established in order to protect mires and related habitats and species.
The Vasenieku mire trail (Vasenieku purva taka) is 4 km long and starts at the edge of a raised bog (make sure that you wear appropriate footwear) and leads across wooden pathways. There is a viewing tower at the centre of the trail, and there are many information stands to provide information about the inhabitants of the bog.

14 Gudenieku Nature Reserve
Gudenieku dabas liegums

Forests: .

The reserve was established to protect and manage stands of juniper.
The Gudenieku nature trail (Gudenieku dabas taka) has two circular lengths – 2 km and 0.5 km. You will get a look at one of the rare stands of juniper in Latvia that are 50–70 years old. You will see local habitats and species of plants and animals. A part of the area is 'managed' by sheep. Flooding has destroyed some of the juniper bushes.

15 Pāvilosta Gray Dune Nature Reserve
Pāvilostas pelēkās kāpas dabas liegums

Forests: .

The reserve was set up to protect the largest grey dune in Latvia and its related habitats. The dune is to the north of Pāvilosta and has a two-level viewing platform. Grey dunes are important as places, where many protected species of plants and animals live. Fishermen used to store their boats and dry their nets here, so the territory is also of cultural and historical value.
The sandy beach is open all along its length.

16 Pape Nature Park *Papes dabas parks*

Forests: .
Information: www.pdf-pape.lv.

This park features Lake Pape, which is on the migration route between the White Sea and the Baltic Sea, thus offering an excellent chance to watch birds.
The Pape nature process trail (Papes dabas procesu taka) leads through the surrounding landscapes and habitats – dunes, forests, grasslands, lakes and mires. You will also see various species of plants and animals. There are six rest stops along the trail with information stands, which tell about the processes in nature. The trail is 9.1 km long (5.1 km along an unpaved road in one direction and then 4 km back along the seashore).

17

Ancient Abava River Valley Nature Park

Abavas senlejas dabas parks

Forests: ⦿, ○, ◎, ✺, ⁘, ⁘, ▽, △, ▲, ⊡.
Information: www.daba.gov.lv.

The axis for this park is the lovely Ancient Abava River Valley with its nature and cultural landscape.
The Drubazu botany trail (Drubazu botānikas taka) leads along the right side of the river valley, offering a look at all kinds of grasslands, juniper stands, rich fens, springs, etc. Livestock adapted to life in the wild graze there, and the top of the valley terrace offers an outstanding view. There are circular trails that are 0.6 km and more than 1 km in length.

18

Ķemeri National Park *Ķemeru nacionālais parks*

Forests: ⦿, ○, ◎, ✺, ⁘, ⁘, ▽, ⊻, △, ▲, ⊡.
Information: www.kemeri.lv, www.daba.gov.lv.

One of the largest areas of wetlands in Latvia, this park has an appropriate diversity of species. It is also of pan-European importance in terms of sulphurous springs. Visitor centre: Ķemeri, the Forest House.
The Dumbrāju trail (Dumbrāju taka) is 500 m long and has wooden pathways, which cross the swamps along the Vēršupīte River. The most impressive scenes occur during spring flooding and after major rainfall during the rest of the year. Evidence of seasonal floods is provided by the fat roots of alder trees. The trail is appropriate for disabled people.
The Lake Sloka hiking trail (Slokas ezera pastaigu taka) leads along the shore of Lake Sloka and the swamps along the Vēršupīte River, where you will be able to look at sulphurous springs and the only bird watching tower in Latvia to have been built on pontoons. In spring, part of the trail is flooded. The shorter circle is 3 km long, but you can continue walking till Sloka (12 km). **The Great Ķemeri Mire trail (Lielā Ķemeru tīreļa taka)** is one of the most outstanding trails in Latvia and features raised bog landscapes. This trail will be open in 2013.

19

Cenas Mire Nature Reserve

Cenas tīreļa dabas liegums

Forests: ○, ✺, ⁘, ▽.
Information: www.rigasmezi.lv.
This is one of Latvia's largest mires and a locality for many rare and protected species.

The Cena Mire trail (Cenas tīreļa taka) is an outstanding trail of wooden pathways that pass through typical habitats of mires – the raised bog, the transitional mire and the fen, the bog woodland, etc. The viewing tower at the centre of the trail is alongside the remnants of a military road from World War I. The circular path is approximately 5 km long.

20

The forest trail 'We Cannot Do Without Each Another'

Mežu tipu taka „Mēs nevaram viens bez otra"

Forests: , , , , .
Information: + 371 29353183, ancepok@inbox.lv.

The trail offers educational programmes about the forest for children of all ages, families with children, and friends of the nature. The trail is located in the Īle Parish of the Auce Administrative District, 2 km from the Pokaiņu forest.
The nature trail (~1.5 km) is a place, where the environmental guide Anita Biseniece offers practical activities that explores various types of forests and the relationship between them. There are spruce and pine forests of different ages, various types of birch and Black Alder forests there. Wear appropriate shoes and bring along colour markers.

21

Tērvete Nature Park *Tērvetes dabas parks*

Forests: , , , , , .
Information: www.mammadaba.lv.

On the banks of the Tērvete River Valley, the park is surrounded by extensive forests, and it has been successfully adapted to the leisure needs of visitors.
There is a dense network of trails for a day-long hiking.

22

The Northern Gauja Protected Landscape Region

Ziemeļgaujas aizsargājamo ainavu apvidus

Forests: , , , , , , , , , , , .
Information: www.ziemelgauja.lv.

The forests in this area are situated along the banks of the longest and loveliest river in Vidzeme, and there is a huge diversity of species here.

The Zīles trail (Zīles taka) (circular 2.2 km) leads you through the habitats of the banks of the Gauja River – boreal forests, slope forests, oxbows, mixed forests of deciduous and broadleaf trees, as well as wooded meadows with oaks. The trail is well appointed, marked and with viewing platforms and information stands. **The Vekšu trail (Vekšu taka)**) is 0.6 km long with information about grassland habitats – dry, flood-plain grasslands and wooded meadows and their inhabitants. It is worth visiting when dropwort and orchids are blooming (May and June), when Meadow Oat-grass colours purple late in the summer.

The Gaujiena nature trail (Gaujienas taka) is approximately 6 km long and linear, passing along the right bank of the Gauja River upstream and downstream from Gaujiena. You will see slope forests and different grassland habitats.

23

Gauja National Park *Gaujas nacionālais parks*

Forests: ●, ○, ◎, ✹, ⁘, ⁛, ∇, ⊻, △, ▲, ⊡.
Information: www.kemeri.lv, www.daba.gov.lv.

This was Latvia's first national park, and it was set up to protect the Ancient Gauja River Valley, the valleys of its tributaries, its species and its cultural landscape. This is one of the most popular tourist destinations in all of Latvia. There are visitor centres in Sigulda (at the Gūtmaņala cave), the Līgatne nature trails and the Zvārte cliff.

The Piķene Beaver trail (Piķenes bebru taka) curves along the impressive Piķene cliff, which is part of the Ancient Gauja River Valley. You will see the work of beavers, as well as slope and wetland forests. **The Amata geological trail (Amatas ģeoloģiskā taka)** features the Amata River, which is one of the most rapid rivers in Latvia. Down from the Rīga–Veclaicene highway, it flows down a deep valley with slope and mixed spruce and deciduous tree forests. The Devonian sandstone cliffs in the area are beautiful. The trail from Melturi to the Veclaužu bridge along the right bank of the river is marked with orange dots on tree trunks. There are three segments of the trail – 17 km in total. **The Ice Age trails (Ledus laikmeta takas)** begin at the former Cīrulīši sanatorium in Cēsis. You will learn about the history of the Ancient Gauja River Valley, as well as about current natural and human caused processes.

The Sietiņiezis nature trail (Sietiņieža dabas taka) is a well-appointed circular trail (1.5 km) featuring outstanding Devonian sandstone cliffs, which are interesting because of their diversity of forms. From the southern parts of the Sietiņiezis cliff, you can see the river valley and the beautiful pine forests that surround it.

24

The Coastal Nature Park *Piejūras dabas parks*

Forests: , , , .
Information: www.daba.gov.lv.

This is a segment of the coast of the Gulf of Rīga that is around 40 km long and features the river-mouths of three major rivers – the Lielupe, Daugava and Gauja rivers. There are different stages of dune formation, coastal grasslands and dune forests that are an important recreational resource.
The sandy beach is open all along its length. The Daugavgrīva reserve has a small nature trail with a viewing tower. The estuaries of all three rivers are available from both banks (there are no ports or buildings there).

25

The Blue Hills of Ogre Nature Park
Ogres Zilo kalnu dabas parks

Forests: , , , , , .
Information: www.daba.gov.lv

Most of the park is covered with coniferous forests on an esker dating back to the Ice Age. It is a long and narrow bank with steep slopes. This is an important location for many plants. There is a dense network of trails for half a day hiking or cross-country skiing in winter.

26

Great Kangari Esker *Teirumnīku purvs*

Forests: , .
Information: gidu pakalpojumi + 371 28301143

It is the largest esker in Latvia – around 26 km long, narrow and steep and up to 27 m high. The terrain was formed by the Ice Age glaciations, and six kilometres of the Rīga–Ērgļi road offer the most beautiful of views between Vāverkrogs and Ķoderi. The top of the bank offers a good sight of the surrounding area. There are plans to establish a nature trail here.

27

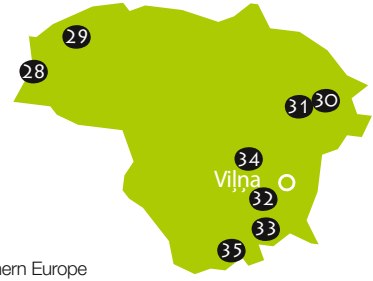
Rāzna National Park

Forests: , , , , , , .
Information: www.daba.gov.lv

The national park was established to protect the nature and rich

cultural heritage of the Latgale ethnographic region.
The Great Liepu Hill. The highest point of the Rāznava hills in the Latgale highlands and the third highest point in Latvia (289.3m above the sea level). Its relative height is 86m. One can explore the slope forests and enjoy the great view from the recently built viewing tower. **The Piļori oak-tree stand.** One of the fiew pure oak-tree stands in Latvia (19.6 ha) where the oldest trees are estimated to be 300-400 years old. A short trail, an information stand and a resting site with a view of the northern bay of the lake Ežezers and its islands.

LITHUANIA



28

Kuršių Spit National Park

Kuršių nerijos nacionalinis parkas

Forests: ●, ○.
Information: www.nerija.lt.

One of the most impressive sets of dunes in Northern Europe with sandy areas, the cultural environment of ancient Curonians, and a spa with ancient traditions.
The Degumu trail (Degumu taka) stretches alongside the road between Kopgalis and Juodkrantė, where the Bear Head dune (Meškos galvos kopa) is located. To the east, there is a unique view of the trunks of dry mountain pines (*Pinus montana*). There was a massive fire here in the spring of 2006 that damaged 235 ha of old pine trees. There is a wooden pathway for tourists.
Raganų hill (Raganų kalnas) is the largest parabolic dune with a coniferous forest in Lithuania, and a major outdoor exhibition of wooden sculptures can be found there.

29

Žemaitijos National Park

Žemaitijos nacionalinis parkas

Forests: ●, ○, ◉, ▽, △.
Information: www.zemaitijosnp.lt.

The national park was established in order to protect the largest lake in Žemaitija, as well as the nature and cultural environment of the highlands that have the same name. The visitor centre is in Plateliai.
The Mikytų nature trail (Mikytų pažitinis takas) is a 1 km circular trail featuring a huge forest and information about

the history of the terrain in the Žemaitija highlands and the surrounding area. An excellent landscape can be seen from the Mikitai hill (an ancient pagan ritual hill). **The Šeirės nature trail (Šeirės gamtos takas)** is a 4 km circular and marked trail starting in the north-eastern side of the village of Plateliai. It leads through various habitats – forests, mires, the shore of the lake, etc., offering a look at various landscapes and plants, birds and animals that live there. **The Plokštinės nature trail (Plokštinės pažintinis takas)** is 3.2 km long and is located near a former Soviet nuclear weapon base. You will learn about various types of forest, bat houses (created by people), nearby plants and animals, as well as the Pilelio spring (Pilelio šaltinis). There are basically untouched broadleaf forests on the islands of Lake Plateliai, and they can be reached by boat. The islands are not well-fitted for tourists, however.

30 Augštaitijos National Park

Aukštaitijos nacionalinis parkas

Forests: , , , , , , , .
Information: www.anp.lt.

The Lithuanian land of lakes, with a landscape supplemented by the Augštaitija highlands and the local ethnographic villages. The visitor centre is in Palūšė.
The Botany trail is 3.5 long and circular, with its start at Palūšė on the eastern end of Lake Lūšiai. The trail leads along the shore of the lake, with sandy dunes, the valleys of small streams, and wetlands. It is marked and has information stands along the way.

31 Labanoras Regional Park

Forests: , , , , .
Information: www.labanoroparkas.lt.

One of the most forested regions of Lithuania, with ~ 285 lakes and extensive opportunities for leisure. The visitor centre is in the village Labanoras.
The Peršokšnos nature trail (Peršokšnos pažintinis takas) is 4 km long and passes through various forest habitats. You will see plants, animals, old trees and other objects. The site is appropriate for a one or two-day boating trip along the lakes of the park and the streams that link them.

32

Trakų Historical National Park
Trakų istorinis nacionalinis parkas

Forests: ○, ◎, ⁂, ⩛.
Information: www.seniejitrakai.lt.

The park was established primarily in order to protect the wealth of cultural heritage in this region (castles, estates, castle mounds, churches, buildings, the culture of the Karaim ethnos). There are also major nature values here. The visitor centre is in Trakų.
The Varnikų nature trail (Varnikų pažinitis takas) is located in the Varnikų forest (Varnikųmiškas). The circular trail has wooden pathways across wetter areas, and it passes through coniferous and oak forests, bog woodland, a raised bog with pools, and two small bog lakes. There are two viewing platforms along the way.

33

The Čepkeliu swamp *Čepkelių raistas*

Forests: ●, ○, ◎, ⁂, ⩛.
Information: www.zemaitijosnp.lt.

It is Lithuania's largest bog, and the Čepkeliu Nature Reserve was established in order to protect it. Before visiting the bog, you must register at the Dzūkijos National Park's visitor centre (Marcinkonys, 11 Šilagėlių gatve).
The Čepkeliu nature trail (Čepkeliu raistas takas) leads from Marcinkonys along a sandy forest road (~9 km there and back). You can hike or bike bike to the edge of the bog, where wooded dunes and the bog itself feature a 1.5 km nature trail and a viewing tower which offers a lovely view of the western part of the bog.

34

Neries Regional Park *Neries regioninis parkas*

Forests: ●, ○, ◎, ⁂, ⩛.
Information: www.neriesparkas.lt.

The park was established to protect the landscape, species and oak forest of the middle stretch of the Neries River.
The Dūkštų oak forest trail (Dūkštų ąžuolyno pažintis takas) is 2.3 km long and passes through Lithuania's largest oak forest. **The Dūkštų nature trail (Dūkštos pažintis pėsčiųjų takas)** is approximately 5 km long and passes through the landscape of the Neries River and its environmental and cultural treasures, including castle mounds. There is also a 23 km long bike route along the left bank of the Neries River.

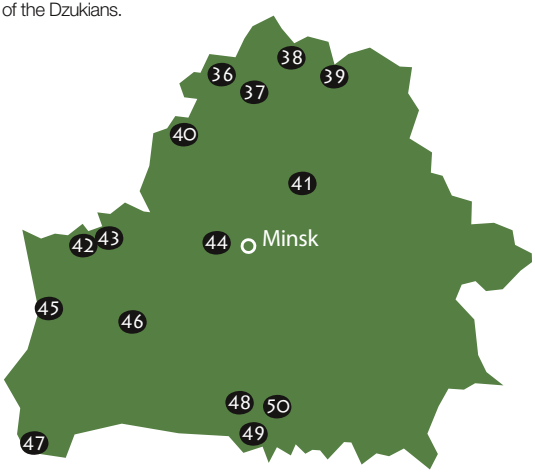
35 Dzūkijos National Park

Dzūkijos nacionalinis parkas

Forests: , , , , .
Information: www.dzukijosparkas.lt.

The park is situated in the southern part of Lithuania, where you will find one of the largest forests in the country. The forest was of great importance in the culture and traditions of the Dzukian people. The visitor centre is in the village of Marcinkonys. **The Zackagirio nature trail (Zackagirio gamtinis takas)** is 13 km long, and hikers will learn about the famous forests of Dzūkija, the area around Marcinkonys, and the cultural heritage of the Dzukians.

BELARUS



36 Braslava Lake National Park

Национальный парк „Браславские озера"

Forests: , , , , , , , , .
Information: www.braslav.com.

Braslava Lake National Park, which is situated in the borderland of Belarus–Latvia, is regarded as the 'benchmark area' of the Baltic lake district. It comprises ~200 lakes, the majority of which are joined in a unified water system by canals and the Druyka River. About 53% of the park territory is covered by forests. 1243 species of plants have been found in the park. 28 of them are recorded in the Red Data Book of Belarus (Twinflower, Martagon or Turk's Cap Lily, Ramsons, Siberian Iris, Shingled

Gladiolus, etc.). 295 species of animals have been found in the area, from which 64 species are endangered. **Visitor Centre:** Vitebsk Region, Braslav, 1 Dachnaya St. Tourists can stay in 5 recreation centres, countryside tourism accommodations and holiday camps.
Those who are interested can get acquainted with a nature trail. There are coach tours available, observation of birds and animals. There are great opportunities for fishing and hunting.

37

„Yelnya" Nature Reserve *Заказник „Ельня"*

Forests: , , , , , .
Information: www.miory.vitebsk-region.gov.by.

The nature reserve has been established for the protection of a large area of mires and forests. The area has been granted the status of a Ramsare Site, an Important Bird Area and an Important Plant Area. 192 species of plants, 24 species of moss and 50 species of lichen have been found in the area, including 15 species that are recorded in the Red Data Book of Belarus. There are 30 rare and protected species of the fauna here, as well, e. g. Black Stork, White-tailed Eagle, Short-toed Snake Eagle, Golden Eagle, Merlin, Eurasian Eagle-owl, European Badger. During migration large flocks of geese, crane, and wading birds come together here. **Visitor Centre:** Vitebsk Region, Mjori, 3a Lesnaja St.
There are hiking routes and mire tours prepared for tourists. An interesting opportunity is to move around mire in a special vehicle 'Poca-0.5'. Lakes attract fishermen and those who wish to go for a boat trip (boats are on hire).

38

Nature Reserve „Krasny Bor" *Заказник „Красный бор"*

Forests: , , , , , .
Information: http://rossony.com.

The nature reserve is situated in the borderland between Belarus–Russia. It has been established for the protection of a unique complex of forests and mires in which all types of Poozerye Region natural ecosystems are found. The area has been granted the status of a Ramsare Site and an Important Bird Area. The northern boundary of the reserve is adjoined by Sebezh National Park (located in the territory of the Federation of Russia), the western boundary – by Osvey Nature Reserve. All above territories form a unified nature complex, in which a cross-border biosphere reserve is planned to be

established in the future. The forests occupy ~80% of the total area. 13 species of plants, which are included in the Red Data Book of Belarus, grow in the nature reserve. 20 endangered and rare animal species live here – Black Stork, Goosander, Merlin, Short-toed Snake Eagle, White-tailed Eagle, Osprey, Eurasian Lynx, European Badger, Brown Bear, etc. **Visitor Centre:** Vitebsk Region, Rossony, 4k Sovetskaya St.
The nature reserve includes two nature trails, one of which stretches along the raised bogs (length – 600 m), the other – through a marshy valley of river (300 m). There is a hunters' house in Jankovich village. The combined route 'Blue Necklace of Rossony' is offered, including cycling, horse riding and fishing. There are a number of countryside tourism households in the vicinity of the territory.

39

Nature Reserve „Sinsha" *Заказник „Синьша"*

Forests:
Information: http://rossony.com.

The nature reserve is situated in the borderland between Belarus– Russia and it has been established for the protection of a unique hillock-lake land territory. It includes the source of the Drisa River, as well as 20 lakes, among which Drisa, Voloba and Sinish Lakes are joined in a unified water system. The relief of the territory is formed by such interesting post-glacier features as kames, eskers, hillocks and in-between hillock depressions. Forest covers more than 80% of the area. >400 species of plants, including 5 recorded in the Red Data Book of Belarus, grow in the nature reserve. This area is inhabited by such species, typical of the northern part of the country, as Brown Bear, Eurasian Lynx, Mountain Hare, Western Capercaillie or Wood Grouse, Hazel Grouse, Boreal or Tengmalm's Owl, Ural Owl, Nutcracker, etc. **Visitor Centre:** Vitebsk Region, Rossony, 10a Soviet St.
A special combined route 'Blue Necklace of Rossony' is created for tourists. There are several countryside tourism accommodations in the vicinity of the nature reserve, offering cycling and horse-riding tours and fishing opportunities. A countryside tourism festival takes place in Zaborye every year.

40

Narach National Park
Национальный парк „Нарочанский"

Forests:
Information: www.narochpark.by.

Narach National Park is located in the borderland between Belarus– Lithuania. It has >40 lakes, from whom particular

interest is aroused by the so-called Blue Lakes with the encircling hills. Forests cover 49% of the park. The area has been granted the status of an Important Plant Area. About 1200 species of plants have been found there, 68 of which are protected at the national level. 314 species of vertebrates have been fixed in total, 58 of which are included in the Red Data Book of Belarus. Among them Black Kite, White-tailed Eagle, Short-toed Snake Eagle, Osprey, Eurasian Eagle-owl, Eurasian Pygmy Owl, Ural Owl, Green Woodpecker, etc.
Visitor Centre: Minsk Region, Myadzel District, Naroch, 11 Lenin St.
At the moment the largest rehabilitation, culture-entertainment and tourist centre in Belarus is built in the territory of the park. Health resort sanatoriums offer their services. Camping sites, touring routes, including the nature trail (Blue Lakes) tours, the hiking route 'Pearl of Belarus' and coach tours 'Lake Land' have been developed for nature and active tourists.

41

Byarezina Biosphere Reserve
Березинский биосферный заповедник

Forests: , , , , .
Information: www.berezinsky.b.

The reserve has been created to protect the mixed spruce-deciduous forests, typical of the Eastern European region. The status of UNESCO and an Important Bird Area has been granted to the territory. The Byarezina River and about 50 other smaller rivers run through the reserve, joining the mires and lakes by canals. Mires and bog woodland cover 61% of the total area. More than 1260 species, including 811 species of plants, have been found here. There are 78 species of plants and fungi that presently are on the verge of extinction here. >3600 invertebrate and 336 vertebrate species have been stated in the reserve. A number of them are recorded in the Red Data Book of Belarus. The administration of this territory plays an important role in the protection of Brown Bear, European Bison, Osprey, Black Stork and Western Capercaillie or Wood Grouse populations. **Visitor Centre:** Vitebsk Region, Lepelsk Area, Domzhericy.
Tourists can stay in two hotels or in guesthouses. Nature tourists are offered hiking routes (Ecological Trail, Animal Trail, Nature Drugstore (4–7.5 km in length) and other trails, cycling routes ('The Serguch Channel – from the Varangians to the Greek' 20 km long span of the route) and water touring routes ('Along Byarezina Water Course', 'Reserve Lake Secrets'). Those who are interested can go on bird, mammal and plant observation tours as well as on mire and combined tours but in winter they can visit Santa Claus.

42

Nature Reserve „Azyory” *Заказник “Озеры”*

Forests: , , , , , , .

The nature reserve is located in the borderland between Belarus–Lithuania. There is an interesting system of canal interconnected lakes in this area. The forests occupy ~70% of the total area. 767 species of plants, 11 of which are rare and protected, have been found in the nature reserve. It accommodates 175 species of land vertebrates, 18 from which are recorded in the Red Data Book of Belarus (Lesser Spotted Eagle, Black Stork, Green Woodpecker, Eurasian Lynx, European Badger, etc.).
Visitor Centre: Grodno Region, Grodno Area, Azyory, 1 Red Army St.
The rehabilitation centre of the National Bank of Belarus and a tourist base are located in Azyory village. Hikers can walk the 3.5 km long nature trail. Cycling, water tourism and hiking routes have been created as well as 4 tourist camps have been facilitated.

43

Nature Reserve „Kotra” *Заказник „Котра”*

Forests: , , , , , , .
Information: www.schuchin.grodno-region.by.

The nature reserve (the Ramsare Site) is situated in the borderland between Belarus–Lithuania (in the Lithuanian part – Čepkeli Mire Nature Reserve) and its aim is to preserve the originality of the scenery and flora of the above place. Forests cover 90% of the area. 633 species of plants have been found in the nature reserve, including 12, which are recorded in the Red Data Book of Belarus (Martagon or Turk's Cap Lily, Shingled Gladiolus, Single-Leaved Bog-Orchid, etc.). 16 of 124 species of animals are protected. For instance, Black Stork, Lesser Spotted Eagle, Eurasian Eagle-owl, Green Woodpecker, Eurasian Lynx, European Badger, etc.
Visitor Centre: Grodno Region, Schuchin Region, Pervomayska village.
A nature trail and tourist recreation areas are set up in the nature reserve.

