

**ERASMUS+ I FEEL WOOD – FOR GOOD**



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*I Feel Wood - For Good*  
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**RAZISKOVANJE GOZDA V ŽIREH, SLOVENIJA**

**EXPLORING WOODS AROUND ŽIRI, SLOVENIA**

**OŠ ŽIRI, SLOVENIA**

## GOBE IN LIŠAJI

### VRSTE:

Na poti v gozd smo videli *gobo* uhati drhtavež – ta goba je oranžna in je v obliki uhlja. Najpogosteješ *gobe* v naših krajih so: navadna lisička, jurček (jesenski goban, smrekovec), rdeča mušnica, orjaški dežnik, zelena mušnica, pisana ploskocevka. Smrtnostrupene gobe: zelena mušnica, pomladanska mušnica, koničasta mušnica, opredna livka, listna livka, navadna podvihanka, pomladanski hrček ...

*Lišaje* delimo na 3 skupine:

- skorjasti lišaji (ta vrsta najmanj občutljiva na onesnažen zrak), primer: zemljevidni skorjevec,
- listasti lišaji (srednje občutljivi na onesnažen zrak), primer: nagubana parmelija,
- grmičasti lišaji (najbolj občutljivi na onesnažen zrak), primer: srhki bradovec.

### POMEN V GOZDU

Gozd ima od gob veliko koristi. Gniloživke, ki se hranijo z ostanki odmrlih rastlin in živali, razkrajajo listni odpad, odmrli les, odmrle živali in sodelujejo pri vračanju mineralnih snovi v kroženje. Mikorizne glive živijo v simbiozi z drevesi. Gliva s svojim podgobjem prepleta gozdna tla, razgrajanje odmrle ostanke organizmov od mineralnih snovi, ki jih nato raztopljljene v vodi črpa iz tal.

*Lišaji* so vir ogljikovih hidratov za številne živali. Z njimi so losi, jelen in merjasci preživelji na severu, kjer je zima trajala dolgo časa. Ker so lišaji bioindikatorji pokazatelji čistega zraka, vemo, kje je zrak čist in svež.

### UPORABNOST

*Lišajev* ljudje ne uporabljajo prav pogosto, z izjemo islandskega lišaja. Iz njega kuhajo čaj za zdravljenje bolezni dihal in želodčnih težav. Uporaba lišaja je zelo razširjena tako v tradicionalni kot v sodobni medicini. Lišaje z močno razraslo steljko lahko uporabljamo tudi kot dekoracijo.

Veliko *gob* se uporablja v prehrani kot sestavine različnih jedi ali kot začimbe. V gozdovih v okolici Žirov so med užitnimi gobami najbolj pogosti jurčki, lisičke in dežniki. Te gobe so tudi v kulinariki zelo priljubljene. Jurčke in lisičke ljudje pogosto pripravijo v juhi, v omaki, pečene z jajci ali pa jih posušijo, dežnike pa največkrat popražijo.



islandske lišaj (čaj)



gobova juha



jurčki z jajci



praženi dežniki

## RASTIŠČE

*Lišaji* rastejo predvsem na iglavcih, beli skorjasti lišaji bolj na listavcih, rumeni skorjasti lišaji pa rastejo na kamnih.

*Gobe* rastejo predvsem na trhlenjih štorih, vejah, na vlažnih tleh, na poteh, ob poteh, lesene gobe pa tudi na drevesih.

Metka, Tjaša, Loti, Nina

## MUSHROOMS AND LICHENS

### SORTS

#### **MUSHROOMS**

When we walked through the forest we saw a mushroom named apricot jelly. It is orange and in a shape of an ear.

Most common mushrooms in our parts are: chanterelle, penny bunparasol mushroom, turkey tail and among deadly poisonous mushrooms: fly agaric, death cap, European destroying angel...

