



EUROPEAN TREES

PROJECT EUROPEAN TREES WITHIN EUROPEAN WEATHER

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INTRODUCTION

Trees are inseparable part of our life. We cannot imagine the Earth without trees. The nature needs trees and we could not live without them. It was one of the reasons why this book was created.

The book was created by Czech, Latvian and Croatian students and teachers during implementation the project „European Trees within European Weather.“ Students chose some trees which are typical for their country. They found the most important and interesting information about the chosen trees. They made or found photos. This information is supplemented by stories, songs, superstitions, puzzles, riddles and folk tales and legends. The book also describes typical features of the nature and geography in the Czech Republic, Latvia and Croatia.

Students and teachers from each school compiled their part of the book in their leisure time. The Czech students and teachers completed the book.

The Czech students

Jan Vavřínek, Inka Veverková, Tereza Kuzmová, Tereza Konečná, Julie Bartůňková, Aneta Valová, Iva Kuchaříková, Karolína Dennerová, Ondřej Krátký, Lukáš Outulný, Matěj Svoboda, Denis Denner, Tomáš Pekárek, Jan Pelán, Pavel Korec, Michaela Bačáková.

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Latvian students

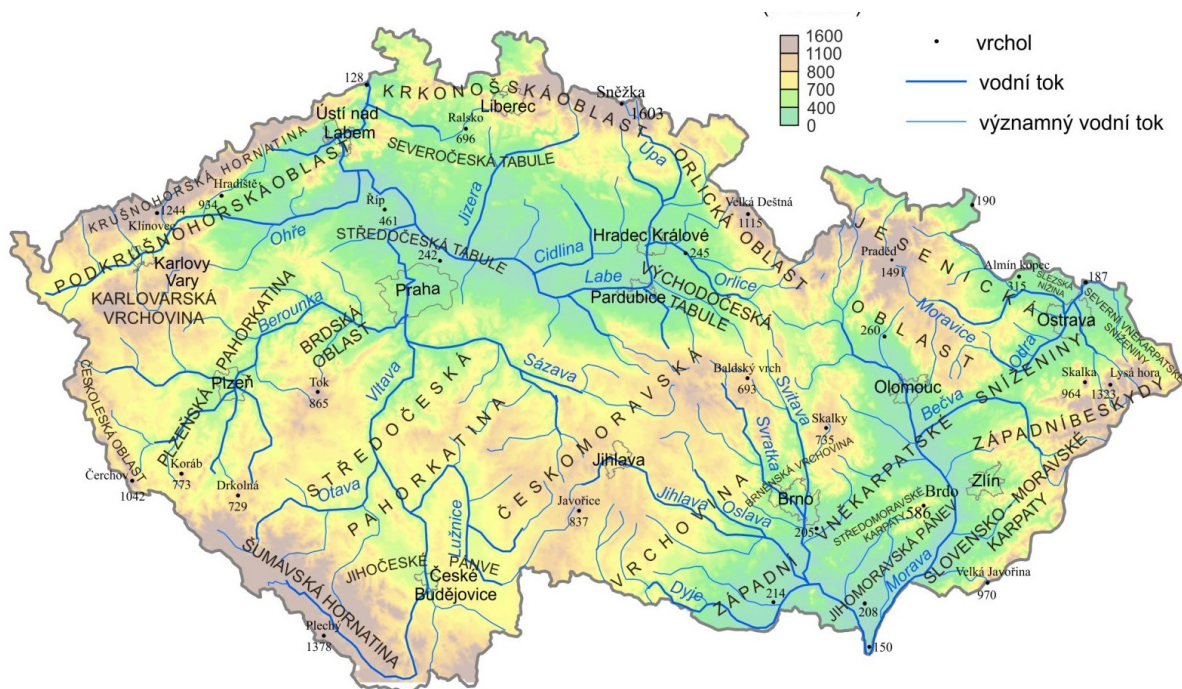
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THE CZECH REPUBLIC

Natural - geographical features

The Czech Republic is a state in Central Europe bordered by Germany to the west, Austria to the south, Slovakia to the east and Poland to the northeast. The Czech Republic includes the territories of Bohemia in the west, Moravia in the east and Czech Silesia in the northeast. Bohemia is surrounded by the Šumava Mountains, the Bohemian Forest (Český les), the Ore Mountains (Krušné hory) and the Sudetes with the Giant Mountains (Krkonoše) as the highest mountain range. The fertile lowland of Elbe (Polabí) lies in the central part of Bohemia. The Bohemian-Moravian Highlands (Českomoravská vrchovina) is an extensive range of hills and low mountains over 150 kilometres long, which runs in a northeasterly direction across the Czech Republic and forms the border between Bohemia and Moravia. The mountains mentioned above and the Bohemian-Moravian Highlands form the Bohemian Massif. The Moravian basins and Moravská Brána is an area between the old Bohemian Massif in the west and the younger peninsula of the Carpathian Mountains in the east. The valley of river Odra separates the Jeseník Mountains (Jeseníky, the Bohemian Massif) from the Beskids (Beskydy, Western Carpathians). The Western Carpathians are located along the Czech-Slovak border.



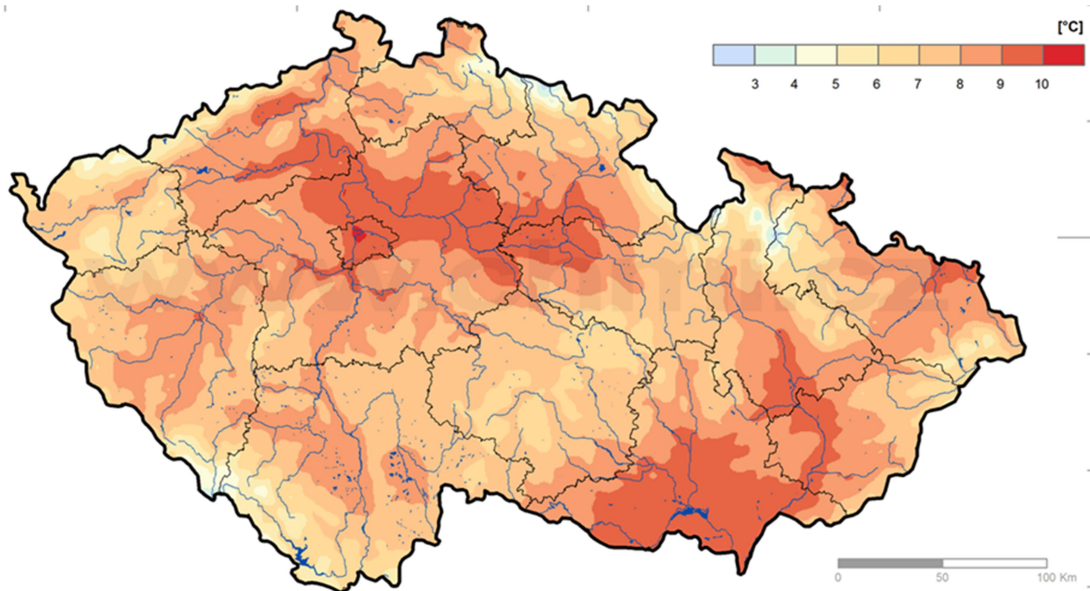
http://portal.chmi.cz/files/portal/docs/meteo/ok/mapy_klima_char_cs.html

The Czech Republic mostly has a temperate oceanic climate with warm summers and cold, cloudy and snowy winters. The western direction of air flowing is predominant. The temperature difference between summer and winter is relatively high, due to the landlocked geographical position. At the highest peak - Sněžka (1,603 m, Krkonoše), the average air temperature is only -0.4°C , whereas in the lowlands of the South Moravian Region, the average air temperature is higher about 10°C . The coldest month is usually January, followed by February and December. Average air temperature in January is between $-1,5$ and $-2,5^{\circ}\text{C}$. During these months, there is usually snow in the mountains and sometimes in the major cities and lowlands. During spring in March, April, and May the temperature usually increases rapidly, especially during April, when the temperature and weather tends to vary widely during the day.

The warmest month of the year is July, followed by August and June. Average air temperature in July is between 17 and 19,5 °C. On average, summer temperatures are about 20 °C – 30 °C higher than in winter. Summer is also characterized by rain and storms. Autumn generally begins in September, which is still relatively warm and dry. During October temperatures usually fall below 15 °C or 10 °C and deciduous trees begin to shed their leaves. By the end of November, temperatures usually range around the freezing point. The coldest temperature –42,2 °C was measured in Litvínovice near České Budějovice in 1929 and the hottest temperature 40.4 °C was in Dobřichovice in 2012. Temperatures in the mountains are considerably lower than temperatures in the lowlands.

Annually amount of precipitations in the Czech Republic is between 450 mm and 1 500 mm. The most of precipitations fall in the mountains.

Average Year Temperature of Air 1981 - 2010



https://is.muni.cz/do/rect/el/estud/pdf/js17/cesko_atlas/web/pages/uvod.html

The longest rivers are the Elbe River (Labe) in Bohemia, the Morava River and the Odra River in Moravia.

The predominant part of the forest is located in the hilly areas. Forests cover 33% of the area. The coniferous forests (spruce) prevail. The deciduous forests (beech, oak, birch) prevail in areas to the altitude of about 500 meters. At higher altitudes coniferous forests (spruce, pine, fir and larch) prevail.

The most fertile soils are found in lowlands of Elbe (Polabí) and Ohře (Poohří) and in Moravia lowland. Less fertile soils and brown forest soil prevail in the other parts of the Czech Republic.

BLACK POPLAR (*Populus nigra* L.)



Black poplar is a deciduous tree from a family Salicaceae. Height: up to 35 m.



Bark:

- smooth gray-green bark in his youth,
- grooved black-gray bark in older trees.



Leaves:

long petiolate leaves with egg-shaped to triangular blade, serrated edges.



Blossoms:

- dioecious tree,
- antheral catkins are on male blossoms,
- pistillate catkins are on female blossoms.



Fruit:

- pod,
- female catkins are wrapped by cotton flue, some people can be allergic to them.

https://www.google.com/search?q=kvc4%9Bty+topolu+%C4%8Dern%C3%A9ho&rlz=1C1PRFI_enAT832AT832&source=lnms&tbn=isch&sa=X&ved=0ahUKEwji0MS3h4DkAhXwyKYKHbCVBelQ_AUIESgB&biw=1366&bih=625#imgrc=z5B5RS52FiGpGM:

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Habitat: along the roads, abundantly by the waters at lower altitudes.

Distribution: Central and South Europe, West and Central Asia, North Africa.

Attraction

- Natural healing

Extracts from young buds and from bark effectively relieve rheumatic joint pains, help with fever and are recommended for patients who have had Lyme disease. In addition, they are used to purification of the organism and for prostate problems. They reduce blood urea content, disinfect

the urinary tract, heal inflammation of the urinary bladder and they are diuretic. Poplar helps to heal badly healing wounds, burns, haemorrhoids.

- They are planted along river flows because of strengthening of banks.
- They are used as a renewable resource of energy, because they grow fast.