44

Nature Reserve „Naliboksky” *Заказник „Налибокский”*

Forests: , , , , .
Information: www.belgosohota.by, www.volozhinles.by.

The nature reserve (the status of an Important Plant Area) has been established for the protection of the Naliboksky rich deciduous forest. There are 23 sources of rivers in its territory, incl. the Western Byarezina, the Islach, the Volka, the Usa. Lake Kroman is located in its southern part. Forests cover 92% of the area. 840 plant species have been stated in the reserve, 18 from which are rare and protected. There are also 252 species of terrestrial vertebrates, 27 from which are included in the Red Data Book of Belarus. The territory is dominated by typical forest species, as Smooth Snake, Black Stork, Lesser Spotted Eagle, Eurasian Eagle-owl, Ural Owl, Green Woodpecker, Hazel or Common Dormouse, Eurasian Lynx, European Badger, European Bison, etc.
Visitor Centre: Minsk, 22 Prjamaja St.
The visitors of the area can walk a nature trail or stay in hunter's house. In winter time one can go on wisent observation tours and visit the residence of Santa Claus. In district forester's company one can go photo hunting of Western Capercaillie or Wood Grouse.

45

Belovezhskaya Pushcha National Park

Национальный парк „Беловежская пуща"

Forests: , , , , , , .
Information: npbp.brest.by.

Belovezhskaya Pushcha is regarded as the oldest nature reserve in Europe. Its origins date back to the 15th century. Nowadays the territory has been granted the status of *UNESCO* World Heritage Site (1992, 5200 ha), an Important Bird Area and an Important Plant Area. Belavezhskaya Pushcha is the only location in Europe where such a large intact and old massive of forests, typical of Western Europe region, has been preserved. The average age of forest stands is 97 years but the maximum reaches 200–300 years. Individual oak trees are ~600 years old. The national park accommodates 1024 species of plants, 292 lichen, 270 moss and >3000 fungi species. 90 species are included in the Red Data Book of Belarus. One can find >12 000 invertebrate and 362 vertebrate species here, from which >100 are very rare. The European Wisent *Bison bonasus* is among them. The number of this species has already exceeded 400 animals. **Visitor Centre:** Brest Region, Kamieńec District, Kamenuki.
Tourists can stay in four hotels, visit the nature museum, as well as go on various tours. Different hiking and cycling routes are available here. One can go for a ride in a carriage.

46

Nature Reserve „Viganoschanskoye”

Заказник „Выгоношанское”

Forests: , , , , , .
Information: www.npbp.brest.by, www.belarustourism.by.

The nature reserve and an Important Bird Area has been facilitated for the protection of a lake of under the same name and a forest-mire complex. The Oginsk Channel crosses the nature reserve. The forests occupy 71% of the area. 547 species of plants have been found here, including 13 rare ones (Ramsons, Martagon or Turk's Cap Lily, Siberian Iris, etc.). The area is inhabited by 256 animal species, incl. 45 species that are included in the Red Data Book of Belarus (Smooth Snake, Black Stork, Black Kite, White-tailed Eagle, Short-toed Snake Eagle, Lesser Spotted Eagle, Eurasian Hobby, Eurasian Pygmy Owl, Great Grey Owl, White-backed Woodpecker, Fat and Hazel or Common Dormouse, Eurasian Lynx, etc.). The reserve plays an important role in the protection of various reptile and amphibian species as well.
Visitor Centre: Brest Region, Ivaceviči District, Viganosch village.
A nature trail with animal watching towers is available to visitors. A steamer can take you on a tour along the Schara River and Oginsk Channel (up to 10 km). Water routes for touring in rowboats and motor boats (12–15 km long), a cycling route (24 km), and bird watching tours are offered. There is an ecological education centre, a forestry-hunting base and a hotel in Viganosch village. Great opportunities for fishing are provided both in summer and winter.

47

Nature Reserve „Pribuzhska polesje”

Заказник „Прибужское Полесье”

Forests: , , , , , .
Information: www.brpp.by, www.rezervat.domachevo.com.

The nature reserve is situated in the valley of the Western Buga River next to the border of Belarus, Poland and Ukraine. It is a part of a Biosphere Reserve under the same name. Its characteristic is the large variety of forests, mires, grasslands and Lake Seljahi. Forests cover 62% of the total area of the reserve. 685 species of plants have been found there, among them – 21 species that are included in the Red Data Book of Belarus. The area is inhabited by ~300 animal species, 27 of which are rare and endangered. For instance, Eurasian Hobby, White-tailed Eagle, Short-toed Snake Eagle, Green Woodpecker, Collared Flycatcher, Brandt's Bat, Barbastelle

Bat, Fat Dormouse, etc.
Visitor Centre: Brest Region, Brest District, Damachav, 84 October St.
Every year the nature reserve hosts youth festivals. For the purposes of visitors, wooden lodges and countryside tourism accommodations have been built on the coast of Lake Seljahi. Water touring routes, bird observation and fishing as well as nature trails are on offer.

48

Nature Reserve „Middle Pripet"
Заказник „Средняя Припять"

Forests: .
Information: zakaznik.brest.by, zakazniki-stolin.deal.by.

The nature reserve has been established for the protection of the habitats of the Pripet River floodplain. It is located in the middle part of the Pripet between the estuaries of the Jasjelda and Scviha Rivers in a ~120 km long section. Spring floods last here for even up to 4 months. During migration, large flocks of birds come together here, therefore the territory has been granted the status of the Ramsare Site and an Important Bird Area. Alluvial forests, fens and grasslands are particularly valuable here. The largest massive of forests is located near the estuaries of the two above rivers. 725 plant and 217 animal species have been found there, among which 65 are recorded in the Red Data Book of Belarus, e. g. Short-toed Snake Eagle, Black Kite, Lesser Spotted Eagle, White-tailed Eagle, Eurasian Eagle-owl, Eurasian Pygmy Owl, European Roller, Green Woodpecker, Fat Dormouse.
Visitor Centre: Brest Region, Stolina, 71 Sovetskaja St.
An ecological education centre has been founded for the purposes of tourism development. Tours, hiking routes (up to 35 km in length), an extreme water touring route (130 km) and combined touring routes, as well as equipment (boats, bicycles) hire are offered here. Countryside tourism accommodations have been facilitated.

49

Nature Reserve „Olmanska Marshes"
Заказник „Ольманские болота"

Forests: .
Information: www.zakazniki-stolin.deal.by, www.brest.by.

The nature reserve is located in the confluence region of the Gorina and Scviha Rivers in the borderland between Belarus–

Ukraine. It is the largest marsh-forest complex in Europe with unique landscapes. The status of the Ramsare Site and an Important Bird Area has been granted to the territory. Since the ground waters are close to the surface of the ground here, a major part of the territory is constantly covered with water. The nature reserve accommodates two large fens – Krasnoje and Galo, as well as small fragments of raised bogs with tiny lakes and forested mineral land islands. Forests cover half of the area. 687 plant species have been found here, incl. 12 that are recorded in the Red Data Book of Belarus. 192 species of animals are also encountered here, 27 of which are rare and protected – Smooth Snake, Short-toed Snake Eagle, Lesser Spotted Eagle, White-tailed Eagle, Eurasian Eagle-owl, Great Grey Owl, Hazel or Common Dormouse, Eurasian Lynx, European Badger, etc.
Visitor Centre: Brest Region, Stolina, 72 Sovetskaja St.
An extreme mire tour hiking, water and cycling tours, as well as bird watching are offered to tourists. Great opportunities for fishing. Those who come here for several days can stay at countryside tourism accommodations.

50

Pripet National Park
Национальный парк „Припятский"

Forests: ●, ○, ◉, ⁘, ⩛, ⩒, ▲, □.
Information: www.npp.by.

The park is located in the valley of the Pripet River. >500 oxbow lakes are located in the floodplain of the Pripet and its tributaries in the park (the status of an Important Plant Area has been granted). During the floods, the flooded areas can cover up to 70% of the territory. Forests and shrubs cover up to 77% of the area. The forests of the national park are unique on the scale of the Eastern Europe low land. 1037 plant species have been found here, 47 of which are protected at the national level. 2057 invertebrate and 362 vertebrate species have been stated in the park. A number of them are recorded in the Red Data Book of Belarus – White-tailed Eagle, Lesser Spotted Eagle, Eurasian Eagle-owl, Great Grey Owl, Fat and Hazel or Common Dormouse, European Wisent, Eurasian Lynx and European Badger, etc. **Visitor Centre:** Gomel Region, Pjetrikava District, Laskovichy, 26 Komsomol St.
A tourism complex, hotels and a guest house are available. It is possible to go by steamers, row and motor boats along the rivers, to rent water cycles, as well as to use the services of road vehicles and tour guides. It offers bird observation and botanical tours (5–10 days) and commercial fishing.

SPECIES FINDER

TREES, SHRUBS

A forest cannot exist without trees and shrubs. They determine the forest environment and microclimate as well as reflect the conditions for growth (climate, soil composition, fertility and dampness) in the particular location. There are more than 50 local species of trees and shrubs in this region. The guide describes only the most common ones, which constitute the most frequent forest types. Symbols for the types of forest.

THE FOREST TYPES

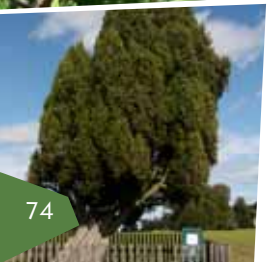
- Pine forests
- Spruce and mixed spruce-deciduous forests
- Broadleaf forests
- Aspen forests
- Birch forests
- Grey Alder forests
- Bog forests
- Swamp forests
- Slope and ravine forests
- Coniferous forests on eskers
- Alluvial forests
- Wooded meadows and pastures
- Stands of juniper

Norway Spruce *Picea abies*

A large, evergreen tree with a pyramidal crown and a straight trunk which can grow even 40 m high and reach the age of 300. It blossoms in May and June when its bottle-green coniferous branches are covered with tiny male and slightly larger female blossom inflorescence or strobili which resemble yellow, pale green or violet 'small cones'. After the pollination longish brown cones, which scatter seeds in the spring of the subsequent year, develop instead of the female blossoms.

Scots Pine *Pinus sylvestris*

Scots Pines growing in dry woods, are tall and slender, in the open space – lower with a wide and forked crown, but ones, growing in mires, are small, low and bent. The tallest ones can grow even 40 m high, but the oldest – to exceed the age of 400. They bloom in May, with blossoms composed in catkins like inflorescence – strobili. After the pollination the pink female blossoms develop grey cones which spread seeds in two years.



Common Juniper *Juniperus communis*

An evergreen shrub or a small tree with short needles, famous for its fragrance and healing qualities. It can reach the age of 100–200. It blossoms in April, May. The male blossoms are composed in tiny yellow catkins, the female ones – in green buds. In summer green juniper berries ripen instead of the green buds, and in one more year they turn livid. The ripe berries are used as spices and for producing gin.

Common Aspen *Populus tremula*

A large, rapidly growing tree with a slender trunk, wide crown and stone-colour bark. The leaves are round with serrated edge and softly pointed end. Due to the long and supple stalk, the leaves tremble in the slightest breeze. Aspen trees are dioecious trees – there are male trees whose blossom catkins comprise a lot of pollen and female trees whose blossom catkins form seeds. If surroundings are dominated by male trees, there will be no seeds, but, if there are only female trees, they will not be fruitful.

White or Silver *Salix alba*

It is the largest and thickest among the willows of our forests, with a wide crown, long and pliant branches, and dark-grey, coarse bark (the young branches have yellow or red bark). Although the trees may grow very large, they seldom exceed the age of 100–120. It can be easily distinguished from other willows by the silvery white colour of its narrow and long leaves. They form original forest belts in the flood-lands of larger rivers.

Crack Willow *Salix fragilis*

A tree with a round crown, slightly shorter than White Willow. It can be distinguished from other willows by the fragile branches that break with a crack. The surface of the narrow, long leaves is shiny, the lower side – aeruginous. White Willow and Crack Willow blossom in May when the leaves open. They have female and male trees, which force into bloom tiny blossoms full of pollen or seed germs, whose unblown raceme are known to us as catkins.

Grey Willow *Salix cinerea*

One of the most frequent willows. It quickly starts growing in damp grasslands, farmlands, ditches and on the roadsides, forming dense shrubbery, also in bog woodland. It attests its name best of all in spring when its grey bark and greyish catkins are notably visible before the opening of leaves. However, in summers it is also greyish – its largish, tiny hair covered leaves turn greenish-grey.

Goat Willow *Salix caprea*

A small tree or a large shrub with thick, easily breakable branches, which force into bloom fragrant catkins earlier than other willows. It is a good source of the first spring honey for the early bees and bumble-bees. Flying from one blossom to another, they carry pollen from the yellow catkins of male trees to the pale green catkins of female trees; the latter developing seeds which are already disseminated in the neighbourhood in a month.

Silver or Warty Birch
Betula pendula

The largest among our birches, with a wide crown and pendulous branches. Its bark forms a typical tear-off, off-white birch-bark, which becomes split and scabby in the lower part of the trunk of middle age trees. The young branches are covered with tiny 'papilla'. The leaves are rhombus-like with a toothed edge, a pointed end and a wedge-shaped base. It blooms when the leaves are budding, by developing longish, aglet-like blossoms.

Downy or White Birch *Betula pubescens*

A middle size tree with a wide crown and steep branches. The bark of old trees is also white and smooth, only being dissecting occasionally. Quite often it flakes off thin glumes. The leaves are egg-shaped with a rounded base. In spring refreshing birch sap is tapped from both types of birches, their buds and young leaves are used for making curative tea, but in the middle of summer fragrant birch besoms are made from the soft branches.

Grey Alder *Alnus incana*

A middle size tree with a wide crown, fine branches and stone-colour bark. The leaves are roundish with a greyish, slightly pubescent lower side, a toothed edge and a pointed end. It already blooms at the end of March, in April – long before the budding of leaves. Each tree develops different male and female blossoms. The male blossoms, which spread pollen, are formed in long, pendulous aglets, but the female ones – in tiny 'cones'.

Black Alder *Alnus glutinosa*

A large tree with a slender trunk, wide crown, fine branches and blackish brown bark. Unlike Grey Alder, the upper and lower sides of its leaves are bottle-green, the end of a leaf – stumpy or with a turned-in inlet. It blooms before the budding of leaves, by developing male blossoms in pendulous aglets and female blossoms in the shape of tiny cones, which grow larger, convert into wood and turn black as the seeds ripen.

Common Hazel *Corylus avellana*

A large, fan-shaped shrub with greyish brown bark. It blooms in March, April before leaves open. It is a typical plant adapted to the pollination by wind, whose male blossoms are formed in pendulous aglets, but female ones – in 'buds', through which tiny red hair or stigmata have forced their way. Its nuts are essential feed to wild animals and birds as well as delicious and valuable foodstuff.

Common Hornbeam *Carpinus betulus*

A tree with smooth, grey bark and a wide crown. The leaves are longish with a pointed end. It blooms in May when leaves are budding. Both male and female aglets are pendulous. As a close relative to hazel, in autumn it ripens tiny nuts, which are encircled by impressive three-partite glume, in the raceme of its female blossoms. South-western Latvia, Lithuania and western Belarus are the north–north-east border of its distribution.

Common Beech *Fagus sylvatica*

A large tree with a slender crown, smooth, grey bark and bottle-green, shiny leaves. Its ripe tiny fruit resembles tousled 'chestnut'. Despite its name, it is a closer relative to oak than Common Hornbeam. A species, typical of broadleaf forests in Central Europe, has reached the north–north-east border of its distribution in south-western Sweden, Lithuania and Belarus. Elsewhere in the Baltic States and Belarus it can only be found in greenery, but most of its greenery already resembles a forest.

English or Pedunculate Oak
Quercus robur

It is the largest and most imposing tree in our forests with a wide, branchy crown and grey, rough bark. In folklore – the symbol of power and masculinity. It can reach the age of 800 and the perimeter of >9 m. It blooms in May, when leaves are budding, forming undistinguished blossoms. Its large seeds or acorns are essential feed for birds and animals. Coffee is also made from acorns.

Wych or Scots Elm *Ulmus glabra*

A large tree with grey bark and a wide crown. The leaves are large with a coarse surface, a slightly pubescent lower side, a teethed edge and a pointed end. It blooms in April, May, before leaves open, forming tiny, simple, purple, tassel-shaped blossoms. In a month after blooming the seeds ripen being hidden in the middle of a thin, round winged samara.

White Elm *Ulmus laevis*

White Elm is very similar to its 'sister' – Wych or Scots Elm, just it is shorter, has a narrower crown, a smaller seed encircling wing, and a longer peduncle and petiole. However, leaves are the distinguishing feature between the two: European White Elm has them smooth, but Wych Elm – explicitly coarse. It blooms in May.

Black Currant *Ribes nigrum*

The cultivated Black Currant has been developed from the Black Currant, growing in flood-land and coastal forests. It is unmistakenly recognizable by the strong Black Currant scent. Its berries are just slightly sourer and smaller than the ones of cultivated Black Currant.

Bird Cherry *Padus avium*

A small tree or a large shrub with a wide crown, white clusters of blossoms and black 'berries' with a stone or seed. The whole plant, especially its blossoms, sends out a recognizable, dizzily bitter scent. Its fruit, blossoms, bark and even leaves are used in folk-medicine. Interestingly enough, every spring the time of Bird Cherry blossoming coincides with the setting-in of colder weather.

Alpine Currant *Ribes alpinum*

A small bush with upward branches and red berries, it is a smaller wild kin of the cultivated Red Currant. In May, clusters of tiny green blossoms open, and in July bright red, sweetish berries ripen.

European Rowan *Sorbus aucuparia*

A small tree or shrub with grey, smooth bark and steep branches. Its leaf is composed of 9 to 15 narrow small leaves. In May or at the beginning of June it blooms in white blossoms, formed in 'bunches', but in autumn it ripens red 'berries' – essential feed of birds and wild animals in winter. It is used for treatment and to produce juice, jam, and wine. In folklore – a tree that protects against evil.

Rose *Rosa spp.*

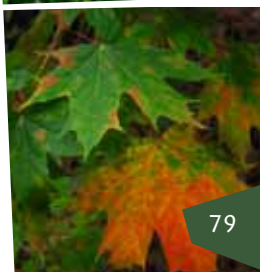
The wild relatives of the gorgeous cultivated roses. The wilderness of the Baltic States and Belarus accommodates more than 10 different species of rose, which differ in size, colour and the form of leaves, blossoms and fruit. All of them have fruits, rich in vitamins, that are used for making herbal tea and different herbs.

Hawthorn *Crataegus spp.*

Thorny trees or shrubs with a wide crown and dense branching. In June their branches force into bloom white blossoms, but in September they ripen small 'apples'. It grows on the borders of forests and on dry slopes, quite often also in greenery and hedges. It is widely used in folk-medicine and for making medicaments.

Norway Maple *Acer platanoides*

A large tree with a wide crown, brownish grey bark and five-ray shaped leaves, which cannot be mistaken for other trees and turn either red or golden every autumn. They also become bright in spring, before leaves open, when the branches force into blossom sulphurous blossom clusters. Its seeds develop by twos together with a long wing, having grown together with the base. An important honey plant with sweet sap.



European Spindle *Euonymus europaea*

A middle size shrub, which is best recognized in autumn for brightly pink fruit. In other seasons it is distinguished by the young sprouts, which are four-edged. In May, June it draws attention by the unusual greenish white blossoms. European Spindle is similar to Warty Spindle, whose branches are round not ridged and covered with a lot of tiny papillae.

Alder Buckthorn *Frangula alnus*

A small shrub with fragile, easily breakable branches which is distinguished by dark brown, smooth bark with visible light stripes and dots. It blooms in May, June with tiny, greyish white blossoms. Drupes or 'berries' with stones ripen gradually. The branches are simultaneously covered with both unripe green, partly ripe red and completely ripe blackish violet fruit. The unripe berries are poisonous.

Common Buckthorn
Rhamnus cathartica

An unusual, middle size thorny shrub. The leaves have a bow-shaped rib. It blooms in May and at the beginning of June with tiny, apple-green blossoms, formed in bunches. In August, September black 'berries' with stones ripen. The fruit and bark are used for making laxative tea and tincture. Once the berries were used to dye yarn.

Small-leaved Lime *Tilia cordata*

One of the most gorgeous trees in our forests with a thick trunk, dense crown and dark grey bark. It can even reach a size worthy of oak. In the folklore – the symbol of femininity. At the end of June, at the beginning of July it blooms with yellow and fragrant blossoms. An essential honey plant and herb. Tea and honey, made from the blossoms, help to treat cold. It is frequent in greenery.

Common Ash *Fraxinus excelsior*

A tall, slim tree with a sparse crown, sage-green bark and thick branches. In spring it is the last to open leaves, but in autumn – the first to shed the leaves, which are composed of 7 to 13 longish small leaves. In the defoliate period it is easily distinguished by the black buds. In April, May it forces into bloom bunches of tiny, deep red or violet blossoms, but in autumn, there are winged clusters of seeds visible on the branches of the tree.

Fly Honeysuckle *Lonicera xylosteum*

A small shrub with steep or arched branches, frequent in the valleys and ravines of rivers. In May, June its branches force into bloom quite large, unusually shaped, yellowish white blossoms. At the end of summer deep red, shiny, inedible berries, usually in twos, slightly grown together at the base, ripen. The leaves, blossoms and the pairs of berries are also located on a branch in pairs and in the opposite.

Water Elder or Guelder Rose *Viburnum opulus*

A large shrub with grey or maroon bark. The three-rayed leaves are located on the branches in the opposite. In June they force into bloom large 'clusters' of white blossoms. In September, October they ripen brightly red 'berries' with a stone in the middle. Until frosts they are sharply bitter, but afterwards – become less bitter, edible and useful for making juice and jam. They are also used in folk-medicine.

→
Maple blossom

CLUBMOSSES, FERNS, FLOWERING PLANTS

The forest ground cover, which accommodates clubmosses, ferns and flowering plants, tells us about both the environmental conditions of a particular location and the past and future of the apparent forest. An attentive observerwill be able to find delicious plants and herbs in the forest and to avoid the poisonous ones. The present guide includes the most common and easily recognizable plants typical for the described forest types.

Stiff Clubmoss *Lycopodium annotinum*

A peculiar, evergreen plant that pullulates by spores. It can be distinguished from other clubmoss species by the long, creepy stem with erected, 5–20 cm long shoots and one strobilus at their ends (Wolf's-Foot Clubmoss usually has two or three strobili).

Flattened Clubmoss
Diphasiastrum complanatum

A quite rare, evergreen, 15–25 cm high clubmoss with multiple flat, twiggy branches, formed in a fan-shaped bunch. The spores develop in strobili on a longish, branched stem.

Fir Clubmoss *Huperzia selago*

An evergreen, 7–20 cm high green clubmoss with an erected stem, whose upper part forks into branches. Its spores do not develop in strobilus like clubmoss's, but in the axil of leaves and are quite indiscernible. It is used for the treatment of dipsomania in folk-medicine, but one should be careful since it is poisonous.

Wood Horsetail *Equisetum sylvaticum*

Early in spring in fertile forests one can notice yellow, quite thick, expressly geniculated, hollow stems with 1–2 cm tall strobili at their ends. When spores have spread, the strobilus withers away, the stem turns green, and horizontal branches grow at the section joints. Due to recurrently forked branches, which make Wood Horsetail look especially refined, in the middle of summer it is easily distinguishable from other horsetail species.

Ostrich Fern *Matteuccia struthiopteris*

The largest and most beautiful fern in our forests. Its ostrich-plume like fronds grows up to 1.7 m tall, forming a crown like clump. In June fertile fronds (usually 40–80 cm long), covered with spores, develop in the centre of the clump. In the second part of summer (when spores have ripen) they turn brown, hard and easily discernible. It grows in dump and fertile forests, particularly, in ravines and riverbanks, where it forms dense stands.

Common Lady Fern
Athyrium filix-femina

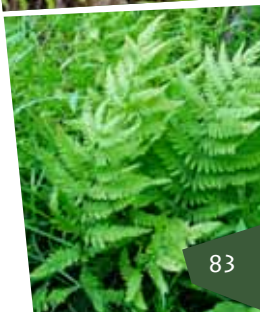
The fronds of Common Lady Fern are 40–130 cm long. Its widest part is in the middle (not closer to the ending like for Ostrich Fern). It grows from a central point as a clump. On the underside of fronds one can easily discern longish, yellowish brown formations – sori – that ripen spores in July and August.