#### **LICHENS**

We divide lichens into three groups:

- crusty lichen (least sensitive to polluted air), example: the map lichen,
- leafy lichen (partly sensitive to polluted air), example: common greenshield lichen,
- shrubby lichen (very sensitive to polluted air), example: beard lichen.

## ROLE IN THE FOREST

#### **MUSHROOMS**

A forest has a lot of benefits from mushrooms. Saprophytes feed themselves with dead organisms, they decompose leaves, wood, dead animals and help returning mineral matter back to environment. Mycorrhizal fungi live in symbiosis with trees. Fungi with its mycelium intertwine forest ground and decompose remains of dead organisms, which then - dissolved in water – absorb from the ground.

#### **LICHENS**

*Lichens* present source of carbo hydrates for many animals. With its help moose, deer and boars survived in the North where winter lasts for a longer time. Since lichens are bio indicators of unpolluted air we know where the air is clean and fresh.

## USE

### MUSHROOMS

People use mushrooms in nutrition as ingredients of different dishes or as spices. Most common edible mushrooms in forests around Žiri are penny buns, chanterelles and parasol mushrooms. These mushrooms are also very popular in cooking. People often prepare penny buns and chanterelles in soup, sauce, fried with eggs or they dry them. Parasol mushrooms are usually fried.

### LICHENS

People don't use *lichen* very often. An exception is an iceland moss. People use it for tea that helps with respiratory and digestive problems. Use of the lichen is very widespread in traditional as well as in modern medicine. You can use large chunks of lichen also as a decoration.



iceland moss (tea)



mushroom soup



penny buns with eggs



fried parasol mushrooms

## GROWING AREA

### MUSHROOMS

*Mushrooms* grow mostly on rotten stumps, branches, wet ground, on and near the paths. Shelf fungi also grow on trees.

## LICHEN

*Lichen* grows mostly on coniferous trees, white crusty lichen mostly on deciduous trees and yellow crusty lichen on rocks.

Translated by: Nina

## LISTJE IN PLODOVI

V naši skupini smo v gozdu blizu OŠ Žiri raziskovali liste na drevesih in plodove dreves. Našli smo liste bukve, ki so ovalne oblike, dolgi so od 4 do 10 cm. Spomladi so svetlo zeleni, preko poletja pa potemnijo in postanejo temno zeleni.

Iglice smreke so dolge 10–25 milimetra ter so ravne, ošljene in zelene barve, so zimzelene, kar pomeni, da tudi pozimi ne odpadejo, če pa odpadejo, porjavijo. Na koncu vej pa rastejo storži, ki so dolgi 10–25 centimetrov, in visijo navzdol. Na začetku so širši kot na koncu storža. Na začetku, ko zrastejo, so trdo zaviti in zelene barve, ko pa jeseni dozorijo, porjavijo, luske pa se razprejo, tako da semena odnese venter.

Konec poletja smo našli tudi robidnico. Robidnica je rastlina, ki nas bodejo z ostrimi trni in nas obenem razveseljujejo z dobrimi sadeži. Steblo robide je zeleno in trnato. Trni so ostri in se radi zapletajo v obutev in obleko. Listi so pernati, 3- do 7-delni. Pogosto se zgodi, da jeseni ne odpadejo, temveč preživijo zimo. Cvetovi so beli. Iz njih se razvijejo plodovi črne barve. Videli smo tudi plodove robidnice, ki so bili zreli in prav okusni, ter plodove leske, torej lešnike. Javorjevi listi pa so že začeli odpadati, tako da smo jih videli tudi na tleh.



Cene, Damjan, Jošt, Jan

## **LEAVES AND FRUITS**

In our group, we were exploring the leaves and fruits of the trees in the forest near our school. We found the leaves of the beech. They are oval and 4 – 10 cm long. In spring, they are light green, and over the summer they get darker and become dark green.