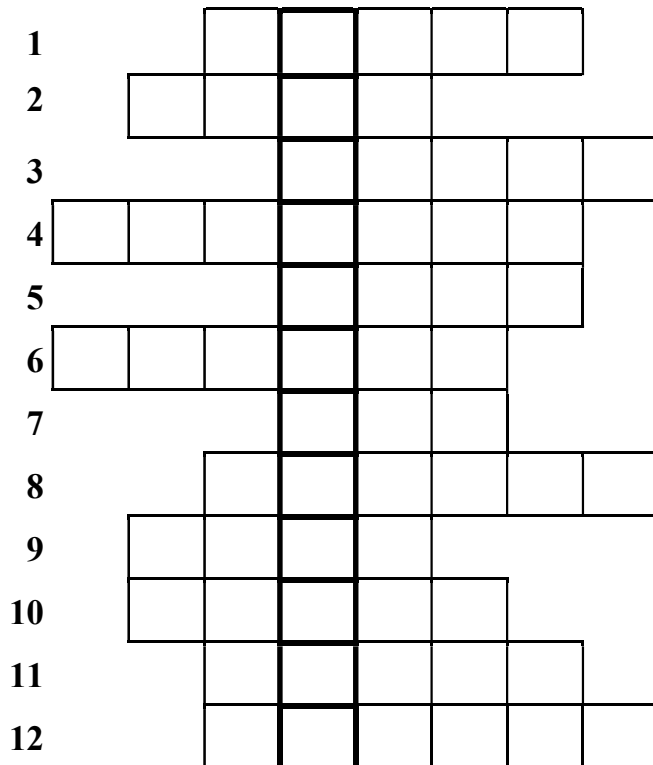
Story The Old Poplar and Little Arnošt

Once upon a time, there was a poplar that was not a common poplar. It was a portal to another dimension. Trolls and ogres lived in this dimension. Little Arnošt who always played around this poplar didn't know it. One day Arnošt was climbing up to the top of the tree when he saw a chest. He wanted to open it, but he couldn't. It was locked. After a while he found the key and unlocked the chest. If Arnošt knew what he had done! When he opened it, he could see him walking on the road in the different dimension. After only five meters two ogres caught him! Their names were Pepa and Tadeus. They took Arnošt to their king Troll Gustav who sent him to the jail. „Why did you open the portal into our dimension?“ the king asked him. Arnošt began to cry. „I just wanted to know what was in the chest,“ he said. At first King Gustav didn't believe him. But later he consulted it with the Council of Trolls and believed his words. The King Gustav made a deal with Arnošt that no one would climb the poplar again and the tree would be protected. Arnošt promised to keep it so trolls and ogres let him go home. On the way home Arnošt realized the trolls and ogres weren't bad, but very good and friendly. When he returned home, he found that fifty years had passed away and his parents had died. He went to the cemetery and found his parents' grave. He was very sad. He built a fence around the old poplar and discovered its secret - the poplar was magical! He was sitting under the tree all day, remembering his parents. He had only one wish for parents to be alive. In the evening he went home AND HIS PARENTS WERE THERE! The tree fulfilled his wish. Arnošt was very happy and grateful so he became a tree protector.

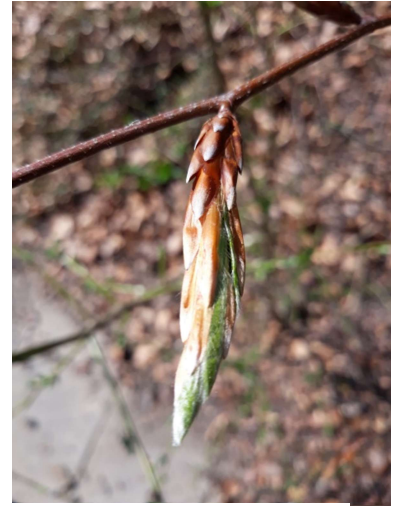
Ondřej Krátký, 8.B, 2019

Will you solve this puzzle?

1. this fruit grows on the tree
2. it falls in winter
3. flowers are ...?
4. the first month of the year
5. this thing grows on the tree
6. season
7. big red star
8. dog is ...?
9. it falls from the sky
10. the largest cat species
11. green on the ground
12. forests, mountains, flowers are ...?



EUROPEAN BEECH (*Fagus sylvatica* L.)



European beech is a deciduous tree belonging to the beech family Fagaceae.
Height: up to 40 m.

Bark: thin, smooth, white-gray color.

Buds: slender and long (2,5 cm), pointed at the end.



Leaves: alternate, simple, and entire or with a slightly crenate margin.



Blossoms: male blossoms grow in the upright bunches, female in two at the end of the shoots.

Habitat: hilly areas, mountains

Distribution: all over Europe

Attraction:

- wood has good quality, it is used for production of furniture, the parquet blocks, sleepers, toys
- wood is also used for heating.

Story about Beech

One day a BEECH grew up in the middle of the deep forest in the North. This beech wasn't normal, he was Magic. It grew up faster than the others and when it was 20 years old it can walk and speak. One day when it woke up there was a thing on the hill. It was a tower, but who built it? A wall and heavy smoke appeared within a year. Beech absolutely didn't know what's going on. Within a few days, they built a dam and stopped the flow of the river. It did not bother that he did not have water from the river he had enough water from rain for him. The smoke bothered him. One night it did not, and went to see where this smoke came from and what monster produced it. It went and went, stumbled and then went and went till it met another tree. It looked sick and had broken branches. The Beech asked the oak: "You look sad and ... your branches, what happened to you?" And Oak answered: "They're approaching, run if you can!" Beech did not understand. It had about 1000 questions on its tongue, but oak took the last breath, and it did not speak. The Beech was already tired because of the road so it rode and went to sleep. In the morning the beech slowly woke, heard the birds to sing in its crown and suddenly it heard the sound that did not say anything to him. It went to see and saw something really terrible ... It saw people who had something in their hands and fell down the other trees. It could not believe it and run furiously. But because the smoke from the factories damaged its entire organism it could not go any further. And even if it did not want to deal with his fate, and so ended the promising life of a young beech that could produce much needed oxygen for hundreds of years.

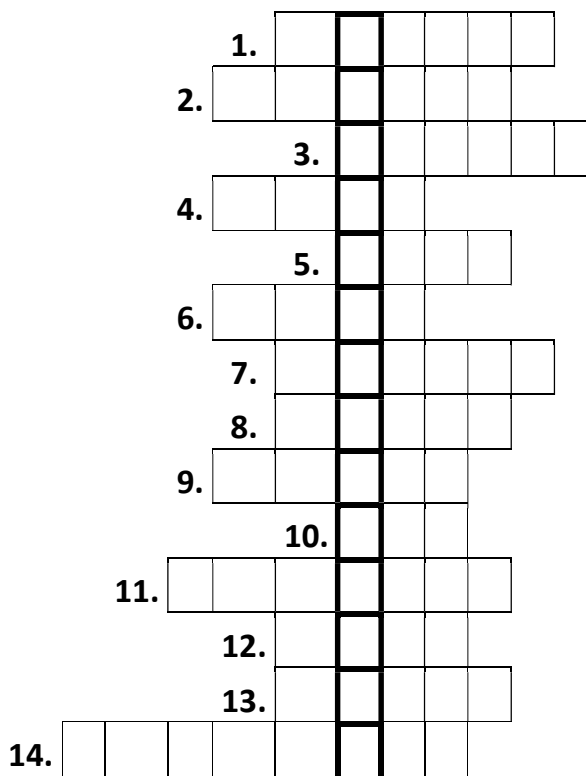
Matěj Svoboda, Dennis Denner, Lukáš Outulný, 8.A, 2019

Riddle

A beech stands in the middle of the meadow, twelve branches are on the beech, 30 birds are on the each branch and each bird sings another song. What is that?

Will you solve this puzzle?

1. continent
2. part of tree
3. the place around house, where plants grow
4. colour of sky
5. plants gain nutrients from
6. kind of flower
7. island in the Mediterranean sea we can seeon the
8. sky
9. Nil is
10. ... is on the Earth, but not on the moon
11. forecast is prediction of animal that sings,
12. flyes,...
13. fruit of oak
14. animal with trunk



NORWAY MAPLE (*Acer platanoides* L.)



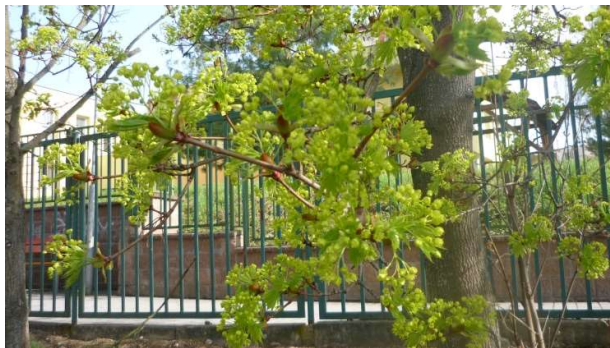
Norway maple is a deciduous tree from a family Sapindaceae. Height: up to 35 m.



Bark: longitudinally furrowed brown-black bark.



Leaves: - opposite,
- long petiole, palm-lobed leaf with five to seven lobes, one to three side teeth,
- orange-red colour in autumn.



Blossoms: inflorescence is corymb, male and female blossoms.



Fruit:
- double samara with two winged seeds,
- wings are widely spread, approaching a 180° angle.

Habitat: - abundant,
- they grow in lower altitudes more often in the Czech Republic,
- cultivars with coloured leaves occur in the parks.

Distribution: all Europe.

Attraction:

- maple wood is used for production of furniture and musical instruments,
- maple syrup is made from the xylem sap,
- natural healing: it helps with nervous problems, sclerosis multiple, gall bladder problems, with mental problems,
- maple is a Canadian national tree, maple leaf is on the Canadian flag.