Male Fern *Dryopteris filix-mas*

A middle-sized fern with multiple 50–120 cm long fronds, which form a dense clump. The longish sori with spores are located in pairs on the underside of fronds. It is used to shoo away flea and other bugs and to expel tapeworms, but one should be careful since it is poisonous.

Common Marsh Fern *Thelypteris palustris*

A 20–80 cm high fern, with soft, slightly plicated fronds. The sori are located on the underside of fertile fronds. One of the rare ferns that grows in swamp forests, fens and mires. The other fern of the region, which likes wet places, is Beech Fern, but it grows in coniferous and mixed forests and its stem is covered with tiny hair.



Common Bracken *Pteridium aquilinum*

An indistinguishable 80–150 cm high fern with large, triangular fronds on a firm, long stem, which is brownish at the base. One of the most frequent ferns with a large scope of distribution within Europe. It grows in thin forests, on forest edges, in clearings, on the roadsides and in glades, where it forms dense stands.

Common Hop *Humulus lupulus*

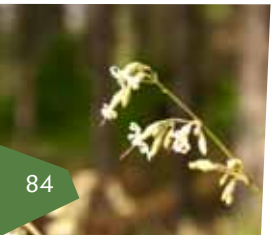
A quite frequent 'liana' in the alluvial forests with grape-like leaves, which creeps upwards along the trees and shrubs. It blooms with tiny, green blossoms in July and August. After blooming the female plants develop peculiar, soft fruits, which contain fragrant substances. It is why the hop is widely used for brewing beer, in medicine and cosmetics.

Stone or Sand Pink *Dianthus arenarius*

A 10–30 cm tall, wild carnation, which usually forms a dense, greyish green clump. The leaves are pointed, 2–5 cm long, a few millimetre wide. It blooms from June till August with fragrant, white or pinkish blossoms. It grows in coastal meadows and forests, but one of the subspecies is also found in the dry inland pine forests.

Addersmeat or Greater Stitchwort
Stellaria holostea

A 10–35 cm tall plant, which is distinguishable from other stitchworts by four-edged stem, firm and pointed leaves without petiole and comparatively large blossoms which are forced into bloom on the stem and the ends of branches in May and June.



Nottingham Catchfly *Silene nutans*

A fine, 20–80 cm tall plant with erected, branchless, a little bit sticky stem and longish, 3–8 cm long, 0.5–2.5 cm wide leaves. It blooms from June till September. It grows in groups of different sizes in dry pine forests, on the forest edges, in dry meadows, on the slopes of riverbanks and in dunes.

Common Baneberry or Herb Christopher
Actaea spicata

A 30–70 cm tall plant with large, composed leaves that grows in shadowy mixed forests. In May or at the beginning of June it blooms with tiny, white, yellowish blossoms. Shiny, black berries ripen in midsummer. All parts of the plant are poisonous. When touched, emits unpleasant smell.

Kingcup or Marsh Marigold *Caltha palustris*

One of the most gorgeous spring plants. It is found in swamp and alluvial forests, damp meadows and other fertile, wet or flooded places. From the end of April till June it is recognizable for the large, brightly yellow blossoms, but later on – for shiny, rounded leaves with heart-shaped base and waxy texture.

Lesser Celandine *Ficaria verna*

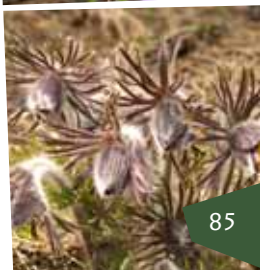
A plant, similar to Kingcup, but it is smaller (10–20 cm tall) and finer. Its blossoms have more petals than Kingcup and they are slenderer. The leaves are glossy, roundish, heart-shaped and with longer petioles. It blooms in April–May. It grows in dense stands on the riverbanks, in ravines and alluvial forests.

Eastern Pasque Flower *Pulsatilla patens*

A rare plant that grows in thin pine forests of the eastern Baltics and Belarus in places with slightly limed soil. It blooms with large, beautiful upturned blossoms from the end of April till the beginning of May before breaking into leaf. All parts of the plant are covered with pubescent, silvery hair. After blooming it resembles a round 'dandelion' with coarse pappi.

Small Pasque Flower *Pulsatilla pratensis*

Small Pasque Flower differs from Eastern Pasque Flower by smaller, bell-shaped, bent-down blossoms that blossom a little bit later – in May and at the beginning of June. After blooming its stem straightens up and a dandelion like cluster of seeds erects at the end of the stem. It grows in coastal dune meadows and dry, thin pine forests. Both Pasque Flowers are rare and protected.



Hepatica or Liverwort
Hepatica nobilis

One of the early blooming plants, which already blossoms in March in warmer years. Its leaves are bottle-green, leathery, with a comparatively long, hairy petiole and characteristic three-partite form. Due to the form of leaves, in many languages it is named for liverleaf. It can be found in fertile deciduous and spruce-deciduous forests.

Wood Anemone *Anemone nemorosa*
Yellow Anemone *Anemone ranunculoides*

Right after the blooming of Hepatica, here and there in broadleaf or mixed forests Wood and Yellow Anemone come into flower. They often grow together, forming dense stands. Both types of anemone are very similar. They only differ in the colour of blossoms and the upper leaves, which Wood Anemone has on a petiole, but Yellow Anemone – without one.

Asarabacca or Wild Ginger
Asarum europaeum

Throughout the year in shadowy broadleaf forests one can observe shiny, bottle-green, leathery leaves of Asarabacca. In April and May it blooms with peculiar, brownish blossoms that are hidden under the leaves. In folk-medicine it is known as a cure for dipsomania, but one should be careful since the plant contains poisonous substances.

Spring Fumewort or Bird in the Bush
Corydalis solida

In April and May blooming plant, whose blossoms resemble hyacinth a bit, is quite frequent in old parks and deciduous forests, especially in ravines and on the slopes of riverbanks. In midsummer its leaves have already withered and it cannot be found in forest's ground cover any more.

Large Bittercress *Cardamine amara*

A plant typical of swamp forests and springs, which forms 10–40 cm high, dense stands. It blooms in May and June. It is distinguishable from other bittercresses by larger leaves and violet, not yellow anthers. Seeds ripen in slim, erected, 2–4 cm long pods. The leaves taste bitterly sharp – similarly to cress, therefore they are a good additive to salad.

Alternate-leaved Golden Saxifrage
Chrysosplenium alternifolium

A 5–15 cm tall, sulphurous plant, which is readily distinguishable by tiny, kidney-shaped leaves, which together with the blooms form a yellow roundish flat 'shield'. In April and May, when most of the plants have not spread out yet, their stands are clearly discernible, but in summer it is not so easily noticeable any more.

Raspberry *Rubus idaeus*

The ancestor of cultivated raspberry grows on the forest edges and in clearings. Its tiny thorn covered stems, leaves, and in May–June blooming white blossoms are the same as those of cultivated one, only the fruit called 'berry' are a bit smaller. A good plant for honey. The dried leaves and berries are used in herbal tea in the folk-medicine.

Stone Bramble *Rubus saxatilis*

A plant similar to Raspberry, with lower stem, brighter leaves, tinier blossoms and 'berries' with a smaller number of drupes (grains) and larger seeds. The blossoming shoots are erected, 10–30 cm high, but the creeping ones – reach the length of 1–1.5 m. It blooms in May, but its brightly red, acidulous fruits ripen in July.

Cloudberry *Rubus chamaemorus*

A tundra plant, adapted to the life under severe circumstances. Evading the wind, it seldom grows taller than 20 cm, but the coarse, hair covered leaves protect the plant from drying. In our latitude it grows in mires and bog woodland, whose circumstances are more similar to those in tundra. In May–June it blooms with white blossoms, but its delicious, orange 'berries' ripen in August.

Wild Strawberry *Fragaria vesca*

Since times Wild Strawberry is used as a foodstuff and in the folk-medicine. The curing value of its berries, leaves and rootstock was already known to the ancient Greeks and Romans, but in the Tibet medicine they have been used as the elixir of youth and longevity. Fresh berries are a natural anti-depressant. A glass of berries is enough for fast improvement of mood.

Creamy Strawberry *Fragaria viridis*

A plant, very similar to Wild Strawberry, which is distinguished by the round berries, hard to detach from the sepals, and, when plucked, it comes off with a characteristic cracking sound. At the time when there are no berries it can be distinguished by the leaf – the denticle at the end of each leaf is shorter than the adjacent ones, but Red Strawberry has all three denticles either at the same length or the middle one is longer than the outer ones.

Mountain Clover *Trifolium montanum*

One of the two species of white blossomed clover of this region. It is clearly distinguishable from White or Dutch Clover by the greyish green shade, the firm, erected, woolly stem and the hardish, longish leaves. It blooms from June to August. It occasionally grows in dry pine forests, on sun-lit forest edges and in dry meadows.

Spring Vetch or Spring Pea *Lathyrus vernus*

A 25–50 cm tall, tiny plant resembling Sweet Pea, with purplish blossoms, which turn blue, then greenish white when fading. It blooms in April and May. As a relative of Sweet Pea, it ripens seeds in a 4–7 cm long pod. The leaves are composed of 2–4 pointed leaflet pairs. It grows in thin groups or one by one in fertile broadleaf or mixed forests, on the forest edges and in ravines.

Sand or Hungarian Sainfoin
Onobrychis arenaria

A 20–80 cm tall plant with a thin clump and a bow-shaped, steep stem. The leaves are composed of 13–25 few centimetres long leaflets. It blooms in June and July with carroty blossoms. The seeds ripen in tiny, hairy pods. It grows in sunny, dry pine forests with lime soil.

Wood Sorrel *Oxalis acetosella*

One of the most shade-tolerant plants in our forests. A typical companion of Norway Spruce. Its leaf resembles a leaf of clover or three hearts put together. The leaves fold up in bright light, in evening twilight or during the rain. It blooms in May and June. Due to the high level of oxalic acid it has markedly sour, refreshing taste, but it is not advisable to use it in large amounts. In a smaller amount it is a good additive to salad and sandwiches.

Bloody Geranium or Cranesbill
Geranium sanguineum

A 15–50 cm tall plant, which grows in dry and sun-lit places in pine forests, glades and forest edges. It can be distinguished from other species of Cranesbill by deeply divided leaves and purplish blossoms. It blooms from June to August. When autumn approaches, the whole plant turns pinkish.

Dog's Mercury *Mercurialis perennis*

A 15–40 cm tall, perennial plant with a round, branchless stem and largish, longish leaves, which are located in its upper part. It blooms early in spring – April, May – with tiny, lime-green blossoms. One of the most typical species in broadleaf forests, which quite often develops dense stands.

Touch-me-not Balsam *Impatiens noli-tangere*

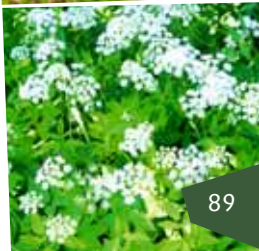
A 30–120 cm tall plant with a noted, branched stem and green, egg-shaped leaves. It blooms in June and July with 2–3 cm large, peculiarly shaped blossoms. When touched, the ripe bolls burst and spread seeds. The forests next to populated areas quite often accommodate also foreign species – Small Balsam (with tiny, yellowish blossoms) and Himalayan Balsam (with large pink blossoms).

Tufted Milkwort *Polygala comosa*

A fine, 10–25 cm tall plant with a leaved, branchless stem is quite frequent in dry grassland and sunny forest edges. It blooms from the end of May till July. It differs from other milkwort, growing in this region, by being taller and having pink or bluish pink (not blue) blossoms and a tiny bunch of leaves at the end of stem.

Ground Elder *Aegopodium podagraria*

A plant, which is known to gardeners as a tough weed, also grows in shadowy forests, ravines and forest edges in dense, 30–120 cm high stands. It blossoms from June to August. Due to its gentle taste, the young leaves can be used in salad, soup and with mashed vegetables. An herb, which is widely used in folk-medicine.



Montain Parsley *Peucedanum oreoselinum*

A dill or parsley-like plant. It can be distinguished from other plants of Umbelliferae family, whose tiny, white blossoms are formed in specific inflorescence – umbel, by its unusual, broken-like leaves. It blooms in July– August.

Wood Sanicle *Sanicula eurpaea*

A 25–50 cm tall plant with an erected stem and peculiar, rayed, roundish leaves on a longish petiole, which are formed into a bunch at the stem base. In May and June tiny, white blossoms, formed into an umbel, are forced into bloom at the top of the stem. An herb, which is widely used in folk-medicine.

Pinesap or Dutchman's Pipe
Monotropa hypopitys

A 10–30 cm tall, ghostly pale, non-chlorophyllous plant, whose erected stem is covered by scale-liked leaves. In June and July it blooms with fragrant, yellowish white blossoms. Its scientific name mean 'hermit growing under a pine tree', and the species undoubtedly shares some traits with hermits in that the stands are often small, separate groups of stems growing apart from each other.

Common Toothwort *Lathraea squamaria*

A unique 5–20 cm tall, non-chlorophyllous plant. In spring its pale purple shoots push through the ground to flower and disseminate seeds, but at midsummer they are already withered. It's scientific name means 'hiding', and indeed most of its life happens under the ground. Its branches have sucking nodules, which attach to the roots of other plants to steal nutrition.

Nodding or Toothed Wintergreen
Orthilia secunda

A small, 7–25 cm tall plant with an erected stem and a bit leathery leaves with a pointed end and toothed edge that form one or several thin bunches in the lower part of the stem. The lower leaves pass the winter. It blooms from the middle of June till August. A plant, typical of northern coniferous, especially dry pine forests.

Umbellate Wintergreen or Pipsissewa
Chimaphila umbellata

An evergreen, 10–25 cm tall plant, which is distinguished by longish, leathery leaves with toothed margin and glossy surface that form one or more thin bunches in the lower part of the stem, as well as by pink or orange blossoms that bloom from June till August. A typical plant of dry pine forests.

Single Delight or One-flowered Wintergreen
Moneses uniflora

A tiny evergreen plant with a 5–15 cm tall stem and roundish, leathery leaves, which form a thin, inexpressive bunch in the lower part of the stem. Unlike similar species, there is only one, comparatively large blossom at the top of the stem, resembling a white star. It blooms in June and July. A typical plant of northern coniferous forests.

Round-leaved Wintergreen *Pyrola rotundifolia*

A 15–30 cm tall plant with steep, reddish stem and evergreen, roundish, leathery leaves, forming a thin bunch at the base of the stem. The bell-shaped blooms flourish in June and July. It is very similar to Common and Intermediate Wintergreen, but from Green-flowered Wintergreen it differs by the pinkish white, not greenish white blossoms.

Bog Rosemary *Andromeda polifolia*

A small, 10–40 cm tall, evergreen plant with sparsely branched, woody stem and narrow, 2–4 cm long, leathery, bottle-green, erected leaves with dim, greyish white underside. It blooms from May till September with tiny, roseate blossoms, resembling bells. It can be rather frequently found in mires and bog woodland.

Common or Northern Cranberry
Oxycoccus palustris

An evergreen plant whose creeping stem can grow even 80 cm long. In June and July it blooms with tiny, gently rosy blossoms but in September its red, sour berries, rich in vitamins, ripen. If not plucked, they survive on the plant throughout the winter. If cranberries are gathered in spring, their taste is not worse than of those, picked in autumn. They are even sweeter; the berries just contain fewer vitamins.

Cowberry or Lingonberry *Vaccinium vitis-idaea*

An up to 20 cm tall, evergreen plant with erected, sparsely branched, woody stem and leathery leaves. At the end of May and in June it blooms with white or rosy bell-shaped blossoms. At the end of July and in August its branches ripen sweet, juicy berries, rich in vitamins and minerals, which are used in many forms as a foodstuff, for treatment and in cosmetics.

Bearberry *Arctostaphylos uva-ursi*

An evergreen tiny plant, similar to Lingonberry, with a creepy stem, 5–15 cm high branches and leathery leaves, whose widest part is the upper part of a leaf, not the middle part as for Lingonberry. In May and June it blooms with tiny, pinkish, bell-shaped blossoms. At the end of summer red, roundishly flattened, floury berries with several hard seeds ripen. A herb widely used for treatment of kidneys.

Bilberry, Blueberry or Huckleberry *Vaccinium myrtillus*

One of the most valuable berries in our forests. A 15–50 cm tall plant grows both in dry coniferous and mixed forests and in bog woodlands, where they develop large stands. The berries are widely used as a foodstuff, in medicine and for treatment. The substances in it help to maintain good eyesight and memory, strengthen blood vessels, reduce the risks of heart diseases and enhance immunity against infections.

Bog Bilberry or Whortleberry *Vaccinium uliginosum*

Bog Bilberry, growing in bog woodlands and on the edges of mires, is distinguishable from Bilberry by a higher shrub (0.5 – 1.2 m), a brown and round (not green and edged) woody stem, a smooth (not tiny teethed) edge of a leaf and navy blue (not livid) berries with dim frosting. Like Bilberry, it blooms in May and June. Its juicy, vitamin-rich berries ripen at the end of July and in August and are used as a foodstuff and in folk-medicine, too.

Labrador Tea *Ledum palustre*

An evergreen, 30–130 cm tall plant with a woody stem, hardish, narrow, strongly fragrant leaves that can be felt at a distance. It blooms from May to July. The essential substances of the plant cause poisoning, but in small amounts they are curative, therefore the plant is included in many drugs. Its branches are well-known moth repellent. They are also used in Siberian shaman rites.

Common Heather *Calluna vulgaris*

A 20–60 cm tall, evergreen plant, quite frequent in dry pine forests, mires, heaths and bog woodlands. It blooms from July till September with blossoms, rich in nectar. This is why beekeepers time to time arranges seasonal bee ‘pastures’ in the places where larger heather stands grows. Its leaves and blossoms are used as a diuretic, antibacterial and calming remedy in folk-medicine, but the young shoots are used as a spice for wild game.

Black Crowberry *Empetrum nigrum*

A plant, growing in dry pine forests, dunes, mires and heaths, sometimes named as Witches’ Bilberry. Although the evergreen plant seems to be low, its lying stem can even reach the length of one metre. It blooms from April till June with tiny, pink blossoms. Its fruits, named as berries, are edible, juicy and thirst allaying, but they are not very delicious.

Cowslip *Primula veris*

A 10–30 cm tall plant with plicated leaves, formed in a bunch. Its fragrant, yellow blossoms, arranged in a sparse umbel, bloom in April and May. For a long time it has been known as a versatile medicinal plant. Its young leaves may be used in salad, but one should be careful since they can be irritating.

Chickweed Wintergreen or Northern Starflower *Trientalis europaea*

A plant with a thin, 5–20 cm tall, erected stem and leaves in different sizes, growing in a bunch on its upper part, is quite frequent in coniferous forests. It blooms from the end of May till July. Its blossom, according to its name, resembles a seven-rayed star, but sometimes the blossoms may have 5, 6, 8 or 9 petals. A medicinal plant.

Yellow Loosestrife *Lysimachia vulgaris*

A 30–120 cm tall plant with an erected, branchless, leaved stem, and largish, pointed leaves is quite frequent in swamp forests, floodplain meadows and on riverbanks. It blooms from June to August with golden yellow blossoms that are formed into a spikelet-like raceme at the top of the stem and in the sinis of the upper leaves.

Marsh Bedstraw *Galium palustre*

A tiny, 10–30 cm tall Bedstraw with a thin, shaky, coarse, twiggy stem and smooth leaves with rounded ends, always growing by fours. In summer a lot of tiny, white blossoms formed in a sparse spikelet-like raceme bloom at the ends of stem and branches. A plant, typical of swamp forests and floodplain meadows.

Sweet Woodruff *Galium odoratum*

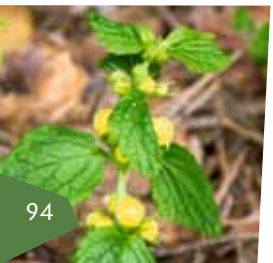
Sweet Woodruff is distinguishable from other Bedstraw by the large leaves with a pointed end, which become narrower at the base. The upper leaves on the stem always grow together by 8, the lower ones – sometimes only by 5, 6 or 7. The stem is upright, smooth and four-edged. It blooms in May and June with several blossoms.

Wild or Breckland Thyme *Thymus serpyllum*

A 5–10 cm low perennial plant with strong and peculiar smell. It is a northern relative of thyme. It turns particularly scented in the blooming period – from June to August. Since antiquity it is diversely used in folk-medicine. Nowadays it is included in the contents of many cough syrups.

European Bugleweed or Gypsywort
Lycopus europaeus

In swamp and alluvial forests one can often find an up to 70 cm tall, nettle-like plant with a four-edged stem and opposite, tiny hair covered, longish leaves with an unevenly teethed margin. It blooms from July till September with tiny white, red or violet spotted blossoms in the axil of upper and middle part leaves.



Yellow Archangel *Galeobdolon luteum*

A nettle-like, 15–35 cm tall plant with longish, usually white spotted leaves with a teethed margin. It has erected stem and creeping nonflowering shoots. In May and June when bunches of yellow blossoms are visible in the axil of upper leaves, it is impossible to mistaken Yellow Archangel even for Deadnettle which looks very similar. A typical plant of fertile forests.

Bittersweet Nightshade
Solanum dulcamara

A plant typical of swamp and alluvial forests, impossible to be mistaken for another. Its blossoms, blooming from June till September, resemble potato blossoms, but fruits – tiny, brightly red, longish tomatoes. It has been used to cure flu, cough, nettle-rash and rheumatism, but one should be careful since it contains poisonous substances.

Suffolk or Unspotted Lungwort
Pulmonaria obscura

A 10–30 cm tall plant with an erected stem, twiggy in its upper part, and egg-shaped leaves, all covered with short, hard and sharp hair. It blooms in April and May with pink, later on – blue blossoms. It grows in fertile soil in groups and one by one. In folk-medicine it is used to cure almost all pulmonary diseases.

Wood Cow Wheat
Melampyrum nemorosum

From the end of May till August on the forest edges and in light deciduous forests one can often observe large stands of bluish yellow 10–50 cm tall plants. Its dominant shade is created by the yellow blossoms that come into bloom at the top of the stem, but the bluish violet colour – by the fringy toothed leaves at the top of the stem.

Common Cow Wheat *Melampyrum pratense*

A plant with a 10–40 cm tall, edged stem with horizontal or steep twigs and longish, pointed, opposite leaves. From June till September pale yellow pairs of blossoms are in bloom in the axil of leaves. It is similar to Small Cow Wheat, but it is not so colourful and its leaves are narrower.

Nettle-leaved Bellflower
Campanula trachelium

A medium sized plant, which common name is a fair description of the plant that has nettle like leaves and attractive, bell shaped blossoms that bloom from July to August. The stem is branchless, sharp-edged, rough-haired, often reddish. The leaves and inside of blossoms are covered with long, sparse, rough hair.

Spiked Rampion *Phyteuma spicatum*

An upright, 30–80 cm tall plant, which is most readily discernible from the end of May till July, when an unusually shaped spike of greenish white blossoms develops at the top of stem. The crouched leaves of the plant are widely egg-shaped with a heart-shaped base. The higher the leaves are on the stem, the narrower they become, but all of them have a serrate margin and a pointed end.

Mountain Everlasting or Cats's-foot
Antennaria dioica

In dry forests and grasslands it forms low stands, which are overlooked by up to 20 cm tall, blooming stems with ruddy or almost white blossoms, resembling pubescent cat's paws. The white blossoms with pollen and the pink blossoms with seeds develop on different plants. The entire plant is covered by short, silky, fitted hair, which makes it look silvery.

European Goldenrod or Woundwort
Solidago virgaurea

A plant, which is recognizable by its golden yellow flowers from July till October. In any other time – by a strong, 20–100 cm long, branchless, reddish or brownish stem and longish, toothed leaves. It prefers sun-lit dry forests, forest's edges, clearings, dry meadows and roadsides.

Lily of the Valley
Convallaria majalis

A plant, which is impossible to be mistaken for another. It blooms with fragrant blossoms in May or at the beginning of June, but at the end of summer orange berries ripen instead. All parts of the plant are poisonous. Its pair of leaves is large and longish. Their form is similar to the leaves of Ramsons, but the latter are usually narrower, and it is infallibly distinguishable by the scent.

Ramsons or Buckrams
Polygonatum multiflorum

Ramsons or wild garlic is distinguished by the peculiar scent. In some places of shadowy broadleaf forests they form dense stands, which are embellished by white blossoms in May and at the beginning of June. Its leaves, which have a peculiar taste of garlic, are an excellent additive to salad and sandwiches. Take in mind that only cultivated ones can be used as a foodstuff since its wild relative has become rare in whole Europe.

Ladder-to-heaven or Splomon's Seal
Allium ursinum

A plant with a 30–75 cm tall, round, branchless stem, which is bent at the top, and large, egg-shaped leaves. In May and June in the axil of leaves odourless, bell-shaped blossoms open, but at the end of summer it ripens livid, inedible berries. Very similar to Angular Solomon's Seal, which is distinguished by the edged stem and 1–2 (not 2–5) blossoms in the sinus of a leaf.