Needles of the spruce are 10 to 25 mm long and they are straight, snipey and green. They are evergreen which means that they never fall down, but if they do, they get brown as they go dry. At the end of the branch there are cobs, which are 10 to 25 cm long and they hang down from the trees. At the beginning they are wider than at the end. At first they are firmly wrapped, but in autumn they get brown and the wind takes away the seeds.

In the end of summer we also found the blackberry. That is a plant which can hurt us with thorns but they make us happy with very good fruits. Its stem is green and full of thorns. The thorns are sharp and they can get into our clothes and shoes. A blackberry has 3 -7 partial feather leaves. It is quite usual that in autumn they don't fall down and survive the winter. Its flowers are white and they turn to black fruits. We also saw the blackberry's fruits as we were exploring the trees. They were ripe and quite tasty. We also saw the fruits of hazel tree - the hazelnuts. The leaves of maple tree already started to fall down, so we also saw them on the ground.

Translated by: Drejc

## **PRAPROTI IN MAHOVI**

### **MAHOVI**

Mahovi so se razvili iz alg. So temno ali svetlo zelene barve. Delimo jih na jetrenjake in listnate mahove. Jetrenjaki imajo sploščeno, krpato, steljki podobno telo in so navadno tesno pritrjeni na zemljo ali pa imajo lističem podobne poganjke, medtem ko so listasti mahovi podobni »majhnim smrečicam«. So preprosto zgrajeni in imajo na vitkem stebelcu spiralno nameščene lističe. Na tla, skalo, drevesno deblo ali drugo podlago jih pritrjujejo neprave koreninice (rizoidi). Uspevajo predvsem na vlažnih področjih, kot so gozdovi, barja ali močvirja, kjer imajo dovolj vode. Mah zdrži izjemno dolgi časa brez vode in ko ga namočimo ponovno oživi – pozeleni. Rastejo v oblikih majhnih šopov ali blazinic velikih okoli 10 cm. Razmnožujejo se s trosi. Ker nimajo pravih korenin, stebla in cvetov, predstavljajo slepo vejo v razvoju rastlin. Mahovi imajo pomembno ekološko vlogo, saj zadržujejo vлагo, nudijo zavetišče mnogim malim gozdnim živalim in so (poleg lišajev) pionirske rastline.

Poznamo več različnih vrst mahov, kot so: belkasti, šotni, sivozeleni, režasti, viličasti, mah kapičar, bodeči cvetič, itd. Najbolj razširjen je šotni mah.

Uporaba: mah se uporablja kot podlaga za jaslice ob božiču. Šotišče je sestavljen iz številnih odmrlih šotnih mahov. Na Škotskem šoto iz šotišča še vedno sušijo in uporabljajo za kurjavo. Iz šotnega mahu nastane tudi premog, posušen šotni mah pa je odlična zemlja za rastline.

Zanimivosti: mah raste tudi po skalah na Antarktiki. 1 kilogram suhega mahu lahko vpije 7 litrov vode. V nekem angleškem šotišču so našli 2300 let stare ostanke človeka.



### PRAPROTI

Praproti so preproste prave rastline. So zelene barve. Rastejo v vlažnih gozdovih in narečnih bregovih. Za praproti so značilni koničasti listi, ki so sprva polžasto zviti in med rastjo postopoma zravnajo. Imajo velik šop listov in kratke korenine tanke kot las. Steblo je pogosto podzemno – korenika. Listi praproti so različnih oblik, zato jih delimo na 3 vrste: nedeljen, pernato deljen in dvojno pernato deljen list. Listi so sestavljeni iz listen ploske in steba. Za praproti je značilno, da ne cvetijo in nimajo semen saj se razmnožujejo s trosi. Praprot v višino zraste do 1,3 metra.

Poznamo več različnih vrst praproti, kot so: navadna glistovnica, jelenov jezik, zahodna rebrenača, orlova praprot itd.