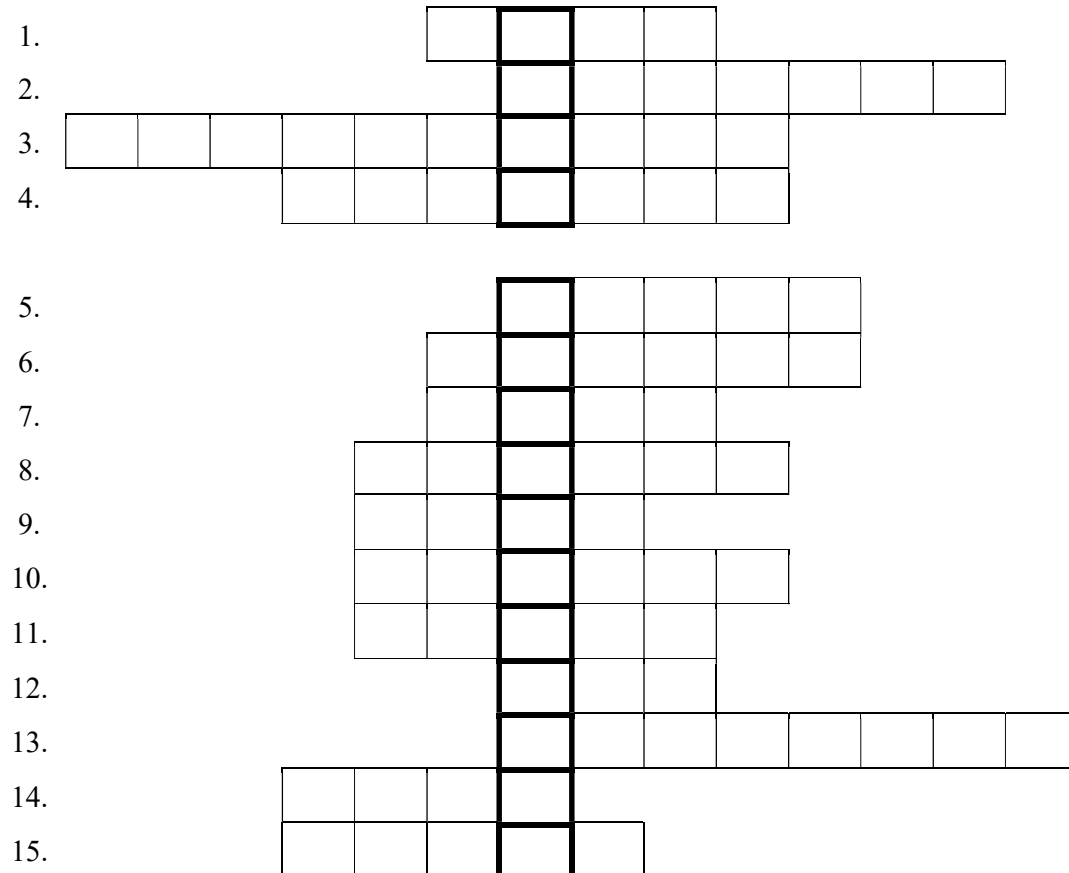
Story Maple and Spring

A magic maple lives in a magic forest. It was old, but it still produced the tastiest maple syrup of the whole forest. All living creatures worshiped it, but it had not enough energy to help the others as before. Creatures took care of it every day, their power was not enough for it and the maple and whole forest withered more and more. In a moment the magic forest was left empty and empty. After long winter, when layer of white snow covered our forest, a magic elf appeared. His name was Spring. When he learned about the maple, he began to cast magic. He changed the forests to a nice place. The maple became green and new leaves started to grow. He started to produce the sypup again. All creatures were happy!

Inka Veverková, 9.A, Karolína Dennerová 8.A

Will you solve this puzzle?

- | | |
|---|--|
| <ol style="list-style-type: none"> 1. the 4th planet in the Solar systém 3. for measuring of air temperature 5. you fly with 7. the 1st spring month 9. sun is big 11. rain is from 13. the twelfth month is 15. grows on the ground | <ol style="list-style-type: none"> 2. continental or oceanic 4. sun in the morning 6. Mars is 8. globe is about 10. season of the year 12. river has in winter 14. husband and his |
|---|--|



SMALL – LEAVED LIME (*Tilia cordata* Mill.)



Small-leaved lime is a deciduous tree from a family Malvaceae, height: up to 20 - 30 m.



Bark: smooth and grayish when it is young, firm with vertical ridges and horizontal fissures when it is older, and brown colored.



Crown: hemispherical
Leaves: -asymmetrically heart-shaped, pointed, alternately arranged, serrated, - rust hair by the veins on the back of leaves.



Blossoms:

- inflorescence is a cyme,
- yellow-green hermaphrodite blossoms with bract,
- contain nectar for bees, honey smell
- dried blossoms re used in natural healing.

https://www.google.com/search?rlz=1C1PRFI_enAT832AT832&tbm=isch&sa=1&ei=ia5mXbPcF4XsXgPB-5XICQ&q=kv%C4%9Bty+l%C3%ADpy+wikipedie&oq=kv%C4%9Bty+l%C3%ADpy+wikipedie&gs_l=img.12...33127.37880..39896...0.0.0.105.778.9j1.....0...1..gws-wiz-img.....0i30.h3Zn2AyWvGs&ved=0ahUKEwizxN_lgKbkAhUFtnEKHcf9BZkQ4dUDCAY#imgrc=UVvtFkdJyiw3qM:



Fruit: nut – spherical achene.

Habitat: - abundant from lowlands to lower mountain altitudes,
- resistant.

Distribution: whole Europe to the west Siberia, the Caucasus.

Attraction:

- lime is a Czech national tree,
- lime wood is soft – fitting for woodcarving, producing of pencils and boxes,
- Natural healing:
Lime honey is said to be nutritious and to have medicinal qualities.

Effectively helps: with influenza, cold, angina, upper respiratory tract inflammation; supports the sweating, suppresses convulsions in the digestive tract and the urinary tract.

The extraction of the buds has a special effect- a soothing effect on the nervous system, especially in children. Overall, it had relaxing and loosening affect. It helps with nausea in the vehicles.

Story about Lime

There was once a lime, that was old and sick. People wanted to cut down it because of its illness. Fortunately, there was a man named Pepa, who did not want this rare tree was cut down. He fought for it but he failed. He really tried all the possibilities unfortunately, nothing worked. The last idea was, that he will strap to the tree on the day of cutting down. When the terrible day has come he tied himself to the lime and protested against its cutting down. Unfortunately, he failed and lime was cut down. Pepa was sad. But he noticed something. The lime left a lime-baby behind. In the end everythig went well despite the loss of the lime.

Michaela Bačáková, 8.B, 2019

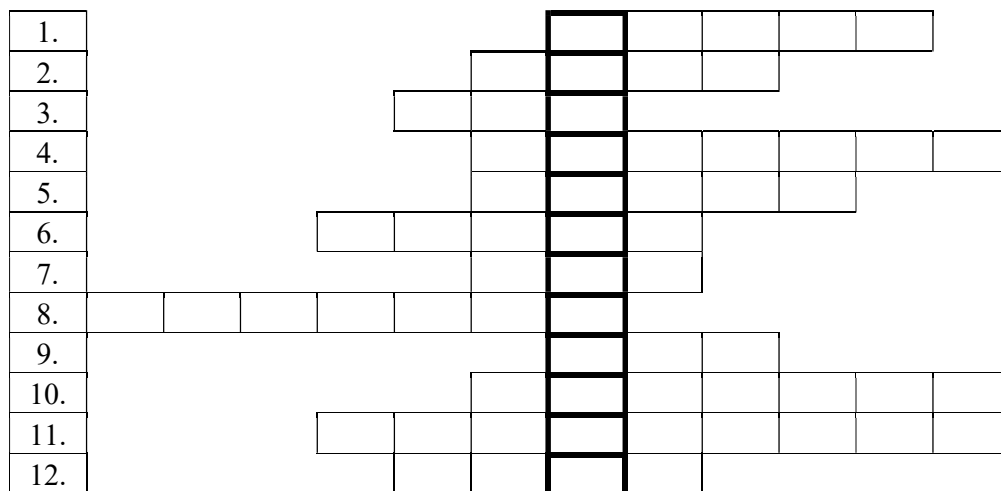
Story about Small Lime

A lonely flyer meets with a Small Lime in the desert. Whilst flyer tries to repair the crash machine they talk about everything. About a secret of the wonderful wandering of small lime, about good and evil, about friendship and beauty, about true happiness, about responsibility for people which we love. And it does not matter where we come from. Small lime was from such a small asteroid that we could not imagine it at all.

But she knew that it is important to protect the flower she had grown and that she is glad and that it brings her joy.

Tereza Kuzmová, 9.A, 2019

Will you solve this puzzle?



- | | |
|--|--|
| 1. striped (usually orange) cat | 2. king of animals |
| 3. night bird with big eyes | 4. the tallest animal |
| 5. liquor that we need for live | 6. satelittes také place in |
| 7. reason of bad visibility outside can be ... | 8. a little pet |
| 9. 24 hours | 10. when is raining and sunshining we can see on the sky |
| 11. insect with colourful wings | 12. animal living in the sea |

HORSE CHESTNAT (*Aesculus hippocastanum* L.)



Horse chestnut is a deciduous tree from a family Sapindaceae. Height: up to 30 m.



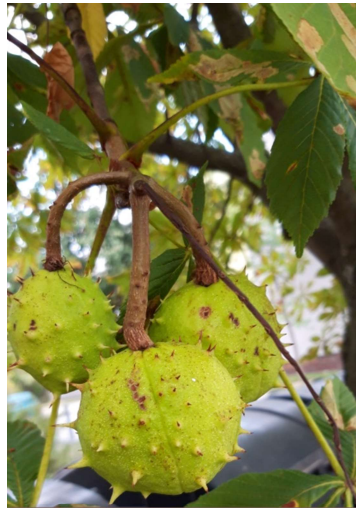
Bark: - in its youth, it has a smooth dark gray bark, which is black later,
- it flakes off in small scales.



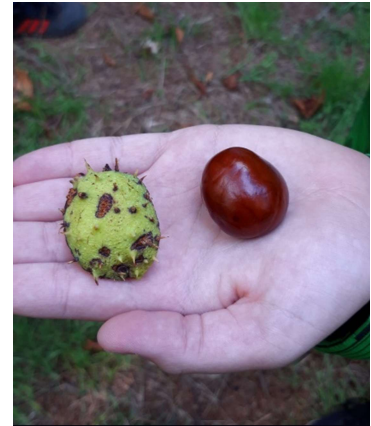
Leaves: - opposite and compounded with 5–7 leaflets,
- each leaflet is 13–30 cm long, making the whole leaf up to 60 cm across, with 7–20 cm petiole.



Blossoms: - are usually white with a yellow to pink blotch at the base of the petals;
- they are produced in spring in erect inflorescences 10–30 cm tall with about 20–50 flowers on each panicle.



Fruit: - usually only 1–5 fruits develop on each inflorescence,
- the shell is a green and spiky, contains one (rarely two or three) seeds called conkers,
- each conker is 2–4 cm diameter, glossy, brown with a whitish scar at the base.



Habitat: in parks, gardens and avenues, in forest.

Distribution: - it comes originally from a small area in the mountains of the Balkans in southeastern Europe,
- nowadays they grow in Europe in the areas with temperate climate.

Attraction: - It is planted as a decorative tree.

- Natural healing

Chestnut is mainly used for various vascular problems. It treats venous inflammation, varicose veins, vessels' breaking, varicose ulcers, and sclerosis of blood vessels. It also helps with peripheral blood flow and thrombosis and improves blood circulation in the organs. It also seems to reduce cholesterol levels in the blood, which helps with diabetes and liver problems. In addition, the chestnut treats the waterborne. It has anti-inflammatory action.

Story about Chestnut

„Can chestnuts be eaten?“ Andrea asks herself. „And how would they taste?“ The moment Andrea asked herself she began to think and wonder what it was like. She turned on a computer and started looking for information. But she realized she could find out information in another and more interesting way. She dressed up quickly and called her best friend Tom. They met in the middle of the park. Andrea explained everything to him. They made a plan how to find out if the chestnuts were edible. Andrea and Tom headed for the nearest horse chestnut in their area. They threw down some chestnuts from the tree using some stones they had found there. After that they ran home. Tom has an older sister who is interested in biology. So they hoped she might be able to help them. But when they arrived to Tom's house, Sarah wasn't there and they were alone to discover it again. So they started to work. They removed the chestnut fruits from the green spiny peel and decided what to do next. They found on the Internet that they should cut X-shaped on the top of the chestnuts. They did it and then they put them in a pre-heated pan. After a while the chestnuts began to open. In that moment Andrea and Tom removed the chestnuts from the pan, peeled them and waited for getting cold. Finally they dared to taste the chestnuts, but they immediately spat them out. The chestnuts were bitter and tart. Andrea and Tom realized they hadn't read the major part of the chestnut preparation - only edible chestnuts can be eaten and their chestnuts weren't edible. The conclusion was that chestnuts can be eaten, but only the edible ones. Andrea and Tom never tried that again because they didn't want to eat chestnuts anymore.

