



WAVES – WATER, AIR, VEGETATION, ENVIRONMENT, SUSTAINABILITY

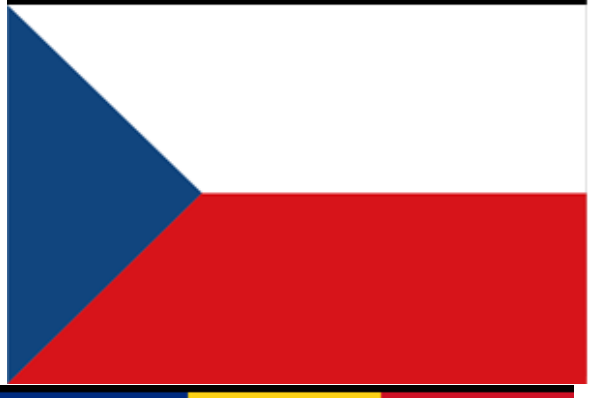
This project has been funded with support from the European Commission.

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I LICEUM OGÓLNOKSZTAŁCĄCE
im. Stefana Żeromskiego
w Pucku







CZECH REPUBLIC

30th August - 3rd September 2021
Havířov, Czech Republic
1st short-term student exchange



Gymnázium, Havířov-Město, Komenského 2, příspěvková organizace
Address: J. A. Komenského 328, Město, 736 01 Havířov, Czech Republic

Havířov

Havířov is a statutory town in the district of Karviná, in the Moravian-Silesian Region of the Czech Republic. As a municipality with extended rights (cz. obec s rozšířenou působností) it also includes Horní Suchá, Olbrachcice, Cierlicko and Bledovice Górne. The Łucyna River flows through the town.

Havířov is located within the historical region of Těšín Silesia, in what is known as Zaolzie, approximately 10 km west of the Polish-Czech border, on the road from Cieszyn to Ostrava. It neighbours on the north with Pětwald, Orlová (with Lázně) and Karviná (with Doly), on the east with Horní Suchá, Olbrachcice and Cierlick, on the south with Horní Bledovice and on the west with Šonov and in a short distance with Kaniovice, which belongs to Frydek-Místek district.

The city was founded in the 1950s as a "bedroom community" for the Ostrava-Karviná coalfield, so it has a similar function to Jastrzębie-Zdrój in the ROW or Tychy in the GOP in Poland; is an urban complex in the socialist realist style. Unlike Karviná or Frýdek-Místek, Havířov does not have a historical centre. It was built from scratch on the grounds of several older villages. During 50 years of its existence it became one of the biggest towns of Cieszyn Silesia.

Havířov is the largest non-county town in the Czech Republic by population.

	
Herb	Flag
Country	 Czech Republic
Country	 Moravian-Silesian
District	Karwina
City law	1955
Mayor	Jana Feberová / CSSD /
Surface	32.07 km²
Height	260 m n.p.m.
Population (2018)	
• population	72 382 ^[1]
• density	2 580.9 km²

Monday, 30th August 2021

After breakfast where we joyfully met the other project teams, we left our hotel and drove to Dlouhé Stráně Hydroelectric Power Station for a guided tour of a unique power plant in the mountains. It was one of a kind since it is the highest located power plant in the Czech Republic. We watched a video together based on the power plant functioning and then the guide showed us a plan for it. We visited the inside of the base power station, then we went to the upper one by bus. Afterwards, we had lunch in a local restaurant. We had a meal typical for the country - Svíčková na smetaně. It was really delicious, not to mention how hungry we were after the mountain trip. There was a playground outside and the teachers let us have fun and spend some time together, to get to know each other better. On the way back, we stopped in Karlova Studanka to breathe the cleanest air in Central Europe, drink natural spring water and go to a nearby waterfall. The town was indeed special for being the setting for a very famous Czechoslovakian movie called "S tebou mě baví svět" ('I Enjoy the World with You'). After that, we had some free time and spent it together with the other students.



Tuesday, 31st August 2021

This day breakfast was a bit later, so we could sleep a little more. After we got ready the bus took us for a short ride to Štramberk where we saw beautiful caves and castles, from which we could see the whole town downhill. Our teachers let us go to the mall for almost an hour. On the way

back to the hotel we visited a church in Karvina together with a tour guide, a very nice lady who told us the history of the mining region and its underground problems due to heavy mining and mechanical earth carving. The guide told us that the church is tilted because the church sank due to the systematic mining, the building being called the Czech Pisa. Interesting! Because of the leaning church, the statues look tilted too, but the fact is that the statues are straight. Quite odd! Anyway, we had fun trying to take the measures of the leaning angle (officially it is 6,8 degrees) and the church edges while remembering some Physics and Maths notions. We returned to the hotel, ticking another great day.





Wednesday, 1st September 2021

At 8:15 we set off to the local waste Disposal Processing Plant. We saw a lot of garbage and city waste here that cannot be thrown into normal garbage storage. The city waste disposal categories are smartly stored, people working here knowing exactly what to do with



it.





After a small coffee break we went to Ostrava by train, heading towards the industrial area to participate in interactive activities organised for us inside the Industrial Museum. At first we played a game, teams were formed and each team had a topic which needed to research for information and present it eventually. We visited attractions there, we learned about a few important things regarding ecology and sustainability and watched an interesting movie about planet evolution. We also had the opportunity to sit in a hydrogen powered car. We had dinner with the other students and chatted a lot. It was a very cool and educational day!



Thursday, 2nd September 2021

After the hotel breakfast together, here we are walking along the Lucina river and along its beautiful winding meanders. This road actually took us to a place where we had an apiculture lesson. We saw the bee hives and learned about their biology, behaviour and the work of a beekeeper. Our host knew so many interesting things about bees and their life inside and outside the beehive, we were quite impressed! Did you know that the body temperature of a baby bee is the same as that of a human baby inside the womb? The beekeeper showed us the different utensils that he used for their growth and keeping. The entire experience was very interesting. After that we had a bit of free time and we parted into groups and some of us went to eat and others went to see the city. At 13:30 we went to Kulturní Dům Radost and had lunch. The food was amazing. Then we separated again into three groups and had a game in the downtown where we searched for QR codes around the city and had different challenges. We had a lot of fun and the game was amazing. In the end,



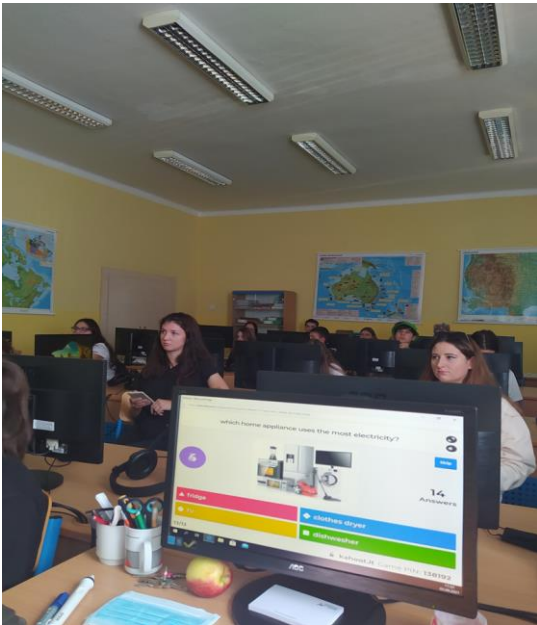
we had a picnic and... free time to spend at our will.

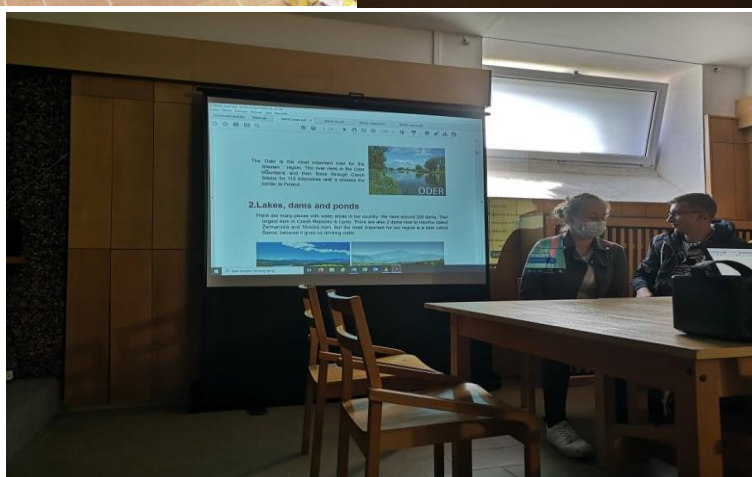


Friday, 3rd September 2021



Time is slowly passing, so here we are already on Friday, time for activities in the school ! We went to **Gymnázium Komenského, Havířov-Město** <https://m.facebook.com/GymKomHavirov/> - an amazing school with European vision. We were accompanied to one of the teachers' rooms and Mr Dalimil Šebesta, our coordinator, presented what each team had worked on in the project, then the Czech team introduced to us their school. We were divided into two groups. We sang during a music class, visited the chemistry and biology labs and other classrooms, the gym, the canteen and the rest of the school. We could see that the Czech students are happy to study here! Next we took part in an English class and discussed various topics with the teacher. We left school and had lunch together, then we had free time for ourselves. We also had to say goodbye to our friends from Slovakia, with regret, of course. In the afternoon we sadly packed our bags for the next day's departure, then in the evening, we went to the city center to enjoy the town festival (fair, music, concerts) that had newly started in Havířov, close to our hotel. What a great chance to be here, in this beautiful town! We made friends, shared experiences, chatted about many topics, improved our English skills and had lots of fun.





The results of the questionnaire

1. What was the BEST experience this week for you?

World of technic in Ostrava.

when we were at the river on our free time

the best experience was when we visit the mountains and Karlova Studanka, because it was very interesting.

The best experience this week for me was when we visited the museum in Vitkovice. I had a lot of fun and i learned new things about water, plants, our planet and energy

The best experience of this week was visiting the interactive museum in Ostrava.

The best experience from this week was when we were when the others students from Czech Republic prepared for us some interactive experience and we had a lot of fun.

The best experience was talking to other countries' members. Here are so many great people who I will miss like crazy when we leave. I also liked the picnic the Czech team prepared for us.

One of the best experiences was when we visited Štramberk and saw the tower and saw the city. It was an amazing experience and I felt like royalty up in the tower

Monday when we were at Dlouhé Stráně.

Meeting new people and making friends

long trips

I met wonderful people which I hope to see again soon, and i loved the program we had in Ostrava

great time all time everytime with new friends

finding some new foods, making new friends and watching beautiful views

Everything was great.

being in the Sipka cave

My best experience was when we visited that museum of senses and when we had that competitions between formed at the beginning .It was fun and we learned a lot of things

2. What was the WORST experience this week for you?

some places where boring and two teams werent friendly for two others

Probably, long journeys in bus.

some of the trips were boring, and the slovak and czech team were NOT nice, because they kept talking in their languages, which are very similiar to each other.

gossips at the hotel

Weather could be better.

The worst was finding out we will be leaving earlier. My teammates got really sick, but it is what it is, I guess... I was really looking forward to a group farewell, because that moment is very magical.

food

Nothing was bad

sviečková

too much time in the bus

There was no bad experience this week, only good ones.

Waking up

I didn't have any bad experiences. I trully enjoyed every place and food. The weather felt nice despise the rain and the people were amazing

I don't have a bad experience for this week because everything was perfect for me.

the worst experience was when we visited bee, because im bored.

I didnt have any bad experience this week, everything was amazing.

It wasn't any worst experience

3. What would you prefer to do during the next meeting? What would you change?

maybe more free time and interesting places for teenagers. LESS WALKING

Seeing more interesting places.

less museum trips, more nature trips

shorter bus journey and more time in the destination, ice breakers from Thursday should be on Monday

It would be fine, if we went to some more entertaining places.

I would change the order of programme. It was quite questionable why did we do teambuilding activities the last day instead of the first day...

more games or workshops

Everything was super, maybe some trips were far away

seeing more interesting places than Waste Disposal Processing Plant, that was quite boring

waking up later, closer attractions so we don't have to spend so much time in a bus, better interactions with other countries

I don't think there is something that needs to be changed.

See more things typical for the region (sightseeing for example Ostrava)

I would change nothing.

I wouldn't change anything. Maybe if the next mobility would last a little bit longer.

In the next meeting I prefer visit more museum, old buildings. I don't change nothing.

During the next meeting I would like to visit more museums. I wouldn't change anything because this meeting was amazing.

During the next meeting we should wake up a little bit later and to visit more places

4. What do you think is the most attractive thing about your work on this project? Are you getting better at working in Twinspace?

I'm getting better for sure. Now Twinspace is something normal for me. The most attractive is that I can make new friends and experiences. When I'm working on programme I feel like I'm necessary.

You can learn a lot of interesting informations.

.

getting to know new people, cultures and traditions and i hope it is getting better with twinspace

You can meet new people.

I think i will never understand Twinspace haha. However since I've been in this project for quite a time, I think I got better in getting to know other people - that is an attractive thing about this project.

trips and memories... no

Like i think is the opportunity to learn more English or other languages and get to know some new cultures

i recently learnt that something like Twinspace exists, i have been in this project for few days only

improving our english, no we are not

The most attractive thing in this project was the teamwork. Yes, i am better at working in Twinspace even if I still have a lot more things to learn.

