

Ricard Richard Valoral Communication Communi

NATURE

Slovakia Ivanka pri Dunaji

Hungary Duna-Ipoly Nemzeti Park

Moldova Codrii Natural Reserve

Germany
The mouth
of the River Isar
Natural Reserve

Austria Danube-Auen National Park

> Croatia Mura-Drava-Danube Biosphere Reserve

Nature Reserve AIA Ciocănești

Romania

Nature Reserve

lezer Călărași

Serbia Park of Nature Jegrička Danube Delta Biosphere Reserve

Romania

Bulgaria Roussenski Lom Mature Park

Foreword

The UNESCO Associated Schools Network (ASPnet) has over the last years become the largest global network of schools and one of UNESCO's most successful and sustained initiatives. Today, it involves almost 10.400 educational institutions in 181 countries, making ASPnet the most unique network of schools. The Network comprises all levels of education ranging from preschool, primary, secondary, to vocational schools and teacher training institutions from the public and private settings.

ASPnet is a powerful tool for improving the quality of education by fostering critical thinking, inter-active learning, communication, cooperation, mutual respect and solidarity. It does so by identifying, experimenting and reporting on new educational practices and materials, scaling and multiplying their dissemination and acting as a catalyst for international cooperation by encouraging joint activities, projects and campaigns amongst ASPnet members. Hence, ASPnet responds to the educational needs of children and young people throughout the world, serving as a pulse taker, sensitive to what is happening in the world and as a pace setter, concerned to introduce new issues and topics in the classroom so that students and teachers are better-prepared to deal with the present and tomorrow's challenges.

The "Blue Danube River" is one of ASPnet most important Flagship Project. Launched in 1991 with the aim of combining environmental education with intercultural learning. It intends to encourage young people's participation in environmental protection, as well as their appreciation of the common heritage related to the Danube River. Interdisciplinary approaches for environmental and cultural education and appropriate teaching materials for secondary schools are developed and introduced in ASPnet schools.

From 2009, Romania holds successfully its coordination with the organization of International Meetings within the Danube Delta Biosphere Reserve, for all participating countries of the BDRP, represented by students, teachers, UNESCO envoys, as well as embassy representatives, Romanian ministry delegates, local and national officials, NGO's, various support groups, along the fruitful partnership with Veolia Environment's branch, Apa Nova Bucharest.

Finally, we would like to warmly congratulate all the Associated Schools who contributed actively to this new booklet "Nature, the best teacher. Natural and Biosphere Reserves in countries along the Danube".

ASPnet International Coordination

Nature - The Best Teacher Biosphere and Natural Reserves along the Danube

The Danube - European lifeline, fascinating through it's cultural diversity, it's historical and linguistic plethora of national, European and international identities, is marked by and subsequently encompassing biodiversity as well. Thus, across the lands it flows through, it is, once again, a focal point, a theme and a narrative in itself, for the activities of educational institutions from nations along it's shores, within the guidelines and specifics of our Project.

For the past six years, our joint efforts and sustained Project involvement gathered, at first, over species of fish indigenous to the Danube basin, but not only within in, expanding our work horizons to other rivers across Europe (mostly Danube subsidiaries). Regardless the differences in style, approach or designated timeframe, the culmination came with our first book, "United through Biodiversity", launched in 2011.

Following suit, the year 2013 once again "united" us, by building a "Bridge over Water - Arch over time", crossing borders, cultural gaps and differences, celebrating the diversity of land, water, native population, traditions, folk wisdom, ergo all the elements in land or sky that make our people unique yet united, rooted in our traditions but bridging across through our shared values.

"Shades of Blue. European Lakes" is a title that pretty much speaks for itself, per se, but also speaks volumes about the year 2014's book project topic, one that provided us with the motivation and insight to better learn our geography, our history, our culture, the ties that bond people of different nationalities but of the same origins, facing the same fears and sharing the same lake or river banks, with the natural harmonization of customs and traditions. Yet again our participating delegations and teams of students and teachers alike worked strenuously to be up to the task (therefore devoting their time and efforts for which we are most grateful), ultimately building another success story, with the ever present, undergoing and paramount support of our partners from Veolia Apa Nova Bucharest.

We find ourselves in 2015, setting the goal of research, observation, documenting and learning durable and sustainable life lessons from the class that never ends, the tutoring of our biggest educator, "Nature-the Best Teacher". No progress of mankind, no discovery, no groundbreaking invention, none of these could've been achieved without the fundamental skills of observing nature, our Earth's natural wonders and mysteries that spurred the curiosity of the past, the present and towards the future.

A key point to be made is that no matter the various themes of our different books, as well as the multitude of focus points, they all share a common denominator none the less, which is: they've all been launched within the Danube Delta International Meetings, in the unique surroundings of one of Europe's natural pearls - the Danube Delta Biosphere Reserve. This year's 7th Edition will be, without question, no different.