Tereza Konečná, 9.A, Ondřej Tůma, 7.A, 2019

Story about Chestnut

This story begins in one small village called Kolín, where a boy named Karel was born. At first he was like any other boy, but over time he became more and more unpopular because of his interest in nature, especially because of his great interest in trees. At first he was interested in every kind of trees, but as time went on he focused on only one of them, the CHESTNUT. Karel's interest was so big that he started to look for information about it. He liked the Chestnut for its fruits therefore he was going to the forest to water it every day and taking care of it as best he could. As the tree was growing, Karel was getting older, too. But after a few years he forgot to water it and started playing computer games instead of taking care of the Chestnut. One day his computer broke down and Karel was bored. He tried everything to stop getting bored - from tennis to football, from swimming to triathlon. But nothing enjoyed him. Once after some boring training Karel was lying in the bed and was thinking about his past interests. At that moment he realized it. He recalled he liked nature and explored the trees. Fortunately he remembered his Chestnut and realized that he hadn't watered and gathered it last 7 years. The next morning he ran to the tree in the forest to find out how was it doing or if it hadn't withered. But he found only a bare plain in the place where the tree used to be. He was sad and wanted to go home. At the moment he saw a piece of Chestnut fruit on the ground. He planted it and hoped the tree would grow up again. Luckily the tree grew up and Karel decided to help nature again...(and forever 😊)

Jan Vavřínek, 9.A, Ondřej Tůma, 7.A, 2019

ROWAN (*Sorbus aucuparia* L.)



Rowan is a evergreen tree or a shrub from family Rosaceae. Height: up to 15 m.



Bark: the bark of a young is yellowish gray and glowing and becomes gray-black with longitudinal cracks in age



Leaves: - the compound leaves are pinnate with 4 to 9 pairs of leaflets on either side of the central vein and with a terminal leaf,
- the leaves are up to 20 cm long, 8 to 12 cm wide, and arranged alternately on a branch,
- the leaflets are elongated lanceolate shape, 2 to 6 cm long, and 1 to 2,5 cm wide with a sharply crenate edge, and have short stems or sit close to the central vein.



[https://cs.wikipedia.org/wiki/Je%C5%99%C3%A1b_\(strom\)](https://cs.wikipedia.org/wiki/Je%C5%99%C3%A1b_(strom))

Blossoms: - five-flowered blossoms, cream-white blossoms, they form the corymbs about 10 cm wide,
- they bloom from April to June.



Fruit: round, orange-red pomes, popularly called rowan berries.

Habitat

- they are an undemanding species and can grow in diverse habitats, the bright forests and on forest pastures, the rubble side,
- they withstand dry and wet soils and prefer sunny to semi - shady habitats with acid pH
- they are grown as an adaptive ornamental tree along the roads, in parks and in the gardens.

Distribution: Europe (not south), from the Caucasus to Northern Russia and Siberia.

Attraction

- in gastronomy the berries are used to make marmalades, compotes or syrups, and as a spice.
- Natural Healing

They improve the activity of the digestive and excretory system, have anti-rheumatic effects and lower blood pressure, help with gynecological and respiratory problems, regulate hormonal levels.

About the Rowan

A long time ago, when there was no human on earth, a tree grew on the edge of the forest. His name was rowan. The rowan was green all year. In cold white winter, when all the other deciduous trees grew gray and were completely empty - without leaves, this tree shone with its lush greenery on the branches, but the rowan was sad. He was alone in winter. The other trees around him were asleep. The tree just had no one to talk to and felt lonely... But when the other trees began to wake up in spring, it was different! There was no cold or cold around. Everything started to turn green. And bloom! But the rowan was still sad. "Why?" The trees around asked. "I know that envy is ugly," the rowan said sadly, "but I envy you. I envy cherries like small round fruits in summer. I envy you, apple tree, that in the spring you bloom and smell beautiful and in autumn you have beautiful red apples! I have nothing. I am the only one of the deciduous trees all year green, but I am alone. And when you finally wake up, you start to smell.... And I envy you ... and when you finally stop smelling, you start blushing, so beautifully blushing! I would like to smell so much! I want to blush so much! I'd rather be gray and bare in winter, like you, than be different. " But what to do? How to help the rowan? The trees didn't know. And the rowan wept. Transparent tears ran down his leaves and branches. Meanwhile, May and June have passed. The cherry was filled with red fruits. And the rowan was still crying. His tears were now white as snow. July passed, but the rowan cried on. His tears began to stain with the summer heat. Suddenly, pink tears flowed, as if they had burned from the sun. Then came August and the tears of the crane began to change color again. They became orange and clearer. September hastened and October was here. Even apple trees were born this year with reddish apples. AND ... "Look at the rowan!" "Is beautiful.... Oh how good it is!" Sighed one tree across the other. "Look at you, rowan, how beautiful you are for us. The apple tree called to him. And indeed - the rowan was peering from all sides. The tears of the sad tree turned red for a year, forming tufts of small balls in the branches. Suddenly the rowan was shifting. How could it have happened? "I'll call them rowan berries!" The rowan cried cheerfully. "Look at me," he said. "I am no longer bare, I have my red fruits like you, apple tree!"

And since then every fall on the rowan, the red balls, which we call the rowan berries, are maturing. And in winter, when all the deciduous trees are asleep, happy rowan also doze.

Iva Kuchařiková, Aneta Valová 9.A, Ondřej Krátký 8.B, 2019



THE REPUBLIC OF LATVIA

Natural – geographical features

The Republic of Latvia encompasses 64,589 square kilometres and is an extension of the East European Plain. Latvia's only distinct border is the Baltic Sea coast, which extends for 531 kilometres. Its neighbours include Lithuania in the south (453 km of common border), Estonia in the north (267 km), Russia in the east (217 km), and Belarus in the southeast (141 km).

Plains cover 75% of Latvia's territory; 25% of the territory lies in uplands of moderate-sized hills. About 27% of the total territory is cultivable, with the central Zemgale plain south of Riga being the most fertile and profitable. The three main upland areas, in the provinces of Kurzeme (western Latvia), Vidzeme (central Latvia) and Latgale (eastern Latvia), provide a picturesque pattern of fields interspersed with forests and numerous lakes and rivers.

About 10% of Latvian territory consists of peat bogs, swamps, and marshes, some of which are covered by stunted forest growth. Forests are the outstanding feature of Latvia, claiming 52% of the territory. More than half of the forests consist of Scots pine or Norway spruce.

The variegated and rapidly changing physiography of glacial moraines and lowlands has also allowed temperate flora, such as oaks, to grow within a few hundred metres of northern flora, such as bog cotton and cloudberries.

The Latvian western seacoast used to be a carefully guarded border region during Soviet times. As a result, about 300 km of undeveloped seashore are graced only by forests of pine and spruce and ecologically unique sand dunes.

Latvia has an abundant network of rivers, contributing to the visual beauty and the economy of the country. The largest river is the Daugava. With a total length of 1,020 km, the Daugava (or Zapadnaya Dvina in its upper reaches) originates in the Valday Hills in Russia, meanders through northern Belarus, and then winds through Latvia for 352 km before emptying into the Gulf of Riga. It is about 200 m wide when it enters Latvia, increasing to between 650 and 750 m at Riga and to 1,5 km at its mouth.

Smaller rivers include the Lielupe, in central Latvia, with an average annual flow of 3,6 cubic km; the Venta, in the west, with 2,9 cubic km; the Gauja, in the northeast, with 2,5 cubic km; and the Aiviekste, in the east, with 2,1 cubic km.

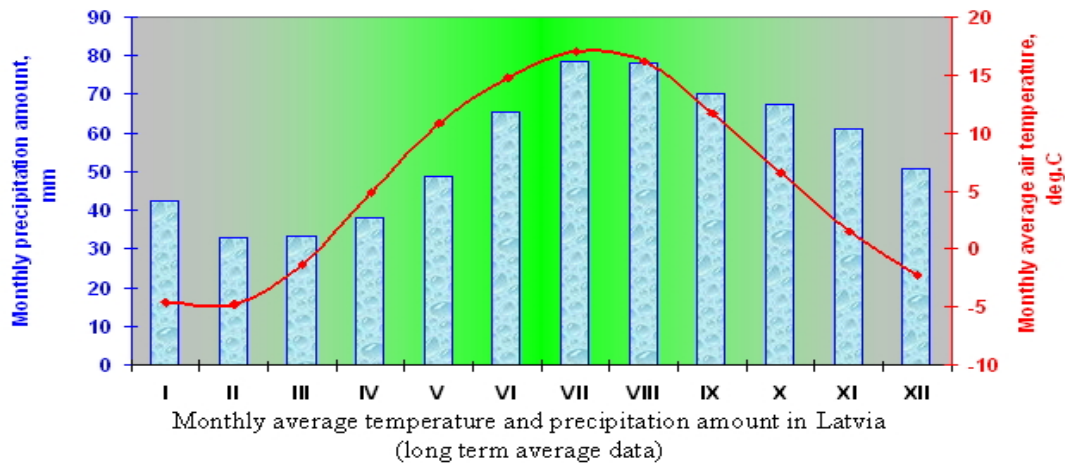


<https://www.britannica.com/place/Latvia>

The climate of Latvia is a temperate maritime with mild summers and moderate winters.

The average annual air temperature in Latvia is +5.9°C. The year's warmest month is July; its average temperature is +17.0°C and average maximum temperature +21.5°C. The coldest months are January and February, when the average temperatures are -4.6 and -4.7°C, and average minimums -7.5 and -7.9°C.

The average annual precipitation in Latvia is 667 mm. The months with most precipitation are July and August, in each of which average rainfall is 78 mm. The least precipitation is in February and March – each of which has on average 33 mm.



<https://www.meteo.lv/cn/lapas/environment/climate-change/climate-of-latvia/climat-latvia?id=1471&nid=660>

Annual average relative humidity is 81%. The lowest moisture content in the air is in May - 71%, the highest in November and December - 88%.

COMMON HAZEL (*Corylus avellana* L.)



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Common hazel is a deciduous shrub of family *Betulaceae*. Its height can reach 3-8 m tall. Its stems form a steep, rosette-shaped bush.

Bark: Grayish brown.

Leaves: The leaves are rounded, 6–12 cm long and across, softly hairy on both surfaces, and with a double-serrate margin. The tip is pointed, the base is heart-shaped, and the stem is short and hairy. The leaves on the branch are alternatively arranged.

Blossoms: The blossoms are duced very early in spring, before the leaves,

and are monoecious with single-sex wind-pollinated catkins. Male catkins are pale yellow and 5-12 cm long, but female catkins are very small and largely hidden in the buds with only the bright red 1-3mm long styles visible.

Fruit: A nut, produced in clusters of one to five together, each nut held in a short leafy husk, which encloses about $\frac{3}{4}$ of the nut. The nut is roughly spherical to oval, 15-20mm long and 12-20mm broad, yellow-brown with a pale scar at the base. The nuts fall out of the husk when ripe, about 7-8 months after pollination. The hazelnut is edible, it has a thin, dark brown skin which has a bitter flavour and is sometimes removed before cooking. Hazelnuts are rich in protein and unsaturated fat. They also contain significant amounts of manganese, copper, vitamin E, thiamine and magnesium.