Learning new things and improving English. I don't think so

Yes, I got better at working on Twinspace and I liked the fact that I could interact with a lot of things

The most attractive thing about working on this project it's the fact that I made a lot of friends and I have the chance to improve my english skills. Yea , I'm getting better and better at working in Twinspace.

i like work in a group, and speak with the others people.

I think the most attractive thing about my work on this project was the Danube presentation

The most attractive thing it was like when we were interacted with other teams and communicated between each other and how we got to know each other better

5. Add any comment you think might help the coordinators to improve in their work on the project.

i dont know...

It is probably better to make a city game at first day, so we can get to know the city better.

less museum trips, less chaos please.

ice brakers must be on monday not any other day then it is uneffective and all week there wont be good colective

Its sad that we cannot stay longer

The thing I would say to the coordinators is just: don't feel stressed about the project. I know, I can imagine how difficult it is for you to organize the activities and even now all the documents around corona. However, seeing you all a bit tense sometimes is very upsetting for me, because I'd like to see you enjoying the trip just like we do (or did). Even with the responsibility you have you can relax a bit and seize the moment. I really appreciate your work, though. <3

just keep going such a great job

Everything was awesome

i didn't like our curfew, i wish we could have stayed in the town centre for a bit longer time

we are young and we need to sleep more WAKING UP LATER, IM TIRED

I really think the activities should start 1 hour later, at 9AM.

Breakfast at AT LEAST 9 please :))

Don't be afraid of anything. The coordinators are incredible

They are doing a great job. They don't have to improve anything because they are already perfect for me.

i don't add nothing ,because all was so perfect.

All the coordinators did a great job. Keep going like this

Everything went according the plan and i think the coordinators were really good prepared

Was the meeting well organized? Average points = 4,00 from max. 5

Were all objectives of the meeting achieved? Average points = 4,29 from max. 5

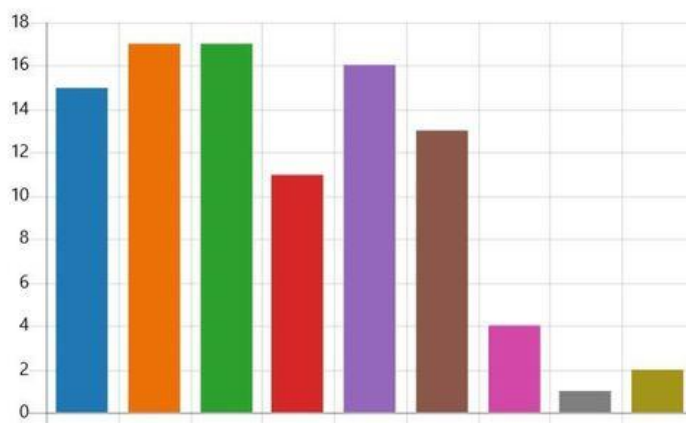
Were all the topics from the agenda covered? Average points = 4,88 from max. 5

Did you like the programme of the meeting? Was it interesting for you? Average points = 3,82 from max. 5

During the short-term student exchange in Havířov I have:

[Další podrobnosti](#)

learned some new informatio...	15
made new friends	17
had fun	17
seen a lot of interesting places	11
tasted typical local food	16
spoken some words in Czech	13
missed my family :-(4
felt bored most of the time	1
Jiné	2





SLOVAKIA

20th – 24th September 2021
Martin, Slovakia
2nd short-term student exchange



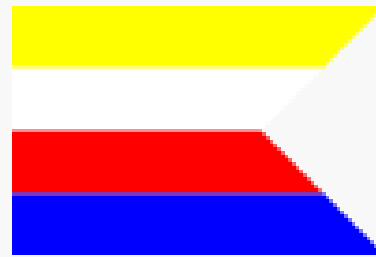
Gymnasium V. P. Toth
Address: Malá hora 3, 036 01 Martin, Slovakia

Martin

Martin is a district town in central Slovakia's ilina county, in the historical area of Turiec. Until 1951, it was known as Turiansky Svät Martin. Martin ranked ninth among the most populated Slovak cities at the end of 2019, with a population of over 54,000 people.



Herb



Flag

Country



Slovakia

Country

Žilina

District

Martin

Mayor

Andrej Hrnčiar ^[1]

Surface

67.74 ^[2] km²

Height

395 m n.p.m.

Population (31/12/2019)

• number of population

54 168 ^[3]

• density

799.6 persons / km²

Monday 20th September



The first day of our meeting in Slovakia was full of new experiences. The day began with breakfast at 8 am and then at 9 am we all left by bus for a guided tour of the sewage plant of Turiec, where we learned more about the machinery and the process of getting clean water. After that we visited Turcianske Jaseno, a village with a church and Ján Jessenius museum, where with the help of the city's mayor we learned new information about the city's history. We also learned about the history of the Jessenius family and its importance to the history of Slovakia. For example, Ján Jessenius performed the first ever public autopsy of the human body in 1600. Afterwards, we travelled by bus to the Gader valley for a short hike, where we visited the ruins of the Blatnica castle, we also stopped for a viewpoint of Turiec region. We took some photos and then we went back to the hotel for lunch at about 2 pm. We had broth and cooked chicken with rice. After lunch, the slovakian students prepared a city game for us, in which we walked around the city Martin, and learned about its history and culture. What we did for the rest of the day was up to us. Some of us went shopping and for dinner to the OC Galéria Martin, while the rest of us stayed at the hotel and rested after a full day of activities.

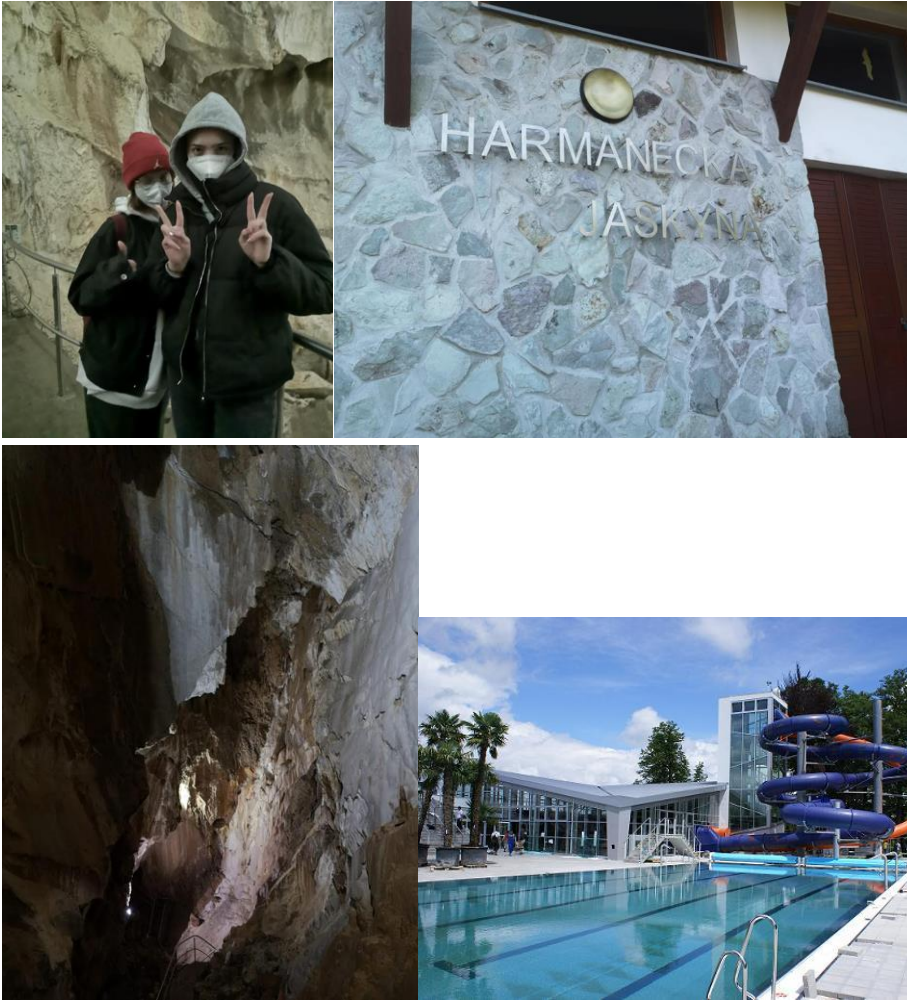


Tuesday 21st September 2021

Our day started at 7 am with breakfast. Bus was waiting for us at 8 am.

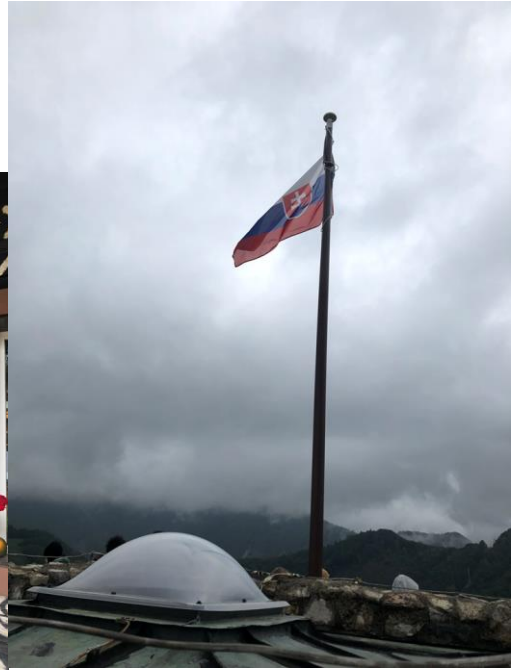
First of all we went for a hiking trip to see some beautiful Slovakian mountains and a Harmanecká cave. The way to the cave was pretty tiring but the views were worth it. In the cave we had a tour with a guide for about 1 hour. After this we went to the Spa & Aquapark Turčianske Teplice to take some rest. We relaxed in the hot tub and had fun on slides. We went back to the hotel at 4pm for lunch, we had chicken with rice. After that we had free time to go shopping or spend some time together. Some of us also went to explore the beautiful village Jazernica. We had a lot of fun during this day.



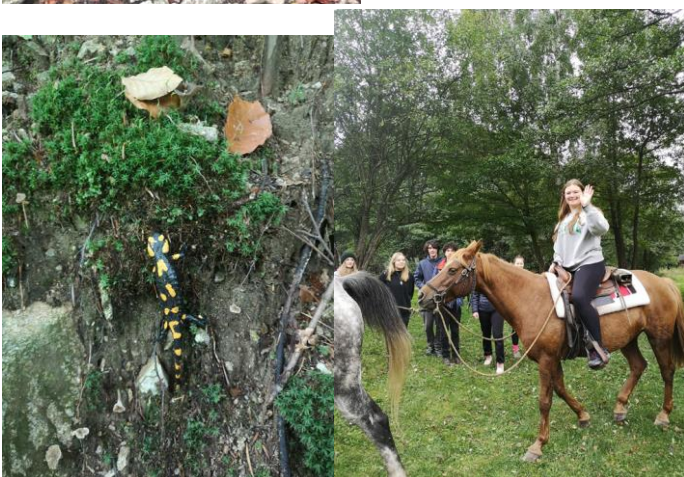


Wednesday 22nd September 2021

We started the third day in this city with breakfast. The bus was waiting for us in front of the hotel, ready to go on another trip. We went in the direction of Strečno to visit the ancient castle and village. At the castle we saw lots of interesting things like paintings, a mini-version of the actual castle in different time periods, famous paintings and the most famous owner of that castle. We also saw an amazing view of Strečno village and the mountains. Then after visiting the castle we went to the Čičmany village, we saw the old beautifully decorated houses and how the people lived and what tools they used back in the day. After a long day of exploring these sights, we went back to the hotel to eat lunch. When we finished eating and relaxing for a bit, we went to explore the city a bit and to buy souvenirs in the Gallery shopping center.



That day, we began the day with a trip to the mountains. The weather was ideal for going on a hike. We went on a hike, admiring the vegetation, fauna and breathing in the pure woodland air. A couple of us carried rubbish bags and together we collected the trash from our surroundings as a group. After a time of walking, we arrived at the Šútovo waterfall. We took a little break, took some photos together and enjoyed the breathtaking view. Hiking was pretty good, and also a bit tiring but an exciting journey. The last destination of our journey was the Trusalová mountain resort, where our teachers prepared a surprise for us, it was a ride on horses. It was entertaining and we felt like real cowboys. We also met a cat that we named Gregory. He was so charming. After that long day, we had lunch in the hotel and we had free time. Although that day was pretty tiring, we were satisfied and happy to have some memories



Friday 24th September 2021

Our last day started in our friends' school, Gymnázium Viliama Paulinyho-Tótha in Martin where we summed up the entire working week. We tried Slovak, Czech, Romanian and Polish national sweets and spent a good time in the presentation room. The Slovak team prepared a lovely presentation about the Turiec region and Slovakia as a country. We learned some new interesting information and got the chance to explore more of the beauty of Slovakia.

We had a look around the school, filled in a questionnaire and completed the Newsletter.





The results of the questionnaire

1. What was the BEST experience this week for you?

Celebrating my birthday in Slovakia.

Horses, Adolf the cat

Hiking, riding horses and trying new foods AQUAPARK

adolf the cat

I loved every thing. The cave, the hike, the food. It was an amazing

experience

Making new friends and enjoying the time with people.

Learning a lot of new things and having fun.