Uporaba: Naše babice in dedki so praprot uporabljali za blazine in slamnjače, kar se še danes velja za zdravo ležišče, na katerem se človek dobro spočije. Tako ležišče naj bi blažilo krče in trganje po udih, posebej pri revmi. Praprot so uporabljali tudi za steljo za živali.

Zanimivosti: poznamo več kot 2000 vrst praproti. Stara ljudstva pri nas so še posebej cenili praprot. Verjeli so, da ščiti pred nevihtami, kačami, ognjem in pred zlimi silami. Praprot pa naj bi vabila tudi ljubezen. najbolj poznana vraža pravi, da če se na kresno noč sprehodimo po gozdu in nam praprotno seme nevede pade v čevelj, bomo za eno noč razumeli govorico živali ali pa celo postali nevidni.



Lučka, Ana, Nela, Rebeka

## FERNS AND MOSSES

### MOSSES

Mosses evolved from algas. They are dark or light green colour. We divide them 8n \*jetrenjake\* and leafy mosses \*jetrnjaki\* have got flat, bulk similar body and usually they are hard sticked to the ground or they have leaves similar sprout. The leafy mosses are similar to »small spruce«. They are simple built and on the slim stem spiral fitted leaves. Unreal roots (\*rizoidi\*) keep them on the ground, rock, tree trunk or any other grounding. They thrive especially on moist area, like forests, marshes or swamps where they have enough of water. Moss can survive without water for a really long time and when we put it in water it again becomes alive again - it turns green. They grow in the shape of small bunch or pillows around 10 cm tall. They multiply by spores. Because they don't have real roots, stems and flower they represent blind branch in the evolution of plants. Mosses have important ecology role, because they detain moisture, offer a shelter to many small forest animals. And they are (besides lichens) pioneering plants.

We know a lot of different types of mosses. These are: whitish, peat, grey-green\*režasti\*, fork-like, moss "kapičar", thorny flower etc. The most endemic is peat moss.

Use: moss is used as a grounding for nativity scene for Christmas. Peat bog is compound from many \*dead\* peat mosses. In Scotland they are still drying peat from peat bog and use it for fuel. We can also get coal from peat moss, dried peat moss is a great soil for plants.

Interesting facts: Moss grow on rock on Antarctic. One kilogram of dried moss can soak up 7 litres of water. In some English Peat bog they found 2300 years old rests of human.

### FERNS

Ferns are simple real plants. They are green colour. They grow in humid forests and in the dialect the banks. The ferns are characterized by pointed leaves, which are initially astute and growth gradually become stright. Have a huge clump of leaves and short roots are thin as hair. The stem is often underground .The leaves of ferns are different shapes so they are divided into 3 types: undivided, pinnately divided and double pinnately divided journal. The leaves are made up of the leaves flat and the stems. For ferns is typical, that does not bloom and do not have seeds because they reproduce by spores. Ferns grows up to 1.3 metres.

There are several different types of ferns such as: \*Phyllitis scolopendrium, Dryopteris filix-mas, Pteridium aquilinum, Blechnum spicant,\* etc

Use: Our grandmothers and grandfathers used fern for cushion, which today applies for a healthy bay, in which a man takes a rest. Bed like this should ease cramping and tearing at the limbs, especially in the rheumatism. Ferns are also used for bedding for animals.

Attractions: there are more than 20 000 types of ferns. The old people were especially appreciated the fern. They believed that protect against storms, snakes, fire, and before bad forces. Fern also should invited love. The most known story says that if we take a walk on a midsummer night in the woods and fern seed unknowingly falls into our shoe, we will for one night understand the language of animals, or even we become invisible.

Translated by: Nela, Zala

## **SMOLA**

Naše ugotovitve so naslednje:

### **RASTIŠČE**

Smola se izloča na iglavcih, ki največkrat rastejo na ilovnatih tleh.

### **POMEN**

Smola je del drevesa, je kot kri pri drevesu. Če se drevo poškoduje, začne izločati smolo. S tem se drevo zaščiti in obnavlja.