Yellow Star-of-Bethlehem *Gagea lutea*

A fine, 5–25 cm tall plant, which blooms in April and May. There are two narrow, long leaves with a hood-like end under the blossoms. It grows in fertile deciduous forests and old parks. Like many early spring plants, its overground parts wither after blossoming and in midsummer it cannot be found in the forest any more.

May Lily or False Lily of the Valley
Maianthemum bifolia

A 5–20 cm tall, shade-tolerant plant, which is recognizable for two egg-shaped leaves with a pointed end and a heart-shaped base. In May and June – also for blossoms. At the end of summer tiny, red berries, which are poisonous, ripen. The plant is frequent and typical of shadowy spruce and spruce-deciduous forests.

Yellow Iris *Iris pseudacorus*

Yellow Iris, which is typical of wet meadows, riversides, swamp and alluvial forests, is a close relative to the cultivated one. It is easily recognizable for the brightly yellow blossoms and sword-shaped, 60–120 cm long leaves, which are bent quite often. It is in blossom from May till June. A plant contains substances that can cause poisoning.

Wood Millet *Milium effusum*

A large, 60–150 cm tall grass typical of broadleaf forests. It is distinguished from other grasses by a thin, wide, 10–30 cm long spikelet, which consists of 7–10 right and left facing bunches of twigs, which after blossoming bend down and partly flatten against the stem. It blooms in June, but the spikelet remains at the end of the stem until autumn.

Wavy Hair-grass *Lerchenfeldia flexuosa*

A fine, 25–75 cm tall grass, which grows in dry pine forests, on the forest edges and in dry meadows. It is easy recognizable for soft, rolled-in, wiry leaves, a ruddy stem and a broad, reddish or brownish colour spikelet, which is rendered gorgeous by fine, curved branches. Quite often it forms dense stands that make the forest look maroon-coloured.

Mountain Melick *Melica nutans*

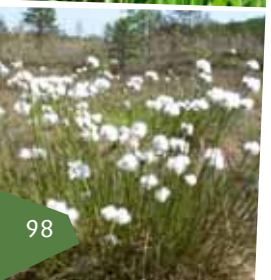
A 20–60 cm tall grass with a thin, erected stem and thin clump, whose blossoms droop from the bent spikelet and resemble pinkish brown grains. It grows in sun-lit dry or slightly wet forests, particularly on sunny slopes.

Bog Arum or Marsh Calla
Calla palustris

A typical plant of mires, bog woodlands and fens. When blooming in May and June, the kinship between Bog Arum and Peace Lilly and Anthurium becomes clearly visible. The flower develops green, later on – brightly red fruit or berries in July–August. At the time, when Bog Arum has neither fruit nor blossoms, it is recognized for large, 10–25 cm long, pig's ear-like leaves.

Sedges *Carex spp.*

Frequent grass like plants with narrow, long leaves and an erected, branchless, three-edged stems without nodes. Most of them bloom in spring or at the beginning of summer with plain-looking blossom spikes.



Hare's-tail Cottongrass *Eriophorum vaginatum*

A 20–70 cm tall grass like plant, forming dense clumps, is frequent in mires and bog woodlands. At the end of April and in May one erected, greyish blossom spike develops on the top of each stem. After blossoming long, white wing-feathers grow on the spike, making it look like a white 'wad'. Its buds and seeds are essential feed for Western Capercaillie, Black Grouse and other birds.

March and Spotted Orchids
Dactylorhiza spp.

In mires, bog woodlands and damp meadows from June to August one can observe 20–50 cm tall wild orchids – plants with magnificent violet or roseate spikes of flowers. Most frequent ones are Common Spotted Orchid, Heath Spotted Orchid, Baltic Marsh Orchid and Early Marsh Orchid that are rather similar and not easy to distinguish.

Creeping Lady's Tresses *Goodyera repens*

A 10–25 cm tall orchid with a few small, egg-shaped leaves at the base of the stem. It blooms in July and August with tiny, fragrant blossoms, arranged in a spiral around the upper part of stem. It is a quite common in an old pine forests.

MOSSES

It is considered that there are about 22 000–27 000 species of moss in the world. They are found from the tropical rain forests up to tundra. ~500 different species of moss have been found in the Baltic Countries and Belarus. More than half of them grow in forests – on the ground, on tree trunks, on decaying trees, as well as on stones in forests. Each of them has adapted to particular growth conditions – some are less demanding and more frequent, whereas others are very sensitive and can only be found in intact forests where the conditions have remained the same for more than 100 years. Especially gorgeous moss world greets explorers who are 'equipped' with a magnifier and a microscope. This guide includes some of the most frequent among easily recognizable species, which can be noticed and identified by every attentive visitor of a forest.

MOSSES THAT GROW ON THE GROUND

Magelanic Bog Moss *Sphagnum magellanicum*

A comparatively large sphagnum with wine-red or more rarely – mixed red and green or only green leaves if growing in shade of taller plants. It is quite frequent in raised bogs and bog woodland, where it forms thick 'carpets'. If the red form of the species is rather easily distinguishable, one should use a microscope to be sure that the one with green leaves is determined accurately.

Acute-leaved Bog Moss *Sphagnum capillifolium*

A sphagnum with leaves in heterogeneous colour (one plant can have green, red and yellow leaves) and a dense, roundish 'bunch' at the top of the stem. It grows in mires and bog woodland, forming dense ruddy-green or yellow-green patches.

Gingrson's Bog Moss *Sphagnum girgensonii*

A green or yellow-green sphagnum that prefers to grow in bog woodland, forming wide bright green 'carpets'. Its branches are rather long and slender with a flat 'bunch' that resembles a multi-rayed star with a slightly darker centre. Spiky Bog or Moss *Sphagnum squarrosum* A robust, bright green, spiky-looking sphagnum. It is readily recognizable for the leaves with pointed, straightened ends, resembling tiny thorns. Most often it can be seen in bog woodland or in swamp forests, forming thin, pale green 'carpets'.

Spiky Bog-moss *Sphagnum squarrosum*

Spiky bog-moss forms comparatively sparse, pale green turf in swampy mixed and deciduous forests. It can be easily recognized by its leaves with pointed, curved ends looking like tiny prickles.

Common Haircap *Polytrichum commune*

A moss with erected, branchless stem, covered all around with fine, ~1 cm long needle-like leaves, which are spread away from stem when it is moist, or gently inrolled and twisted around it – when dry. In summer an angular, box-like, hairy capsule with spores develops on a 5–9 cm long, reddish seta. It is frequent in damp forests and mires.

Juniper Haircap *Polytrichum juniperinum*

It can be distinguished from Common Haircap by its shorter shoots, maroon tips of the pointed leaves and a finer capsule of spores. In spring, the male plants are very conspicuous, with their bright, orange modified leaves forming small terminal 'flowers' at the ends of the shoots. It forms aeruginous ridges in wet forests, mires and dunes, particularly after fires.

Rugose Fork Moss
Dicranum polysetum

A moss that quite frequently forms green or yellowish green patches in wet and damp forests. Its erected stem can grow up to 12 cm high. The leaves, growing all around the stem, are narrow, pointed and ~1 cm long. If looking closely, one can notice that they are strongly undulated. The upper leaves are always erected, others – straightened, quite often with upturned ends. In summer one or several spore capsules grow at the top of stems.

Broom Moss *Dicranum scoparium*

In dry coniferous forests and dunes, in wet forests and mires, Broom Moss forms dense, bottle-green or jade turf on the ground or on the bases of trees. It has an erect, branchless, ~5 cm long stem and 4–7 mm long, pointed, hooked leaves. In summer a slender, reddish spore capsule develops on a long seta.

Eurhynchium Moss
Eurhynchium angustirete

A light green moss with a lying or erected, up to 8 cm long, branched stem and tiny, densely composed, heart-shaped leaves. The ends of branches are usually lighter than their base. It grows in broadleaf or mixed forests on the ground or stones.

Shaggy Moss *Rhytidiadelphus triquetrus*

A large moss of brightly green colour with erected, branched, 10–20 cm long, reddish stems. The tiny, finny, heart-based leaves are detached and set in different directions, and there is a dense cluster of leaves at the top of the stem. It grows in moderately damp mixed forests, also in swamp forests, but only on the top of the ridges and at places, which are not permanently wet.

Tree Moss *Climacium dendroides*

A yellowish green moss with a maroon, 2–3 cm tall, erected stem, whose branches develop into a tree-like form. There is no other moss similar to it in our forests. It grows in damp and wet fertile forests, occasionally in fens and in grey dunes.

Ostrich-plum Feather Moss
Ptilium crista-castrensis

A very common light green moss with erected stem and horizontal branches. The lower branches are all the same length, but they become shorter towards the top of the shoot, giving it an appearance of a tiny feather. Grows in pine, spruce and mixed forests, forming broad ‘carpets’.

Big Red Stem Moss *Pleurozium schreberi*

A very common moss that grows in bare and moderately fertile coniferous and mixed forests, mires and heaths on the ground, at the tree base and on decaying wood. It is characteristic of an erected, 5–15 cm tall, reddish brown stem, horizontal and slightly upturned branches, which are most frequently set in opposite directions and tiny, glossy, egg-shaped leaves with incurved edges.

Glittering Wood-moss
Hylocomium splendens

A very common glossy green, jade or brownish green, branched moss that grows in coniferous forests. A separate twig resembles a slightly bent, thumb length fern, which rears over the middle of the previous year twig.

Greater Featherwort *Plagiochila asplenioides*

One of the largest mosses in our forests with relatively large roundish, slightly transparent, glossy leaves, attached in an overlapping manner in two parallel lines along the branches. In dry weather the leaves are plicated. The branched stem can grow up to 12 cm tall. It grows quite often in damp, moderately fertile forests on soil or on decaying trees.

Many-fruited Thyme Moss *Plagiomnium affine*

A moss, growing on the ground or on decaying wood in damp, but not wet places in deciduous forests. It has a green, 10–15 cm tall, creeping stem and flimsy, alternately arranged, 5–7 mm long, roundish leaves with a rounded end and a slanting base. In dry weather the leaves are plicated.

Woodsy Thyme Moss
Plagiomnium cuspidatum

It grows on the ground, stones, stumps or tree bases in damp mixed and deciduous forests. It is distinguished by a comparatively short, upright or creeping stem, which rarely reaches the length of 5 cm, and by 2–3 mm long, pointed, alternately arranged leaves, which, similarly to other moss, are slightly transparent and in dry weather – plicated.

Hart's-Tongue Thyme Moss
Plagiomnium undulatum

A moss with wavy, comparatively long, tongue-shaped, undulated leaves, which plicate in dry weather. The stem is green, up to 15 cm tall and branchy. The fertile shoots are upright, the others – creeping. Spore capsules grow seldom, however, if they develop, they are several on one fertile branch, each on a ~3 cm long stem. A frequent species, grows in wet mixed and deciduous forests.

MOSSES THAT GROW ON TREE TRUNKS

Ramblibg Tail Moss *Leucodon sciuroides*

A quite frequent 4–5 cm tall, bottle-green moss, which grows on the trunks of deciduous trees, particularly at their base. In dry weather it has a typical, upturned form, resembling a squirrel's tail. In damp conditions it straightens and expands, resembling a 'furious cat's' tail.

Neckera Moss *Neckera pennata*

In old, intact and damp forests on the trunks of aspen, willows or other deciduous trees one can observe green, detached 'shelves', formed by Neckera Moss (the ends of the branches are almost perpendicular to the tree trunk). Spore capsules are quite frequent, but as their seta is very short, they quite often remain unnoticed. Leaves are undulated, but it can only be seen with a magnifier.

Flat Neckera *Neckera complanata*

A moss, similar to and growing in the same places as Neckera Moss. It can be distinguished by more pointed, narrower top of the branches, glossier turves and lighter, less upturned ends of branches. The leaf (unlike Neckera Moss) is smooth, not undulated, but, in order to discern it, a magnifier is needed.

Homalia Moss
Homalia trichomanoides

In intact forests on old trunks of aspen, willows and other deciduous trees dense, bottle-green, explicitly shiny turves can be seen. The leaves of the moss are smooth, flimsy and shiny, but in dry weather – incurved. Spore capsules are delicate, russet, on a longish seta. It starts developing a turf at the base of trunk, but in older forests it can reach quite high. A dampness loving species, which is more frequent in the forests near water.

Tail Moss *Anomodon spp.*

Growing on the trunks of old deciduous trees in broadleaf forests, it resembles a chunky, coarse, yellowish green, green or greenish brown, thick fur coat, which, where appropriate, covers a tree trunk at the height of several metres. The larger its amount is and the higher it grows on tree trunks, the longer the forest has been intact.

Cypress-leaved Plait-moss
Hypnum cupressiforme

The yellowish green turves, formed by this moss, are quite frequently found on the lower part of the trunks of deciduous trees, large-sized decaying trees, soil and stones. Its stem is irregularly branched and densely covered with shiny, longish, incurved leaves. Spore capsules are fine, brown, on a longish stem.

LICHENS

A lichen is unusual organism, consisting of fungus and alga, which live in a close interaction – symbiosis in the thallus of lichen. The fungus feeds from the alga, whereas the alga obtains water and minerals from the fungus, as well as the protection against excessive sunlight. Thus lichens can survive under such circumstances, in which the individual survival of the fungus and the alga is impossible. It can be found all around the world from the deserts to the arctic glaciers on all types of surfaces – stones, trees, soil, as well as the walls and roofs of houses, fences and monuments. The lichen is the flora pathfinder, since it is the first to start growing in places where it is impossible for any other plants. About 20 000 species of lichen are found in the world, in Estonia – about 800, in Latvia, Lithuania and Belarus ~500. This guide only describes part of them – the most frequent and recognizable species in the forests.

LICHENS THAT GROW ON SOIL

Iceland Moss *Cetraria islandica*

A ~6 cm tall, greyish brown or olive brown lichen with irregularly branched, up to 1 cm wide, sleeky lobes, which quite often forms thick 'carpets' in thin pine forests. The lower side of thallus is paler with easily discernible white dots and a ruddy lower part. This lichen is used for making bitter, but effective tea to cure cough and bronchitis.

Star Reindeer Lichen *Cladonia stellaris*

One of the most beautiful lichens of dry pine forests, which at a distance resemble 4–10 cm high, greyish piles of foam. A separate stem of lichen is richly branched. The twigs and tops face right and left. Since the lichen resembles a twiggy tree, it is favoured by florists and decorators. The lichen tea or powder helps against helminths.

Reindeer Lichen *Cladonia rangiferina*

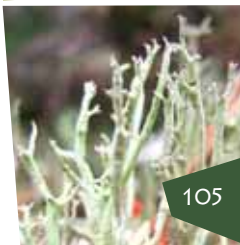
Up to 8 cm tall, greyish and richly branched lichen, resembling a midget bush. The tops of branches are maroon, bending sideways. A last century American newspaper says that, if cows are fed with straw and soaked reindeer lichen, their milk is particularly tasty. The American Indians, who lived in the neighbourhood of the Great Lakes, used to bathe their newly-born in water, containing the infusion from Reindeer Lichen.

Shrubby Reindeer Lichen *Cladonia arbuscula*

Shrubby Reindeer Lichen is up to 10 cm tall, richly branched lichen with brownish tops, which are bent sideways. It is distinguished from Star and Reindeer Lichen by the apple-green colour, but from Green Reindeer Lichen, which is of similar colour, by slightly bitter taste. In Alaska tea from this lichen is used to treat diarrhoea.

Many-forked Cladonia *Cladonia furcata*

Many-forked Cladonia forms up to 10 cm high, greyish bushes, which are sometimes covered with tiny, scaled leaves, with branched fork tops. The ends of branches develop tiny, dark brown pistils which resemble dots. The scientists have discovered that the substances of this lichen kill leukaemia cells in vitro. It may have possible value in the treatment of cancer.



Bighorn Cup Lichen *Cladonia cornuta*

Bighorn Cup Lichen is distinguished from other lichens that grow on the ground by the straight, 7–12 mm long, grey-green or greenish brown, farinaceous granule covered, tapering branches with an awl-like top. Unlike Common Powderhorn, the branches of this lichen are more upright, denser and narrower at the bottom, but its 'turf' – thinner. It grows not only on dry and sandy soil, but also on decaying wood-pulp and in humus.

Cup Lichen *Cladonia gracilis*

Cup Lichen also forms comparatively tall, slender, farinaceous granule covered stems, but their tops are abrupt, not tapering. At the tops of stems shallow, cup-like extensions with tiny, brown dots on their edges develop. In ancient China it was used in medicine and for the dyeing of yarn. Wool can be dyed glaucous by this lichen.

Red Pixie Cup Lichen *Cladonia coccifera*

Red Pixie Cup Lichen is 3–5 cm tall lichen with pale green, farinaceous granule or tiny, scaled leaf covered stems, at the top of which there are irregularly formed cups whose edges are covered with brightly red grains. Sometimes new cups grow on the edges of the cups, and the red grains take over the whole surface of the cup. It is known that in the 18th century it was used as a cough remedy.

Fruticose Lichen Cladonia floerkeana

Native Fruticose lichen forms fine, tiny, farinaceous granule covered, greyish stems, whose height does not exceed 2 cm. At the tops of the stems visible, brightly red grains take shape. Sometimes the stems ramify in the upper part. Because of the looks, it is quite often named as a Bengali or Devil's Match. It grows both on dry and sandy soil and in humus and decaying wood.

LICHENS THAT GROW ON PUTRESCENT TREES AND TREESTUMPS

Lesser Sulphur-cup *Cladonia deformis*

Lesser Sulphur-cup forms slender, jade, farinaceous granule or tiny, scaled leaf covered horns or cups, whose height does not exceed 4 cm. There are brightly red grains of different sizes on the edges of cups. It grows on decaying wood-pulp or in humus. In Russia usnic acid is extracted from this lichen, which is used for the production of antibiotics 'Binan'.

Common Powderhorn *Cladonia coniocrae*

The lichen forms a dense, greyish green, scaled turf which is overlooked by small, 2–3 cm long, slightly bent 'awls', covered with tiny farinaceous granules or scaled leaves. It is quite frequently that only the scaled turf with thin 'awls' can be seen. It grows on decaying wood, stumps and at the base of trees, more rarely – on humus. It is air pollution resistant. It also grows in places where many other species of lichens are unable to grow.

Pixie Cup Lichen *Cladonia fimbriata*

Pixie Cup Lichen forms regularly shaped, up to 1.5 cm tall, farinaceous granule covered 'cups', under which one can observe the primary thallus or turf of the lichen, looking like having been made from small, green or grey-green scales. It grows on decaying wood-pulp or in humus, quite often – on the roadside. Formerly it was used for dyeing of yarn (red colour).

Powdered Funnel Lichen *Cladonia cenotea*

Here and there on decaying wood or humus one can observe grey, farinaceous granule covered, hollow tubes with characteristic openings and incurved edges. In larger openings it is possible to see the greyish brown colour inside the tube. It has been used to produce litmus.

Dust Lichen *Lepraria incana*

This lichen, which looks like bluish grey powder, is quite often observable on the trunks of pines, spruces and other trees and at their bases in wet and shadowy places. One of the most frequent lichen in the places with polluted air, in which many species of lichens cannot survive.

Bitter Wart Lichen *Pertusaria amara*

Here and there on the bark of deciduous trees one can notice Bitter Wart Lichen, which looks like ashy rye-flour heaps. It can be distinguished from other similar lichens by the strongly bitter taste. Due to this reason, formerly it was used in treatment as a substitute for quinine.

Whitewash Lichen *Phlyctis argena*

One of crusty lichens, which forms pale grey or white, roundish areas on smooth bark of deciduous trees in lit-up places.

Lecidella Lichen *Lecidella elaeochroma*

Lecidella Lichen resembles graphic arts drawings by an unknown artist – pale grey or brownish grey drawings, enclosed by a black line and embellished with numerous tiny black dots. It grows on smooth bark of deciduous or coniferous trees. It is quite frequent.

Script Lichen *Graphis scripta*

Script Lichen is easily recognizable for the pattern, formed by its fruiting bodies, which resembles hieroglyphics or runes on white or pale grey areas. This pattern is a source of inspiration – special Script Lichen Oracle cards have been invented. It grows on the bark of black alder, hazel and other deciduous trees in very shadowy places. It is quite frequent in small amounts, but a larger amount is indicative of the naturalness of the forest.

Needle Lichen *Chaenotheca ferruginea*

One of the largest, most frequent and most easily discernible 'pin lichens'. It is formed by fine, black, 2–5 mm long needles, which are stuck into a pale greyish or greyish green carpet with fawn-coloured tints – the invisible thallus of the lichen. Other 'needles' of this group of lichen are even tinier and almost invisible to the naked eye. It grows on the bark of old pines, more rarely – on spruces and birch.

Acrocordia Lichen *Acrocordia gemmata*

Acrocordia Lichen resembles tiny black pearls on pale grey background. The size of 'pearls' does not exceed 1 mm. Some of them have an opening on the upper side as if somebody would have punctured it with a needle. It only grows in old, intact woods on the bark of lit-up oak, osier, aspen or other deciduous trees. Inattentive observers can easily mistaken it for other tiny dot covered lichen.

Dotted Lichen *Bacidia rubella*

It is a green or grey-green, granular lichen with tiny, slightly curved, brick red 'pearls', whose size does not exceed 2 mm. It looks as if the tree has fallen ill with chickenpox or German measles. It only grows in old, intact woods on the bark of lit-up oak, osier, aspen or other deciduous trees.

Brown-eyed Rim-lichen
Lecanora allophana

A 4–6 cm wide, pale grey, gnarled lichen with numerous 1–3 mm wide fruiting bodies that have a comparatively thick, pale grey rim and a sleek chestnut middle part. It is one of the most frequent Rim-lichens. It grows on the bark of aspen or broad leaved trees. Usnic acid, contained by Rim-lichen, is used in pharmacy and cosmetology. The American Indians of the Great Lakes used to add it in soups because, when saturated, it makes them taste delicious.

Common Clam Lichen *Hypocenomyce scalaris*

A scaled lichen, formed by 1–7 mm wide, grey-green lobes which overlap one another, shaping tile roof like spots. The edges of the lobes are covered with tiny farinaceous granules. It grows in sunny places at the base of pine, birch or other tree trunks, more rarely – on decaying trees and the boards of old fences and buildings.

Golden Shield Lichen *Xanthoria parietina*

A brightly yellow or orange (in shadowy places – green-grey) lichen with slightly plicate lobes and a light lower side. There are a lot of tiny, discoid fruiting bodies with thick edges in the middle part of the thallus. It grows on various tree trunks, branches, stones, old boards, slate roofs, and other similar surfaces. It can also be found in cities and near the roads where, due to the polluted air, many species of lichen are unable to grow. It has also been used in treatment and for dyeing of yarn.

Powdered Sunshine Lichen
Vulpicida pinastri

A pale yellow lichen with plicate, brightly yellow 'granules' covered edges, which somewhat resembles ballet-dancer's skirt. It grows on old, decaying pine trees, more rarely – on birches, juniper and their branches. The ancient hunters used to poison arrows with this lichen when they were going to hunt wolves.

Tree Lungwort *Lobaria pulmonaria*

A large lichen with broad, up to 15 cm long lobes. In dry weather it can be pale grey, but in damp – brightly green. The surface of the lichen is shiny with a pattern, resembling pulmonary alveoli. The lines of the pattern on the surface of the leaf are covered with tiny farinaceous granules. It grows in old, almost intact forests on lit-up trunks of broad leaved trees, quite often – on the upper part of the trunk. It is sensitive to air pollution.





Pleurosticta acetabulum

A large, roundish lichen with leathery, a little upturned and plicated leaves. In dry weather it is greyish, in damp – grey-green or olive-green. The lower side of the thallus is dark brown or black. Quite large, cup-like fruiting bodies with a farinaceous granule covered edge take shape in the middle part of the lichen. It grows on old broad leaved trees in sunny places, quite often – near the roadside. Orange brown colour can be obtained from this lichen, which was also used for dyeing of clothes by *Harris Tweed*.

Spotted Camouflage Lichen
Melanelia olivacea

A glossy, green-brown or olive green, 8–10 cm wide lichen with a roundish thallus, which is closely flattened against the tree. The upper side of the thallus is finely crumpled with thin, cup-like fruiting bodies, but the lower side is almost black. It grows on the bark of deciduous trees in lit-up places. Formerly brown colour was obtained from this lichen to dye yarn. Similar to Lustrous Camouflage Lichen, but it is brighter green and its thallus is covered by tiny club-like projections.

Camouflage Lichen *Melanelia exasperata*

An olive green or brownish lichen, whose upper side of the thallus is covered with tiny, wart-like projections, but in the middle part numerous 5–6 mm wide, cup-like fruiting bodies with a shiny discus and a warty edge, which resemble jewellery dessert bowls with gorgeously embellished rims, develop. The lower side of the thallus is dark brown. It grows on the bark of deciduous, more rarely – coniferous trees and on old boards of buildings, sheds or fences.