The best experience for me this week was when we went riding horses. It was a great surprise and i had lots of fun

i liked the views and aquapark

The best experience for me was when we went to the Hermanecka cave and the aquapark

the surprise was very awesome, hiking was also a great experience, aquapark

The best experience for me was making new friends.

Probably the Aquapark, but the Harmanecká cave and the Šútovo waterfall were awesome as well.

The best experience for me was make friend.

The best experience for this week was on monday when we played that city game because I learned a lot of new things about this beautiful city.

Every day was an unforgatable experience, but the best experience I had, was the city game that the slovakia team organised for us, and we learned a lot about the city, the culture, the people, and the important people in their history.

The best experience was a horse ride in Trusalová mountain resort and also I like the Šútovo waterfall

all experience was so good, but, for me, experience of turaslova mountain resort is the best i feel amazing .

2. What was the WORST experience this week for you?

I didn't have a bad experience.

Saying goodbye

city game

the hike to the cave

I didn't have any worst experience. Everything was amazing and the coordinators did an amazing job

I probably did not have any bad experience

I don't have any.

I didn't have any bad experiences this week. Everything was amazing

i don't have any

The first day I didn't take any warm clothes and I was freezing the whole time

the church

I do not have one.

Probably the sewage plant of Turiec, although it fit the agenda of the meeting, it was quite boring.

I do not have.

I don't have a bad experience. Everything was perfect to me.

I didn't had a bad experience, all the time that I spent here, was perfect.

I like everything here

i don't have

3. What would you prefer to do during the next meeting? What would you change?

This meeting was perfect and I wouldn't change a thing.

I would like to try Halušky and visit Bratislava

maybe more free time and more national food

less hiking, bigger variety of activities than just being in the mountains

I wouldn't change anything. Everything was great

I would probably do less hiking, because we were tired most of the time.

Maybe trying national food.

Nothing, it was perfect.

I wouldn't change anything. Every activity was well organized

less walking

maybe less walking

maybe some traditional party

It was perfect, I would not change anything.

Definitely more traditional food. I was very excited to finally have some Slovak halušky, but that didn't happen. The food was great, but I can have cooked chicken with rice at home.

Meeting will be longer.

I wouldn't change anything because everything was perfectly organized. During the next meeting I would like to try some more traditional food and to learn some more interesting things about the culture of that country.

Nothing. If we are doing similar things like we did, it will be perfect.

I would prefer more traditional food

nothing, the programme and organization was amazing

4. What do you think is the most attractive thing about your work in this stage of the project?

Visiting important monuments and learning about them.

Exploring cultural differences, meeting new people

Making new friends and experiences. My English is better

understanding the differences between our partner countries

The fact that we worked with so many amazing people and that we socialized so much and learned so many things

Meeting new people

Making new friends, learning new things and having a lot of fun.

I think the most attractive thing about my work was the fact that i worked with so many amazing people and I improved my english skills

spending time with my friends

getting aware of the problems of our world

Learning new things, while making friends. Covering important topics, while having fun.

The nature in Slovakia is amazing and i loved exploring it. Although it was a bit exhausting when we went hiking for the third time in a row

The most attractive thing about mine work in a project is learn about countries and make new friend.

The most attractive thing about my work in this stage of the project is when we were working together at that topic about the Danube.

I think the most attractive thing for me was the socializing, I met met people, that are different, from perspective of life, hobbies, traditions, language and so on.

meeting new people and improve english

i think the most attractive thing was socializing and teamwork

5. Add any comment you think might help the coordinators to improve in their work on the project.

The coordinators work was excellent and I don't think of a way to improve it.

I would not change a thing

idk :0

The coordinators did an amazing job, I have nothing to comment. Great job everyone!

Just be incredible as you are. And do less hiking

I don't have any.

Everyone did a great job.

i think we should do partz at the end of the week

i dont have any

some dancing with the whole group

Have fun.

I can not think of anything else that I have not already mentioned.

I do not know

They don't have to improve anything because the coordinators are amazing and they made such a great job.

In my opinion, I don't think it's nothing to improve in their work, they need to keep up with this ideas and this work and it will be perfect.

Nothing, it was awesome

more communication between home team

Was the meeting well organized? Average 4,61 out of 5,00

Were all objectives of the meeting achieved? Average 4,67 out of 5,00

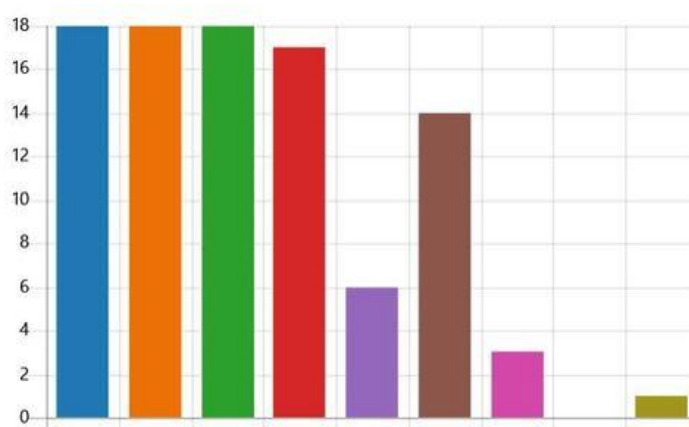
Were all the topics from the agenda covered? Average 4,83 out of 5,00

Did you like the programme of the meeting? Was it interesting for you? Average 4,72 out of 5,00

During the short-term student exchange in Martin I have:

[Další podrobnosti](#)

● learned some new informatio...	18
● made new friends	18
● had fun	18
● seen a lot of interesting places	17
● tasted typical local food	6
● spoken some words in Slovak ...	14
● missed my family :-(3
● felt bored most of the time	0
● Jiné	1



Water

WAVES: 2020-1-CZ01-KA229-078254



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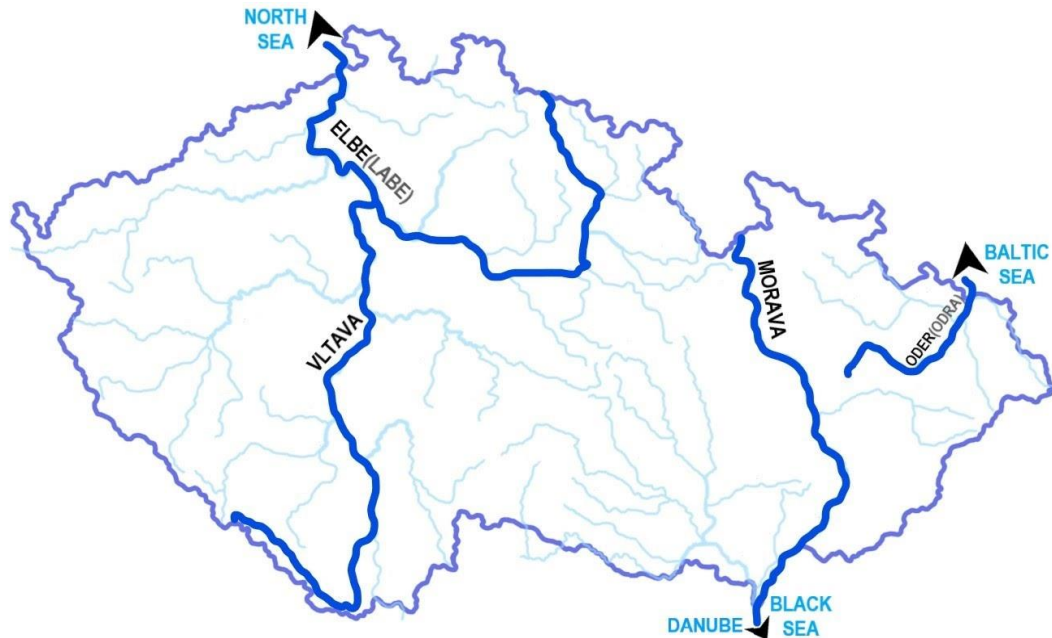


Co-funded by the
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CZECH REPUBLIC

1.Rivers

The most important rivers are Elbe, Vltava, Morava and Oder. The longest and most famous river in Czech Republic is Vltava. Our rivers flow into 3 seas, to North, Baltic and Black.



In our city flows the river Lučina, it is not that important river, but it creates beautiful meanders here in Havířov and also it supplies water to Žermanická dam.





The Oder is the most important river for the Silesian region. The river rises in the Oder Mountains and then flows through Czech Silesia for 112 kilometres until it crosses the border to Poland.

2. Lakes, dams and ponds

There are many places with water areas in our country. We have around 200 dams. The largest dam in Czech Republic is Lipno. There are also 2 dams near to Havířov called Žermanická and Těrlická dam. But the most important for our region is a dam called Šance, because it gives us drinking water.



3. DOE (Danube-Oder-Elbe)



Canal

DOE Canal which wants to connect 3 overseas (Baltic sea, North sea and Black sea) and also wants to offer another possibility to transport some merchandise. It is a very unecological expensive project and because of that has not been implemented yet. Fun fact is that the first plans to build this canal are dating back to the epoch of Karl IV. (14th century).

DOE – ecological impacts

- disturbance of biologically valuable environments and many of them belong to Natura



2000 protected areas

- problem with water scarcity in the landscape
- disruption of habitats of different species of animals
- invasive species of animals that disrupt biodiversity in Czech rivers
- line building that divides the landscape

4. Hydroelectric power stations



There are also some water power plants in the Czech republic worth mentioning. The best known one is called Dlouhé stráně. The Dlouhé stráně Hydroelectric Power Station is situated in Moravia. It prides itself with three superlatives: it has the largest reversing water turbine in Europe, 325 MW; it has the largest head of all power stations in the Czech Republic, 510.7 m; and it also has the largest installed capacity in our country, 2 x 325 MW.

You can explore this power station from the inside on a virtual tour:

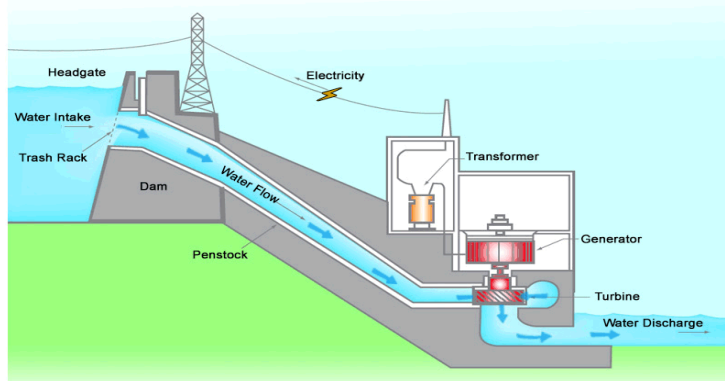
<http://virtualniprohlidky.cez.cz/cez-dlouhe-strane-aj/>



This is the largest reversing water turbine in Europe:

#HowThingsWork

Hydroelectric Power System



TOPPER
LEARNING
Get More Marks

The other ones are for example Dalešice and Štěchovice



POLAND

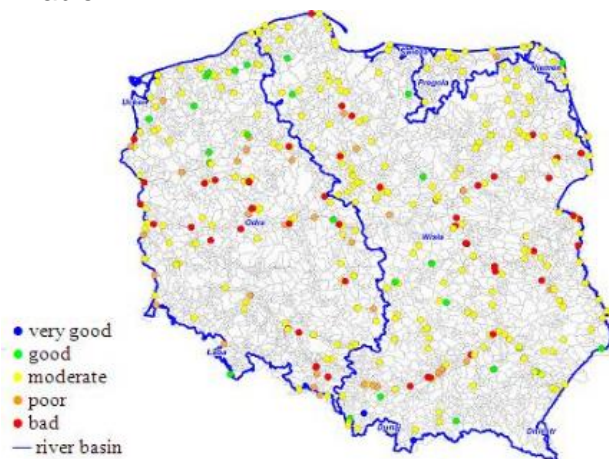
1. The Vistula River - other rivers in statistics

Water pollution is the contamination of water bodies. It is the abuse of lakes, ponds, oceans, rivers, reservoirs, etc. Pollution of water usually occurs when substances discharged in it negatively modify water. The discharge of pollutants can be direct as well as indirect.

Water pollution occurs when harmful substances - often chemicals or microorganisms - contaminate a stream, river, lake, ocean, aquifer, or other body of water, degrading water quality and rendering it toxic to humans or the environment.

Because of relatively small water resources, a high population and varied state of urbanisation and management of the area, Poland is the worst contributor to the Baltic Sea pollution. It bears the dubious distinction of having 38 identified hot spots where factories and towns pour pollutants into rivers that empty into the Baltic.

Only 4% of Poland's rivers and lakes contain water clean enough to drink even after boiling. A third of the country's rivers are so polluted that waters cannot even be used for industrial purposes because they corrode metal. Water from two-thirds of residential wells in Polish villages is undrinkable.



Classification of the ecological status of river water bodies covered by diagnostic monitoring in 2007 and 2008.

STATUS	Vistula	Odra	Dniepr	Dunaj	Jarft	Łaba	Niemen	Pregoła	Świeża	Ucker	TOTAL
Very good	2										2
Good	15	10				1	1				27
Moderate	187	96		2		1	6	10			302
Poor	17	22						5			44
Bad	36	36					1				73
TOTAL	257	164		2		2	8	15			448

Classification of the ecological status of river water bodies covered by diagnostic monitoring in 2007 and 2008.

Vistula river is the longest and largest river in Poland, which flows from the mountains in the south to the Baltic Sea in the north. It has 1,047 kilometers in length and is the 9th-longest river in Europe.