Habitat: It is found in fertile, calcareous soils, deciduous and mixed forests, especially abundant in river ravines and on the slopes of riverbanks.

Distribution: many European woodlands, widely-spread in Central and Eastern Europe.

Attraction:

White, light, well-breaking wood is used in carpentry.

Branches provide good material for weaving baskets.

Nuts contain about 60% nut oil, which is one of the best vegetable oils.

Nut oil is also used in perfumery.

Hazel bark contains substances that expand the capillaries, strengthen veins, help normalize blood cholesterol, act against sclerosis. Its decoction is also beneficial for the prostate gland.

Bark tea balances blood pressure, improves kidney function – no morning oedema.



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Superstitions:

- When hazels have got lots of nuts, there will be lots of bread next year.

LATVIAN FOLK SONGS

Neviens koks tā nezied,
Kā zied lazda gavēnī,
Saltajā mēnesī,
Sarkaniem ziedīņiem.

No tree blossoms so
As the hazel during Lent,
During cold month,
Having red blossoms.

Visi koki taisni auga,
Lazda auga līkumaina,
Lazdiņai daudz bērniņi,
Visiem kaula kažociņi.

All trees grew straight,
Hazel grew meandering,
Hazel had many kids,
All dressed in coats of bone.

Story about Hazel

According to Celtic belief, anyone who cut a hazel would be punished by death. Those who ate its fruit, the hazel, attained magical powers and gained wisdom. In the belief of the Irish, a fairy who loved poetry was hiding in a coffin.

The wood was used as a wood in turning (for making rods and holders for umbrellas, for making fences, furniture, hoops on barrels and barrels, various tool holders, for making toothpicks, floors, etc.).

Usually, when referring to hazelnut fruit, hazelnut, people think of delicious hazelnut chocolate or a dessert (cake, cake, cream) whose obligatory addition is hazelnut. Hazelnut is also a biologically valuable food because it contains 50 to 80 percent of the oil. In addition to being used in the diet, it is also used in the pharmaceutical industry, as well as in folk medicine, in the treatment of anemia, blood pressure, cough, kidney disease, bowel, and as a natural antioxidant in the treatment of cancer.

<https://www.agroportal.hr/vocarstvo/30493>

COMMON JUNIPER (*Juniperus communis* L.)



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Common juniper is a small dioecious coniferous evergreen tree or shrub, ranging from 10 m tall tree to a low, often prostrate spreading shrub from the family Cupressaceae.

Bark: Grey-brown.

Leaves: It has needle-like leaves in whorls of three; the leaves are green, with a single white stomatal band on the inner surface. They remain on the tree for about 5 years.

Blossoms: Male blossoms are yellow, female – green. Juniper blooms in April and May.

Fruit: The fruit are berry-like cones, initially green, ripening in 18 months to purple-black with a blue waxy coating; they are spherical, 4–12 mm diameter, and usually have three (occasionally) fleshy fused scales, each scale with a single seed. The seeds are dispersed when birds eat the cones, digesting the fleshy scales and passing the hard, unwinged seeds in their droppings. The male cones are yellow, 2–3 mm long, and fall soon after shedding their pollen in March–April.

Habitat: Common juniper grows well in sunny places; it is drought-resistant and not demanding in soil selection. It can be found in marshes and dry areas, coniferous forests, forest edges.

Distribution: It has the largest geographical range of any woody plant, with a circumpolar distribution throughout the cool temperate Northern Hemisphere from the Arctic south in mountains to around 30°N latitude in North America, Europe and Asia.

Attraction:

In Scandinavia juniper wood is used for making containers to store small quantities of dairy products such as butter and cheese, and also for making wooden butter knives. In Estonia juniper wood is valued for its long lasting and pleasant aroma, very decorative natural structure of wood (growth rings) as well as good physical properties of wood due to slow growth rate of juniper and resulting dense and strong wood. Various decorative items (often eating utensils) are common. Juniper wood is frequently used to make knife handles for French pocketknives.

Astringent blue-black seed cones, commonly known as "juniper berries", are too bitter to eat raw and are usually sold dried and used to flavour meats, sauces, and stuffing. They are generally crushed before use to release their flavour. Since juniper berries have a strong taste, they should be used sparingly. They are generally used to enhance meat with a strong flavour, such as game, game birds, or tongue.

The cones are used to flavour certain beers and gin (the word "gin" derives from an Old French word meaning "juniper").

In Finland, juniper is used as a key ingredient in making sahti, traditional Finnish ale.

The Slovak alcoholic beverage Borovička and Dutch Jenever are flavoured with juniper berry or its extract. Juniper is used in the traditional farmhouse ales of Norway, Sweden, Finland, Estonia, and Latvia. The use of juniper in farmhouse brewing has been common in much of northern Europe, seemingly for a very long time.

Needles and seeds are rich in essential oils and phytoncides.



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LATVIAN FOLK SONGS

Pried' ar egli lielījās

Pine and spruce boasted

Abas kāpti kalniņā;

Both climbing on a hill;

Kadiķīti nabadzīti,

Little poor juniper,

To nogrūda lejiņā.

It was pushed down.

EUROPEAN BIRD CHERRY TREE (Hackberry tree, Hagberry tree, Mayday tree) (*Prunus padus* L.)



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European bird cherry tree is a deciduous flowering small tree or a large shrub from the rose family *Rosaceae*. It is a species of cherry. Height: 2 to 10 m.

Bark: Dark grey, smooth, with lenticels - raised pores in the stem of the plant that allows gas exchange between the atmosphere and the internal tissues.

Leaves: Whole, large, elliptical (3-8cm x 2-4cm) with pointed base and tip. The leaves have dentate margins.

Blossoms: fragrant, white, clustered in bunches of 4-6 cm. Bloom in May. The blossoms are hermaphroditic and pollinated by bees and flies. The strong smell can cause headache, therefore one should be careful when keeping branches with blossoms in the room.

Fruit: black, shiny, round or oval stone fruit, 0.6-0.8 cm in diameter. The fruit is astringent due to its tannin content. The fruit is readily eaten by birds, which do not taste astringency as unpleasant. The glycosides prulaurasin and amygdalin, which can be poisonous to some mammals, are present in some parts of *P. padus*, including leaves, stems and fruit.

Habitat: Widely distributed in deciduous and mixed forests, bushes, river sides and floodplains, gardens.

Distribution: Native to northern Europe and spans central latitudes of Asia, including Japan. Its distribution includes British Isles, Denmark, Norway, Sweden, Finland, Russia, Ukraine, France, Spain, Portugal, Northern Italy, Austria and the Balkans.

Attraction:

Fruit decoction is used to prevent diarrhoea.

Decoction of shredded bark is used against insomnia and metabolic disorders (polyarthritis, kidney stone disease) and as a sweating agent.

Fresh infusion of fruit can be applied to treat fungal skin diseases.

Blossom and leaf infusions are used against diarrhoea, bronchitis, pneumonia, anaemia.

Fresh buds of leaves are applied to furuncles, tumours.

Fruit is used to prepare tea, and soft drinks. Fresh fruit can be ground and turned into marmalade.

In Siberia the fruit of the tree is used for culinary purposes. The dried berries are ground and turned into flour of varying degree of fineness that serves as an ingredient in the bird-cherry cake. The flour is brown, and so is the cake, even though there is no chocolate in it.



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Superstitions:

- When the blossoms of bird-cherry tree bloom very abundantly, there will be a fruitful summer.
- It is not advised to plant bird-cherry trees and oaks near houses, so that thunder does not struck the house and apple trees do not drop their blossoms.

LATVIAN FOLK SONGS

Dzīrās ieva ar ābeli

Bird-cherry tree and apple tree

Ziedēt vienu baltumiņu.

Wanted to blossom equally white,

Jau ieviņa balti zied,

Bird-cherry tree already blooms white,

Vēl ābele pumpuros.

But apple tree still has buds.

Zied ieviņa, zied lazdiņa

Bird-cherry tree and hazel bloom

Avotiņa maliņā:

At the edge of the spring:

Ieviņai zelta ziedi,

Bird-cherry tree has golden blossoms,

Lazdai vara, sudrabiņa.

Hazel – copper, silver ones.

SCOTS PINE (*Pinus sylvestris* L.)



Scots pine is evergreen coniferous, resinous tree from a family *Pinaceae*. Height: up to 35 m.

Bark: thick, scaly dark grey-brown on the lower trunk, and thin, flaky and orange on the upper trunk and branches.

Leaves: The shoots are light brown, with a spirally arranged scale-like pattern. On mature trees the leaves ('needles') are blue-green, often darker green to dark yellow-green in winter, 2.5–5 cm long and 1–2 mm broad. On vigorous young trees the leaves can be twice as long. Seedlings up to one year old bear juvenile leaves; these are single (not in pairs), 2–3 cm long, flattened, with a serrated margin.

Blossoms: The pollen cones are yellow, occasionally pink, 8–12 mm long; pollen release is in mid to late spring.

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Fruit: The seed cones are red at pollination, then pale brown, globose and 4–8 mm diameter in their first year, expanding to full size in their second year, pointed ovoid - conic, green, then grey-green to yellow-brown at maturity, 3–7.5 cm long. The cone scales have a flat to pyramidal external part of the cone scale, with a small

prickle on the protuberance. The seeds are blackish, 3–5 mm in length with a pale brown 12–20 mm wing and are released when the cones open in spring 22–24 months after pollination.

Habitat: The species is mainly found on poorer, sandy soils, rocky outcrops, peat bogs or close to the forest limit. It is the main tree species in the forests of Latvia (~40% of total forest area).

Distribution: Eurasia, ranging from Western Europe to Eastern Siberia, south to the Caucasus Mountains and Anatolia, and north to the Arctic Circle in Scandinavia.

Attraction: Pine buds as an effective source of vitamins can be added to smoothies and various salads. Pine bud syrup is an effective remedy for cough and upper respiratory diseases. Pine buds and needles extract are also used in baths, which perfectly calms the nervous system.

Pine products:

Turpentine – in inhalations, in ointments as an irritant and pain reliever, used to make terpine hydrate, camphor and various perfumes, component of various formulations such as olimetin, enatin etc..

Pine balm, rosin – used in adhesive plasters.

Tar – used in medicine as a disinfectant against skin diseases.

Activated coal – used as an absorbent against fermentation and putrefaction in the guts, gas accumulation, alkaloid poisoning.



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Superstitions:

- If pine's bark becomes more reddish, rain is expected; if the bark stays natural, good weather is expected soon.
- If the pine hisses heavily in winter, thaw is expected.

Latvian Folk Tale about the Pine

Long time ago none of the trees had leaves, but God did not like it. He decided to decorate the trees with leaves and let them choose what they wanted. The trees each chose what they liked. Some trees chose large and wide leaves, some – jagged ones, some chose smooth leaves. Finally the round came to the pine tree. "Well, what kind of leaves do you want?" God asked.

"Mighty Creator!" the pine asked proudly. "Give me golden leaves."

"Let your will be fulfilled!" God said and made the pine tree grow golden leaves.

The pine was now more beautiful than any other tree. With contempt it looked at other trees, but its pride did not last for long. The bright golden leaves attracted passers-by and after a few days the pine was naked. All the trees mocked it.