### **UPORABA**

Smolo uporabljamo v kozmetiki in medicini. Uporabljamo jo tudi za dišave, za lepilo in netivo. Včasih so jo uporabljali tudi za zapolnjevanje luknenj v ladjah. Uporabljajo jo tudi za sveče.

### **ZANIMIVOSTI**

Ko se smola strdi in posuši, postane bele barve.

Če se smola prilepi na kožo, jo lahko odstranimo z jedilnim oljem, če pa se prime na oblačila, jo odstranimo tako, da na oblačilo položimo list papirja in smolo stopimo z likalnikom, s katerim krožimo po listu.



Prepovedano nabiranje smole  
It is forbidden to collect resin



Pri nabiranju smole ne smemo poškodovati drevesa  
We must not hurt the tree when collecting resin.

We have found the following results:

### **HABITAT:**

Resin is found on conifers, which grow on a loamy soil.

### **MEANING:**

Resin is a part of a tree, it is like the tree's blood. If the tree is hurt, it starts to make resin. The tree protects itself by making resin.

## USE:

Resin is used in cosmetics and in medicine. It is also used to make fragrance and glue. In the past it was used for patching holes on ships and to make candles.

## INTERESTING INFORMATION:

When resin thickens and dries, it becomes white in colour. If resin sticks to our fingers, we can remove it with edible oil, but if it sticks on our clothes, we can remove it by putting a leaf of a newspaper on it and iron it with a hot iron.

Translation by: Nik

## Zalubniki



Zalubniki, tudi podlubniki ali zavrtači (znanstveno ime Scolytinae), so poddržina hroščev, ki jo uvrščamo v družino pravih rilčkarjev, sestavlja pa jo okoli 6000 danes živečih opisanih vrst. Skupina je splošno znana po škodi, ki jo povzročajo v gozdarstvu, saj z vrtanjem po lesu povzročajo propadanje dreves. V splošnem so predstavniki zalubnikov majhni hrošči valjaste oblike in temno obarvanim zunanjim skeletom. Večinoma niso daljši od 5 milimetrov. Več vrst zalubnikov proizvaja zvoke s stridulacijo – drgnjenjem telesnih delov med seboj. Na podlagi zvočnih signalov se lahko spolna partnerja najdeti. Odrasel zalubnik najprej zvrta luknjo skozi lubje, nato pa v hranljivem kambiju izdolbe »poročno« kamrico. Večinoma kopije samica, tudi samec pa sodeluje pri odstranjevanju materiala. V kamrici se sparita, samica pa po tistem prične vrtati tik pod površjem stran od nje in v enakomernih presledkih odlaga jajčeca. Ko se izležejo, pričnejo ličinke vrtati svoje tunele pod pravim kotom na samičinega in ustvarijo za zalubnike značilne vzorce. Ličinke so črvaste oblike brez nog, blede barve. Ko dozorijo, se zabubijo v lesu in kot odrasle živali pregrizejo skozi lubje na površje. V Sloveniji je najbolj znan smrekov lubadar, poleg te vrste pa so pomembnejši še črni zalubnik, brestov lesovrt, bakreni lubadar in šesterozobi lubadar, ki je največji med slovenskimi zalubniki. Skupaj je za Slovenijo znanih 88 vrst. Zalubniki so najpomembnejši škodljivci v slovenskih gozdovih - v obdobju med letoma 1994 in 2002 so zaradi njih povprečno posekali 137.000 m<sup>3</sup> iglavcev, kar znaša 5% celoletnega poseka v slovenskih gozdovih. Po zadnjem žledolому se je le-ta močno razširil, tudi po žirovskih gozdovih.