For the first kilometers, it is a relatively clean river. But then it skirts the southern edge of Katowice, the most heavily industrialized and heavily populated region of Poland. Every day, 6,600 tons of chlorides and sulfates, the washed-away salts of the processed coal, are flushed into nearby streams, and then to the Vistula. Daily the river discharges into the Baltic an estimated 12,000 pounds of zinc, 165 pounds of cadmium, 1,650 pounds of copper and nearly 1,100 pounds of lead.



The Vistula River

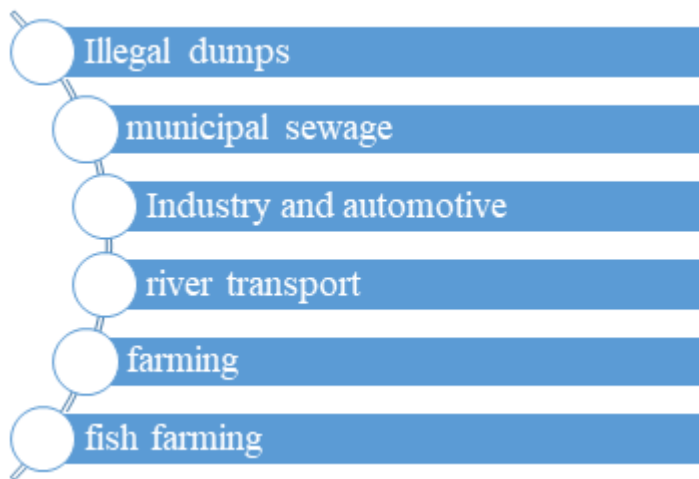
The Oder is the second longest river in Poland, which is also the most important river of Moravian-Silesian Region in Czech Republic. The river rises in the Odra Highlands (Oderské vrchy) and flows through cities as: Ostrava, Bohumín, Wrocław, Frankfurt, Szczecin, Police and then enters the Baltic sea. It's 840 kilometres long (112 km in Czechia, 726 km in Poland and only 2 km in Germany).

The river flows through the city of Ostrava, which has the biggest influence on *pollution* from Czech Republic (the city is known for its industry - especially metallurgy in Vítkovice). Every year are more than 1,000 tons of pollutants discharged into the river from all polluters throughout the Silesian region. On its way to reach Baltic, the river gets far more polluted, which from river makes another big river-pollutor of the sea. By research from 2007-2008 has the diagnosed bodies of the Oder been in moderate and bad status of pollution in 80%.



The Oder

Warta is the third longest river in Poland, the second fully within its borders and is the main right tributary of the Odra River.



Main causes of Warta river *pollution*: industrial wastewater - from factories, industrial plants, agricultural pollution, surface runoff from cities, sewage from households.

The biggest ecological *disaster* of the Warta River took place in 2015:

- contamination was found to have occurred from the industrial plant manifold chemical pollution - toxic,
- the investigation showed that the actions were deliberate,
- about 20 thousand kilograms of fish died.

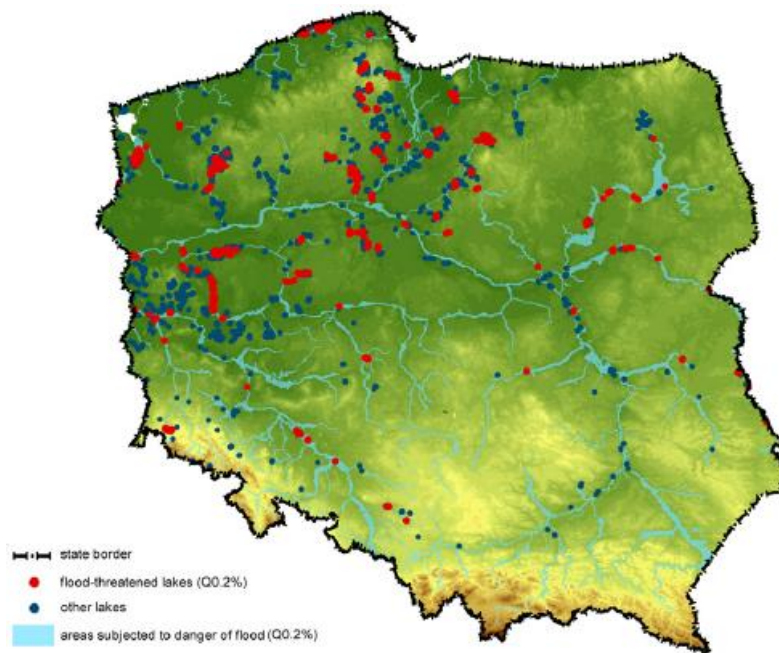
According to official statistics, the quality of water in Poland is systematically *improving*. From April 2020, the water in the *Warta* was *cleaner* than in the corresponding period in previous years. Depending on the measuring point, these relationships were even ten times less than in the corresponding period in previous years.



Warta

2. Lakes

Lakes in Poland occupy about 1% of the country's area. The most popular ones are Wigry Lake, Morskie Oko, Lake Mamry and Śniardwy, which is the largest lake in Poland.



Only 4% of Poland's rivers and lakes contain water clean enough to drink even after boiling.



Śniardwy



Morskie Oko

3. The Baltic Sea

The Baltic Sea is an arm of the North Atlantic Ocean, extending northward from the latitude of southern Denmark almost to the Arctic Circle and separating the Scandinavian Peninsula from the rest of continental Europe.



Over the past 100 years, the Baltic Sea has been degraded quite dramatically. Human pressures such as overfishing, pollution and now, increasingly, the

effects of climate change are altering the ecological balance and depleting renewable resources beyond safe biological limits.

The Baltic Sea is the most polluted sea in the world. Because the cycle of water exchange in the Baltic Sea is slow and the sea is connected to the oceans through the narrow Danish straits, pollution also damages the seafloor and the shores of the Baltic Sea. The annual blue-green algae beds can also turn the coastal waters mushy on Finnish coast of the Baltic Sea.



In the plastic waste swirls around the world's oceans there are packages, clothes, plastic bags, bottles and cans swirling and grinding into micro-plastic particles.



Due to the lack of food in animals eating plastic they cease to grow and suffer from health problems. The chemicals dissolving from plastic pass through the muscles into carnivores.

Now everyone understands that the economy is not healthy when the clean environment is destroyed. The Baltic Sea is one of the most polluted seas in the world but it is surrounded by countries that are among the most prosperous in the world. Now is the time to fix the damage we have caused to the Baltic

Sea – and to prevent new damage.



4. The Puck Bay

The Puck Bay is a shallow western branch of the Bay of Gdańsk in the southern Baltic Sea, off the shores of Gdańsk Pomerania, Poland. It is separated from the open sea by the *Hel Peninsula*.



The Puck Bay and the Hel Peninsula

The bay has an average depth of 2 m to 6 m, but can be up to 50 m deep. The surface of the bay is 364 km². There is a shallow sand-bank from Rewa to Kuźnica in the middle of Hel Peninsula. The bay is available only for small fishing boats and yachts, which have to stick to the strict deeper routes.

There are deposits of potassium salt below the Bay of Puck.

The extent of *pollution* in the Puck Bay area was obtained in relation to Natura 2000 - the European Union's protected areas.

The quality of coastal waters depends mainly on the pollution discharged along the tributaries of rivers (to a lesser extent surface runoff). The genesis of these pollutants is usually associated with the runoff of rainwater from developed agricultural catchments.

One main cause of poor water conditions is pollution supplied by the local watercourses and rivers from agricultural areas. In particular, this problem concerns Puck Bay, where surface water flows from agricultural areas of the Puck District. The Puck Bay is classified as moderately contaminated with heavy metals. In the worst case, the pollution reaching the sea connects and covers a large part of the Puck Bay waters. It spreads over an area of about 20 km along the shore and penetrates for a distance of about 10 km into the Bay (approaching the shores of the Hel Peninsula), affecting the Natura 2000 protected areas.



The Puck Bay

5. Żarnowiec Hydroelectric Power Plant

Żarnowiec Hydroelectric Power Plant is the biggest pumped storage power plant in Poland. It is located in the town of Czymanowo on Lake Żarnowieckie in the Pomeranian Voivodeship on the border of Puck and Wejherowo poviats.

The construction of the power plant began on June 1 1973, and its commissioning took place in 1983. In the initial period, the power plant was an energy accumulator for the Żarnowiec Nuclear Power Plant.

The owner of the power plant is PGE Energia Odnawialna S.A., which is also the operator of the power plant in Żarnowiec.

The operation of the power plant is fully automated, and the activation and deactivation of individual hydro units is carried out remotely from the National Power Dispatching Center in Warsaw. On average, hydro sets work about 18,000 hours per year, and each of the hydro sets is activated twice a day on average.

The amount of water is sufficient to run for approximately 5.5 hours. The tank would hold *130 football fields*, and refilling the water in the tank takes about 6.5 hours.



Żarnowiec Hydroelectric Power Plant

<https://youtu.be/e5e6zarpwRM> - a short film about *power plants*

ROMANIA

The Danube river

In Romania, the most important river is The Danube. A mixt student SK-RO team presents you a very interesting story about this important river from Europe.

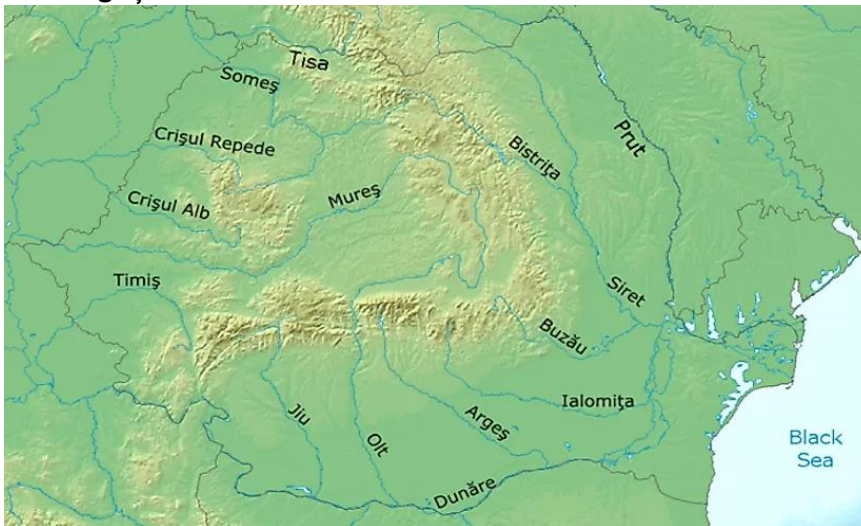
Enjoy, https://www.canva.com/design/DAEQIQEhe6A/tCtbjWVHuV7OjTYf-8OhJQ/view?utm_content=DAEQIQEhe6A&utm_campaign=designshare&utm_medium=link&utm_source=publishsharelink&fbclid=IwAR1FidxN0oHhWQ2glS0wY6gbyFvkJI9vI6PKse6jT5mf_VPA7jDD8xDPpK0#1

The Argeş River

contribution of: Anca & Marina

Besides our most important rivers, there are also important tributaries of The Danube: Olt, Argeş, Siret, Prut and Şomuz rivers, from which the first to be presented is:

The Argeş River



Our river that rises from the Southern Carpathians, in the Făgăraş Range, southern Romania, flows southward through Curtea de Argeş and Piteşti.

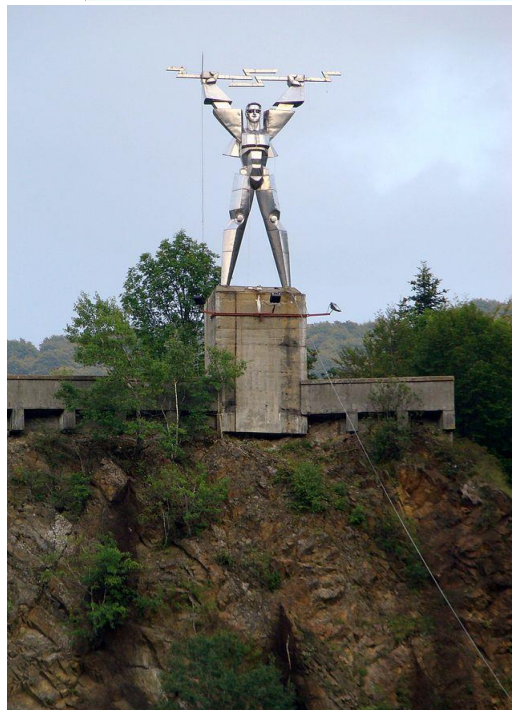
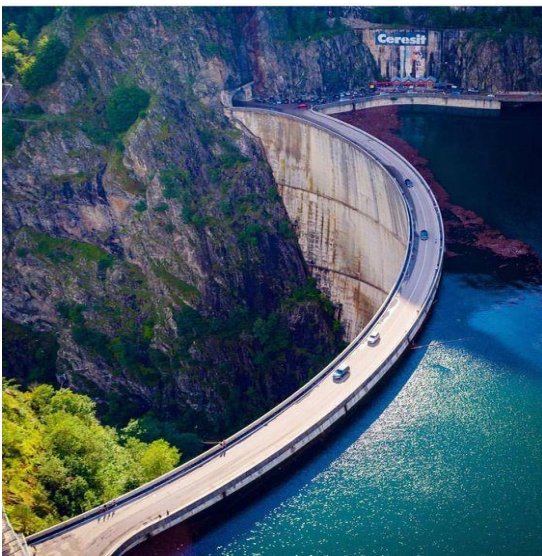
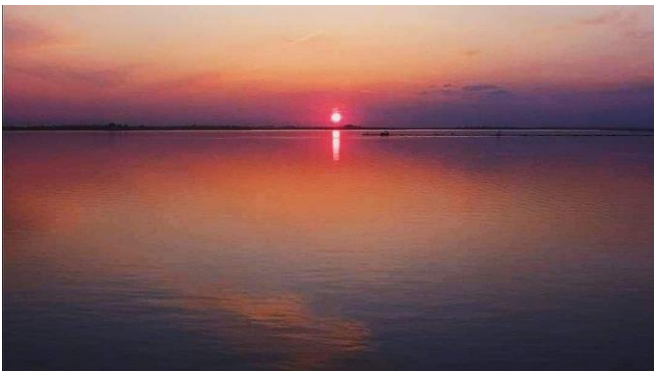
The Făgăraş Range is the source from which the Argeş River springs.
The Argeş River also flows into the Danube at Olteniţa (it's location).