Hammered Shield Lichen
Parmelia sulcata

A roundish and pale grey lichen with a dark lower side, which is readily recognizable for the relief reticulation (waffle-like structure), covering the narrow lobes of the thallus. If taking a closer look, one can see that the breaking places are covered with tiny farinaceous granules. It grows both on coniferous and deciduous trees and on processed wood and stones. An essential ingredient in the drugs used in Ayurveda and Unani medicine. It is also used for the production of aphrodisiacs.

Varied Rag Lichen
Platismatia glauca

A quite large lichen, whose thallus consists of separate, up to 4 cm long, smooth lobes. The upper side of the lobes is grey

or greenish brown, tinted slightly bluish, but the lower side – brown. The edges of the thallus are somewhat upturned, plicated and covered with tiny farinaceous granules. The abundant plication and green-brown colour somewhat resemble the plicated lettuce. It grows on the bark of deciduous and coniferous trees. It is used for bleaching of caprine wool.

Salted Sunburst Lichen *Imshaugia aleurites*

A pale grey, up to 5 cm wide lichen with 2–3 mm broad lobes, which are covered with tiny, grey, wholemeal-like granules. Ideally the thallus of the lichen takes shape of a round rosette, which looks like a snow covered dirndl in which girls perform snowflake dance at Christmas. The lower side is white. It grows on pine tree trunks and decaying trees in sunny places.

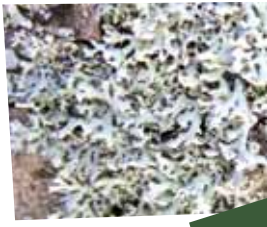
Ambiguous Bran Lichen
Parmeliopsis ambigua

A 3–4 cm wide lichen, closely flattening itself against the tree, with a thin, roundish thallus, which consists of serried, ~1 mm wide lobes. The upper side of the lichen is pale grey with greyish or yellowish tint. Its middle part holds yellowish, flour-like piles, resembling the pollen gathered by bees. The lower side of the lichen is brown-black. It grows on the trunks of pine, more rarely – birch trees or on decaying wood.

Monk's Hood Lichen
Hypogymnia physodes

One of the mostly wide-spread lichens not only in the Baltic Countries, but also across Europe. It grows both in forests on different tree trunks, branches and decaying trees and in cities on stones, trees and old boards of buildings or fences. The upper side of the lichen is silvery grey, quite often with black spots, but the lower side – dark brown or black. The American Indians, living near the Great Lakes, used this lichen 'fresh' or saturated with water as a laxative.

Fishchap *Physcia tenella*



A small, pale grey lichen with grey lashes along the edges of the flat lobes. The ends of the lobes are a bit upturned, sometimes covered with tiny farinaceous granules. The lower side of the thallus is pale brown or fair. Lichens, growing in non-polluted places, develop dark grey, cup-like fruiting bodies with a fairer rim. It grows on the bark of deciduous trees, quite often – near roads and populated places. The voles eat it.

Eagles Claws *Anaptychia ciliaris*

Up to 5 cm long, grey or brownish grey lichen, which forms an entanglement of tiny, farinaceous granule covered branches and flattened lobes. There are 3–8 mm long projections at the ends of lobes, resembling beautiful, long lashes (much longer than those of Fishchap). Sometimes 2–5 mm wide fruiting bodies develop on its thallus. It grows on the bark of lit-up deciduous trees, quite often – near populated areas and at the roadside, however, only in places with insignificant air pollution. Formerly it was used to produce powder for hair.

Bran Lichen
Pseudevernia furfuracea

A quite frequent grey or brownish grey lichen with flat, birch-like stiff branches. Sometimes it is covered like a hedgehog with grey, needle-like formations, resembling bran, which is the origin of its name. When branching, it always divides in pairs. The lower side of the thallus – black or violet. It grows in lit-up places on different tree trunks, branches, decaying trees, stones and old boards of buildings or fences. In Egypt this lichen was used in the mummy embalming process.

Stag's Horn *Evernia prunastri*

A fair, grey-green or yellow-green lichen with flat, up to 3 cm long, quite soft lobes. The edges of the lobes are covered by tiny farinaceous granules. Their lower side is white. It frequently covers large areas on the trunks and branches of deciduous trees. It is quite often found on oak trees, which is why it is called Oak Moss. In the 40ties to 50ties of the last century in Germany the substances of this lichen were used to produce antibiotics 'Evosin', by which tuberculosis was treated.

Lichen Ennis *Ramalina fastigiata*

A grey-green or yellow-green lichen with uneven, up to 5 cm long lobes, at whose ends discoid fruiting bodies grow, resembling telescopes. The branches of the lobe can be both round and flattened. It grows on lit-up deciduous trees in places with insignificant air pollution. In India it has been used to produce curry.

Cartilage Lichen *Ramalina fraxinea*

Up to 15 cm long, grey-green or yellow-green lichen with flat, up to 4 cm wide lobes, on which quite large, discoid fruiting bodies (fairer than the rest of the thallus) are visible. Unlike for Lichen Ennis, the fruiting bodies can be located both on the edges of the lobes and on the upper and lower sides. It grows in lit-up places on the bark of deciduous trees or old boards of wooden buildings or fences in places with insignificant air pollution. The substances of this lichen have been used for producing cosmetics and perfumery.

Lancing Ring *Ramalina farinacea*

A grey-green or yellow-green lichen with a bit ribbed, narrow, and up to 5 cm long, ribbon-like lobes. There are tiny wholemeal piles on the edges of the lobes, due to which they look like octopus tentacles. The most frequent species of Ramalina, which grows on the bark of different deciduous trees and quite often – near populated areas and roads. During the Bosnia and Herzegovina war people used this lichen as a foodstuff.

Bristly Beard Lichen *Usnea hirta*

One of the most frequent Beard Lichens. It is similar to a small, up to 5 cm long, yellow-green or green-grey hair tuft, which consists of threads of different thickness and length. In dampness the threads become soft, but in dry weather – hard and coarse. It grows on the trunks of deciduous and coniferous trees or on decaying wood. It is sensitive to air pollution. It has been used to dye yarn, obtaining flesh-colour tint.

Fishbone Beard *Usnea filipendula*

A lichen similar to Bristly Beard Lichen, but much larger. Its threads can be even 30 cm long. A characteristic – the 'tuft' of the lichen has several thicker threads, which are branched-off by shorter and finer 'strands' at a right angle, resembling a fish bone. It grows on the bark of spruce, birch or other trees, quite often – more closely to the top. In Southern Sakhalin the powder from this lichen was applied to wounds for better healing.

Gray Horsehair Lichen *Bryoria capillaris*

A lichen, which resembles a fine, grey hair tuft, seized by the branches or bark of coniferous trees. It is easily distinguished from Beard Lichen by stretching a thread of the lichen. The thread of Horsehair Lichen breaks easily, but those of Beard Lichen are more flexible. Moreover, the thickness of the threads of Horsehair Lichen is approximately the same, whereas Beard Lichen has several threads that are thicker than others. In British Columbia dried and crushed lichen of this species was added in the powder for painting boards.

Pale-footed Horsehair Lichen
Bryoria fuscescens

The second most frequent species of Horsehair Lichen. It is formed by fine, dark brown or greenish brown threads of the same thickness. For the most part the threads are 5–15 cm long, but they can reach the length of 30 cm. It is distinguished from Grey Horsehair Lichen by the colour. It can be found on the bark of coniferous trees and also birches, but sometimes – on decaying wood. It is quite sensitive to air pollution. In North California this lichen was used as fomentation poultice, in order to alleviate swelling.

FUNGI

Nobody knows how many different species of fungi there are in our forests. Although it might seem that the time of great discoveries is over, the researchers of fungi still have plenty of work. It has been calculated that in the areas of moderate climate the number of fungi species is seven times larger than the number of plant species therein. 4000 fungi species have been researched in Latvia so far, but a lot of discoveries are ahead. The main role of fungi in nature is to recycle the nutrients, produced and accumulated by the plants, renewing their availability in the circulation process of substances. For their part, the fungi themselves are a feeding source for a number of animals – both large and small. This guide only describes a small part of them – the largest, most frequent and most easily discernible ones.

Yellow Fairy Cups *Bisporella citrina*

Growing in: I – XII

This small, gaudy fungus can be observed throughout the year, unless its inhabited decayed trunks are covered with snow or last year's leaves. Its profile resembles a 1–3 mm wide nail-head. It grows in clumps on wet, dead wood of deciduous trees with no bark. It is very frequent.

Green Wood Cup
Chlorosplenium aeruginascens

Growing in: VIII – X

Many have seen decayed, blue-green wood in wet forests but, with the autumn setting in, a closer observer can notice that it is covered with aeruginous cups on short stems – the green staining of wood causing chlorociboria fruiting bodies.

Scarlet Elf Cup *Sarcoscypha coccinea*

Growing in: III – V

The first herald of spring. The small, red cups appear in the forest right after melting of snow, sometimes even in small melted spots. It grows in wet places on the pieces of decayed wood near deciduous trees. It is useful as a foodstuff, but only in small amounts and mostly as a decorating element of dishes.

Common Morel *Morchella esculenta*

Growing in: III – V

A spring mushroom whose form and colour vary. Its cap may

be conical, egg-shaped or roundish, but the colour varies from dark brown to beige. The edge of the cap is grown together with the stem. It is easily distinguishable from other mushrooms by the multi-angular hollows on the surface of cap, resembling honeycombs. The stem is hollow, usually at the length of cap. It is edible, but should be boiled before eating. It is useful for drying.

Brain False Morel *Gyromitra esculenta*

Growing in: VI – V

A spring mushroom with a plicated, dark brown cap, resembling brain, and a short, hollow white stem. It contains poisonous substances which evaporate during boiling; therefore, it occurs that people get intoxicated by inhaling the vapour. It grows in groups, frequently on exposed soil. It is quite often mistaken for Common Morel (see above).

Wrinkled Thimble-cap *Ptychoverpa bohemica*

Growing in: VI – V

A close relative to Common Morel and Brain False Morel. Its cap resembles a thimble – the edges of the cap are detached from the stem. The stem is longish with hollow middle. It is edible. It grows in damp places among fallen leaves of deciduous trees. Since the colour of its cap is similar to the tint of last year's leaves, it is difficult to notice it.

White Saddle *Helvella crispa*

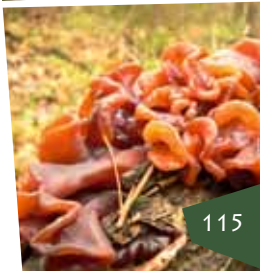
Growing in: VII – X

The thoroughly fair, cream-coloured mushroom is easily recognizable for the peculiar cap and the plicated, hollow stem with numerous empty spaces. After thorough boiling, it can be used as a foodstuff, however, one should be careful because it may cause allergy. It grows in groups or one by one on the edges of forests and paths, in thin forests, also in parks and gardens.

Jelly Leaf *Tremella foliacea*

Growing in: IX – XI

The fungus is easily recognizable for its shape – it resembles a mass of brown, wrinkled brain. The solidity is jelly-like, but quite firm. An interesting peculiarity is its ability to recover its original form after drying (then the fungus shrinks and turns hard and black) and repeated saturation. It grows on the wood of fallen trees as a parasite of other fungi.



Tripe Fungus *Auricularia mesenterica*

Growing in: IX – XI

It grows in damp places on the wood of fallen deciduous trees, on the lower part or on the sides. It can cover large areas. Its characteristic is rubberized consistency, a grey-brown upper side and a lower side, covered with maroon wrinkles or plication. Its occurrence is fairly irregular.

Common Bird's Nest *Crucibulum laeve*

Growing in: I – XII

Small, unusually shaped fungus, growing on decaying wood. The young, nest-like fungus is covered by a pale yellow 'lid'. When the fungus grows up, the 'lid' breaks, allowing to see up to 10–15 'eggs' with spores. It is very frequent, but rarely spotted – the diameter of the cup does not exceed 1 cm. It grows in dry places in forests, parks and even at the corners of gardens if there is a pile of brushwood.

Fringed Earthstar *Geastrum fimbriatum*

Growing in: VI – XI

The most frequent Earthstar, but, due to the small size and brown colour, it is hardly discernible. It grows on fallen leaves in mixed forests. Earthstars are distinguished from other puffballs by a double fruit body whose outer part fissures in the shape of rays, retaining the inside pillule intact, as the fungus matures.

Yellow False Truffle *Rhyzopogon luteolus*

Growing in: VI – XI

Yellow False Truffle is roundish, pink or yellowish brown tubers, which are quite often found in the sandy soil of pine forests. It is kindred to boletus. It tastes like the stems of edible boletus. It is often mistaken for truffle, but the latter grows deeper in the soil and darker and fairer strings can be observed inside it.

Common Earth Ball *Scleroderma citrinum*

Growing in: VII – X

A hard, yellowish potato-like puffball which grows among moss or in the upper part of soil under deciduous trees. Its surface can be smooth, but more often it is uneven and warty. The inside of young Common Earth Ball is pale but, as it matures, the spores turn grey and finally – black. Its characteristic is metallic smell.

Giant Puffball *Langermania gigantea*

Growing in: VI – IX

It grows on the edges of thin forests, in parks, in shrubbery and also in orchards. It is readily recognizable since it is the largest puffball. While the fungus is in the size of child's head and completely white from inside, it is edible and delicious. It may be fried without boiling or grilled with spices. When the spores mature inside, the puffball tints greyish and, finally, brown.

Pear-shaped Puffball *Lycoperdon pyriforme*

Growing in: VII – XI

Unlike other puffballs, it grows on dead wood. It is easily distinguishable for the smooth surface and the longish pear-like form. It grows in large groups or clumps. Edible, but not very tasty. It is frequent in forests, parks, gardens and shrubbery – wherever decaying deciduous trees or old stumps are found.

Dune Stinkhorn *Phallus hadrianii*

Growing in: VI – X

An unusually shaped mushroom, which will attract (or repel) a mushroom picker by its smell. When it matures, a roundish tuber in the size of hen's egg develops an up to 15 cm tall stem with a 'porous' white cap, which is covered with stinking, greyish slime. At the 'egg' stage the mushroom does not stink and its internal part is used both as a foodstuff and in treatment.

Golden Chanterelle *Cantharellus cibarius*

Growing in: VI – X

An easily discernible, frequent, widely spread and well-known mushroom with great taste. One of the rare mushrooms which may be fried without boiling. It is popular in this region and elsewhere in the world. It can be found in North America, North Africa and also in Asia as far as the Himalayas.

Yellow Foot *Cantharellus lutescens*

Growing in: VIII – X

It is a mushroom, darker and finer than Golden Chanterelle, very similar to Funnel Chanterelle. The lower side of the cap of yellow foot is almost smooth, the one of Funnel Chanterelle has visible plicated, branchy veins and the colour of its stem is not so brightly yellow. Both of them grow in damp places, quite often in sphagnum, therefore, they are only found by those who know their location. Both mushrooms are edible and tasty.

Black Trumpet *Craterellus cornucopioides*

Growing in: VII – X

A close relative to chanterelle. Its taste is similar to Golden Chanterelle. We know it less as an edible mushroom, but in Scandinavia it is one of the favourites. Due to the unusual colour and shape, it has various names – Horn of Plenty, Trumpet of the Dead, Black Chanterelle, Poor Man's Truffle, which have not promoted its popularity. It grows under deciduous trees, more rarely – coniferous trees. It is found frequently, but is not readily discernible because of the dark colour.

Wood Hedgehog or Hedgehog Mushroom *Hydnum repandum*

Growing in: VIII – X

From above Wood Hedgehog resembles a pale chanterelle, but its lower side differs – it is covered by tiny needles, which develop the spores of the mushroom. It is edible, but older mushrooms must be boiled carefully because the flesh turns bitter, as the mushroom matures. Since the hard flesh takes more time for cooking, it is useful for stews.

Cauliflower Mushroom *Sparassis crispa*

Growing in: VIII – X

A quite rare, large, cream-coloured or pale yellow-brown fungus, which, due to numerous lobes, resembles a large cauliflower. It grows one by one on drying or dead pines, most frequently – at the base of trunks.

Upright Coral *Ramaria stricta*

Growing in: VIII – X

This multi-branched fungus resembles coral and its branches are upright, not pendulous. If touched, it tints brownish. While it is young, it is thoroughly yellow, but, upon maturing, the base of fungus branches turns ochre-brown. It grows under spruces, on soil covered, decaying wood.

Icicle or Coral Tooth *Hericium coralloides*

Growing in: VIII – IX

Fungi researchers or mycologists regard it as one of the most beautiful fungus in our forests. It resembles white coral covered with tiny, pendulous needles. The largest specimens grow even

20 cm wide. It grows in wet, almost intact forests and glens on decaying trees, often in groups – there are usually several 'clumps' of coral tooth on one decaying tree.

Pinecone Mushroom or Ear-pick Fungus
Auriscalpium vulgare

Growing in: II – XII

A tiny mushroom with brown, up to a 2 cm broad, kidney-shaped cap, which is difficult to be mistaken for any else. The stem, darker than the cap, is attached to one side of the cap. There is tiny hair on the upper side of the cap, on the lower side – small needles. It grows on decaying cones. Although it is small and brown, it can be learnt to notice it since the mushroom is found wherever pine cones are.

Spruce Bolete *Boletus edulis*

Growing in: VII – XI

A well-known, heavy-set mushroom with a brown cap, a dense, thickened, white tissue covered stem and pale yellow tubes on the lower side of the cap. It is very similar to Birch Bolete. They are most easily distinguishable by the tree, under which they grow (Spruce Bolete – under spruce, but Birch Bolete – under birch). Because of the peculiar taste and smell, they are one of the mostly favoured mushrooms not only in this country, but also elsewhere in the world.

Pine Bolete *Boletus pinophilus*

Growing in: VI – IX

A mushroom, which is similar to Birch and Spruce Bolete due to the appearance, taste and smell, with a slightly darker and ruddier cap, which in damp weather becomes a bit slick. It forms mycorrhiza with pine. In other words – it grows under pine trees. Like other species of bolete, this is also good for frying, boiling, drying, freezing and pickling.

Lurid Bolete *Boletus luridus*

Growing in: VII – IX

A gaudy mushroom with a velvet brown cap, orange or coral colour tubes on the lower side of the cap and a yellow, red tissue covered stem. Its cut lines and imprinted marks turn livid. It grows under deciduous trees not only in forests, but also in parks, alleys, and on gravel road sides. It is edible, but must be boiled carefully before the usage.

Blueing Bolete *Gyroporus cyanescens*

Growing in: VII – X

An entirely greyish yellow mushroom which, if cut or touched, turns brightly cornflower blue (other species of bolete, whose injury places turn blue, usually become darker blue or even livid). When frying, its colour changes once again – to brightly yellow. A tasty, edible mushroom, but one should get to know it. It grows under various trees in sandy soil.

Red-capped Scaber Stalk *Leccinum aurantiacum*

Growing in: VI – X

This beautiful bolete, growing under aspen trees, is distinguished from other species by the place of growth and pale or maroon, not black, scale-covered, comparatively slender stems. The cap can be both gaudy orange-brown and orange-yellow. The flesh is white, later on greyish. The cutting place tints violet. It is similar to Orange Oak, which grows under oak trees. Both of them taste good, and they may be fried without boiling.

Foxy Bolete *Leccinum vulpinum*

Growing in: VIII – IX

This bolete has a gingery or maroon cap and a black, scale-covered stem. The flesh is white. The cap does not change colour at the cutting place, but the upper part of the stem turns pink, at the base – bluish. It grows under pine trees. Like most of boletes, it is good and edible, and may be fried without prior boiling.

Brown Birch Bolete *Leccinum scabrum*

Growing in: VI – XI

One of the most frequent boletes with a grey-brown cap and a slender, grey or black, scale-covered stem. The flesh is white with pleasant smell, the cutting place does not change colour. It can be cooked the same way as other boletes – fried without boiling. It grows under birch trees.

Weeping Bolete *Suillus granulatus*

Growing in: VI – XI

By appearance and taste it is very similar to Slippery Jack. Both species have brown caps with sticky, easily removable husk, yellow tubes on the lower side of the caps and pale yellow flesh. Weeping Bolete can be distinguished by tiny grains on the tubes and stem, but Slippery Jack – by a white veil, which covers the tubes of young mushrooms, or its remnants (ring) on the stem of matured mushroom.

Swamp Bolete *Suillus flavidus*

Growing in: VIII – IX

Unlike other species of bolete, this is more delicate with a lighter colour cap and coarser pores on the lower side of the cap. Grown-up mushrooms have a typical hillock in the middle of the cap. The flesh is yellowish with pleasant smell. It grows in bog forests or on the edges of mires under pine trees.

Velvet Bolete *Suillus variegatus*

Growing in: VII – X

A sand yellow or orange-brown bolete with a velvet or small, scale-covered cap and darker pores on the lower side of the cap, which is frequent both in dry and wet pine forests. The flesh is pale yellow. The cutting places and imprinted marks turn bluish. Sometimes it is named as Variegated Bolete. It is edible, but it has metallic smell.

Bitter Bolete *Tylopilus felleus*

Growing in: VII – X

This bitter and therefore inedible bolete is usually mistaken for Penny Bun. Unlike Penny Bun, Bitter Bolette has roseate tubes and the stem is covered by a dark, reticulate pattern. However, a safer recognition method is taste. Touch the flesh of the bolete with your tongue – you will feel the bitterness at once.

Rosy Spike-cap *Gomphidius roseus*

Growing in: VII – X

Under pine in dry pine forests one can often see comparatively small, russet brown or greyish brown boletes – Jersey Cow Mushroom, but among them – Rosy Spike-cap, which stands out by a slippery, coral cap and thin, slanting leaves thereunder. Both mushrooms grow in symbiosis. According to another source, Rosy Spike-cap is parasitic upon Jersey Cow Mushroom. Both species are edible, but they are without typical smell and taste.

Slimy Spike-cap *Gomphidius glutinosus*

Growing in: VII – X

A mushroom with a grey-brown, slimy cap, growing under spruce. There are thin leaves on the lower side of the cap. The stem has a visible belt with a soft ring. It turns black on older mushrooms. The base of the stem is brightly yellow and slimy. It is edible.

Velvet Rollrim *Paxillus atrotomentosus*

Growing in: VII – X

A mushroom difficult to be mistaken for any other species. It is massive, fleshy with an explicitly velvety stem, attached to the edge of the cap, and a dark brown cap with an incurved middle part and a folded edge. The cap is large, it can grow even 10 or 20 cm broad. It grows on old stumps or decaying trees. It is inedible – may cause indigestion.

Brown Roll-rim *Paxillus involutus*

Growing in: VI – IX

A frequent, inedible mushroom with a yellow to maroon cap, which has a slightly incurved middle part and a rolled-in edge. In dryness it is a bit velvety, but in dampness becomes slightly sticky. If touched, the soft, close leaves on the lower side of the cap colour brown. The stem is short, pubescent and has the same colour as the cap.

Conical Wax Cap *Hygrocybe conica*

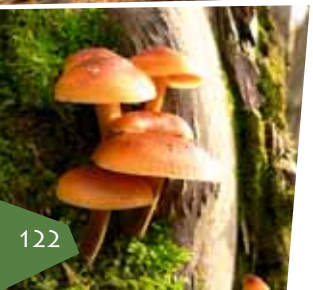
Growing in: V – XI

In damp grassland one can often find various species of Wax Cap – with gaudy red, yellow or orange coloured, conical and slightly transparent caps, which shine like sugar candies. Its characteristic is blackening – if touched or matured, it loses the bright colour and turns black.

Bleeding Fairy Helmet *Mycena haematopus*

Growing in: VIII – X

One of the numerous small, fragile mushrooms, which attract little attention. However, this Fairy Helmet has a peculiarity, which distinguishes it from similar species – if the stem is injured, it exudes sanguine sap. The small, pink, bell-shaped caps smell like radish. It is inedible. It grows in clumps on decaying wood.



Golden Needle Mushroom
Flammulina velutipes

Growing in: VIII – XII

A late autumn mushroom, which even grows in winter thaw and can provide the connoisseurs with a fresh mushroom sauce in winter! Its characteristic is an entirely orange-brown cap and a dark brown velvety stem. It grows in clumps on dead wood or in the injury places of growing trees, especially on willow and aspen. The cap is edible. It is grown for sale.

Stump Mushroom *Armillaria mellea*

Growing in: IX – XII

At the base of deciduous trees, near stumps and decaying trees one can often see an entirely yellowish or beige mushroom, which grows in clusters. As it matures, the middle of the cap tints darker brown. The cap is covered by tiny scales. At the top of the stem a white ring with a yellow edge is visible. Thoroughly boiled young caps are edible, but one should be careful since they can cause indigestion.