Crying in earnest, the pine prayed for God to give it glass leaves. And behold! before the new day dawned, the pine had glass leaves. It raised its head proudly again, but not for long. A big storm broke out and the beautiful leaves of glass burst into ruins. Other trees started laughing at the pine tree again.

It was ashamed and wished that it would be given the same leaves as other trees. Her wishes were obeyed again. The pine tree had already begun to dry its tears, but again there was a misfortune: accidentally a goat with some kids came to the pine tree and after a short while the pine was as naked as before.

But that was too much. All the trees laughed at the pine tree again. Feeling poor and ashamed the pine began to cry bitterly. Teardrops like peas dropped down its trunk. Crying she prayed to God to give it some needles. God obeyed its wish. The pine got sharp needles. Others laughed at it, but the pine was not sad about it: it was good to have needles.

Still, tears, resin drops, sometimes squeeze out on pine's trunk.

EUROPEAN SPRUCE (*Picea abies* (L.)Karsten)



[tps://www.google.com/search?q=common+spruce+lati&rlz=1C1AOHY_lvLV716LV716&source=lnms&tbn=isch&sa=X&ved=0ahUKEwiT09eosZ7kAhWL-KHZ5CCfwQ_AUIESgB&biw=1600&bih=809#imgrc=ADK_L3ivZLI8M:](https://www.google.com/search?q=common+spruce+lati&rlz=1C1AOHY_lvLV716LV716&source=lnms&tbn=isch&sa=X&ved=0ahUKEwiT09eosZ7kAhWL-KHZ5CCfwQ_AUIESgB&biw=1600&bih=809#imgrc=ADK_L3ivZLI8M:)

European spruce is a large, fast-growing evergreen coniferous tree from a family *Pinaceae*. Height: up to 40 m.

Bark: Reddish brown or grey. When peeled, it becomes reddish-brown to reddish yellow.

Leaves: Needles (leaves) are four-sided with blunt tips, 12-24 mm long, quadrangular in cross-section (not flattened) and dark green on all sides. Needles are attached singly to small persistent peg-like structures on the branches. The needles are shed when 4–10 years old, leaving the branches rough with the retained pegs.

Blossoms: Spruce begins to bloom at the age of 25-30. It blooms in May.

Fruit: The seed cones are 9–17 cm long and have bluntly to sharply triangular-pointed scale tips. They are green or reddish, maturing brown 5–7 months after pollination. The seeds are black, 4–5 mm long, with a pale brown 15-millimetre wing.

Habitat: A lot of spruce grow in mountainous areas and in the temperate zone. It's an absolutely shade-loving species.

Distribution: throughout Europe from Norway in the northwest and Poland eastward, also in the mountains of central Europe, southwest to the western end of the Alps, and southeast in the Carpathians and Balkans to the extreme north of Greece. The northern limit is in the arctic, just north of 70° N in Norway. Its eastern limit in Russia is hard to define, due to extensive hybridisation and intergradation with the Siberian spruce, but is usually given as the Ural Mountains.

Attraction: in forestry for (softwood) timber and paper production, as well as the firewood.

The wood is flexible, so it is often used to make curved elements.

Resin, tar, turpentine and pitch are extracted from spruce.

The bark is needed for tanning the skin.

The tree is the source of spruce beer, which was once used to prevent and even cure scurvy. This high vitamin C content can be consumed as a tea from the shoot tips or even eaten straight from the tree when light green and new in spring.

It is esteemed as a source of tonewood by stringed-instrument makers. European spruce shoot tips have been used in traditional Austrian medicine internally (as syrup or tea) and externally (as baths, for inhalation, as ointments, as resin application or as tea) for treatment of disorders of the respiratory tract, skin, locomotor system, gastrointestinal tract and infections.

Spruce needles are a powerful source of vitamins, for example, needle infusions can be used as a potent drink in everyday life. Cones help with bronchitis, bronchial asthma, rheumatism and pulmonary tuberculosis. Such infusions also have antimicrobial and anti-allergic effects.

Prepared spruce oil is a great remedy for colds. It can be added to both tea and rubbed in the chest area.



https://www.google.com/search?rlz=1C1AOHY_lvLV716LV716&biw=1600&bih=766&tbn=isch&sa=1&ei=pbdiXcHNEeL.GrgSyxaXQBA&q=common+spruce+bark&oq=common+spruce+bark&gs_l=img.12...158117.158796..160346...0.0..0.158.415.3j1.....0....1..gws-wiz-img.4vvFyQoydzc&ved=0ahUKewiBtNfluj7kAhVio4sKHbJiCUoQ4dUDCAy#imgrc=oznvb_IBJIOb1M:

https://www.google.com/search?rlz=1C1AOHY_lvLV716LV716&biw=1600&bih=766&tbn=isch&sa=1&ei=R7hiXYb7M9KJrwSziojwDQ&q=common+spruce+bloom&oq=common+spruce+bloom&gs_l=img.12...112971.114031..115880...0.0..0.160.511.3j2.....0....1..gws-wiz-img.a7jMj0wh12o&ved=0ahUKewjGupnDuZ7kAhXSxIsKHTMFA4Q4dUDCAy#imgrc=EXRyF6kBVbifeM:

Superstitions:

- If spruce has got many new cones during spring, a good rye harvest can be expected this year.
- If spruce has got many cones, good harvest of big potatoes can be expected in autumn.
- If the needles have fallen under the spruce tree in winter, a good summer is expected.
- If you scatter spruce needles in the room, you can avoid fleas.
- If the branches of the spruce turn upwards, dry weather is expected; if the branches turn downwards, rain is expected.
- Spruce with two or more tops symbolizes fertility and prosperity, therefore such trees are the best to be chosen for Christmas.

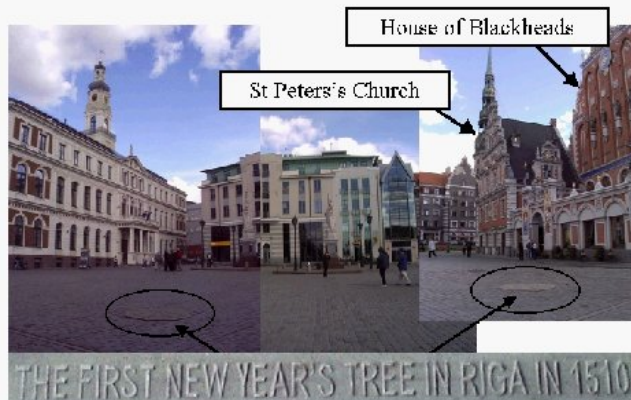
Riga (Latvia) was home of the first spruce - Christmas Tree

When something happened over 500 years ago, it can be tricky to parse out a fact from a legend. Take the first ever Christmas tree. The custom of a decorated tree at Yuletide dates back to at least the 15th or 16th century. There is a legend that the first decorated Christmas tree was in the medieval city of Riga, the capital of Latvia.

Riga's City Centre is a UNESCO World Heritage Site, including the Town Hall Square. Flanking the south side of the Square is the House of the Brotherhood of the Blackheads, and it's here where the Christmas tree story takes shape.

Near the northwest corner of the ornate building is a slightly domed stone marker embedded in the cobblestones, staking its claim—in eight languages—

Town Hall Square – Riga Latvia



as the spot of the first public Christmas tree.

The Brotherhood of the Blackheads was a guild of professional merchants and traders that banded together in the 14th century, and remained active in Latvia and Estonia right up through the middle of the 20th century. They were known for their twice-yearly holiday celebrations, including the Christmas to New Year season. It's said that the Brotherhood put a spruce in the square, festooned it with paper flowers, sang and danced and cheered the season, then lit the whole thing on fire.



The Brotherhood has documentation showing that this all happened for the first time in 1510, and it just might be the very first documented Christmas tree.

A Christmas tree still goes up in Riga's Town Hall Square, in the same spot, in front of the same Brotherhood, but with a whole lot more lights and decorations.

LATVIAN FOLK SONG

Priede, priede, egle, egle,	Pine, pine, spruce, spruce,
Tavu garu augumiņu!	Your tall stature!
Māmiņ manim ēstu deva,	Mum gave me food,
Es tik gara neuzaugu.	I didn't grow up so tall.

LATVIAN FOLK RIDDLES ABOUT TREES

- Green mother, red children. Answer: A spruce with cones.
- Our sister shakes its skirt every summer. Answer: An aspen.
- A giant stands at the edge of the field, with a green hat on his head. Answer: An oak.
- Men stand in rows, their hair hiss. Answer: Trees in the wind.
- Which forest has no leaves? Answer: A coniferous forest.
- A turkey stands on one leg. Answer: A tree.
- One leg, hundreds of tongues. Answer: A deciduous tree.
- In winter they are naked, in summer they make skirts. Answer: Deciduous trees.
- Who stands outside in winter wearing a white shirt? Answer: A tree covered with snow.
- Strength under the ground, beauty above the ground. Answer: A tree.

BELIEFS AND SUPERSTITIONS ABOUT TREES

- Rowan is believed to be a symbol of fertility, flourishing and prosperity.
- If rowan is grown next to a house, it protects the house from evil spirits/ lightning does not strike the house.
- When the rowan has got much fruit, a rainy summer is expected/many spinsters get married.

THE REPUBLIC OF CROATIA

Natural - geographical features

Croatia is located in southeast Europe at the touch of Central Europe and the Mediterranean. It is part of the lowland, mountainous and coastal Croatia. More than half of the territories occupy the plains and hills of the Pannonian Basin in the north. In the east are the lowland provinces of Srijem and Baranja, which continue to the west in Slavonia, and the wide plains along the Sava and Drava river. In western and central Slavonija stands the mountains of Papuk, Psunj, Dilj, Krndija and Požeška gora. The mentioned hills close the Požega valley. Towards the west, the mountains descend into the broad, slightly humid plains along the Ilova, Česma and Lonja River, over which the 60 km long Bilogora and the Moslavačka Gora are rising in the north. In the far northwest, there is a flatland Međimurje between the rivers Drava and Mura and the hilly Croatian Zagorje, where the most eco-friendly forests of the Prealpine Mountains (Žumberačka Gora, Ivanščica, Medvednica) are located. The plains along the lower course of the Kupa River extend southwestward into the Karlovac Bay, which in the south passes into the low karst of Kordun with Petrova Gora and in the southeast into the low mountains of Banija (Zrinska gora).

Gorski Kotar includes a part of the Dinaric Mountains and a distinct geographical division between continental and Mediterranean Croatia. Most of it lies at an altitude of between 500 and 1000 meters. In the northwest there is a gorgeous Gorski Kotar, a southeastern sloping Lika with Ličko, Gacko and Krbavsko karst fields and a 145 km long mountain range of Velebit, which separates it from the Adriatic Sea. Along the border with Bosnia and Herzegovina rises the 80 km long mountain range Dinara with the highest peak of Croatia (top of Dinara). In the coastal Croatia there are flaut areas such as Vinodol, Ravni Kotar and Konavle, and karst fields in the interior of Dalmatia such as Imotski, Sinj, Petrovo and Vrgorac. Since the limestone mountains like Velebit, Mosor and Biokovo rise just above the shore, the shoreline is very narrow. The islands are also limestone, and on some islands there are flywaters. The larger islands are Krk, Cres, Brač, Hvar, Pag, Korčula, Dugi Otok, Mljet, Rab, Vis, Lošinj, Pašman, Šolta and Ugljan. The coast is very indented.