Some of its tributaries are used for hydroenergy. The hydroelectrical system consists of several



dams, lakes, tunnels and power plants.

The following photos are regarding The Argeş River and the charming landscapes it creates.



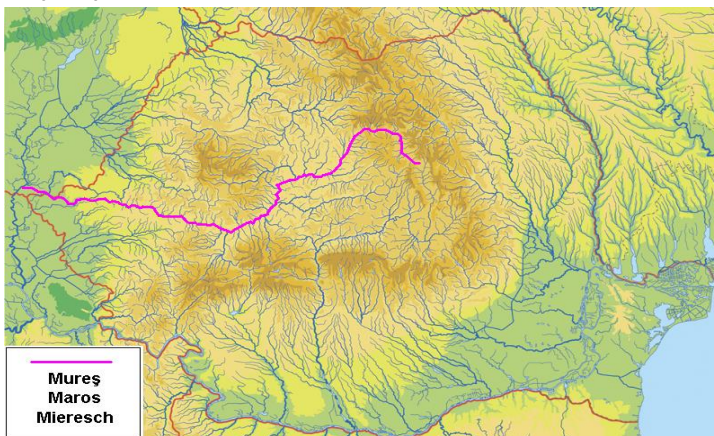
On the right bank, on Plesa mount, one can find the statue 'Energia', representing [Prometheus](#) with lightnings in his hand, symbolising electricity.



The Mureș River

The Mureș River, contribution of: Șoptelea Ștefana, Alexandru Andone, Ștefan Șodolescu

Mures is a river that flows in Romania and Hungary and has a length of 789km. It springs from Hășmașu Mare Mountains and it flows in the Tisa river.



For 22,4 Km, the river marks the Romanian-Hungarian border. There are many interesting legends about this river, as well as about its name. It has been used for navigation since antiquity.

The Mures River has a significant influence on the following cities: Reghin, Târgu Mureș, Alba Iulia, Deva, Arad , both economically and culturally.



Şomuz River

Şomuzul Mare is the river that passes by our city, Fălticeni, a tributary of the Moldova River. The Moldova River has one of the cleanest drinking waters in the country and Şomuzul Mare is protected from pollution by industrial and household waste by a treatment plant. The analyzes performed daily along the river Şomuzul Mare, downstream of the treatment plant, indicated a water in the 2nd and 3rd quality classes, so outside the danger of pollution. At the level of the municipality, It is barred in 3 places, resulting in 3 lakes / ponds used for fish farming. Şomuzul Mare feeds three ponds fish production with a luster of water in the total area of 600 ha. In addition to fish production, these water accumulations create a healthy environment, with the role of thermal moderator and high tourist potential. In winter I stop here, swans.



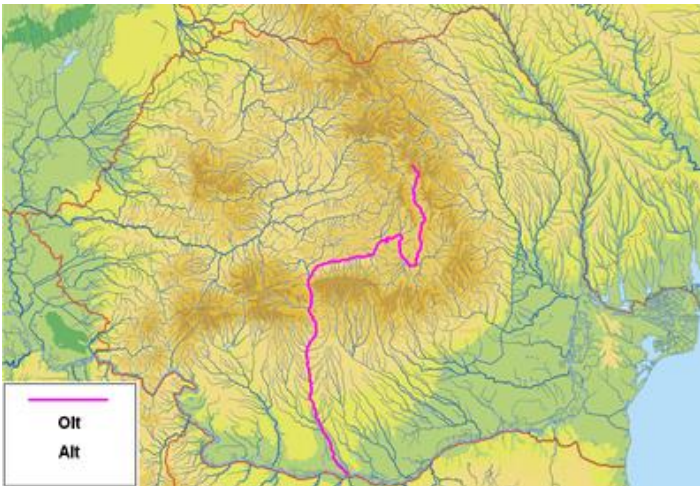
Alexandra Ursu, Gabriela Nistor, Sovejanu Mihail

The Olt River

The legend says that Olt, like Mures, was born from tears of an empress, the mother of two sons, who never found her children lost in world.

The Olt River is one of the largest and most important rivers in our country. From an etymological point of view, the name of the river Olt comes from the Latin "Atulus" or "Aluta". The Olt River springs from the Hasmasu Mare Mountains, on the S-SE slope of

the Eastern Carpathians, at 1.280 meters altitude. It has a length of 615 Kilometers.



Contributors: Cristina Cristinariu, Anca Botezatu, Amalia Curca, Adam Dumitrita

The Someș River

Located in northwestern Romania, the Someș river is a left tributary of the Tisza in Hungary. It has a length of 415 km, of which 50 km are in Hungary. The Someș is the fifth largest river by length and volume in Romania.

The hydrographic basin forms by the confluence at Mica, a commune about 4 km upstream of Dej, of Someșul Mare and Someșul Mic rivers. Someșul Mic originates in the Apuseni Mountains, and Someșul Mare springs from the Rodna Mountains.



The valley of Someșul Mare has much auriferous alluvium that, until the early 20th century, were brought to the surface using traditional tools. Specialists say that in the Someșul Mare were found grains of gold of 21 carats

The Someș drains a basin of 18,146 km² of which 15,740 km² in Romania. Basin area represents 6.6% of the country area and 71% of the area of Someș–Tisza hydrographic basin.



Contribution : Ștefan Boca

The Siret River

The Siret River springs from the Obcinele Mountains of Bukovina, located in Northern Bukovina (today the Chernivtsi region of Ukraine), at an altitude of 1,238 m. Its springs are located near the town of Șipotele on Siret (Vijnița district).



Siret travels 647 km (of which 559 km in Romania and 88 km in Ukraine) and flows into the Danube, near the city of Galati. Among the tributaries of the river, it has the largest river basin in Romania.

The main tributaries of the Siret are: on the right, Siretul Mic, Suceava, Moldova, Bistrita, Trotuș, Putna and Buzău; on the left, Polocin and Bârlad. Its river basin consists mainly of waters brought by the rivers Bistrița, Trotuș, Moldova and Suceava



The banks of the Siret are made up of layers of gravel, sand and loess. In spring, when the snow melts and in summer, after heavy rains, the Siret River can cause floods. If normally, the width of the Siret is 70–100 m, and the depth of 0.20-0.70 m, during the melting of heavy snow or precipitation, its width increases to 200 m, and the depth reaches 2–3m

Contribution: Chirilă Cristiana, Rebecca Cora.

The Prut River

Prut River, also spelled Pruth, Romanian Prutul, a tributary of the Danube River, now forming the boundary of Romania with Moldova. Prior to 1940 and the taking of Bessarabia by the Soviet Union, the Prut was almost entirely in Romania. It rises on the northeastern slopes of the Eastern Carpathians in southwestern Ukraine and flows 530 miles (850 km) north, then east past Kolomyia and Chernovky, and finally south-southeast. The Prut receives water from several tributaries off the Eastern Carpathians and the Moldavian Basin. It empties into the Danube east of Galați, Romania.



The main characteristic which defines Prut is biodiversity. Despite the fact that the floodplain was reduced due to the dykes for flood protection, the natural habitats and species are still well preserved and their conservation status led to designate the Prut River as Natura 2000 site (SPA - special protection areas and SCI - sites of community importance) and natural park and reserves. Also, parts of Prut floodplain are Ramsar candidates. The Lower Prut is included in the Lower Danube Green Corridor Program and an integrated management of wetlands will be expanded in the Lower Prut area as part of a proposed trilateral Biosphere Reserve that is planned between Republic of Moldova, Romania and Ukraine.



Nevertheless, during the centuries, essential activities to the livelihoods of the people in the basin contributed to management issues in the form of pollution and changes to the natural form of the Prut. Discharges of non-treated or insufficiently treated wastewater, municipal, industrial and animal, uncontrolled landfills, illegal dumping of household waste, changes in land-use and river engineering as well as inappropriate agricultural practices, had represented a major widespread pressure factor. Built on Prut, the Stâncă-Costești dam is operated jointly by Republic of Moldova and Romania. Based on all legal frameworks in relation with the Prut River, Romanian authorities together with Ukraine and Moldova cooperate for an integrated management of the water resources.

Contribution: Viviana Scripcaru, Tudor Jarcau, Natu Gabriel

SLOVAKIA

Water can be referred to as Slovakia's greatest treasure. The country is home to some of the most substantial natural stocks of fresh drinking water in the world. Slovakia as a country is landlocked so it doesn't have a connection to sea. This does not mean that Slovakia has a lack of water sources.

Rivers

Slovakia is divided into three main river basins. Dunaj basin on the west, Tisa basin on the east and Dunajec basin on the north of the country. The biggest river is Danube and the longest river is Váh. Rivers flow mainly to the Black and Baltic Sea watersheds. Vah River. It is formed by the confluence of the Black and White **Vah Rivers**. It flows from northern Slovakia to the south of the country where it meets the Danube River as its left tributary. The region along the river course is called Povazie. Many important towns have been built on the Vah River. It offers great conditions for water sports, for example rafting, it is an interesting tourist attraction. **Hron** is the second longest river in Slovakia (298 km), it rises at foots of Kráľova hoľa in Low Tatra, flows into Danube near Kamenica nad Hronom - it is possible to float on the river on rafts, canoe, kayak. **Dunajec** For tourists very attractive is rafting on wooden rafts on the river Dunajec in wonderful nature. Dunajec is river in Slovakia with flow length 17 km and it creates the boarder between Poland and Slovakia.

Lakes

Groundwater

Groundwater is the drinking water source of the highest quality. Both, groundwater (82.2 %) as well as surface water (17.8 %) are exploited as drinking water sources in Slovakia. Žitný ostrov is the biggest natural groundwater source in the Slovak Republic (SR) and in Central Europe with app. 20 400 l.s-1 capacity. Solely groundwater sources are used abstraction for drinking water in the regions of Bratislava, Trnava and Nitra. In the rest of regions both, ground water as well as surface water is used as drinking water source for inhabitants.



-Žitný

Ostrov

SPAIN

The most important rivers...

EBRO

~The Ebro is a river located northwest of the Iberian Peninsula. It is the second longest and also the second widest.

-The river rises at Pico Tres Mares (Cantabria, Spain) and flows into the Mediterranean Sea (Deltebre, Tarragona)

-It has a total length of 930 km. Its hydrographic basin is the largest in Spain with a surface area of 86,100 km². This is located in Andorra and France as well.

-Autonomous Communities that it crosses:

- Cantabria (where it surges)
- Castile and Leon
- The Rioja
- Basque Country
- Navarre
- Aragon
- Catalonia (where it mouths)



GUADIANA:

~The Guadiana River, it rises in the southern part of Iberian Peninsula, is one of the four longest rivers on the peninsula!

It is born in the southern sub-plateau and extends from the province of Badajoz(Spain) to the Algarve(Portugal)

In its trajectory, it crosses the border of Portugal and Spain several times, it is one of the few rivers that does that!



DUERO

~The Duero is the most important river in the northwest of the Iberian Peninsula. It rises on the southern slopes of the Urbión peak, at about 2,160 m above sea level, and empties into the Atlantic Ocean at the Porto estuary. It is 897 km long with 572 of route in Spanish territory, 213 navigable through Portuguese lands and 112 km of international character, since the border between both countries is located on it

The Douro flows through the cities of:

-Soria

-Zamora

-Tordesillas



TAJO

~The Tajo is the longest river of the Peninsula Iberica, go through the central part and follow the course east-west leaning a bit southwest and lows in Portugal.

Its length is 1.007Km, has a tributary of the river system. Born in Sierra De Albarrán and finishing in the Atlantic Ocean, its SURFACE IS 80,600Km².

The cities where it passes are:

-Toledo

-Aranjuez

-Abrantes

-Almada

-Alcántara

-Santarém

-Vila Franca de Xira





HEALTHY RECIPES - WAVES

<https://docs.google.com/presentation/d/1uUGUTqVmP9SZqSYVMiR4dug75ayESVz2KUOejTQT1XQ/edit#slide=id.p>

p

Vegetation

WAVES: 2020-1-CZ01-KA229-078254



The European Commission support for the production of this publication does not constitute an endorsement of the contents which reflects the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein.



Co-funded by the
Erasmus+ Programme
of the European Union

WHAT IS VEGETATION

Vegetation is a general term for the plant life of a region; it refers to the ground cover provided by plants, and is by far, the most abundant biotic element of the biosphere.