Sheathed Woodtuft *Kuehneromyces mutabilis*

Growing in: V – XI

It is at times mistaken for Stump Mushroom. It is recognizable for a dark and a light belt on the cup – their width and proportion depend on how damp the mushroom is – the middle fades in dryness. It is good, edible, and is specially cultivated in many places in the world (caps, not the stem, are edible). There is a brown ring on the stem.

Shaggy Scalycap *(in combination with alcohol)*
Pholiota squarosa

Growing in: IX– XI

One of the most expressive cap mushrooms – both the cap and the stem are covered with slanted scales. It grows in large clusters on the wood of deciduous trees or at their trunk base. Although it is regarded as edible, it has no particular smell and taste. It often tastes bitter and becomes poisonous, if used together with alcohol.

Shiny Cap *Coprinus micaceus*

Growing in: IX– XI

A small, fragile, thin mushroom, which grows in large clusters on the stumps, decaying wood or at the base of large deciduous trees. It has a cap, whose shape is typical of Inky Cap, covered with shiny 'grains', and a hollow, cream-coloured or white stem. Like all Inky Caps, as it grows older, its cap dissolves in an ink-like liquid. It is inedible.

Common Ink Cap *(in combination with alcohol)*
Coprinus atramentarius

Growing in: V – XI

Common Ink Cap grows in dense clusters in thin forests, parks, gardens and on grassland with soil, rich in nutrients. It is easily distinguishable by the grey cap, whose shape is typical of Inky Caps and which stretches and dissolves, as it grows older. If carefully cooked, it is edible, but may not be used together with alcohol. Besides alcohol must be used neither before nor several days after eating the mushroom.

White Brittle-head *Psathyrella candoleana*

Growing in: V – X

One of the many Brittle-heads, which are difficult to distinguish. Its ivory-coloured cap is bell-shaped, the leaves – dark, even chocolate brown, the stem – slender, and hollow. Both the cap and the stem are very fragile. It is considered as edible, but it can easily be mistaken for other species of poisonous Brittle-heads, so it is not advisable to take the risk. It grows in clumps on decaying wood of deciduous trees.

St. George's Mushroom *Calocybe gambosa*

Growing in: V – XI

One of the few edible spring mushrooms. It may be fried without boiling. It is entirely creamy white with a massive, smooth, dry cap, peculiar smell of flour and pale leaves on the lower side of the cap. If a mushroom, similar to the described one, has pink leaves or they turn pink upon touching – be careful, possibly it is one of the most poisonous mushrooms in our forests – deadly Fibre-cap.

Sweetbread Mushroom *Clitopilus prunulus*

Growing in: VII – X

A mushroom with an almost white or cream-coloured cap, a stem of the same colour and pale roseate, rosy grey or slightly yellow leaves on the lower side of the cap. Its characteristics are a silky smooth surface of the cap (touch it!) and the smell of fresh flour. It is edible, but can easily be mistaken for poisonous Funnel-caps and Pink-gills.

Wood Blewit *Lepista nuda*

Growing in: IX – XI

A sturdy, fleshy mushroom of bluish or violet-brown colour. As

the cap is drying, its colour fades from the edge. The leaves on the lower side of the cap are gaudy violet, turning brown upon ageing. The edge of the cap of young mushrooms is incurved, but later on becomes straight or upturned. The flesh is firm, aromatic, violet-blue with pleasant scent and sour-sweet taste. It is specially grown for sale.

Gypsy Mushroom *Rozites caperata*

Growing in: VIII – X

A completely yellowish mushroom with an egg-shaped, later on curved cap, whose surface is slightly furrowed or plicated. Quite often it has somewhat asymmetric shape and its cap is lightly frosted. There is a narrow, flattened ring on the smooth stem. It is a good, edible mushroom, which may be fried without boiling. However, one should be careful because it can easily be mistaken for poisonous mushrooms.

Parasol Mushroom *Macrolepiota procera*

Growing in: VII – X

One of the largest cap mushrooms in Europe – even up to 40 cm tall. It has large, soft scales on the cap, a grey-brown hillock in its middle, a dark scaly stem with thickened base and a large, fleshy ring on the stem. The light flesh does not change colour in the cutting and injury places. It smells of nuts. It is edible fresh, but it tastes the best if fried as a chop.

False Death Cap *Amanita citrina*

Growing in: VII – XI

One of the most frequent Death Caps. It is an entirely white or yellowish mushroom with peculiar smell of raw potatoes. There are irregular scales on the surface of the cap. There is a large, loose ring on the upper part of the stem. There is a large, rounded tuber with an explicit, split-off rim at its base. It is not as poisonous as European Destroying Angel or Death Cap, but one should better avoid this mushroom!

European Destroying Angel *Amanita virosa*

Growing in: VII – XI

One of the most poisonous mushrooms in our forests. It is entirely white, ivory-coloured with a bell-shaped or conical cap and a large, baggy sheath at the stem base (most of it is hidden in soil). The flesh is white with unpleasant smell. Unlike for other Death Caps, the ring on the stem can be inexplicit.

Death Cap *Amanita phalloides*

Growing in: VII – X

One of the most poisonous mushrooms in our forests. It can be recognized for a green or grey-green cap with a fibrous surface, white leaves on the lower side of the cap, a pale or cap-like colour stem, which is most often decorated with a loose ring, and an explicit, nodular thickening at the stem base, sunken in the soil and encircled by a white, wide, baggy sheath. The flesh is white, soft, with a smell of honey and nuts.

Sacred Weeds *Amanita muscaria*

Growing in: VII – X

The form of this red mushroom is known to almost everybody, but not everyone knows that it can also be markedly orange or yellow. If you find in a forest a similar mushroom with a brown cap, then it is most possibly Grey Spotted Amanita, Blusher Amanita or Panter Amanita. All of them are poisonous, and there are more or less explicit, pendulous rings on their stems, but at the stem base – nodular thickening.

Red Banded Webcap *Cortinarius armillatus*

Growing in: VII – X

One of the many Web-caps, which are difficult to distinguish. Their colours may be different, but all of them have a net-like veil which connects the caps of young mushrooms with the stem. As it grows, the veil tears, but its remnants like webbed flakes remain on the stems of mature mushrooms. Almost none of the web-caps is edible.

Golden Bootleg Mushroom *Phaeolepiota aurea*

Growing in: VIII – XI

A large, massive, golden brown with a grainy cap and bitter almond smell. Young mushrooms have a dense veil between the edge of cap and the stem, which forms a pendulous ring on older mushrooms. Some time ago it was quite rare, but it has been found more often recently. It grows on the edges of forests, on the forest roadsides, in shrubbery, on the slopes of ditches and elsewhere in nitrate rich soils. It is edible, but may cause indigestion.

Ugly Milk Cap *Lactarius necator*

Growing in: VII – XI

Ugly Milk Cap is a wide-spread mushroom with a slightly incurved cap with rolled-in edges. It is difficult to discern it due to greenish colour. Its white, delicate flesh exudes a lot of white milk, which tints greenish brown upon drying. It is known that the mushroom might contain cancer causing substances; therefore, it is not advisable to use it as a foodstuff. It grows individually or in clumps under birch or spruce.

Woolly Milk Cap *Lactarius torminosus*

Growing in: VII – XI

A wide-spread and well-known mushroom. It can be recognized for the rosy colour and the tousled, incurved cap with a rolled-in edge. The delicate, white flesh exudes poignant and white milk. It is edible, but only after salting or pickling. It can cause poisoning if used without boiling. It grows in wet soil in circles or clumps.

Saffron Milk Cap *Lactarius deliciosus*

Growing in: VII – X

One of the most valuable mushrooms (behind bolete and chanterelle) in our forests. It has thick, firm, orange-yellow flesh and a smooth, incurved cap with a rolled-in edge. It exudes orange milk, which does not change colour. It is used fried, salted and pickled. It is also well-known and widely-used in other European countries. Sometimes it is cultivated.

False Saffron Milk Cap *Lactarius deterrimus*

Growing in: VIII – X

A well-known, edible mushroom, which may be fried without boiling. The milk is orange, later on wine reddish violet. Unlike Saffron Milk Cap, its imprinted marks tint greenish. In terms of taste, it slightly falls behind Saffron Milk Cap.

Willow Milk-cap *Lactarius controversus*

Growing in: VIII – X

A yellow-white mushroom with typical salmon or slightly rosy leaves on the lower side of an incurved cap. Its white or pale rosy flesh exudes bitter white milk, which does not change colour upon drying. It grows individually, in circles or in clumps. Not poisonous, but inedible because of the bitter milk.

Weeping Milk Cap *Lactarius volemus*

Growing in: VIII – X

A largish mushroom with a sturdy, pale orange stem, an orange cap and golden yellow leaves on the lower side of the cap. Its nearly white flesh abundantly exudes poignant and white milk, which turns light brown upon drying. It smells of crabs or herring. It is edible but, due to its peculiar smell, the mushroom should be cooked separately from other mushrooms. It grows in clumps under deciduous trees.

Rufous Milk Cap *Lactarius rufus*

Growing in: VI – XI

A wide-spread and well-known, entirely russet mushroom. Its tender, pale brown flesh exudes white milk, which does not change colour. After cutting its taste is smart, but after salting the mushroom becomes edible. It grows in clumps under pine or birch.

Tall Russula *Russula paludosa*

Growing in: VIII – X

A largish russula with a yellow-red cap (the middle part fades) and a bit roseate stem, which turns grey upon ageing. It is edible with firm, gentle-tasting flesh, but one should be careful since it is easily mistaken for other similar, but inedible russula. It grows in groups or scattered under coniferous trees, quite often – in bogy places.

Sickener *Russula emetica*

Growing in: VIII – IX

This russula has a smooth, brightly cherry-red cap and a white stem. The only safest way of distinguishing it from other russula with pink caps and gentle taste – touch a piece of mushroom's flesh with the tongue to feel its bitter taste. If during the cooking there is a Sickener among others in the pot, it will be difficult to get rid of the bitter taste.

Graying Russula *Russula decolorans*

Growing in: VII – X

The stem of this russula tints pale grey in injury places. The grey tint is particularly visible in the places, where worms have damaged the mushroom. The colour of the cap is usually yellow-orange, upon fading it becomes dirty yellowish. The flesh is firm, white, later on turns greyish, with no particular smell and with gentle, slightly bitterish taste.

Almond Scented Russula *Russula laurocerasi*

Growing in: VIII – IX

A mushroom with a yellowish, tiny stripe furrowed cap and pleasant almond scent. It is edible after boiling. Its appearance is similar to the inedible Stinking Russula and slightly Ill-smelling Russula, but it can be distinguished by the smell.

Blackening Brittlegill *Russula nigricans*

Growing in: VIII – XI

A large russula with a dark, incurved cap, a sturdy stem and thin, thick leaves of different length on the lower side of the cap. The flesh is white, turns pink in the cutting place, but later on – tints black. It is edible, but poignant. This russula is occasionally difficult to discern among the dark leaves or it looks like an old mushroom.

Yellowing Curtain Crust *Stereum fastigiatum*

Growing in: VI – XII

It can be found on the wood of dead alder almost all year round, but it is more easily discernible in autumn – at the time of its active growth, when its edges colour brightly ruddy, yellow and also green. It is distinguished from the 'real' bracket-fungus by the smooth, not porous lower side. It often grows in large groups by forming decorative 'bunches'. It is inedible.

Turkey Tail *Trametes versicolor*

Growing in: VII – XI

The polypore has got its name due to its striped, 3–7 cm wide, fan-like cap. Belts of different colours and structure – some are mat, others – glossy, – are mingled on the surface of the cap. It grows on dead wood of deciduous trees, quite often – in sunny places. It is inedible, but it is used in the traditional Eastern medicine.

Smoky Bracket *Bjerkandera adusta*

Growing in: VIII – X

A bracket-fungus, frequently found on dead wood of deciduous trees, which forms flimsy, 3–7 cm wide, grey-brown caps with lighter and darker belts on its outer edge. It is easy to distinguish it from other bracket-fungus by the ashy lower side and there are black stripes between the pale tissue and grey tubes in its cross-section. It is inedible.

Oyster Mushroom *Pleurotus ostreatus*

Growing in: VII – XII

This fungus, found on the shelves in shops, also grows in our forests. Every autumn after rain season it can be found on dead deciduous trees. The cap is smooth. Its colour varies from nearly white to dark grey. The stem is on one side of the cap. The white flesh has pleasant smell and firm consistency.

Hairy Bracket *Trametes hirsuta*

Growing in: VI – X

A pale grey or almost white, 5–12 cm wide bracket-fungus with concentric furrows. The surface of this polypore is covered with straight, short hair, there are regular, round, grey pores on the lower side. It grows in lit-up places on quite dry decaying deciduous trees, particularly aspen. It is inedible.

Dryads Saddle *Polyporus squamosus*

Growing in: V – IX

A large, scaly polypore on a short stem with black lower side. The cap is rarely smaller than 10 cm in diameter, but its length can reach even 30–40 cm. Its characteristic is a sloped layer of pale tubes with largish, irregularly shaped pores on the lower side of the polypore. The flesh of young polypore is white, soft and edible, but, as the polypore grows, it becomes corked. It grows on the trunks, decaying wood and branches of large deciduous trees.

Bay-brown Polypore *Polyporus badius*

Growing in: VI – X

This polypore has a short, dark stem on one side of the cap. The 5–10 cm wide, chestnut cap is smooth, leathery with a paler, wavy edge. It grows most frequently in wet, shadowy places on decaying deciduous trees. It is inedible.

Velvet-top Fungus *Phaeolus schweinitzii*

Growing in: V – X

A 15–30 cm wide polypore on a short stem, which grows at the base of large pine, more rarely other coniferous trees. The stem may be both in the middle and on the edge of the cap. While young, it is sulphurous-coloured. As it grows, its middle becomes russet brown, but a matured mushroom is entirely russet brown. Upon drying, it becomes very light and the inside resembles felt. It was used to dye yarn. It is inedible.

Artist's Bracket *Ganoderma applanatum*

Growing in: I – XII

Brown, uneven surface, pale lower side and a flimsy edge typical of bracket-fungus. It can grow for several years or decades and reach the width of even 50–60 cm. Drawings can be made on the light lower side by any pointed object. After drying the drawing is retained, therefore, its English name is 'Artist's Bracket'. It is inedible.

Benzoin Bracket *Ichnoderma benzoinum*

Growing in: VIII – X

The surface of the 5–15 cm wide bracket is formed by a mixture of uneven, velvety, russet brown and black belts. Its outer edge and the lower side are light. Since the young polypores are saturated with a resinous substance, occasionally it is named as Resinous Polypore. Upon ageing or touching it tints darker. It grows on decaying coniferous trees both in wet and dry forests, also in clearings. It is inedible.

Rusty Gilled Polypore
Gloeophyllum sepiarium

Growing in: V – XI

A brown polypore with a yellow edge. The part flattened against the wood is almost black. The lower side has longish pores, which resemble the leaves of cap mushrooms. One of the most characteristic bracket-fungus on dry, processed wood of coniferous trees, e. g. on wooden fences, railway sleepers. In forest it can be found on lit-up and dry decaying pine and spruce trees, also in burning places. It is inedible.

Cream Bracket *Gloeophyllum odoratum*

Growing in: II – XII

The 5–20 cm wide Cream Bracket is quite frequent on spruce stumps in forests, clearings and plains. It is a perennial, dark brown polypore with a golden brown to orange upper part (outer edge). It can easily be distinguished from similar species by the strong anise scent. Formerly it was placed into wardrobes, so that the clothes would be pleasantly scented. It is inedible.

Red Banded Polypore
Fomitopsis pinicola

Growing in: I – XII

A frequent polypore, grows on the wood of both deciduous and coniferous trees and can reach an impressive size. It is recognizable for a ruddy and yellowish belt on its edge. The part flattened against the wood is dark, almost black. Its characteristic is acidulous smell. If it is sawn into two, one can learn how old the polypore has been – the annual rings of the bracket-fungus are clearly visible in the tissue. It is inedible.

Tinder Fungus or Tinder Conk
Fomes fomentarius

Growing in: I – XII

A thick, perennial bracket-fungus with brown belts in different shades and a pale grey to grey-brown lower side. It is frequent on growing or fallen birch trees. There is velvety brown tissue under the grey 'crust', which was once used in lighters – tinder. Nowadays souvenirs are made from large Tinder Fungus in some countries. It is inedible.

Birch Bracket *Piptoporus betulinus*

Growing in: VI – XI

On old growing and fallen birch next to Tinder Conk one can find Birch Bracket, which grows 5–20 cm in width. Its characteristics are a brown surface, a white lower side, a smooth, rounded edge and white, firm flesh, which often serves as feed for wild animals. Formerly it was used for polishing and sharpening.

Blushing Bracket *Daedaleopsis confragosa*

Growing in: VI – XI

A quite flimsy, 8–15 cm wide polypore with a rough cinnamon or maroon surface and a grey outer edge. It is easily distinguished from similar species by the lower side. The pores of Blushing Bracket are longish, not round like for most polypores. The imprinted marks colour pink. It grows on dead branches of deciduous trees and bushes and on small fallen trunks. It is inedible.

Oak Mazegill or Maze-gill Fungus
Daedalea quercina

Growing in: I – XII

A pale yellow-brown, 10–30 cm wide, perennial polypore with a slightly wavy, smooth or velvety surface and a lighter lower side. It is easily recognizable for the large, longish pores with thick pore walls, which form a marked 'maze' on the lower side of the polypore. The only polypore with maze pores, growing on oak. It is inedible.

Cinnabar Polypore *Pycnoporus cinnabarinus*

Growing in: VI – X

A small, yellowish orange polypore with a gaudy vermilion lower side, which grows on the wood of deciduous trees (dead branches, decaying trees). As the time passes, it turns lighter, but the edge – thinner. One of the rare polypores, which grows in sunny places on dry wood of deciduous trees – on the edges of forests, in clearings and in shrubbery. It is frequently found next to Hairy Bracket. It is inedible. It can be used to dye yarn.

Fuzzy Orange Polypore
Pycnoporellus fulgens

Growing in: VI – IX

A gaudy orange, flimsy polypore with a bit paler lower side, a tiny hair covered surface and a yellowish orange outer edge. It grows in groups on large size decaying spruce trees, on which Red Banded Polypore has grown before. Occasionally there are partly disrupted Red Banded Polypore and much darker Fuzzy Orange Polypore of previous year besides. It is inedible.

Tender Nesting Polypore
Hapalopilus nidulans

Growing in: VII – XI

A rather flimsy, 2–12 cm wide, yellow-brown or cinnamon-coloured polypore. If potassium alkali solution is spilt on the fungus, it tints gaudy violet. It grows on deciduous trees, usually on medium-sized dry branches and trunks. The range of host plants is broad –willow, alder, birch. It is inedible. It can be used to dye yarn.

Saffron Yellow Polypore
Hapalopilus croceus

Growing in: VII – IX

According to the name, the colour of Saffron Yellow Polypore is beautifully orange (fades upon ageing). It is dense, soft and damp, if touched. It can be distinguished from the more frequent Sulphur Polypore by consistency and shape (Sulphur Polypore is drier, tougher, thinner and usually multi-storey). It grows on old oaks, their stumps or decaying trees. Since there are not many trees appropriate for this polypore in our forests, it is quite rare.

Sulphur Polypore *Laetiporus sulphureus*

Growing in: V – IX

A brightly yellow to orange polypore, whose 10–50 cm wide caps are formed in many ‘storeys’. While young, it is edible, but should be carefully cooked before eating. It grows both in forests and in parks and greenery, quite often highly on the trees. It incites brown rot.

Beefsteak Fungus *Fistulina hepatica*

Growing in: VII – X

A carroty, rosy or, at the end of autumn, purple brown, 10–20 cm wide polypore with a paler lower side that cannot be mistaken for other polypores. If touched or cut, it exudes red sap, which resembles blood. The tissue in the cutting place is white-red. It grows individually at the base of large oak trees. It slowly disrupts the wood of oak, making it lovely red. The experts use such wood for woodcarving.

Red Ring Rot *Phellinus pini*

Growing in: I – XII

One of the few polypore species, which grow on the trunks of large, growing pine. The colour – from pale golden to dark brown. It is most frequent in coastal forests, often in the injury places of broken branches or trunks. Red Ring Rot can grow for many years and it is very hard and woody. It is inedible.

Chaga Mushroom *Inonotus obliquus*

Growing in: I – XII

The fruiting bodies of this bracket-fungus are black, layered, and they grow on the trunks of dead birch (more rarely – alder). Its black, rough formations – the sterile conk – are a well-known remedy in treatment. It is inedible.

White Heartwood Rot *Phellinus tremulae*

Growing in: I – XII

Almost in any aspen wood on growing aspen one can find White Heartwood Rot. Its surface is nearly black, the lower side – brown. The fruiting bodies, flattened against the trunk, are very hard and often grow several together. They still continue growing for some time after shrivelling of the tree. It is inedible.

Alder Bracket *Inonotus radiatus*

Growing in: VII – XI

A 3–8 cm wide bracket-fungus, which grows in large groups on the trunks of decaying or dead alder trees. Young polypores have a brightly yellow or fawn surface. Later on it becomes russet brown and has belts. If polypore is turned around, it looks sometimes light, sometimes dark. It can be explained by the fact that the inside of tubes has a different colour from the layer of pores, and, by shifting the angle, one or another colour gets visible better. It is inedible.

Tiger's Eye *Coltricia perennis*

Growing in: V – XII

An unusual polypore, growing on sandy soil, with a light, dry, funnelled cap. There are narrow, concentric, russet brown belts in different shades visible on its surface, but on the lower side – greyish brown pores. It is inedible.

Earthfan Fliget *Thelephora terrestris*

Growing in: VII – XI

An uneven, fan-shaped polypore with a light brown, fringed edge. It is frequent in coniferous forests and heaths, but difficult to spot due to dark colour. It often grows next to seedlings of coniferous trees. Its close relative Stinking Earthfan is somewhat more fleecy and is best distinguished by the smell, which reminds of old cabbage. It is inedible.

SNAILS AND SLUGS

There are ~80 species of terrestrial snails in the Baltic Countries and Belarus. Since snails and slugs (snails without shells) are for the most part the inhabitants of damp and shadowy places, most of them are related to various forest habitats. The more species of snails are in the forest. The older and more valuable the forest is from the point of view of the preservation of nature diversity. Only a few species of snails and slugs are 'flexible' and able to adapt to new life circumstances, therefore, along with the reduction of forest territories, a number of them have become rare.

Amber Snail *Succinea putris*

One of the most frequent snails with a 10–17 mm long, from amber yellow to greenish, partly transparent shell. It can be found on plants in wet places. One can sometimes observe Amber Snails with glaring, explicitly palpitating tentacles in which a parasitic fluke worm lives.

Dusky Slug *Arion subfuscus*

One of the most frequent slugs whose brown coloured body can stretch 5–7 cm tall. The foot is greyish white. Most frequently discernible on mushrooms, but dwells on decaying trees and under the bark of dead trees, too.

Black Keel Back or Ash Grey Slug
Limax cinereoniger

A quite frequent, at least 10–12 cm tall slug of black or dark-grey colour. The foot's backside is black with a white stripe in the middle. It exudes typical, very sticky mucilage. Dwells both in the undergrowth and on tree-trunks.

Plaited Door Snail *Cochlodina laminata*

One of the largest and most common species of Door Snails. It is 15–17 mm tall with a pointed shell of yellowish brown colour. The surface of the shell is glossy, smooth with fine stripes, without wrinkles. It can be found on the forest ground and on decaying trees, or on tree trunks.

Copse Snail *Arianta arbustorum*

One of the most frequent snails. It has a typical, up to 28 mm wide, brown to yellowish shell with tiny lighter spots. The species has considerably multiplied within the last decades and now is widely distributed outside forests as well.

White-lipped Snail
Cepaea hortensis

A quite frequent, up to 22 mm wide snail with a typical yellow, slightly flattened shell with dark brown, helical belts and a white 'lip' at the shell entrance. Sometimes the helical belt on the yellowish shell is missing.

Burgundy or Roman Snail *Helix pomatia*

A frequent, 30–50 mm wide snail with a thick, greyish brown shell which can have several darker, brown belts. The name of species has originated from the fact that formerly this snail used to damage vineyards where it gnawed the young shoots of vine. In nature it is particularly protected species. In many European countries it is cultivated and consumed as a dainty.

→
Copse Snail

INSECTS

There are a large variety of insects and other invertebrates in forests. In the Baltic Countries and Belarus, ~6500 different species of invertebrates might be connected with forests. Every fifth species of forest invertebrates is connected with dead wood, therefore, the largest variety of species is observed in old, natural forests with plenty of decaying and dead trees. A lot of insects like sunny, lit-up places, thus, interesting species of insects are observable on the edges of forests, on the forest roadsides, and in forest meadows as well. Insects play a major role in forests, since they both pollinate plants and ensure the circulation of substances, for instance, by facilitating the decomposition of dead trees, or fallen leaves and needles, as well as by feeding larger animals. This guide includes the species that are frequent, whose presence is proved by their 'activity traces' or that have a particularly grasping way of life.