Croatian rivers belong to the Black Sea and Adriatic waters. Inland are the largest river Danube and its tributaries Drava and Sava. Greater tributaries Drava River are: Mura, Bednja and Karašica. The bigger are Sutla, Krapina, Lonja, Ilova, Pakra, Orłjava, Bosut, Kupa and Una. The largest rivers of coastal Croatia are Neretva, Cetina, Krka and Zrmanja. Of the natural lakes are the largest

Vransko Lake in Biograd, Vransko Lake on the island of Cres and Prokljansko Lake on the Krka River.

There are four types of climate in Croatia. Moderate warm wet climate with warm summer (beech climate) have relief reliefs of the Istrian peninsula, mountainous Croatia and Pannonian and Peripanone Croatia. The average temperature in January ranges from 0 to -3 degrees Celsius while the mean July temperature ranges from 20 to 22 degrees Celsius. The moderate warm wet climate with the hot summer has a large part of Istria and the Kvarner coast with the islands of Krk, Rab, Cres, Lošinj and Pag. Over northern Dalmatia, this type of climate lies in the broad hinterland of Central Dalmatia. The average temperature in July is greater than 22 degrees Celsius.

The Mediterranean climate with dry hot summer (olive climate) has its ends along the Adriatic Sea coast to the south of Lošinj and west of Pag. Winters are relatively high temperatures caused by the advent of hot air from the Mediterranean Sea and frequent clouds. The mean July temperature is equal to or higher than 22 degrees Celsius.

Boreal or snow-forest climate have the highest mountain parts. Winters are cold and snowy. Temperatures in January are lower than -3 degrees Celsius. Medium July temperatures range between 15 and 20 degrees Celsius. The summers are fresh and short-lived.

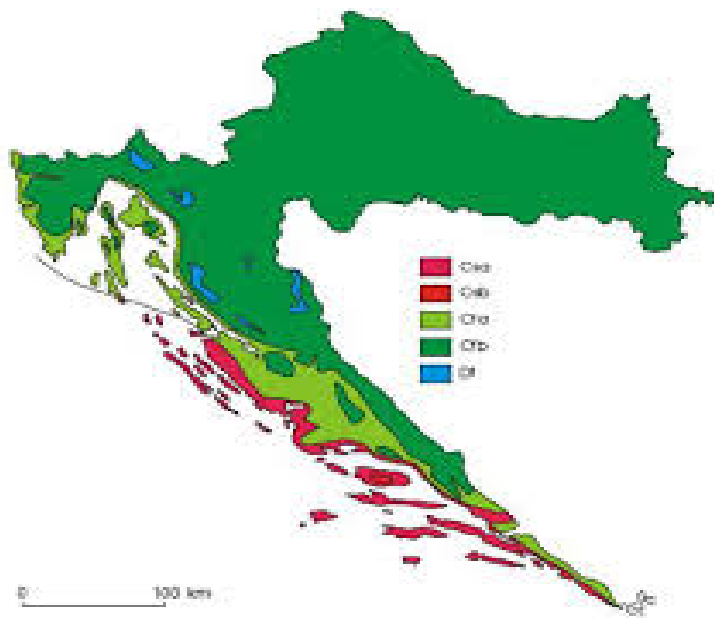


Fig. 1 The geographical distribution of Köppen's types of climates in Croatia in the standard period 1961-1990: Cfa, temperate humid climate with hot summer; Cfb, temperate humid climate with warm summer; Csa, Mediterranean climate with hot summer; Csb, Mediterranean climate with warm summer; Df, humid boreal climat (FILIPČIĆ, 1998.)

file:///C:/Users/Korisnik/Downloads/Segota_Filipic_8_1.pdf

The most prosperous soils are in the southwestern part of Srijem and Baranja (Black), while in other parts of the Lowlands Croatia is dominated by brown soils, glaciers and fluvial soils. In the mountains dominate rocky, rhizome, brown soil, and in the coastal part of the red, and brown soil. In lowland Croatia natural vegetation is a deciduous forest. Stems of oak in the flood plains, oak wit and plain grab in the remote areas and beech forests in higher areas. In the mountains predominate beech forests up to an altitude of 700 meters, 700 - 1200 meters prevail over the mixing of beech and fir trees and 1300-1,500 meters of mountain beech forests. Forests cover 37% of the total area of Croatia. In the lower part of the coastal area, the evergreen vegetation (macchia and garrigue) is degraded on the islands, while on the upper and in the interior degraded deciduous forests of oak, white and black grappa. In some places in Dalmatia on the islands the terrain is completely naked with humble grass.

WHITE WILLOW (*Salix alba* L.)

Description



<http://www.narodnamedicina.org/bijela-vrba/>

White willow is a deciduous shrub or tree from a family of pickles (Salicaceae). Grow to a height of 20 meters, forming a large, wide, airy crown. The weft is irregular, with an average diameter of 1.5 meters, branches are horizontal. Early in the beginning it was brilliant, later became gray and cracked. The buds are naked, covered with 2 hairy shells. The leaves are alternating, long 4-10 cm, pointed at both ends, finely toothed edges, the stalk is short, up to 10 mm. It is a bicameral plant and we distinguish between male and female plants. The flowers are gathered in the pot. White willow blooms in March and April. The fruits are sealed two-part shotguns, containing numerous seedlings with lacquers.



Bark

<https://www.indiamart.com/proddetail/white-willow-bark-extract-6381982048.html>

<https://www.woodlandtrust.org.uk/visiting-woods/trees-woods-and-wildlife/british-trees/a-z-of-uk-native-trees/white-willow/>

<https://www.geograph.org.uk/photo/5377927>



Leaves



Blossoms

Habitat

They grow on light, damp and spotted land, along rivers and lakes, up to 1000 m above sea level.

Distribution

It is prominent in Central and South Europe, in Central Asia and North Africa.

Attraction

White willow is a good honey-like plant, bees a daily yield of about 3 kg can be collected about 20 kg of honey per hive, and on one hectare up to 150 kg. Plants also have a great explosive power from the maple. Their lifetime is 100 years. Early tree is healing, used in colds, lowers temperature, acts as an analgesic, headache, toothache, muscle pain, etc. Many forms are bred as decorative plants.

<https://www.plantea.com.hr/bijela-vrba/>

Story about White Willow

What our ancestors knew

Medicinal use is mentioned in the findings of the ancient Egyptians, Assyrians, Chinese, Greeks and Romans, and was described as a painkiller and fever by Hippocrates and Galen. Hippocrates has reportedly prescribed chewing willow bark to maternity wards to relieve childbirth pain. The American Indians used it against headache, fever, muscle inflammation and joint pain, and in the 17th century sailors used it to treat malaria symptoms.

It has long been unknown what is in the bark that alleviates the pain and the fever, and one of the first explanations was given by British monk Edward Stone who believed that the willow was safely in the bark from the water next to it to accumulate "the freshness it transfers to a sick man."

Scientific explanations

It was not until 1829 that the French chemist Henri Leroux isolated salicin, which crystallized into salicylic acid. But salicylic acid itself is extremely unpleasant in taste and causes severe irritation to the mucous membrane of the digestive system. Today, it is only used topically in a lower concentration for the treatment of acne, and in a larger concentration as a keratolytic for the removal of warts and duck eyes.

To alleviate the irritant effect of salicin, the French chemist Charles Frederic Gerhardt neutralized it by binding the acetyl residue and preparing acetylsalicylic acid.

Finally, in 1897, a German chemist employed by Bayer Pharmaceutical Company discovered a laboratory procedure for the synthesis of acetylsalicylic acid, and since then its dominance in the drug market began, initially as a rheumatic pain medicine, and very quickly as an analgesic for all pain and an antipyretic drug. to remove fever. Although acetylsalicylic acid has been in widespread use since the late 19th century, it has long been unknown how it works in the body. It was not until the 1970s that British pharmacologist John Vane discovered that it inhibited prostaglandin biosynthesis, for which he was awarded the 1982 Nobel Prize in Medicine.

<https://www.adiva.hr/zdravlje/srce-i-krvne-zile/zastitnik-srca-prica-o-bijeloj-vrbi-i-cudotvornoj-acetilsalicilnoj-kiselini/>

Superstitions:

- You have to chop willow branches while the leaves have not flourished yet. If the branches are chopped during new moon, the willow grows new shoots; if the branches are chopped during crescent moon, the tree withers.
- It is not advised to grow willow trees near dwelling houses, otherwise they become obsessed with worms and start to decay.

Latvian Folk Tale about the Willow

In ancient times, when the trees were alive and able to talk and walk, the willow was a famous tree: everyone praised and uplifted it. But such glorifications had made the willow proud: it had begun to grow very stubbornly, boasting over time to grow through all the heavens. For such greatness, God, of course, envied the willow and crushed it in a cluster - he did not want to give it soil anymore.

Then willow went to God and prayed that he gave at least as much soil as it could hide under his hat (crown of branches and leaves). God, being tired of listening to the prayer's request, finally gave as much soil as the willow wanted. From then on, willows, no matter how big they are, have a single root.

EUROPEAN OAK/SESSILE OAK (*Quercus petraea* (Mattuschka) Liebl.)



<https://www.rtl.hr/zivotistil/vrt-i-sobno-bilje/2997301/hrast-kitnjak-hrvatski-autohtoni-hrast/>

Description

The sessile oak is a deciduous tree of the beech family (Fagaceae). The tree grows to 40 meters in height and has a rich, branched, dense and regular canopy. It has a strong central root. The trunk is up to 3 meters in diameter and the bark is up to 2 cm thick, gray-brown and longitudinally cracked. The leaves are alternate, large up to 7 - 12 cm, with an asymmetrically incised edge, their apex obtuse, they are on long petioles 2 - 4 cm long. The flowers are monocotyledonous and monoecious. Male flowers are clustered in tassels, and female flowers grow individually or 2 - 5 in a group. They bloom in May. The fruit is an acorn with a cap and no petiole, 1.5 - 4 cm long and 1 - 2.5 cm thick. It ripens in September and October. Bees collect pollen and nectar. They collect up to 400 kg of honey on an area of 1 ha.



Bark



Leaves



Blossoms



Fruits

<https://www.agefotostock.com/age/en/Stock-Images/Rights-Managed/PLP-130318p285>

<https://www.plantea.com.hr/hrast-kitnjak/>

<https://www.first-nature.com/trees/quercus-petraea.php>

<http://www.sveosvemmu.com/upoznaimo-nase-sume-hrast-kitnjak-quercus-petraea-i-hrast-luznjak-quercus-robur>

Habitat

It grows in mountainous areas, often along with ordinary hornbeam, tame chestnut or beech. Fresh soils respond to it, it does poorly on acid soils.

Distribution

It is widespread in Central and Southern Europe and Western Asia. It rises from the lowlands to 1300 meters above sea level.

Attraction

Oak acorn is edible when are cooked, baked or ground into flour and can be used to make bread. The wood is hard, of high quality. Finds application in construction and joinery.

<https://www.plantea.com.hr/hrast-kitnjak/>

Song about oak

Ponosno i hrabro rasteš u visine
korigenje puštaš u zemne dubine
premale su ti četiri strane svijeta
već oko tristo pedeset dugih ljeta.