WHY VEGETATION IS IMPORTANT

Vegetation serves several critical functions in the biosphere, at all possible spatial scales.

Vegetation regulates the flow of numerous biogeochemical cycles, most critically those of water, carbon, and nitrogen; it is also of great importance in local and global energy balances.

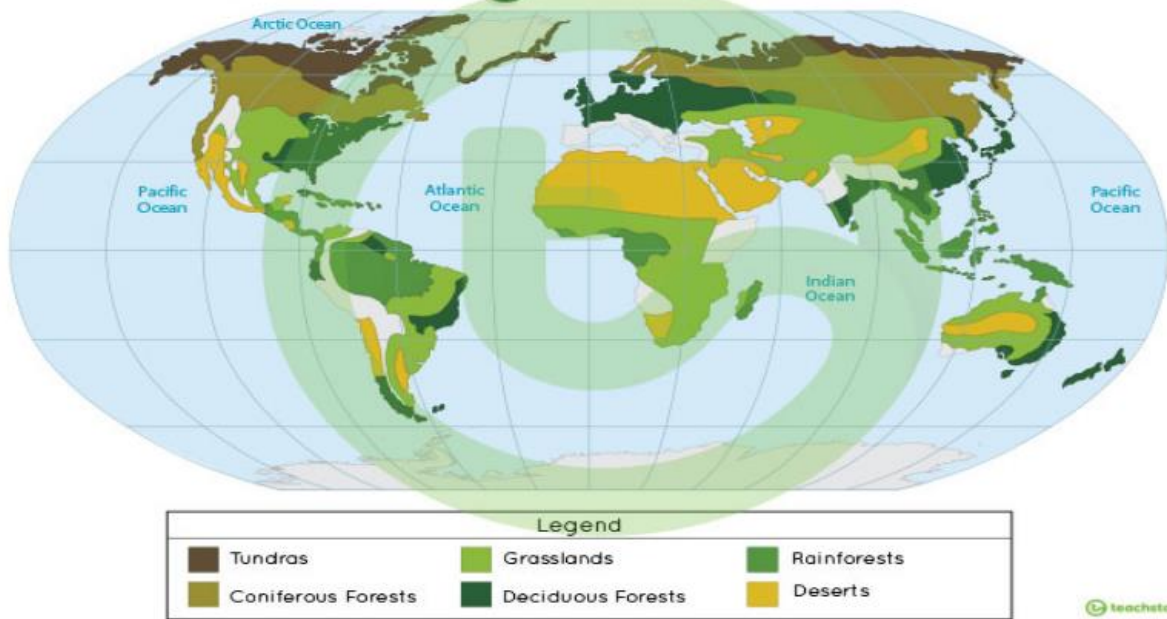
Vegetation strongly affects soil characteristics, including soil volume, chemistry and texture, which feed back to affect various vegetational characteristics, including productivity and structure.

Vegetation serves as wildlife habitat and the energy source for the vast array of animal species on the planet (and, ultimately, to those that feed on these).

Vegetation is also critically important to the world economy, particularly in the use of fossil fuels as an energy source, but also in the global production of food, wood, fuel and other materials.

Vegetation is psychologically important to humans, who evolved in direct contact with, and dependence on, vegetation, for food, shelter, and medicines.

World Vegetation Zones



DEFORESTATION

Deforestation is the permanent removal of trees to make room for something besides forest. This can include clearing the land for agriculture or grazing, or using the timber for fuel, construction or manufacturing.

What are the effects of deforestation?

The loss of trees and other vegetation can cause climate change, desertification, soil erosion, fewer crops, flooding, increased greenhouse gases in the atmosphere, and a host of problems for indigenous people.



HOW TO PREVENT DEFORESTATION

1. Go paperless at home and in the office.
2. Buy recycled products and then recycle them again.
3. Buy certified wood products. Read the labels and look for the FSC (Forest Stewardship Council) mark.
4. Support the products of companies that are committed to reducing deforestation. It's all about business. If you don't buy, they will be encouraged to improve their practices.
5. Raise awareness in your circle and in your community.
6. Buy only what you will use.



Trees in our regions, countries, EU

Protected plants in Poland by Maksymilian Białk

<http://slides.com/whiteshadow/deck?ref=share>

Species of trees in Poland.



Oaks – the thickest Polish tree

- Oaks are powerful and stately trees. They are considered to be the thickest species found in national forests. The thickness of these trees can exceed up to 3 m. They are extremely robust and strong, so they will survive even the harshest environmental conditions.

Oaks have an extremely strong root system. They are long-age trees. They can live up to 1000 years. There's one popular natural monument, such as the Bartek Oak. Their fruits are acorn, which are food for many animals, e.g. squirrels, wild boars or deer. Oak, due to its nature, was considered a symbol of strength in many cultures in the areas where it grew.



Pine – the most popular tree in Poland

- In Poland, there are three basic species of pine – ordinary, common and wejmutka. The trees occupy almost 70% of the entire forest area. It occurs in almost all conditions because it has no specific needs. To survive they do not require fertile soils. They are quite often found in the area of swamps.
- Pine belongs to single-pine trees. The bark resembles dark red scales. It is also worth mentioning the cones, which have an egg-shaped shape. Needles take different lengths – from 3 to even 8 cm. Their diameter is about 2 mm. The tallest pine specimens are about 35 m high.



Spruce – slim and simple trees

- Spruces are not found in our forests as often as pine, however, they are also very popular. They are slim yet simple. The bark is dark green. Needles are evenly distributed on the branches. They have a sharp and woeful ending. Their length is from 1 to 2.5 cm. They are not too thick.



- Spruces are single-tree trees. They have both female and male flowers. Female flowers are well-known cones, while male flowers are so-called kittens. Spruces are sensitive to gusty winds as well as environmental conditions. So it can be quite easy to break it.

Beech – one of the most beautiful deciduous trees

- There's a reason, it's one of the most beautiful deciduous trees that are found on the territory of our country. Forests are especially worth a visit in autumn, because then the leaves take on a variety of colors. In spring, they are intensely green. They are distinguished by their ovular shape.



- It has fruits called beech. These are edible peanuts, which are loved by many wild animals. Beech's live for about 300 years. It's the best to grow where the humidity level is moderate. They require fertile soil. We will meet them quite rarely in sunny places, because they like shade.

Birch – a pioneering species

- Birch belongs to wind-burning deciduous trees. It is important to know that it is considered a pioneering species. They appear in unseeded areas. They grow intensively and quickly. The maximum height is about 25 m.
- Birch trees live an average of 120 years, but this depends on what conditions they are under. Some of them produce bactericidal substances, which positively affects the environment. Their fruits are small peanuts with a characteristic shape. Birch wood has a high energy value, so it is often used as fuel. Other trees found in Poland, which are willingly used for firewood, are oak and beech (but they are relatively expensive).



Fir tree – a strong coniferous tree with gray bark

- A fir tree is a coniferous tree that does not shed its needles for the winter. It has a bark of gray color. Its trunk is strong and not prone to damage. Its maximum height is about 50 m. Its needles are quite flexible. On the branch they take the shape of a cylinder.



- Female flowers are small cones that grow vertically. In the first phase, they take shades of red and purple. Only after a while they become light green. Fir trees can live up to 500 years, so it is a long-lived tree. Their wood is used for the production of e.g. houses, furniture or musical instruments.

Yew – long-lived coniferous tree

- Yew is a coniferous tree that is famous for its longevity and for being poisonous. It can live up to 3,000 years. Initially, its crown is conical. Over time, it becomes irregular.
- Yew is a double-lime tree. Its flowers develop in early spring – female have a green color, while men's yellow. Its fruits are in the form of tiny balls that resemble a bit of berries. It likes fertile soil. It requires soils with optimal humidity. It tolerates frosts badly, as well as drought.



Willow – a healing tree in Poland

- Willow is another deciduous tree that is used for medicinal purposes. It has a large crown, which has a lot of very thin twigs. It is often found by roads or in river valleys. The maximum height is about 30 m. The leaves have an elongated shape. Their length can be up to 10 cm.



- Willow is a source of salicin, a compound that has anti-inflammatory and antibacterial properties. The substance is secreted by the bark. Willow wood is quite easy to process and form, so it is used in many different industries.



Maple – a spreaded-out tree with a large crown

- Maple is a large and spreaded-out deciduous tree, which has a crown. The summit takes the form of an umbrella. The maximum height can be up to 30 m. The leaves have five clear flaps. They are placed on thick stalks, which from the inside are filled with milk juice.
- The maple can live about 150 years. It has fruits in the form of small peanuts. Its wood is durable, thanks to which it is used in many different areas of life. It is insectopylny. He likes dry and limestone soils.



Grab – hazel from mixed forests

- It belongs to single-species. Female inflorescences develop rapidly. They are oblong and hanging. Rake fruits are tiny peanuts. They can be easily brought to an end. It is not susceptible to damage, so it is often selected for home gardens. It is not too demanding, which can be considered an advantage.



- Grab is a deciduous tree, which is hazel. Most often it occurs in mixed forests. It resembles birch, but in terms of properties they are two other trees. Small leaves have surfaces in the form of an accordion.

Chestnut tree – a large tree with a solid trunk

- Chestnut tree is one of the most popular deciduous trees, which is found not only in forests, but also in parks. Its fruits are chestnuts, that is, small-sized seeds, which are found in a spiking crust. They bloom in May, but only in September they fall from the trees.
- Chestnut tree is a powerful species. The thickness of the trunk can be up to 2 m. The maximum height of the tree is about 25 m. It is spread out, so it requires a lot of space. Chestnut tree, colloquially called chestnut, which is a tree that is not found in Poland (it is an indigit species).
- However, many people do not attach importance to naming.



Ash – a large tree with a cylindrical vertex



- Ash is a deciduous tree that is powerful and large. Its crown is usually cylindrical in form. The crown grows at a sharp angle. The trunk itself is slender and subtle. The bark is dark gray. Its surface is completely matte. Each leaf consists of about 7-11 smaller leaves.
- Ash is often planted in parks. It can live up to 250 years. It has female, male and bisexual flowers. The maximum height is about 40 m. The bumps are usually covered with scales that protect against external factors. After a while, leaves grow out of them. This tree is wind-blown.



Platanus tree – deciduous tree with flaky bark

- Platanus tree is a deciduous tree that is found in several different varieties (eastern, western and maple). It has a grayish-ash-spread bark, which after a while flakes. The top of this tree is usually proudly erected. The maximum height is about 35 m.
- For this species, the flowering period falls in May. The maple variety most likes sunlit places. It badly tolerates excess moisture and low temperatures. Frosts pose a particular threat to young specimens. Platanus trees, like some trees in Poland, are often planted on private properties and parks because its care is very simple.



Rowan – spherical fruits in red

- Rowan is a deciduous tree that is famous for its fruits. They are in the form of tiny red balls. The common variety blooms from May to June. Rowan winters very well. This means that it is resistant to low temperatures as well as the negative influence of external factors. It also does not require special environmental conditions.
- Rowan fruits are a source of many valuable substances that can positively affect health. But they can not be eaten raw – they can provoke vomiting, as well as a number of other undesirable symptoms. However, extract from them is a common ingredient e.g. syrups that improve immunity.



Sycamore – the largest variety of maple

- Sycamore is a deciduous tree, which is the largest variety of maple. It is a stately species. It has large leaves, which have a palm-like form. Sycamore fruits are double winged. It has a cracked bark, which distinguishes the described variety from other clones. Very often they are found in mountain forests.
- Sycamore is considered a long-term clone. Life expectancy is about 250-300 years. Its wood is of excellent quality, it is used for the production of furniture or musical instruments. It is also used as a raw material for the production of charcoal. The maximum height is about 35 m.



Hazel – tall deciduous shrub

- Hazel belongs to the category of deciduous shrubs. It is quite high, because its maximum height can be up to 5 m. The crown is erected and at the same time dense. It is created by a large number of thin twigs. The flowering period is February and March. Hazelnut fruits are small hazelnuts that bloom in September. Hazel is quite demanding. This means that it will not survive in all conditions.
- Hazel likes fertile and limestone soils. Growing the bush in question is quite time consuming. Its greatest threat is diseases, as well as parasites. It is they that cause the premature death of trees. Hazel shrub is well-liked because of the fruits, that is, hazelnuts. They are tasty and at the same time healthy.



Linden – deciduous tree with exceptional properties

- In Poland there is a small-leaved and broad-leaved linden. Both varieties are similar to each other, and the main difference is the size of the leaves. Both bark and leaves are used in unconventional medicine. They are assigned unique antiseptic i. e. bactericidal properties.
- Linden reaches a height of 30 m. It is a slender tree, the bark is gray and at the same time cracked. It has bisexual flowers. It's an insect-like species. Wood is quite soft and easy to process, so it is willingly used during sculptural works. Linden trees are also trees in Poland that have liked bees – hence such a popular lime honey.



Poland is a country, known for its highest in Central Europe indicator of plant and animal species diversity and forest richness. The reason for this situation is primarily due to its location in the temperate transitional climate zone.

Natural plant communities, most typical for Poland, are forests. In 1995, they cover about 29% of our country. Forestless areas that are not covered by protection are also diverse in terms of the vegetation they contain. The natural plant communities include xerothermic grasslands and thickets, steppe type communities, swamp communities with halophytes, peat bogs, mud vegetation communities, and rock communities.

Since the beginning of Poland, there have been important elements of the natural environment (giving shelter to animals, providing building material for the economy, etc.), then occupying a significant part of the Polish territory.