Forest Cockroach *Ectobius sylvestris*

A frequent, 7–10 mm long insect of fawn or greyish yellow colour. From above its body is covered by leathery, dark wings. Cockroach inhabits the forest floor, where it lives among moss and lichen. Occasionally, they are observable on the leaves of bushes. Unlike other species of cockroach, it is also active in the daytime.

Rattle Grasshopper *Psophus stridulus*

In some places a quite frequent, brown-grey, 20–34 mm long grasshopper with gaudy red hind wings. If motionless on the ground, it is discernible with difficulty, but in flight the gaudy hind wings are visible. When disturbed, it can perform short, low flights, during which it emits a noisy, rattling sound. Rattle Grasshopper is found in dry, sandy places with low and thin vegetation.

Firebug *Pyrrhocoris apterus*

In some places a quite frequent, 9–11 mm long bug with an oval, flattened body in gaudy red-black colour. Firebug is found at the base of old trees in parks, park-like meadows, and gardens, at times in a large number. It feeds on various insects.

Minstrel Bug or Italian Striped-Bug
Graphosoma lineatum

A frequent, 8–10 mm long bug with characteristic bright colouring – fore-and-aft black and red belts. It is found on various blossoming plants, particularly – on *Umbelliferae* family. A species gradually expanding towards the north.

Wood Tiger Beetle *Cicindela sylvatica*

A quite frequent, 14–20 mm long beetle with a slightly flattened body of bronze black colour, which quickly runs along the surface of the ground. From above the sheaths have small, white cross belts and spots. If disturbed, it performs short, low flights. It is more easily discernible on sandy forest roads, in glades and clearings, where it hunts tiny insects. In the same place grubs form vertical, round grub walkways in sand.

Horned Stag Beetle
Sinodendron cylindricum

In some places a frequent, 12–16 mm long beetle with a cylindrical body in shining black colour. Males have one very marked horn-like projection on the fore-part of body. Its appearance resembles Rhinoceros Beetle, but the latter is more frequently found in a splinter and compost heap not a forest. The grubs of Stag Beetle feed on the decayed wood, often in snags and in standing dry trees.

Dung Beetle *Geotrupes stercorosus*

A very frequent, 12–19 mm long beetle with a sturdy, strongly curved body in blue-black colour. From above the sheaths have small, longish grooves. Grubs and grown-up beetles feed with animal excrements and decaying mushrooms. Often they crawl and die in large numbers in the bottles, left in the forests by irresponsible people.

Bee Beetle *Trichius fasciatus*

A quite frequent, 9–13 mm long beetle with a sturdy, tiny hair covered body. Its upper part has typical but variable colouring – there are black cross belts on the yellow sheaths. From a distance it can be mistaken for a small Bumble-bee. Grubs feed on decaying wood of deciduous trees. Grown-up beetles are most frequent on the blossoms, growing in sunny forest glades, on forest's edges, on the forest roadsides, and in clearings.

Rose Chafer Beetle *Cetonia aurata*

A frequent, 8–26 mm long, sturdy beetle with a flattened body and short, spadix-like horns. Its characteristic is brightly metallic dark green or bronze colouring. Grubs feed on decaying wood. Grown-up beetles are observable from May till August on blossoming plants, where they feed with nectar and pollen. Unlike many other beetles, Rose Chafer Beetle flies without raising sheaths, but by moving out wings through special clefts on the sides of body.

Hermit Beetle *Osmoderma eremita*

A rare, 24–32 mm long, sturdy beetle with a slightly flattened body of dark brown to black colour. Grubs and adult Hermit Beetles live in hollow trees, where they feed on decaying wood. Due to the hidden lifestyle, it is difficult to discern. The presence of species is indicated by grub excrements in the hollows of trees and at their base (2–3 mm wide and 4–8 mm long with a flattened rectangular shape).

European Red-bellied Clerid
Thanasimus formicarius

A frequent, 7–10 mm long beetle with a slender, slightly flattened body and bright colour. Grubs live under the bark of conifers and feed with the grubs of Bark Beetle. Adult beetles can be observed from early spring on the trunks, stumps and freshly sawn timber of coniferous trees, where they hunt adult bark beetles. Due to the shape of body and quick movements, it resembles a stocky ant from a distance.

Large Crescent Shaped Shield *Peltis grossa*

A quite rare, 15–20 mm long, strongly flattened beetle of dark brown or black colour. Grubs inhabit decaying wood of deciduous and coniferous trees. Adult beetles are mostly observable under the polypores. The presence of Large Crescent Shaped Shield is indicated by narrowly longish passages (10–12 mm long, 3–4 mm wide), which are visible on woody debris and snugs.

Pine Borer *Chalcophora mariana*

In some places a quite frequent, 24–35 mm long beetle with a sturdy, a bit flattened body. Its characteristic is brightly metallic grey-green colour. Grubs inhabit the wood-pulp of dead pines. Adult Pine Borers are found from June till August on brightly sunlit decaying pine trees, their stumps and timber.

Darkling Beetle *Diaperis boleti*

In some places a frequent, 6–8 mm long beetle with an oval, curved body. On the upper part the sheaths have a typical shining, yellow-black colour. Darkling beetle has peculiar smell. Its grubs feed on the polypores of the dead birch trees. The beetles are observable on the lower side of polypores.

Red Longhorn Beetle *Strictoleptura rubra*

A frequent, 10–20 mm long beetle with a slender body, long horns and legs. The female beetles have red sheaths on the upper side, the male – fawn ones. Grubs feed on decaying wood of coniferous trees. Grown-up beetles can be observed on the trunks, stumps and timber of conifers, at times also on blossoms, where they feed on nectar and pollen. One of the most frequent longhorn beetles in the region.

Four-banded Longhorn Beetle
Leptura quadrifasciata

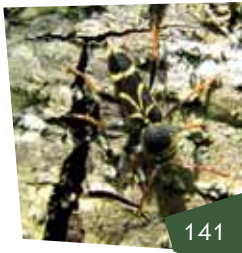
A frequent black, 11–20 mm long beetle with a slender body, long horns and characteristic colouring of sheaths, consisting of gaudy yellow cross belts. Due to the contrasting colours, it resembles a wasp at a distance. Grubs feed on decaying wood of deciduous trees. Adult beetles are found from May till July on the trunks and stumps of deciduous trees or on blossoming plants on sunny edges of forests and the roadside.

Ribbed Pine Borer *Rhagium inquisitor*

A frequent, 10–21 mm long beetle with a slightly flattened, greyish body. Grubs live under the bark of weakened and drying pines, and before pupation form a typical 'nest' from wood splinters. Adult borers abide the trunks, stumps and freshly sawn timber of conifers, as well as blossoming plants.

Wasp Beetle *Clytus arietis*

In some places a frequent, black 6–15 mm long beetle with a slender, cylindrical body. The upper part has a characteristic drawing of sheaths, consisting of yellow belts. Due to the colouring, it can be mistaken for wasp at a distance. Grubs feed under the bark and in the wood of oak branches. Grown-up beetles like warmth and in May–July are found on blossoming plants on the edges of forests, where they feed with nectar and pollen.



Gray Tiger Longicorn *Xylotrechus rusticus*

A frequent, 10–20 mm long beetle with a slender, cylindrical body and long legs. On the upper side it has black sheaths with tiny, greyish spots. Grubs feed under the bark and on the wood of aspen. Adult beetles can be found from May till July on aspen trunks, stumps and freshly sawn timber, where they quickly move around.

Small White-Marmorated Long-Horn Beetle *Monochamus sutor*

A frequent, 15–25 mm long, black beetle with a slender, cylindrical body and very long horns and legs. The length of the male horns can be twice as long as the body. Female beetles have small, yellowish spots on the upper side of the sheaths. Grubs feed with wood of dying spruce trees. Grown-up beetles are found form June till August on spruce trunks, stumps and freshly sawn timber. The presence of species is indicated by their passages – 7–9 mm large, round holes in spruce wood.

Weaver Beetle *Lamia textor*

A quite frequent, black, 15–32 mm long, sturdy beetle with long horns and legs. Grubs feed on the roots of willow and aspen. Adult beetles can be found on willow and aspen trunks and leaves, but more often they are discernible on forest roads, since they usually abide near the surface layer of soil.

Timberman Beetle *Acanthocinus aedilis*

A frequent, 11–24 mm long beetle with a slightly flattened, greyish brown body. It is distinguished among other insects by very long horns, whose length for male beetles can exceed 3–4 times the length of body. One of the first observable wood-borers in spring. Grubs inhabit pine tree's wood, from April till May adult beetles dwell on pine trunks, stumps and freshly sawn timber.

Musk Beetle *Aromia moschata*

A quite frequent, 13–34 mm long beetle with a slender, slightly flattened body and very long horns and legs. Its characteristic is shining metallic green colouring, as well as peculiar smell of musk. Grubs feed on willow's wood. Adult beetles are found in July and August on willow trunks and leaves, as well as on various blossoming plants, where they feed with pollen and nectar.

Ladder-marked Long Horn Beetle
Saperda scalaris

In places a quite frequent, 11–19 mm long beetle with a slender, cylindrical body and long horns. Its upper side has a characteristic drawing on the sheaths – yellowish belts and spots on black background. Grubs feed under the bark of various deciduous trees, especially – aspen. Grown-up beetles are found on the trunks and firewood of deciduous trees form May till July. It is quite often seen gnawing aspen leaves.

Poplar Leaf Beetle *Melasoma populi*

A very frequent, 10–12 mm long beetle with slightly curved, black body with red or maroon sheaths. If disturbed, it excretes protective fluid, unpleasantly smelling of hydrocyanic or carbolic acid. Both grubs and adult beetles feed on aspen leaves.

Alder Leaf Beetle *Agelastica alni*

A very frequent, 6–7 mm long, roundish egg-shaped beetle of shiny metallic navy blue colour. Grubs and adult beetles feed with alder leaves, gnawing holes of different sizes therein.

Mint Leaf Beetle *Chrysomela aenea*

A frequent, 6–9 mm long, roundish beetle of shiny metallic green colour. Grubs and adult beetles feed with alder leaves, gnawing holes of different sizes therein.

Spruce Engraver Beetle *Ips typographus*

A very frequent, 4–6 mm long beetle with a cylindrical, tiny hair covered body in dark brown colour. On the upper side the end of sheaths has eight projections – 'teeth', which are used to push splinters out of the passages, gnawed in spruce bark. Both grubs and adult beetles inhabit spruce bark. Quite often it breeds in large numbers.

Birch Bark Beetle *Scolytes ratzeburgi*

A frequent, 4.5–6.5 mm long beetle with a shiny black or dark brown body. Grubs feed under birch bark. Bark Beetles fly in June and abide extremely weakened, sun-lit birch trunks. The presence of the species is stated by the traces of its activity – small holes, gnawed in vertical lines on birch bark.

Large Pine Weevil *Hylobius abietis*

A very frequent, 8–14 mm long beetle with a prolonged head which forms 'proboscis'. There are 2–3 inexplicit, yellowish scaly cross belts on the sheaths. Grubs feed on pine roots. The adults – gnaw the young pine shoots, severely harming coniferous forest plantations.

Nut Weevil *Curculio nucum*

In places a very frequent, 6–9 mm long, maroon beetle with a very extended head, which forms 'proboscis'. Grubs are yellow-white, slightly bent and without legs. They stay in hazel nuts, where they feed on nut kernels. Afterwards the grubs gnaw a round tiny hole in the nutshell and cocoon in soil. Grown-up beetles are observable on hazel in May and June.

Birch Leaf Roller *Deporaus betulae*

A frequent, 2.5–4 mm long beetle of shiny metallic black colour. Adult beetles roll birch leaves in a 'cigar'. Grubs develop in the roll of withering birch leaves. The rolled birch leaves easily determine the presence of the species.

Hazel Leaf Roller *Apderus coryli*

In places a frequent, black, 6–8 mm long beetle with gaudy red sheaths and a slightly extended head. Grown-up beetles are observable from May till July on hazel, where they roll hazel leaves in a 'cigar'.

Ant Lion *Myrmeleon formicarius*

In places a quite frequent, 30–40 mm long insect with a slender body and two pairs of transparent, richly veined wings. It resembles small, clumsily flying dragonflies, but, unlike the latter, Ant Lion has well-developed horns. Grubs dig funnel-shaped holes in sandy soil, in which, almost entirely buried, they catch ants and other bugs. It is found in brightly sun-lit places – in thin dry pine forests, on forest road sides, on fire-breaks, in dunes and clearings.

Button Horn Sheet Wasp *Cimbex femorata*

In places a frequent, black, 20–25 mm long, sturdy insect with two pairs of brownish, transparent wings and yellow spadices of horns. Grubs feed on birch leaves. Adult Sheet Wasps are observable in May and June.

Oak Gall Wasp *Cynips quercusfolii*

A frequent, tiny, 3–5 mm long wasp. Its presence is indicated by up to 20 mm wide, yellow-green, ball-shaped galls, fastened to the lower side of oak leaves, in the centre of which a grub of Gall Wasp develops.

Red Wood Ant *Formica rufa*

A 6–9 mm long ant with a very slender, maroon body. There are several similar species in the Baltic Countries, but this is the most common species of Wood Ants. It forms large, cupola-shaped anthills by using needles, twigs, and other parts of plants. It is predatory, feeds on various insects and their grubs, as well as on the sweet waste of aphids.

Boreal Carpenter Ant
Camponotus herculeanus

In places a quite frequent, black, 6–14 mm long ant. It inhabits the wood of various species of trees, often – spruce. It builds large nests in hollow trees. Most often observable creeping along tree trunks at their base.

European Hornet *Vespa crabro*

A quite frequent, 25–30 mm long wasp with a slender body of contrasting yellow-black colouring as a warning. The female hornets have an aculeus at the end of abdomen, by which it can sting painfully. In hollow trees it makes large, grey-brown nests from a paper-like material, obtained by shredding dry wood. It feeds with pollen and nectar, yeasty plant sap, as well as various bugs.

Crane Fly *Pedicia rivosa*

A quite rare, 25–30 mm long gnat with very long legs. On the transparent wings it has a typical drawing, formed by dark belts. It is found in damp forests near water. Grubs are predatory who feed on the grubs of other insects.

Bumblebee Robber Fly *Laphria flava*

In places a quite frequent, 17–22 mm long fly with a dense hair covered body. There is yellowish or orange hair on its abdomen. Grubs live in dead wood, where they feed on the grubs of other insects. Adult Robber Flies are found from June till August on sun-lit tree trunks – in thin, dry pine forests, glades, on forest's edges and in clearings.

Bee-like Robber Fly *Laphria gibbosa*

In places a quite frequent, 22–30 mm long fly with a dense hair covered body. There is a large spot of yellowish white hair on the black abdomen. Grubs live in dead wood, where they feed on the grubs of other insects. Adult robber flies are found from June till August on sun-lit tree trunks in dry pine forests, glades, on the edges of forests and in clearings.

Common Brimstone *Gonepteryx rhamni*

A very frequent, large (the span of wings is 50–60 mm) butterfly. The wings of male are brightly lemon, for female – cream-white. Caterpillars feed on buckthorn leaves. Butterflies visit various blossoming plants. It hibernates as a grown-up and flies out already at the end of March – it is one of the first visible butterflies after snow melting in spring.

Silver-studded Blue *Plebejus argus*

A frequent, medium size (the span of wings is 20–23 mm) butterfly, which are observable in July, August. The upper side of the males' wings is blue with a marked, black edge; the females have brownish wings with orange spots. There are several other similar species of blue butterflies in the Baltics. Caterpillars feed on heather. Butterflies visit various blossoming plants.

Lesser Purple Emperor *Apatura ilia*

In places a quite frequent, large (the span of wings is 54–68 mm), brightly blue-violet, iridescent butterfly with dark brown wings, whose surface has a white cross-belt and a speculum with a red edge. Caterpillars feed on aspen leaves. Butterflies are observable in June, July on forest roads near puddles, knocked-down animals and excrements. They also feed on yeasty sap.

Poplar Admiral *Limenitis populi*

In places a quite frequent, large (the span of wings 60–80 mm) butterfly with dark brown wings, whose upper side is covered with cross-belts of white spots and belts of orange moony spots along the outer edges of wings. Caterpillars feed on aspen leaves. Butterflies are observable in deciduous forests, often – on forest roads near puddles, knocked-down animals and excrements. They also feed on yeasty sap.

Silver-washed Fritillary
Argynnis paphia

A quite frequent, large (the span of wings 55–65 mm) butterfly with russet or brownish wings, covered with a drawing of dark spots. The spots on the lower side of wings have expressive nacreous gloss. Caterpillars feed on wild raspberry and violet leaves. A good flier. They are observable in July, August on blossoming plants on the forest's edges, in glades and on forest road sides.

Camberwell Beauty *Nymphalis antiopa*

A quite frequent, large (the span of wings is 60–70 mm) butterfly. The dark brown wings are characteristic of a yellow or white outer edge. Caterpillars mostly feed on birch leaves. Adult butterflies suck nectar from various blossoms and sap from trees. It hibernates as a grown-up and flies out already at the end of March – it is one of the first observable butterflies in spring.

Red Admiral *Vanessa atalanta*

A frequent, large (the span of wings is 50–60 mm) butterfly with a characteristic drawing on wings – the dark brown wings are covered with orange belts, which stretch over front wings and along the outer edge of hind wings, as well as white spots on the anterior part of front wings. Caterpillars feed on nettle. Butterflies are able to fly far away, and they are found in all types of habitats. They are observable on blossoms, in wooded meadows, also on sapping tree trunks, where they feed with yeasty sap.

Scarce Fritillary *Euphydrias maturna*

A rare, large (the span of wings is 35–42 mm) butterfly with a bright colour of wings. Caterpillars feed on ash leaves. Butterflies are observable in June, July on various blossoming plants on sunny edges of forests, on forest road sides, in glades and clearings.

Small Emperor Moth *Eudia pavonia*

A quite rare, large (the span of wings is 40–70 mm) moth with characteristic 'eye-spot' on each wing. The males have russet wings, the females – greyish. Caterpillars are black and orange at first, later becoming green. They feed on the leaves of various deciduous trees and flowering plants. Before cocooning they are often found on forest roads. Adult moth is observable in spring, in April, May. The males also fly during the day.

Scarlet Tiger Moth
Callimorpha dominula

In places a quite frequent, large (the span of wings is 45–55 mm) moth, which is at times also active in the daytime. Its characteristic is bright colouring – black front wings with roundish, white and yellow spots, ruddy hind wings with black spots. Caterpillars feed on the leaves of flowering plants, often – on Common Nettle. Adult moth is observable from June till August in glades and on forest road sides.

Goat Moth *Cossus cossus*

A quite frequent, large (the span of wings is 60–80 mm) moth with dark brown-grey wings. One can often observe the caterpillars of Goat Moth, which are up to 100 mm long, gaudy red, with a black upper part and inhabit decaying wood of deciduous trees, most frequently – willow and aspen.

Blue Underwing *Catocala fraxini*

In places a frequent, large (the span of wings 6–10 cm) moth. There is an expressive light blue belt on its hind wings. Caterpillars feed on the leaves of various deciduous trees, often – ash. Adult moth is observable in warm July and August evenings. They are found near sapping tree trunks, where they feed with yeasty sap.

AMPHIBIANS AND REPTILES

A rich network of watercourses, lakes and mires, which ensures particularly proper habitats for amphibians, interweaves the forests of the Baltic States and Belarus. The forests are also full of dry, sunny meadows where reptiles can find their dwelling place. It is quite often there that in forests wet places alternate with dry land, thus ensuring a particularly large variety of species. The Baltic States is the border of the habitats for a number of amphibian and reptile species, which are not found merely a bit farther to the north. Amphibians and reptiles are an essential constituent of the ecosystems of forests. They are part of the unified food network of forest ecosystems and are an essential source of food for numerous species of animals, including rare and protected ones. The guide includes the most common species in this region that are not rare, since sometimes, if inspected closer, the common becomes extraordinary.

Common Toad
Bufo bufo

The largest toad species in Europe. It is frequent, mostly in damp forests. The colour of body is from grey to brick-red. The skin is covered with wart-like formations, from which the biggest – the parotid poison glands – make the toad 'untasty' for predators. Its voice is heard more often in spring, during spawning. High-pitched sounds follow one another – 'kverk, kverk, kverk'. It only stays in water in the spawning period. Spawn is strung in 4–5 m long threads. Black tadpoles hatch out in 2 weeks and young toads leave the watercourse in 2.5 months.

Common Frog
Rana temporaria

The most frequent amphibian. It is active day and night. The lower part of body is always speckled. It starts rutting on the way to spawning places in water courses. In spring the rutting songs of males can be heard in spawning places, which merge into a common choir, resembling cat's purr (the voice of marsh frog resembles distant dog's barking or pot's bubble on fire). It ruts and spawns (jelly-like lumps) in water. Tadpoles, which usually hatch in 1–2 weeks, leave the water course in 2–3 months as 1.5–2 cm large frogs.

Sand Lizard *Lacerta agilis*

The length reaches 18–20 cm. The back of young lizards is grey-brown with 1–2 darker, oblong belts encircled by paler edges. Adult lizards have irregular, dark speckles of different sizes on the back, but on the sides – light spots with a dark edge. During rutting the sides and dewlap of males are green. Females are grey-brown with a paler abdomen. It dwells in dry forests with sandy soil and thin vegetation. It is active during the day. The mating period is at the beginning of May. Then males have rutting fights. Usually it lays 5–6 longish, soft-coated eggs in a dry place. The young hatch in the second half of summer.

Common or Viviparous Lizar
Zootoca vivipara

It is more frequent than Sand Lizard. It grows 16–17 cm in length. The back of adult animals is a brown, grey or olive, with black and light irregular speckle laid out in longitudinal rows. The abdomen of a male is orange with dark dots, of a female – pale yellow. The young are very dark. It is active during the day. It stays in various forest habitats, also in wetland. It swims and dives well. The rut is in spring. Viviparous – eggs develop in female's body. The young are born in the second half of summer.

Slow Worm *Anguis fragilis*

It is a legless lizard with snake-like body, up to 0.5 m long. Scales are smooth. The neck is obscure. It has eyelids and ear openings (snakes have neither eyelids nor ear openings). The abdomen of Slow Worm is scaly (snakes have longish imbricate scales). Its colour is brown and grey with a bronze shine. The sides and abdomen are paler. There are dark, longitudinal stripes on the sides. Males are occasionally with blue spots. It is active day and night. The mating period is at the beginning of summer.

Grass Snake *Natrix natrix*

A frequent species of snakes. The backside is from grey-black to livid. The abdomen is pale. It has two pale, yellow or orange spots on the back of the head, allowing to recognize grass snake at once. Eye pupillaries are round. Its lifestyle is connected with water. It also inhabits damp forests and wetland, sometimes is found far away from the coast. It swims and dives well. When mating in spring, even ten males can simultaneously entwine a female, forming a huddle. In the middle of summer it lays 6–35 acorn size eggs in heaps of rotten plants, decaying stumps, etc., from which the young hatch at the end of summer.

Common European Adder or Vipper
Vipera berus

The only species of poisonous snakes in the Baltic Countries and Belarus. Usually up to 60 cm long. It has a triangular, flattened head with an expressive transition to the neck. The pupillaries are vertical, which implies a night-time life, but it is also active during the day. The colour of the back varies. Females are usually brownish, males – grey-blue. The characteristic of adder is a dark zigzag pattern on the back. Entirely black adders are frequent. It has fangs. They mate in spring, when males mutually fight for the right to mate with a female. Viviparous, at the end of summer gives birth to 8–12 young snakes.

BIRDS

About 350 species of birds have been found in the Baltic Countries and Belarus so far. Part of them nests here, some – winter or regularly migrate through this country, but another – arrive here as rare guests once in several decades. More than 1/3 of all species are connected with forest environment. This guide only describes a small part of them – the most frequent and most easily discernible ones. The distribution of species among different forest types should be regarded as conditional because the majority of them are frequent in diverse forest stands, but some of them can also nest in an exposed rural landscape where only one tree or a small group of trees is found.

Chaffinch *Fringilla coelebs*

One of the most common forest birds. It is found in forests, parks and gardens. It makes a perfectly camouflaged nest in the axil of branches or trunk, quite often in young spruce. Feeds on seeds, but young birds are mostly fed with tiny invertebrates. A migratory bird, which winters in the southern and western part of Europe. A small number of them also winter in the western part of the region. Characteristic song: 'chir-chir-chir'.

Greenfinch *Carduelis chloris*

Males are yellowish green with yellow patches (visible during a flight) on throat, on the sides of tail and on wings. Females are more brownish, the yellow areas are less bright. It is found in gardens, parks and on the edges of deciduous forests. The nest is made on isolated trees, in a group of trees or in hedges. Feeds on seeds, but juveniles are fed with insects. In winter it wanders around in flocks, often together with Chaffinch, Yellowhammer and Field Sparrow. A frequent guest at bird-tables.