## Uporaba ter dobre lastnosti lubadarjev



Večina zalubnikov se prehranjuje z odmrlim ali odmirajočim lesom zato imajo pomembno vlogo pri pomlajevanju gozdov. Najpogosteje napadajo drevesa, ki so prizadeta zaradi bolezni, suše, smoga ali fizičnih poškodb. Zdrava drevesa se zalubnikov ubranijo s fizično in kemično zaščito, podležejo le, kadar je njihova številčnost

prevelika. Odrasli zalubniki oddajajo feromone, ki privabljajo iste vrste na isto rastlino, privablja pa jih tudi etanol, eden od stranskih produktov razpadanja lesa. Del zalubnikov se namesto z lesom prehranjuje z vrsto glive, ki prerašča stene njihovih rovov. Zalubnike poleg feromonov privabljajo tudi hlapne snovi, ki jih izločajo glive Poleg za rastline patogenih gliv vnašajo zalubniki v tkivo tudi več drugih zajedavskih organizmov, ki dodatno poškodujejo tkivo in so povzročitelji drugih rastlinskih bolezni. Med naravnimi sovražniki zalubnikov so pomembnejše ličinke kamelovratnic, hroščev pisancev in najezdnikov, ki odlagajo jajčeca skozi les vanje. Zalubniki veljajo za ene največjih škodljivcev v gozdarstvu. Večina vrst se sicer prehranjuje s poškodovanim lesom in v zdravem gozdu ne povzročajo težav, lahko pa še poslabšajo stanje gozda, ki so ga prizadeli drugi dejavniki, npr. suša, nevihta ali rastlinske bolezni. Predvsem problematični pa so zalubniki, ki napadajo zdrava drevesa in lahko ob močnejšem izbruhu povzročijo propad celega gozda. Od zalubnikov poškodovana drevesa so žarišče drugih, predvsem glivnih bolezni. Posušena, odmrla drevesa lahko delujejo tudi kot žarišče požarov, snegolomov ali vetrolomov. Najsuspenješji način kontrole zalubnikov so feromonske pasti, ki izkoriščajo sistem kemične komunikacije med osebki in privabljajo živali v temu namenjene škatle, kjer se ujamejo. Da bi preprečili zalubnikom, da se zaredijo v posekanem lesu, podrtim iglavcem olupijo lubje.



## Bolezni gozdnega drevja



Drevesa so izpostavljena različnim boleznim. Te lahko drevesa različno prizadenejo in v gozdu povzročijo različno veliko škodo. Nekatere vplivajo na videz drevesa in njegovo priraščanje, druge pa lahko drevo ugonobijo. Izbruh katere izmed bolezni na večji površini, lahko povzroči precejšnjo ekološko in gospodarsko škodo. Problematične so predvsem tiste bolezni, ki so k nam prinesene od druge in drevesa proti njim niso odporna oz. bolezni nimajo naravnih sovražnikov. Glavni in najpomembnejši povzročitelj bolezni gozdnega drevja so glive. Bolezni ne povzročajo glive, ki jih nabiramo kot gobe z nekaj izjemami. Te običajno drevesom pomagajo pri črpanju vode iz tal v t. i. mikorizi. Bolezni tudi običajno ne povzročajo glive, ki rastejo na štorih in na podrtih drevesih. Te le razgrajujejo odmrali les. Škodo sicer lahko povzročijo že na podrem drevju, ki dlje časa leži v gozdu tako, da razvrednotijo les. Glice, ki povzročajo bolezni, so običajno



težko opazne, dokler ni okužba dovolj velika. Razraščajo se pod skorjo in po lesu ter drevo počasi ubijajo.

Najpogosteje drevesne bolezni:

- hrastova pepelovka,
- jesenov ožig,
- kostanjev rak,
- macesnov rak,
- rdeča pegavost borovih iglic,
- rdeča sušica listavcev,
- rdeča trohnoba iglavcev.