Vascular plants



Liverworts



Mosses



Lichens

The number of species of flora in our country is about 2300 species. These are:

- vascular plants,
- about 600 species of mosses,
- more than 250 species of liverworts,
- over 1200 species of lichens.



Plants are directly connected to the environment through the exchange of energy and water.

As a result, they are very sensitive to storms, droughts and floods.

These phenomena can negatively affect crop yields.

Plants also affect and change their environment, making it more favorable to them.

You can see some other ways plants and the environment interact in Figure 1. Light, temperature, water, and winds all have an effect on plants. Plants, in turn, change the environment around them. They release water to cool the surrounding air, and they loosen the soil with their roots to adapt it for their needs.

Figure 1



Plants need water to live and grow, and high temperatures directly threaten water availability by increasing the evaporation rate of the soil, which is unable to hold much water for crops and yields. This has a negative impact on the roots, which lack soil moisture, resulting in higher plant temperatures and severe damage, causing reduced yields. Plants in the first stages of development (young plants) are particularly sensitive to extreme weather conditions.



Precipitation is the primary source of soil moisture and the most important determinant of crop productivity. Climate change can cause precipitation totals to increase or decrease.

- Dry periods can have a negative effect on plant growth, but this always depends on the ability of a plant's roots to spread and the water content of the soil. Some weather events such as high humidity and frost or hail can also damage some crops.
- Excessively wet summers can also cause yields to drop. Excessive water can cause plants to sink, or plants die because their roots rot in water. Heavy downpours can damage younger plants by the hard impact of large water droplets.



Dry
periods



Wet
summers



Plants all around us

Ecological farming in Poland

Introduction

Ecological farming is environmentally-friendly. It helps to preserve the natural and cultural environment. Ecological farming is based on low-tech natural resource production. It ensures land fertility, animal health and the high quality of agricultural products. Ecological farming is also very advantageous for farmers because it can increase their income by using existing premises, a free labour force and it helps to create contacts between different people.

- Ecological farming is rapidly developing in Poland. It enhances farm incomes while preserving the natural environment.
- Ecological farming is based on natural methods of land cultivation which preserve the fertility of land and protect animals.
- The most important advantage of ecology is the preservation of biodiversity!!

Where in Poland can we see ecological farming?

- In Poland most of the organic farms we can visit in the region that is called województwo warmińsko – mazurskie.
- In Poland we have 20 thousands farms, but unfortunately these numbers are falling.

History of ecological farming in Poland

- 1980s: The first courses on biodynamic and alternative farming systems are held in different cities by Mieczysław Gorny and his team, and by experts of the Demeter Association

- 1989: EKOLAND, the Association of Organic Producers, is registered after the first free election following the country's political transition
- 1990: Producer inspections begin, based on the EKOLAND standards; the first 29 farmers receive their certificates
- 1999: A subsidy system for organic agricultural land is financed by the Ministry of Agriculture
- 2004: Poland joins the European Union (EU) and starts agri-environmental programmes with a support system for organic farming

After Poland joined the EU, organic farming developed dynamically. During the years 1999–2005, ecological farms numbers have increased more than fourteen times. The highest dynamics of ecological farms was observed in regions like zachodniopomorskie, lubuskie and podlaskie. But with time unfortunately these numbers started going down in 2014.

Present days

Organic farming now is one of the developing farms in agriculture, and this trend is particularly visible in the EU. In Poland, the number of national organic farms has increased 11 times over 10 years. According to the data at the end of November 2014, in Poland, 26.3 thousand certification bodies were inspected. organic producers, including 25.6 thousand farms.

Environment pollution

The natural environment provides farming with all the necessary resources for high-quality food production. The activities within the organic farm are therefore aimed at maintaining and, if possible, increasing the natural value of these resources. It has been confirmed that organic farming improves the landscape values.

Interesting fact: The ecological production in Poland is invested by funds from the Ministry of Agriculture and Rural Development. All ecological cultivations and plants are financed.

Fun fact

One of our students, from class II A is a lover of ecological farms. Please look at his little story about this. :)

„My hobby is horticulture. I started my passion one year ago. I always seed plants in potteds , and I put it on the windowsill. Thanks to it, plants have more light and they can better grow. On May I seed my plants to conservatory (szklarnia) and I wait for vegetables for example tomatoes , cucumbers and also watermelons.”

some photos of his plants:

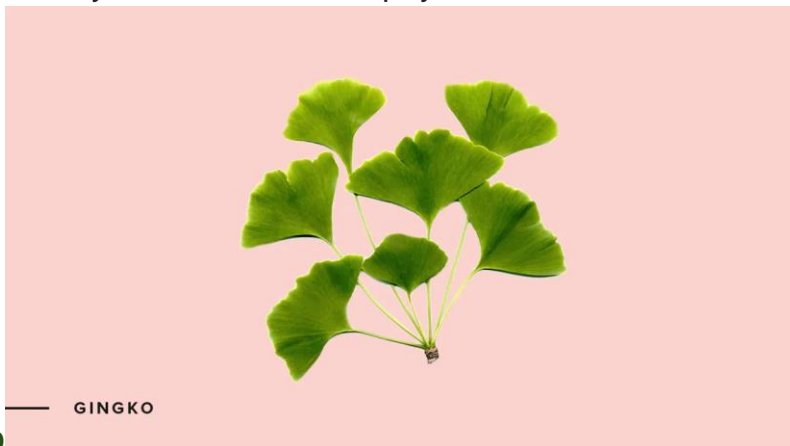


Herbs/plants used in medicine and cuisine

Herbs used in Medicine

Today, we live in a time when manufactured medicines and prescriptions prevail, but do they have to be the only approach to healing?

Even with all of these engineered options at our fingertips, many people find themselves turning back to the medicinal plants that started it all: Herbal remedies that have the ability to heal and boost physical and mental well-being.



Ginkgo

It's perhaps best-known for its ability to boost brain health. Studies say that ginkgo can treat patients with mild to moderate dementia and can slow cognitive decline in dementia and Alzheimer's disease.

Ginkgo could also be beneficial for diabetes, anxiety, depression and many more.



Turmeric

With its brilliant orange hue, it's impossible to miss a bottle of turmeric sitting on a spice shelf. Originating in India, turmeric is believed to have anticancer properties and can prevent DNA mutations.

As an anti-inflammatory, it can be taken as a supplement and it's been used topically for people with arthritis who wish to relieve discomfort. It is also used to heal several skin diseases.

Echinacea



Echinacea is a lot more than those pretty, purple coneflowers you see dotting gardens. These blooms have been used for centuries as medicine in the form of teas, juice, and extracts. Today, they can be taken as powders or supplements. The best-known use of echinacea is to shorten symptoms of the common cold, but more studies are needed to verify this benefit and to understand how echinacea boosts immunity when a virus is present.



Lavender

If you experience anxiety, chances are that someone along the way has recommended that you use lavender essential oil, and for good reason. This aromatic, purple flower has a fairly strong standing among studies, which have mainly focused on its anti-anxiety capacities.

It's proven to be soothing in a study conducted among dental patients, while another study confirmed that lavender can directly impact mood and cognitive performance. It's also been commended for its sedative properties to help people fall asleep.

Chamomile

With flowers that resemble small daisies, chamomile is another medicinal plant



that's thought

to have anti-anxiety properties.

Most people know it because it's

a popular tea flavor, but it can

also be ingested through liquids, capsules, or tablets.

The calming powers of chamomile have been frequently studied, including one study that states chamomile is superior to taking a placebo when treating generalized anxiety disorder. Chamomile could be beneficial for insomnia and cancer too.



Dandelion

Dandelion is packed with many vitamins and minerals. It's most highly known for its ability to cleanse the liver. Dandelion helps with maintaining proper flow of bile made by the liver, it also aids with the management of diabetes as it stimulates production of insulin, so it keeps your blood sugar in check. Dandelion is also wonderful for protecting your bones since it's high in calcium and vitamin K. It is a great diuretic that supports the liver in efficiently removing toxins and stimulates urination.

Endemism in the Czech Republic

-Endemic organism is an organism that originated and is spread only in a certain way limited territory and does not occur anywhere else.

-The highest number of endemic plants in the **High Sudetenland** (=it is an area of



mountains in the north Czech Republic).

- **Campanula bohemica** (in Czech **Zvonek český**)

-It is an endemic plant of the Giant Mountains (in Czech Krkonoše).

-It grows in mountain meadows.

-It also grows in our highest peak **Sněžka**.

-This species was very widespread in the Giant Mountains in the past, but today it is becoming increasingly rare.



-It is an endangered species.

- **Poa riphaea** (in Czech **Lipnice jesenická**)

-It is an endemic plant of the **Hrubý Jeseník**.

-It grows in a specific locality in rock crevices.

-Occurrence in the only locality in the world, which has a total **area of 2 square meters**, makes it one of the rarest taxa in the world



-It is a critically endangered species.

- **Campanula gelida** (in Czech **Zvonek jesenický**)

-It is another critically endangered plant.

-It is spread in the **Hrubý Jeseník**.

- It grows at an altitude of 1438 meters near the highest peak of the Hrubý Jeseník called **Praděd**, where it must withstand low temperatures, snow and wind.
- It is very similar to *Campanula bohémica*.



- **Hieracium nivimontis** (in Czech **Jestřábník sněžnický**)

- It is endemic plant of the **Hrubý Jeseník** and **Králický Sněžník**.
- It is a critically endangered species.



Linden

THE NATIONAL TREE OF CZECH REPUBLIC

We can find it on two state symbols - the standard of the president and the state seal, but also on military uniforms and banknotes. The linden tree has been officially a tree of the Slavs since 1848. The election of the linden tree was a national symbol against the oppression and aggressiveness of the Great German Empire, as it chose the oak as its symbol. Not only Czechs but also Slovaks and Slovenians consider it their national tree. People believed that linden could drive away evil spirits. Also it was often planted near the house, because many people believed that it protects them from lightning.



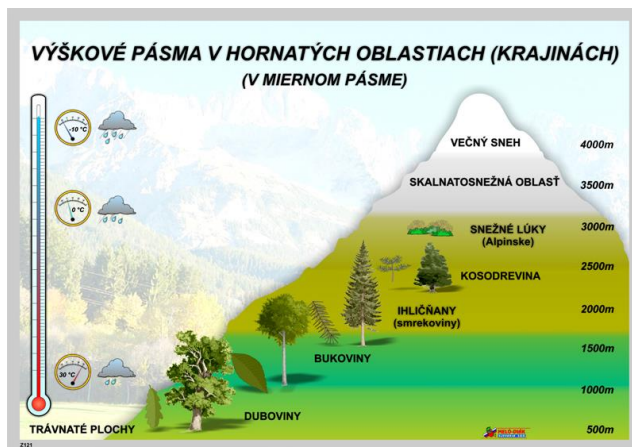


Vegetation in Slovakia

Vegetation changes can be observed with an increasing altitude. As climate factors have wide impact on the vegetation zoning, there can be distinguished several vegetation degrees. We recognize eight of them in Slovakia. Vegetation degrees are not separated by exact boundaries. One vegetation degree gradually passes to another one. Therefore the altitudes stated are only approximate.

Vegetation Degrees in Slovakia:

1. Oak vegetation degree (100 – 400m a.s.l.) (328 -1,173ft a.s.l.)
2. Beech – oak vegetation degree (200 – 550m a.s.l.) (656 – 1,804ft a.s.l.)
3. Oak – beech vegetation degree (250 – 700m a.s.l.) (820 – 2,296ft a.s.l.)
4. Beech vegetation degree (450 – 880m a.s.l.) (1,476 – 2,887ft a.s.l.)
5. Fir – beech vegetation degree (650 – 1,050m a.s.l.) (2,132 – 3,444ft a.s.l.)
6. Spruce – fir – beech vegetation degree (850 – 1,300m a.s.l.) (2,788 – 4,265ft a.s.l.)
7. Spruce vegetation degree (1,100 – 1,550M a.s.l.) (3,609 – 5,085ft a.s.l.)
8. Dwarf pine vegetation degree (1,450 – 1,900m a.s.l.) (4,757 – 6,233ft a.s.l.)



Flora of Lowland

Lowland flora of the hottest parts of Slovakia is represented by the vegetation growing in the Košice Basin, Záhorská, the Danubian and the Eastern Slovak lowlands. It is mainly represented by oak – hornbeam forests.

Oak, common lime, European weeping birch, maple, English walnut, hornbeam, European ash, black locust and hazelnut tree are also very frequent in these areas. Due to the man's effort some tree kinds have moved to unusual places. Pine forests growing on Záhorská Lowland or spruce

forests in areas situated at lower altitudes are good examples. River banks are bordered by flood-plain willow – alder forests. Usually they can be found at 250 – 300m a.s.l (820 – 984ft a.s.l). Bushy lowlands are also very rich in plant kinds: European elderberry, privet, English ivy, hawthorn, etc.

Herb species are represented by for example stinging nettle or deadnettle. Due to the man's effort there can be found many gardens and orchards thorough Slovakian lowlands. People mostly plant: apple, pear, plum, cherry, sour cherry, apricot and peach trees. Raspberries and currants are quite popular among garden fruit bushes. Gardens are usually embellished with roses, daffodils, lilies and tulips. Well known vineyards can be found on sunny slopes for example in surroundings of Pezinok, Modra, Nitra, Viničky, etc.