Crested Tit *Lophophanes cristatus*

A small tit whose characteristic is a speckled crest. It is mainly found in coniferous forests with old, dry or decaying trees where it nests in holes, also in bird-houses. One of the few tits which occasionally drills the holes in dead wood by itself. In winter it sometimes wanders around in mixed flocks together with other tit species. Feeds with insects or other tiny invertebrates, in winter – with seeds. Resident.

Great Tit *Parus major*

The largest species of tits. A black stripe stretches down along its yellow breast and underside, the head is black with white cheeks. Characteristic song: 'tea-cher tea-cher tea-cher'. Nests in holes, bird-houses, or in cracks in buildings. Feeds with seeds, in the period of juvenile feeding – also with insects. Resident. Frequent visitor of bird-tables in winters.

Coal Tit *Periparus ater*

Its appearance resembles a small, pale coloured Great Tit, but it can be easily distinguished by the white patch at the back of the head and the light underside without black stripe. Inhabits various forests where trees and stumps with holes appropriate for nesting are available. Characteristic song: 'vee-tjoo, vee-tjoo, vee-tjoo...', which is usually performed, sitting at a tree top. Resident. In winter it usually wanders around in flocks together with other tit species.

Blue Tit *Cyanistes caeruleus*

A small tit whose characteristic is a blue head, tail and wings. It can be seen in diverse forests, gardens and parks. Nests in holes of trees, bird-houses or in cracks in buildings. A resident bird, however, part of them migrates. In winter time it can form flocks and is frequent in lake reeds. A frequent guest at bird-tables.

Willow Tit *Poecile montana*

Its appearance is very similar to Marsh Tit, from which it is distinguishable by the voice – Willow Tit's call is drawn 'chee chee chee' or 'tyoo-tyoo-tyoo-tyoo-tyoo' whereas Marsh Tit's – rapid 'che-de-de-de-de-de'. Inhabits various forests, where it drills the holes for the nest by itself, most often in dry birch or alder trees. Resident. In winter it usually wanders around in mixed flocks together with other tit species.

Marsh Tit *Poecile palustris*

Its appearance is very similar to Willow Tit, therefore, it is mainly distinguished by the voice. It can be observed at a close distance that the head and chin of Marsh Tit are glossy black, Willow Tit's – mat. It can be encountered in different, mainly deciduous forests. It nests in the holes of trees, which, unlike Willow Tit, it does not drill by itself. Resident.

Tree Pipit *Anthus trivialis*

A slim bird with streaked brown feathers. Inhabits various types of forest, one of the most common bird species in bog woodlands. It starts the song, perching at a tree top, then blows up sky-high during singing, and finishes the song, stooping. It makes the nest on the ground. It is covered from above with an entrance at one side. Feeds on insects and other tiny invertebrates. Winters in Africa.

Redstart *Phoenicurus phoenicurus*

A slim, Great Tit's sized bird. Males are brightly coloured – the face and throat are black, the back is grey, the underside and tail – orange. Female plumage is paler. Inhabits mostly light pine forests, also parks and gardens. Nests in the holes of trees (willingly chooses the ones drilled by Black Woodpecker) or in cracks of buildings. Feeds on bugs, spiders and small worms. Winters in Africa.

Mistle Thrush *Turdus viscivorus*

The largest of thrushes in our forests. Inhabits mainly pine forests, where builds a nest in the axils of trunks or on the branches near tree trunks. Feeds on tiny invertebrates, also fruit and berries. Its characteristic call is 'tsairrrrk-sairrr-sairrr', the song is resonant and melodic, similar to Common Blackbird's song, just faster. Winters in the southern part of Europe and North Africa.

Song Thrush
Turdus philomelos

A bird, somewhat larger than Common Starling. Its characteristic is a loud and melodic song, in which each phrase is repeated. The nest is made in the axils of trees or at the base of branches near the trunk (often – in small spruce trees). Like other thrushes, it feeds on bugs and various berries. Winters in the south western part of Europe. Individual birds rarely winter also near nesting area.

Blackbird *Turdus merula*

A pretty large thrush. Males are black with a light orange or darkly yellow bill, females and juveniles – grey-brown. Inhabits various forests, parks and gardens. The nest is made in the axils of branches, at the top of decayed trees, in populated areas – under the roof and in similar places. The song is melodic and slow. Winters in the south western part of Europe; however, some birds winter near nesting area.

Robin
Erithacus rubecula

One of the most common birds in our forests. The characteristic of adults is an orange chest and face, but the juveniles are brown speckled. The nest is usually made on the ground or close to it – in stumps, on roots of torn-up trees or in holes. It feeds on tiny invertebrates, berries. Winters in the south western part of Europe. Some birds winter also near nesting areas.

Wren
Troglodytes troglodytes

A small, brown speckled bird with a characteristic short raised tail and a loud voice which is uncharacteristic of birds of such size. It is very brisk, usually abides the forest undergrowth where it creeps around decaying trees or spruces. The nest is oval with a small entrance hole on one side. It can be made in a large variety of places – in cracks of trunks and stumps, among the roots of torn-up trees or under the roofs of low buildings. Winters in South Europe. Some birds winter also near nesting areas.

Pied Flycatcher
Ficedula hypoleuca

A sparrow size bird. Males' back is black, but females have a grey-brown back. The wings have white patches. It inhabits different forest types, also populated areas, where it nests in tree holes or in bird-houses. Its typical behaviour – catching flying insects during short flights. Winters in Africa.

Red-breasted Flycatcher *Ficedula parva*

A bird, smaller than Great Tit. Males are easily recognizable for the orange throat (don't mistake it for Robin who has orange face also). Females are in sober colours with a grey-brown back and a pale belly. It is found in older forests where it makes the nest in a hole or at the base of branches. It feeds on insects which are caught in the air similarly to other flycatchers. Winters in South Asia.

Spotted Flycatcher
Muscicapa striata

A sober coloured sparrow size bird. It is found in light forests, populated areas, parks and gardens, where it nests in different niches of buildings – under the roofs, in the cracks of walls, also in bird-houses with a wide entrance, made particularly for this species, but under natural circumstances – in tree holes and at the top of stumps. Mostly catches insects in air. Winters in Africa.

Nuthatch *Sitta europaea*

A sturdy, sparrow size bird. Males have a white belly, females – pinkish. Briskly hops and climbs the tree-branches, also with its head downwards. Unlike woodpeckers and Tree Creepers, it does not recline against the tree trunk with the tail. Nests in tree holes. If the entrance is too large, it is reduced to the necessary size by mud. It feeds on tiny invertebrates and (especially in winter) seeds. Resident.

Dunnock *Prunella modularis*

A brown, speckled sparrow size bird. It is found in mixed or spruce forests, also in young spruce stands. It is usually a very inconspicuous bird. It is easier to notice males in mating period, when males sing, sitting at the top of spruce. The nest is mostly made in thick spruce trees. Feeds on tiny invertebrates. Winters in South Europe, but at times it can be also observed here in winter.

Treecreeper *Certhia familiaris*

A small bird with a brown spotted back, a silky white underside and a hooked bill. It can usually be seen hopping upwards along tree trunks, or moving around the branches. Like woodpeckers, it reclines against the trunk with the tail. It makes a nest behind peeled-off bark or in holes in most cases. Feeds with insects, which it picks up from the bark. Resident.

Woodlark *Lullula arborea*

A small bird with a short tail and rounded wings, which are well visible in flight. It is mainly found in dry pine forests, where it stays near small open spaces – forest meadows and clearings. Its song is very sonorous, melodic and yodelling, and is performed both in a flight and from trees. The well covered nest is made on the ground. Winters in South Europe. Still some of them stay in the western part of the Baltics.

Wood Pigeon
Columba palumbus

The most common (following Feral Pigeon) species of pigeon. Characteristic marks – white patches on the sides of the neck and on wings. This bird is encountered in various forest types, where in the branches of trees, usually near the trunk, it makes a thin nest from twigs. Winters in the north of Africa and South Europe.

Cuckoo
Cuculus canorus

A jay size bird. Males are grey spotted, females – grey or brown spotted. The song is impossible to be mistaken – 'cuckoo, cuckoo'. Lives in various forest stands, gardens and parks. It does not make a nest by itself, but lays eggs in other birds' nests, whose hosts bring up cuckoo's little ones. Each cuckoo female focuses on a particular species of tiny birds by laying appropriately coloured eggs. Winters in Africa.

Black Woodpecker
Dryocopus martius

A pitch black woodpecker, the largest in Europe, with red cap (males) or red patch on the back of head (females). It drills large holes with ~10 cm high, oval entrance most often in live or dead pine or aspen trees. It can usually be detected by its load calls – drawn intonation 'klieh' or resonant 'kri–kri–kri–kri' series – or its bursts of 'machine-gun' drumming that can be heard at a distance of more than one kilometre in silent weather conditions. Resident.

Grey-headed Woodpecker
Picus canus

A dark woodpecker with an olive back, a grey head and a greyish green underside. Males have a red forehead. Female plumage does not contain red colour. It is more frequent in thin deciduous woods. It drums seldom; the rattle is long and without falling intonation at the end. Usually one can hear the typical calls – resonant series of 'fee-fee-fee-fee-fee-fee', whose end is slower with a falling intonation. Nests in self-made holes, which it drills in dry or damaged birch and aspen trees. Resident.

Great Spotted Woodpecker
Dendrocopos major

The most common woodpecker in our forests. It is distinguished from the similar, but smaller Middle Spotted Woodpecker by the one-colour underside, contrastingly red tail and the black cap (males have red patch on the back of head, but juveniles have a large red cap). It is found in various forests. Holes are most often drilled in aspen or birch. The drumming rattle is short (about for one second). Resident.

Middle Spotted Woodpecker
Dendrocopos medius

A bird, somewhat smaller than Great Spotted Woodpecker. It has a flame-red cap on the white head, pinkish under tail and oblong dark patches on white belly. It drums very rarely. Instead it has very resonant mating calls – long 'veh-veh-veh'. Inhabits mainly in old deciduous forests where drills holes in dry or dying trees. Resident, which visits bird-tables rather often in winter.

Lesser Spotted Woodpecke
Dendrocopos minor

The smallest of our woodpeckers, the size of a sparrow. Female plumage is entirely black and white spotted (there is no red colour), but males have a red cap. It is found in various forests, parks and alluvial alder forests. Drumming rattle is long and soft, the voice – loud 'keekeekeekee'. It drills the nesting holes in dead or dying alder or aspen trees, the diameter of the opening ~3 cm. Resident.

White-backed Woodpecker
Dendrocopos leucotos

It is a larger woodpecker than Great Spotted Woodpecker. Males' cap is red, females' – black. The drumming rattle is long, one-piece, with a more silent end. It is found in old deciduous forests which have a large amount of dead trees. It usually drills hollows in almost dead or dead birch, aspen or Black Alder. Like other woodpeckers, it mainly feeds on insects and their grubs, found in wood-pulp. Resident.

→
Middle Spotted and Great Spotted Woodpecker

MAMMALS

Mammals are a constituent of every ecosystem of forests. The mammal fauna of the Baltics and Belarus consists of about fifty species of different mammals. It is not much, but considering that mammals are the most developed class of animals, which also includes people, the interest about them has always been very large. The fauna of mammals in the Baltics, Belarus and other countries that were covered with ice during last Ice Age, has immigrated in the postglacial period. The species are also changing nowadays. Aurochs and wild horses have become extinct animals, no reindeer can be found in this region any more, but our forests still accommodate such live icons of nature as wolves, bears, lynxes, bisons and elks. Insectivora and tiny rodent species, which inhabit forest land, or bats, which constitute one fourth of the total number of mammal species, are not less important or interesting in the forest ecosystem. They are difficult to notice due to the hidden lifestyle but some – the most common ones are included in the guide. It is easier to notice the traces of animals rather than the animals themselves in a forest but, if you are patient, you will be rewarded.

Eastern European Hedgehog
Erinaceus concolor

The small creature with five-toed, well-padded feet, which dorsal and lateral areas, excluding the face, stomach and legs, are densely covered with ~6000 sharp needles that grow, in the same way that hair grows. The dewlap and chest of it are paler than the belly – feature that allows it to be distinguished from less common European Hedgehog. Hedgehogs are mainly nocturnal animals, but they can be seen in daytime as well. In mid-fall, the hedgehog carpets its nest with a layer of moss and leaves and hibernates until March or April.

Common Shrew *Sorex araneus*

One of the most common mammals in Northern Europe with small eyes and a pointed, mobile snout. It is only 55–82 mm long with brown back, a sharply delimited yellowish brown belt on the sides, and grey belly. Older representatives have a semi-bare tail, while younger ones have a tuft of hair at the end of tail. It is particularly active at night and in dusk, when use supersound and echolocation to find the way. Since shrews must eat every 2-3 hours to survive, they are very active and aggressive. The voice is a peculiar scratch.

Northern Bat
Eptesicus nilssoni

Small bat with thick fur that enlarge endurance against cold. The back is very dark with golden shine. The belly is yellowish. The ears and webs are almost black. It feeds with flying insects, using ultra sound echolocation. At times it also hunts insects at the street lighting lanterns. Usually it spends the day in hollows, stacks of wood and buildings, but in autumn and spring it is quite often seen flying in the daytime, too. In winter it sleeps in caves, piles of stones, basements, etc.

Mountain Hare
Lepus timidus

Mountain hare is a typical resident of forests. In summer its back and sides are russet brown, the belly – whitish, but its winter outfit is white, only the ends of ears are black. Ears are shorter than those of the Brown Hare –second species of hare in our forests. The tail is evenly grey (the upper part of Brown Hare's tail is gaudy black). It moves around by jumping, often changing direction by 'doubling'. It can run at the speed of 64 km/h. The first rut is at the end of winter, when males' rutting fights take place. The second – in May, but there may be the third one as well.

Eurasian Red Squirrel *Sciurus vulgaris*

A frequent rodent. Its colour in summer is ruddy brown, in winter – chocolate brown with grey. The belly is whitish. Adults' outfit is yellowish, young ones' – white. The brushy long tail, sharp nails, short forelegs and long hind legs are adapted to the life on trees. It is active during the day. It makes insulated dens from branches, grass, moss and lichen. The rut is early in spring. There can be the second brood at the end of summer.

European Beaver
Castor fiber

The largest rodent in Europe. It has a wide, horizontally flattened, scaly tail. Footprints in mud are easily recognizable because the toes of hind legs are interconnected with a web, forming flappers. The colour of fur varies from different intensity shades of brown to black. In places where it is not disturbed it can be active day and night. It builds houses, makes dams, digs channels and caves, fells trees – adapts the environment to its needs. When warning other family members about danger, it beats the tail against the surface of water.

Yellow-necked Mouse
Apodemus flavicollis

A lovely, large mouse with big eyes, big ears and long tile. Its fur is two-coloured – the back is yellowish brown, the belly and feet are white and sharply delimited. There is a yellowish brown spot on the chest between forelegs. It digs holes and makes dens from dry grass and leaves both underground and in tree holes and bird-cages. The mouse is mostly active when it is dark. It climbs trees excellently and jumps 0.5 m at a stretch. A good swimmer. It can have 3 broods a year.

Bank Vole
Clethrionomys glareolus

The most frequent tiny mammal in the Baltics and Belarus. The back is from russet grey to maroon, the sides are grey, and the legs are sharply delimited and grey-white. The tail is two-coloured – the upper side is dark, the lower side – pale. It is active day and night. A good climber. Usually 10-80 representatives live in one hectare of a forest. It communicates by squeaking and cheeping, shrieks in a fight. It makes round dens under tree roots, in rotten stumps and similar places.

Grey Wolf
Canis lupus

It is the largest representative of canine family in the world. Despite its name, the colour of its coat ranges from almost pure white to black. It holds the head and tail low, when moving. Thus it is distinguished from a similar size dog. It is active at night and dusk. Wolves are social predators that live in families consisting of a mated pair, their offspring and, occasionally, adopted immature wolves. It ruts in the middle of winter. 3-7 young ones are born in 2 months in spring.

Red Fox
Vulpes vulpes

It is the most frequently seen representative of canine family. Its coat is red in different shades, but the dewlap and chest are white and the belly is grey, more rarely black. The tail is brushy with a white end. It is active day and night. It lives individually and in families, which are formed by the parents and bitches from previous broods. They make a den in self-made holes or unused badger burrows. It ruts in the middle of winter. There are 4-5 young ones in a brood that are born in spring.

European Badger
Meles meles

The largest from the ermine family animals. The back is grey, the belly, sides, dewlap and legs is black, but the face – white with black belts stretch from the muzzle across the eyes. It is a strong and aggressive night animal but in the period of feeding the young it can be met during the day, too. It digs holes, developing a complicated system. It usually ruts in spring but in summer it is also possible. There are 2-3 young ones in a brood which are born in early spring next year.

European Pine Marten
Martes martes

A frequent, predatory ermine family animal. The body is stretched with a brushy tail. In summer it is chocolate brown, in winter pigeon-grey with a contrasting - pale yellow, yellow or orange dewlap. Long toes with sharp nails allow to move around a tree crown quickly, however it mostly hunts on the ground. Males are larger than female. A typical forest resident. It ruts in the middle of summer, but little ones are only born in May next year.

Eurasian Lynx
Lynx lynx

The largest wild cat in Europe. The hair on the back is in various red and grey shades with more or less explicit dark speckles. The belly is paler and one-coloured. The tail is stumpy with a black end. There are tufts of hair at the ends of ears. Footprints usually do not show the traces of nails, which it draws in while going. In places without human activity it is active day and night. The rut takes place in the second half of winter when there are rutting fights during which lynx's voice can be heard. The young are born at the beginning of summer.

Wild Boar
Sus scrofa

The figure of Wild Boar is similar to domestic pig, it is only with a marked-out chest, long legs, a longer muzzle and all the time upturned ears. The body, flattened from both sides, is covered with thick, sharp hair. The tip of the nose has changed into a digging tool – snout. There is up to 15 cm long bristle on the nape. It is active day and night but in places disturbed by human activity it moves in the darkness. There are bloody rutting fights between males, in which they use the sharp, even more than 5 cm long tusk.

Eurasian Elk
Alces alces

The largest representative of deer family. The hair on the back is dark brown, the belly and the lower parts of legs are pale. The body is short with long legs and a large head. Both genders have a crease of skin with tufts of prolonged hair on dewlap. Bulls have horns which they shed every year after rutting. It ruts at the end of summer, or at the beginning of autumn. 1-3 baby elks are born in May or June next year.

Red Deer
Cervus elaphus

The second largest representative of deer family in Europe. In summer the body hair is dominated by russet brown shades, in winter – more greyish. There is a whitish tail 'mirror'. Bulls have large, forked horns which are shed every year in spring. Already within first months of life calves are maroon with roundish, yellow-white spots. It is active day and night, in places where it is disturbed – active in the darkness. It ruts at the beginning of autumn when the strongest bulls form harems and fierce rutting fights take place. At this time loud bellowing of bulls can be heard. The young are born at the beginning of summer next year.

European Roe Deer
Capreolus capreolus

The smallest representative of deer family. In summer the body hair is russet red, in winter - gingery grey. Baby roes are speckled until they become 4 months old. A white tail 'mirror' is characteristic Males have horns which are shed every year in autumn. It is active day and night. It ruts in the middle of summer. Most frequently 2 baby roes are born in June next year.

ADVICE

PLEASE REMEMBER!

In state and local government forests, you may hike freely, look at plants, insects, birds and animals, pick berries, mushrooms and nuts, and travel on foot, on a bike or on cross-country skis.

You may enter a privately owned forest only with a permission of the owner. If the forest owner does not want others to enter it, he or she must put up information signs, which must be visible when crossing the boundary of the forest. If a forest is surrounded with a fence, do not enter it.

In specially protected and NATURA 2000 territories, you may freely visit state and local government forests, but not the areas of nature reserves. Tourists may not enter nature reserves.

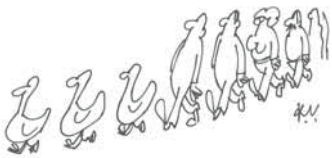
Clothing. Choose appropriate apparel for the season. It must be light, comfortable and 'breathing'. Don't wear vividly coloured clothing or clothes, which crackle, because in this case forest denizens will spot you and run away. You should also wear water-resistant shoes.

Research inventory. Bring a magnifier to look at plants, lichens and mosses and binoculars (8x or more) to look at birds and animals. We suggest that you bring a camera with several lenses so that you can take pictures of small things such as insects, lichens and mosses, as well as of birds and animals that are at a greater distance. Don't forget to bring your species guidebook and a notebook to take notes.

Be careful! Make sure that there are no ticks on your clothes or body. Also watch out for the adder, which is the only poisonous snake in the region. Don't step on one, and never try to capture one. There are insects (bees, wasps, hornets), which can cause an allergic reaction. Don't pick mushrooms or plants, which are unfamiliar to you. If you see an animal behaving in a peculiar or unusual manner, avoid it, don't touch it, and get in touch immediately with the local government.

GREEN ADVICE

Leave your car where it will not harm nature and will not hinder other travellers



On nature trails and in a natural environment, walk single file, because that will leave fewer footprints in the direct and indirect sense

Sometimes it's more interesting to learn about those species that are encountered frequently, not seldom, and on an everyday basis

Visit the visitors' centre of each national park

Write down your observations on the spot carefully. Field notes with precise data on when, where, how many birds of what species have been observed can provide valuable information for research and protection of birds

If you watch birds or animals, do it from a distance, and don't disturb them where they relax or nest. The welfare of animals is the main thing

Don't go into caves during the autumn, winter and spring, when bats and other animals live there. You don't like to be woken up in the middle of a deep sleep, and bats perish if they are woken up at the wrong time

Cut mushrooms with a knife, don't yank them out of the ground. Don't use any mechanics to harvest wild berries. Let the forest offer its goodies to future visitors, too

Don't write or draw anything on outcrops – after all, you wouldn't draw or write anything on your walls at home

Put waste where it belongs so that you can enjoy the site next time

Caricatures by Romāns Vitkovskis

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LEARN MORE:

Descriptions of forest habitats and species at http://latvijas.daba.lv (only in Latvian)

An encyclopaedia of species at http://www.latvijasdaba.lv (mostly in Latvian, some information in English)

A review of NATURA 2000 territories at http://natura2000.eea.europa.eu (in English)

Reports from EU member states on implementation of the directive on species and biotopes at http://ec.europa.eu/environment/nature/knowledge/rep_habitats/index_en.htm (in English)

The film „A Story About Forests: Five Stories About Nature" at http://www.piecistastipardabu.lv (only in Latvian)

ALPHABETIC INDEX OF SPECIES LATVIAN-LATIN

TREES

MOSSES

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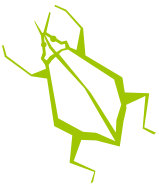
SNAILS



AMPHIBIANS

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ALPHABETIC LIST OF SPECIES

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Latvian Country Tourism Association

LAUKU CEĻOTĀJS

www.countryholidays.lv

The association has been founded in 1993 and currently has some 300 members – small family-run accommodation providers in the Latvian countryside. We are members of ***Eurogites***, the European Federation for Rural Tourism.

We are also known as ***Baltic Country Holidays*** working with national parks and some of the best Latvian nature experts to offer bird watching, animal watching and other special interest programs. We also develop, test and promote hiking, cycling, boating and self-drive touring routes in the most beautiful nature areas of the country. Should you need advice when planning your holidays in the Latvian, Lithuanian or Estonian countryside, ring us up, write us or visit our office in Riga. Our staff knows all the owners of the rural accommodations and can provide you with detailed information about what is on offer. We shall also recommend specialist guides and tour leaders, car, bus, bike and boat rentals and other services you might need. Check our web site *www.countryholidays.lv* for accommodations, nature and active tourism routes, guidebooks and maps.

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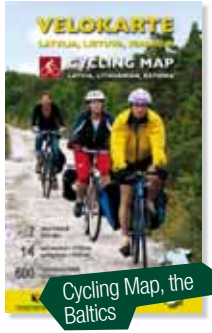
MAPS AND GUIDEBOOKS BY "LAUKU CEĻOTĀJS"

A Guide to the Coast of the Baltic Sea

National Parks, Latvia

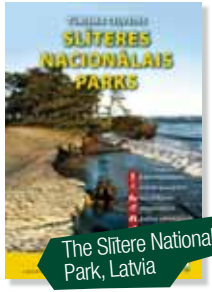
Baltic National Parks' Guide



Cycling Map, the Baltics

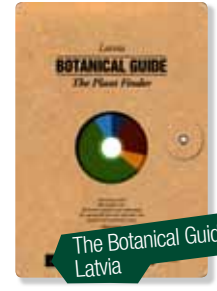
Nature Holidays in the Baltic

Military Heritage Map, Latvia



The Slītere National Park, Latvia

Country Holidays in the Baltics



The Botanical Guide, Latvia

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