Viri:

- <https://sl.wikipedia.org/wiki/Zalubniki>
- <http://www.gozd-les.com/category/oznake/bolezni-skodljivci-dreves>
- Dawid Burnie ŽIVALI

Zbrali in zapisali:

Lipe, Miha, Janez, Drejc

### Bark beetles

Barkbeetles (scientific name is Scolytinae) belong to the subfamily of beetles with 6000 living species today. They are generally known for the damage they do in the forest. They drill the wood and cause degradation of the trees. In general, bark beetles are small beetles of cylinder shape and dark colour outer skeleton. They are not longer than 5 millimetres. They cause special sounds by rubbing body parts and that enables a male and a female to find themselves to mate. An adult male bark beetle drills a hole through the tree bark and then it digs out a »wedding room« in nutritius cambium. A female does mainly all the digging work and a male helps her by removing the material. They mate in the »wedding room« and then a female starts to drill under the bark surface next to the wedding room and it lays eggs. When the eggs are hatched, the larvae starts drilling the tunnels at a right angle to the female's and it creates the samples typical for bark beetles. The larvae is pale, worm shape and without legs. It evolves in cocoon and then it bites out its way to the surface as an adult animal. In Slovenia, the most widely known bark beetle is the »Black bark beetle«, »The elm bark beetle«, »The copper bark beetle« and »The six-teeth bark beetle«, which is the biggest among Slovene bark beetles. In Slovenia, 88 different species are known all together. Bark beetles are the most dangerous pest in Slovene forests. In the period 1994 - 2002, 137,000 m<sup>3</sup> of hemlock trees were cut down, which represents 5 % of a yearly forest harvest in Slovenia. After the latest sleet, the population of bark beetles in Slovenia has massively increased.

### *The use and the good points of bark beetles*

The majority of bark beetles eat dead wood and therefore they have an important role in keeping the forests young. They usually attack the trees which are damaged due to sickness, drought, smog or physical damage. The healthy trees protect themselves with physical and chemical protection, they cannot protect themselves only in case if bark beetles are too numerous. Adult bark beetles release pheromones which attract the animals of the same species to the trees, but they are

also attracted by ethanol, one of the side product of wood degradation. Some bark beetles eat a special kind of fungus which grows in the walls of their tunnels. Next to pheromones, bark beetles are attracted by fumes of the funguses. Not only that bark beetles bring pathogen funguses into the tree, they also bring other pest organisms which damage the tree and they cause some other illnesses of the tree. There are some natural enemies of bark beetles, among these are the larvae of snakeflies, beetles minnows, and some other beetles which lay eggs through the wood into the bark beetles. The bark beetles are the most dangerous pest in the forest. The majority of species eat damaged trees and they do not cause damage in a healthy forest, but they can massively degrade forest which has already been damaged by drought, storm or some other tree illnesses. Bark beetles which attack healthy trees are the most dangerous because they cause degradation of the entire forest. The trees damaged by bark beetles are the cause of other, mainly fungus diseases. Dried and dead trees might be a centre of forest fires, and also the snow and wind might cause further damage to the trees that have already been damaged. The most successful way of control and prevention are pheromone traps which use the system of chemical communication among males and females and they attract animals into special boxes where they are caught. Forest workers peel off the bark of cut down hemlock trees to prevent bark beetles to multiply.

Translated by: Betka P.

Trees are exposed to different kinds of disease. Those can cause damage. Some influence the appearance of the tree and some can destroy them. Disease of trees can be very bad for ecology and economy. Those diseases that came from other places and have not natural enemies. The most important agent for disease are funguses. But some are only disintegrating wood. Funguses are most problematic and are usually hard to observe until congeation is not big enough. They are ramifying under bark and slowly kill tree.

The most often diseases of trees:

- a) powdery oak mildew
- b) ash dieback
- c) chestnut blight
- d) dothistroma needle blight of pine
- e) coral spot

Translated by: Krištof

## **RAZISKOVANJE BLIŽNJEGA GOZDA V SLIKAH EXPLORATION OF THE NEAREST FOREST IN PICTURES**

