Mountain Flora

Slovakian mountain flora is divided into several sub-regions: Little Carpathians, Považský Inovec, Trábeč, Strážov Mountains, Fatra and Tatra mountain ranges and Slovak basins situated at higher altitudes. Beech forests are very important in our country. They are typical for territories situated at higher altitudes. Even today the beech (*Fagus silvatica*) is the most frequent tree in Slovakia. Therefore it represents an important part of the Slovak ecosystem and plays a significant role in its stability. Beech can be considered a part of Slovak cultural heritage as it is very important in



meeting all optimal forest functions.



Other broadleaved tree kinds growing on the Slovak territory are: sessile oak, English oak, European alder, common hazel, European ash, European weeping birch, Eurasian aspen and field elm.

Coniferous forests can be found in areas extending above 1,000m a.s.l (3,280ft a.s.l). There can be found several kinds of coniferous trees: European silver fir, Norway spruce, European larch and several pine kinds: limba (*Terminalia superba*), European black pine, Scots pine and mountain pine. Zones reaching higher altitudes than coniferous forests are covered only by dwarf pine trees. Flowery beech woods growing on steep limestone slopes are embellished by common limes or field maples. They are overgrown by bushes and herbs. Abundant ferns are also very frequent. Rocks are embellished by green and grey mosses and lichens. Mushroom pickers love searching shady nooks of the forest in search of our delicious mushrooms. Situated in eastern Slovakia, Bukovské vrchy (Bukovec Mountains) is a little mountain range belonging to the Eastern

Carpathians. Its territory is overgrown by originally fir – beech forests characterized by a type of primaeval forest ecosystem.

The vegetation density is decreasing with growing altitude. Grassy uplands situated above dwarf pine zone can be found for example in upper parts of the High and the Low Tatras as well as the Greater and the Lesser Fatras. Areas reaching higher altitudes than grassy uplands are formed only by rocks covered with lichens and mosses. Mosses are usually growing in moister areas.



A separate group of woods is formed by flood-plain forests. They grow only along watercourses and they are not influenced by the elevation above sea level but by the underground water level. Continuous woods have been preserved along the Morava, Danube and Latorica rivers. The most common tree kinds on these territories are: alders, weeping willows and poplars. Spruces can be found in mountainous areas.

Slovakia is deservedly considered an important “crossing” of various flora components. Thanks to the environmental conditions and the position in the heart of Europe there can be found above forty endemic species on a relatively small territory. They are entirely or almost entirely bound to the Slovak territory.

The most widely known species are: *Cyclamen fatrense*, *Daphne arbuscula*, *Pulsatilla slavica*, *Pulsatilla subslavica*, *Saxifraga wahlenbergii*, *Soldanella carpatica* and field pennycress (*Thlaspi jankae*). Our most well-known protected herbs are: *Gentian clusii*, pheasant’s eye, edelweiss and alpine aster. Slovakia is also home to an indefinite number of curative herbs. For example: coltsfoot, *Pulmonaria officinalis*, German camomile, English marigold, wild thyme, peppermint, etc.

Arboretums in Slovakia

Natural botanical gardens as the one in Tesárske Mlyňany situated nearby Zlaté Moravce are very interesting not only for experts but also for all nature lovers. Due to the broad spectrum of evergreen foreign and domestic trees and bushes it belongs among the best arboretums in Slovakia.

Arboretum Kysihybeľ situated nearby Banská Štiavnica is characteristic by many kinds of coniferous and deciduous forest trees growing in the mild climate zone. The largest Slovakian rosary is Borová hora located nearby Zvolen.



Agricultural Crops

Slovakia has well developed agricultural production. There are planted agricultural crops as: wheat, rye, barley, oat and corn. Lowlands are used for raising sugar beet, sunflower or oilseed rape. Higher situated fields are used for potato cultivation.

Cereals



wheat



ear of wheat



barley



maize/corn



rye



rice



oats



millet



Endemic plants in Slovakia



Daphne arbuscula:

- Slovak name: Lykovec muránsky.
- Naturally occurs only in Slovakia.
- It grows on sunny rocky slopes and rock terraces.
- The species is endangered, and it is protected by law in Slovakia and also by



European law.

Ranunculus carpaticus:

- Slovak name: Iskerník karpatský
- Occurs only in the locality Bukovské vrchy.
- It is a plant protected by law.



Edelweiss:

- Slovak name: Plesnivec Alpínsky
- The plant prefers rocky limestone places at about 1,800–3,000 metres altitude.
- In Slovakia occurs in High Tatras and Slovenský raj national park.

1.

Trees and plants around us-Romania

The Blood of the mighty

(RO: *Sângele Voinicului*)



Scientific name: Nigritella rubra and Nigritella nigra

Popular name: The Blood of the Strong

Family: Orchidaceae

Area: It is rarely found in Romania, in the Carpathian Mountains in the northeast and south.

Other additions: *The blood of the warrior* is one of the 58 species of orchids that can be found in Romania. Their flowers - conical inflorescences - look like bright rubies in the sun. Their characteristic smell, reminiscent of vanilla, is so penetrating that the presence of the blood ornament can be felt from a distance. They bloom from May-June to August-September. How to be distinguished: some inflorescences are rounder and turn black (*Nigritella nigra*), others are longer

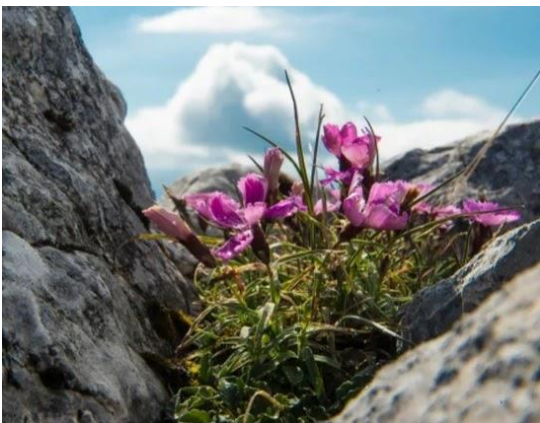
and pinker (*Nigritella rubra*). *Let's discover the legend of the mighty warrior which gave this beautiful flower this unique name!*

by SOVEJANU MIHAIL-EDUARD

The Carnation (*Dianthus callizonus*)

(Ro:Garofița)

DID YOU KNOW THAT **the carnation** is a flower protected by law that grows mainly on the grassy and sunny rocks of the lower alpine area in the Piatra Craiului Mountains (Romanian Carpathians), among the rubble, or at the upper limit of the alpine meadows. It has a bright pink color, and the corolla of about 3-4 cm has five petals, toothed at the tip. The center of the flower has a darker ring, and the petals are sprinkled with white spots.



This flower was discovered more than 150 years ago by two botanists (Kotschy and Schott). They were surprised by



the uniqueness of this flower.

It can be found from mid-July to the end of August. So delicate!

Material presented by Botezatu Anca



Steppe peonies

The Reservation of **Steppe Peonies** from Mures county is unique in Europe. The Steppe peony blooms between April-May and it remains bloomed for only 7 days. They have a height of 20 centimeters and bright red petals. What a beautiful flaming field! **Their unique feature** in Romania is given by the fact that these flowers grow at quite a high altitude in our country, i.e. 450-500 m.



Stunning flowers!

Material presented by Andone Alexandru-Eduard

Hedysarum hedysaroides or *Alpine Sainfoin*
(RO: Dulcișor)



Hedysarum hedysaroides, commonly known as **Alpine Sainfoin**, is a perennial herb belonging to the family Fabaceae.

Hedysarum hedysaroides can grow up to 20–60 centimetres. It is a perennial plant, with straight or ascending stems and imparipinnate leaves ranging from 1 to 3 cm long. Inflorescences bear from 15 to 30–35 purple-violet flowers in clusters. The flowering period extends from June to August.

This species can be found in Central and Southern Europe, in Finland, Russia, Ukraine and Western North America. You can meet this beautiful flower in alpine meadows at about 1,600–2,500 metres above sea level. **True fact!** The roots of this plant can be eaten raw or cooked. **Pay attention!** There are quite similar species which can give severe digestion problems. In the European mountains it is also known as Indian potato.

The Centennial Oak Tree from Cajvana

SPECIES: COMMON OAK (QUERCUS ROBUR)

This oak tree in the northern part of the country (Cajvana is a small town in the county of Suceava) is very old and impressive. It has 23 m height and the diameter is 11 metres at its highest point. Specialists say it

is **the oldest tree** (800-900 years) in Southern Europe after the radio-carbon dating.



Its history dates back in the time when Stephen the Great, a great ruler of this area, was fighting against the Turks who would often come to plunder our small country. The legend says that the Romanian warriors who died in the battles were buried under this oak and it remained **a sacred tree** ever since. Come visit this place!

Material presented by: Anca Constantin

Lady's Slipper (Ro: Papucul Doamnei)

Species: *Cypripedium Calceolus*

The lady's slipper is a wild orchid, one of the few species of wild orchids that bloom on the tops of the Carpathians.

The flower is a real jewel and because its beauty and grazing brought the plant to the brink of extinction, in 1938 by Royal Decree the flower **was declared a monument of nature and placed under the protection and protection of the law**. Even so, the little orchid was left to fend for itself, on the ridge, and today, tomorrow's slipper is a completely exceptional appearance. Across Europe, Lady's Slipper is on the verge of

extinction and is number one on the list of plants protected by



law.

It is so rare that attempts are made to save the species by multiplying "in vitro" and repopulating historic areas, where the species no longer exists, with seedlings obtained in the laboratory. Their fragility is a huge risk, and saving the species depends only on chance. It has a height of 30-80 centimeters, broad, oval leaves and large flowers in which the lower petal is transformed into a kind of "vessel" of intense yellow color, while the lateral and upper ones are narrower and red, dark or brown. The lady's slipper grows in forest clearings, at their limit, in humid areas, more or less shady, on the coasts, next to bushes, preferring calcareous soils. The plant appears in groups of specimens.

Material presented by

Cristinariu

Cristina

LALEAUA PESTRIȚA (MOTTLED TALL)

Laleaua pestrița is a flowering plant of the liliac family that is found extensively in Eurasia, and the flower is protected by law. The flower is presented in different colors of purple or sometimes red to purple. Sometimes the flowers are completely white. It blooms from March to May, rising between 15 and 40 cm in height. The bulb of the plant has a diameter of about 2 cm and contains poisonous alkaloids. Grows on grassy land in river fields up to about 800 meters altitude.



Laleaua pestrița develops especially in the wild areas of Romania and needs an increased humidity compared to the rest of the talls.

Unfortunately, however, these flowers, although protected by law, are picked by the locals and not only, to take them home.



Material presented by Rebecca Cora

The Dwarf Snowbell



The Dwarf Snowbell is a short herbaceous plant which grows in mountainous areas, generally uncovered, at the edge of the forest. It is a **gentle flower** like a bell and its

fruit is like a capsule. It has a height of up to 25 cm and it blooms in May and June.

Material presented by Șoptelea Ștefana

The Elderflower



Elderflower, also known as “soc” is a common medicinal plant with white flowers and a pungent sweet fragrance that has been used for laxative, sweating, anti-inflammatory, and disinfectant effects since ancient times. This shrub is commonly found in forests and blooms every year from May until June. From this plant you can use the flowers, the leaves, the fruits and also the bark. It is also found in Europe, Asia and Africa. They can grow up to 3-4 meters and people make a special beverage with **elderflowers** named “socată”.



Material presented by Tudor Jarcău

Mountain Bulbs (RO: Bulbucii de munte)



Mountain bulbs (*Trollius europaeus*) is a plant that can be found in the Eastern, Southern and Western Carpathians in the forest area, meadows and pastures. It is a rare plant with a stem up to 60 cm, and the flower consists of 10 almost round petals of a beautiful yellow color and blooms in May and July.

Material presented by Sodolescu Stefan - Cristian

Nymphaea lotus var. *thermalis*(RO:Lotusul Termal)



Nymphaea lotus var. *thermalis* (Lotus thermal or popular straight), is a species of water lily endemic to the bath area "1 Mai" Romania. It is also known as the water lily or lotus flower. This species lives in the waters of the Peța brook, near the "1 Mai" baths near Oradea. The characteristic of the brook waters is the high temperature (thermal waters). This species is probably considered to be a Tertiary relic. The species was discovered in 1789 by botanist P. Kitaibel. It was named a little later, in 1908, when J. Tuzson gave it its name because of its resemblance to the Nile water lily. Due to its uniqueness (the Lake Peța site is the only area where this species

is found), *Nymphaea lotus* var. *thermalis* has been declared a natural monument since 1931.

-Material presented by Natu Gabriel-

The Forest Peony (ro: Bujorul de padure)



The *Paeonia Peregrine* is a perennial plant of Balkan origin, located within Dobrogea, Muntenia, and the South of Moldova. It grows spontaneously in areas covered with woody vegetation and forests, generally blooming in

May. The plant is entirely toxic, except for its petals. The stem can grow up to 80 centimeters. Due to this, the plant is protected under the law of the government.

Material presented by Adam Dumitrita

Eminescu's Linden Tree



(Teiul lui Eminescu)

"Eminescu's Linden Tree" is a silver linden tree (*Tilia tomentosa* Moench) about 540 years old, located in Copou Park in Iasi.

The tree, historically associated with the poet Mihai Eminescu, is one of the most important monumental trees in Romania and

it is a symbol for the city of Iasi. It is an important tourist attraction and it is a mystery how it reached this age.



Material presented by Chirila Cristiana