Izrastao si nebu pod oblake
poput diva iz neke dječje bajke
ne može ti ništa vjetar niti žega,
ne bojiš se ni mraza, ni snijega.

Prstenaste godove u paleti smeđe
čuva ti bjelika i kora kao oko vjeđe
trajan si i postojan poput metala
mnogi bi te sasjekli za izradu stola.

Croatian folk song

U hrastovoj prašumi Prašnika
krošnjju si raširio poput gromovnika
u proljeće šumu obojiš zelenožuto,
a mirise blage raspršiš ljekovito.

Na izbojcima svojim čuvar si gnijezda
i cvrkut tvojih ptica budi te svagda
da nisu osamljena i tužna ti jutro
gledati u daljinu i visinu iznova sutra.

U jesen šuma bojom se prošara
dok prepun si plodom jajastog žira
kada iz peteljke svaki plod ispadne
veprovi čak nahranit će i malene.

Rasti gordo, stoljećima cvjetaj i listaj
nek' krošnjju tvoju obasja zraka sjaj
raširi grane nalik na zmajeva krila
nek' tvoje šume budu rajska idila.

Enigma from folks – oak

Who is that?
Run, and run, cheerful being
hanging, hanging, herb pendant
a cheerful being prays to god
to drop the plant pendant

Answer:

a wild boar is a cheerful being, and a herbal pendant is an acorn, the fruit of an oak.

TURKEY OAK (*Quercus cerris* L.)



<https://www.plantea.com.hr/hrast->

Description

Turkey oak is a deciduous tree of the beech family (Fagaceae). It grows to 40 meters in height, forming a trunk with a diameter of 1 meter and a broad conical canopy. The bark is gray, thick, deep longitudinally and shallowly transverse, and the trunk is basically reddish. The leaves are alternate, simple, leathery, incised, 7 - 14 cm long, 3 - 9 cm wide, and located on a petiole 0,5 - 2,5 cm long. The flowers are unisexual, monoecious, the males clustered in dangling

inflorescences, and the females small, barely noticeable. It blooms in April and May. The fruit is an acorn that grows individually or is 2 - 4 in total on the handle. They are 2 - 4 cm long and 2 cm wide. They ripen in autumn.



Bark



Leaves

Fruits



<http://treesplanet.blogspot.com/2014/03/quercus-cerris-turkey-oak.html>
<https://selectree.calpoly.edu/tree-detail/quercus-cerris>
<http://treesplanet.blogspot.com/2014/03/quercus-cerris-turkey-oak.html>
http://www.aphotoflora.com/af_quercus_cerris_turkey_oak.html

Blossoms



Habitat

It grows in hilly areas, in deciduous forests on warm, dry and deeper acidic soils. Tolerates drought.

Distribution

It is widespread in Southeast Europe and Western Asia.

Attraction

Lives up to 300 years. The acorn fruit is edible as is the case with sessile oaks. The wood is brittle, cracked in the air and not as good as other types of oak.

<https://www.plantea.com.hr/hrast-cer/>

Story about Oak

According to the book by Tom Vinšak, "Believing in Trees in Croats", lucky trees in Croats and most other Slavs are: **oak**, linden, yew, olive, maple, cer, elm, pine, apple, fir, apple, birch, mulberry, drier, ladonja, pomegranate, hornbeam, fennel, ash and holly.

<http://rodnovjerje.com.hr/index.php/2014/08/22/vjerovanje-u-drvece-u-hrvata/>

Story about oak

The worship of oak still exists today in many Croatian regions. In Grablje, Dalmatia, locals believe that the oak tree should not be cut. In Slavonia, in some villages it was believed that oaks were gathering in the oak canopy, and in some areas they considered it a lucky tree.

Oak forests are also called Dubrava because oak is also called Dub. Thus the city of Dubrovnik was named after the oak tree (dub).

Oak is also mentioned in the Croatian anthem "...as the wind blows, the oaks growl ...".

<http://www.pjesmicezadjecu.com/legende/legenda-o-hrvatskom-hrastu.html#ixzz5ws2VFHIG>

Latvian Legend about Oak

Once the Devil wanted to tease God. He humbly approached God and asked if God would fulfill his small request. God knew the Devil's intent and therefore replied, "I will fulfill your request when the oaks have all their leaves fallen."

The devil rejoiced and waited for the autumn. Autumn came, but the oaks still had leaves. Even in winter and spring, the oaks had withered leaves, but they still held on to the branches. Old leaves were still left over even when new leaves had flourished. The Devil came to terms with it, climbed into the oak and began to tear its leaves and it made them jagged. Therefore, the oaks still have jagged leaves.

BLACK LOCUST (*Robinia pseudoacacia* L.)



Description

Black locust (or acacia) is a deciduous tree from the legume (Fabaceae) family. It grows to 30 meters in height, the canopy is wide and sparse. The trunk is up to 50 cm in diameter and the bark is smooth and brown at a young age, later becoming deeply longitudinally furrowed. The leaves are 15 - 30 cm long, complex, oddly feathered, consisting of 9 - 25 ovate leaves on a short petiole. It blooms 10 - 15 days in May before leafing. The flowers are fragrant, located on a short petiole, clustered in hanging bunches about 15 cm long. Pollination is carried out by insects, and after pollination fruits are produced - hanging, flat pods 5-10 cm long and 1 - 2 cm wide with more seeds.

<https://www.naturehills.com/black-locust>



Bark



Leaves



Blossoms

Fruits



<https://naturewalk.yale.edu/trees/fabaceae/robinia-pseudoacacia/black-locust-81>
<https://shelterislandreporter.timesreview.com/2019/07/13/tree-month-black-locust/>
<https://www.mortonarb.org/trees-plants/tree-plant-descriptions/black-locust-not-recommended>
<https://www.agefotostock.com/age/en/Stock-Images/Rights-Managed/BWI-BS406824>

Habitat

Its habitats are moderately moist or dry and sandy soils in the lowlands and hills, often forming their own woodland.

Distribution

It is originally from North America and was brought to Europe at the very beginning of the 17th century. For the territory of Croatia, official references are first made to acacia at the beginning of the 20th century, although it is probably present from earlier.

Attraction

Black locust is considered a top honey plant. Trees in the lowlands and on fertile land give much more nectar than trees in the higher regions. The strongest light is when there is no wind and when the weather is clear and warm and the air temperature is above 16 degrees Celsius. Bees on an area of 1 ha can collect 15 kg of honey a day! Acacia honey is bright, glassy and almost colorless, with a low odor and a pleasant mild taste. It is of high quality and the bees on it have a great hibernation. Flowers are edible and, in some, seeds if cooked before eating, similar to peas and beans.

<https://www.plantea.com.hr/bagrem/>

Story about Black Locust

The one who possessed innocence, irreverence, sunshine and light, traits that the ancient ace (Robinia pseudacacia) possessed were rumored to become immortal. According to ancient traditions, Noah's ark was made of acacia wood because the acacia symbolizes holy and incorruptible knowledge. In Western Freemasonry, acacia symbolizes the pledge of resurrection and immortality; Christ's thorny crown was made of acacia branches, and according to Indian traditions, a sacrificial spoon (sruk) was made of acacia wood, which is attributed to Brahma.

<https://www.magicus.info/ostalo/zanimljivosti/mozda-niste-znali-bagrem>

The first acacia tree was brought to Europe by Robin, after whom this tree was named. In 1601, in Paris, the first acacia tree was planted, and from there, thanks to its ecologically-growing properties, it quickly spread throughout Europe, first as a park tree. Later, it became a very suitable species for afforestation of desert terrain, sandy and lush areas. It is interesting that 300 years after the first occurrence and about 150 years after afforestation, acacia as a crop covers more than 200,000 ha of soil in Europe.

(Used material from the Faculty of Forestry, University of Zagreb)

HORNBEAM (*Carpinus betulus* L.)



<http://proleksis.lzmk.hr/24109/>

Description

Hornbeam is a deciduous tree from the birch family (Betulaceae). The tree grows to 25 meters in height and has a thick and branched canopy. The root is well developed and deep. The trunk is up to 70 cm in diameter. The bark is smooth, thin, and light gray in young trees, and later escapes with longitudinal, shallow folds. The leaves are simple, oblong-ovate, pointed, sharp toothed, 5 - 15 cm long and 2 - 7 cm wide. The appearance of leaves and flowers occurs during April and May. The male and female flowers are clustered in dangling tassels. Fruits are single-seeded bare nuts 5-10 mm long, clustered in dense groups up to 15 cm long and up to 6 cm wide. Each nut has wings that allow it to be easily blown by the wing.



Bark



Leaves



Blossoms

Fruits



<https://www.pinterest.com/pin/553168766711743729/>

<http://www.bvo.zadweb.biz.hr.cloud.hr/pages/biljke/listopadno%20-%20grab.htm>

https://commons.wikimedia.org/wiki/File:Carpinus_betulus_-_flowers.jpg

https://www.researchgate.net/figure/The-leaves-and-fruits-of-Carpinus-betulus-and-dieback-in-crown_fig2_267753019

Habitat

It grows in rich, light, deep and fertile soils, moderately moist to very humid, from lowlands to 1,000 feet above sea level. It is suitable for shady areas and can be found in forests in the community with other trees.

Distribution

Common hornbeam is widespread in southern and central Europe and southwest Asia.

Attraction

It rarely experiences more than 100 years. It can be planted as a hedge, resistant to pruning, when cut, new shoots from the stump quickly sprout. Due to its deep root it connects the soil well. It is grown as an ornamental tree in parks. The wood is extremely hard, tough and firm, and difficult to split. It is used for making various tools, for heating or producing artificial coal.

<https://www.plantea.com.hr/obicni-grab/>

LATVIAN FOLK TALES AND LEGENDS ABOUT TREES

About trees

In the old days, all the trees were talking. When a man wanted to cut a straight tree, it said, "Go cut that coniferous tree, it is ugly, whereas I am decorating the world!"

And when a man came to a curved tree, it said, "Where will you put me, such a cripple? Go cut the straight trees! "

The man went to the straight tree again. It rejected him again, and now the man went home sadly.

God was sorry for the man, so he made all the trees dumb, so that they could no longer speak. Now a man could cut down any tree he wanted.

Oak

Many thousand years ago, the oaks had leaves as smooth as many other trees. At that time, God made some bet with the Devil. The Devil said he would keep the bet when the oaks' leaves had fallen. God agreed and made a bet. God decided to win the bet and forbade the oaks to drop their leaves. That's what happened.

Summer had passed and autumn had come. The Devil was expecting that the oak would just begin to drop leaves – but nothing happened. The Devil began to get angry, but could do nothing, and thought the leaves would fall when the winter comes. Winter came; the leaves had turned yellow, but did not fall off. The Devil thought some of the yellow leaves would fall in the spring; however, they didn't. New ones had already started to grow. Now the yellowish leaves fell down, but by then new leaves had already grown.

It turned out that the oak was not completely leafless. When the Devil saw that the bets had been lost, he was very angry and began to tear the leaves violently. Since then, the oak has jagged leaves and they don't fall off even in winter. God left it in memory of his victory over the Devil.

Aspen

Once during the wartime, one wife with a small child hid under the aspen's roots. But the aspen shouted, "There's a human! There's a human! »

When the war had happily ended, the wife cursed the aspen, saying, "Let the aspen tremble as I trembled in fear! "

From that day on, the leaves of aspen shiver.

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