The authors, as already per usual, are teachers and students from the UNESCO associated educational institutions, the prime beneficiaries of their own success, through their work's dissemination and promoting aspects, aside of the educational impact and learning, team work and critical thinking skills developed throughout the entire project's duration. Last but not least, we are all beneficiaries of their growth, their found common values and cultural understanding.

Ani Matei Secretary General Romanian National Commission

Lucreția Băluță ASPnet National Coordinator

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Text corrections: Kiss Octavian - Romanian National Commission for UNESCO, Volunteer



Germany The Mouth of the River ISAR Natural Reserve





This place is a unique area, a treasure of unbelievable value. It is a place where you can realize that there is no better teacher for mankind than nature itself.

The ISAR rivermouth is situated in Lower Bavarianear Deggendorf, close to the Bavarian Forest.

The river ISAR has got the special character of an alpine river as its source is located in the Karwendel mountains (Austria) at a height of 1160 m above sea level. After 32 km the ISAR passes the Austrian-German border and flows down the Bavarian mountains, along picturesque landscapes, is stowed several times for energy production, is joined by a number of tributaries along its course and flows through the centre of the Bavarian capital Munich before it reaches the River Danube near Deggendorf in Lower Bavaria at a height of 312 m above sea level. Thus it covers a drop of 848 from its source to its mouth. The length of the river Isar is 295 km.









The area around the course of the river ISAR near the river mouth (3436 ha) was declared a "Protected Landscape" in 1973.

The area of the mouth of the river ISAR (808 ha) was officially declared a "Nature Reserve" in 1990. It is respected as the only intact river mouth of an alpine river that flows into the River Danube. It is a habitat for poplar trees, oak trees, ash trees and willow trees and gives home to special species of birds, frogs, beavers, insects.



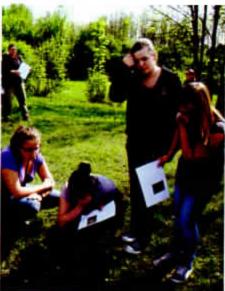


The extraordinary character of the ISAR rivermouth area is formed by the riparian landscape with floodplain forests and wetland areas.











There are also unusually dry and hot plains ("Brennen") which are created by the amount of scree that is transported down by the river ISAR as a typically alpine river.





These heath areas are covered with rough grass and wild plants which are not a typical kind of vegetation in that region of Bavaria, but usually grow in the mountain climate zones, like the gentian or special species of orchids or "Glocken (bell) flowers".







There are some reasons for the unique biological diversity of the mouth of the river ISAR before it flows into the river Danube.

- According to the fact that the ISAR is an alpine river for a very long distance of its flow across
 the Bavarian Alps it brings along species of wild flowers which usually mountain areas are
 hometo.
- There is a region under the influence of a climatic zone with mild and wet character which is convenient for certain species of plants and animals like insects or fish.
- There is also some kind of continental climate which supports dry heath areas with a special kind of meagre vegetation.
- Finally there is some influence of the climate in the near-by mountains of the Bavarian Forest with long and cold winters, similar to alpine weather conditions.

Due to this mixture of different conditions which have an impact on the biodiversity the River Danube has been called a special kind of "line of migration for species", a statement which is certainly very interesting for detailed scientific research work.

Everything that has been said about the distinctive character of the area of the mouth of the river Isar is the reason for many efforts to protect it in its original state, to keep the biological diversity for the future.

At the same time there is a strong wish to give many people the chance to share the wonderful experiences regarding the treasures of the nature in their home area. This leads to a controversy about attempts to open the area to tourism and recreation.

Another great danger to the unique natural value of the area ISAR/DANUBE during many years were the political attempts to widen the riverbed of the Danube, including the area of the mouth of its tributary ISAR, to make it a better shipping lane. The aim was the improvement of shipping conditions for cargo ships.

A great number of citizens and members of environmental institutions took action and started fierce protest campaigns against the plans of expansion of the river for economic reasons. A series of measures were taken to prevent the destruction of the nature with its unique character. Fortunately these efforts were successful.



UNESCO project schools are dedicated to their common objective to raise young people's awareness of the treasures of nature and environment.

Furthermore a wonderful target of education is to enable students to experience the unique opportunities of being taught by nature. Thus learning is no longer a theoretical and boring duty but becomes an extraordinarily exciting and fantastic adventure which will remain unforgettable.

There is no limit of age - even young children can easily be motivated to get involved in finding out about the great variety of chances to learn from nature- step by step. It has become a kind of tradition for Bavarian UNESCO project schools to work together in the Blue Danube River Project, to organize excursions into the nature and share their experiences and results of their research work.



It is a special pleasure to include art workshops into the UNESCO team work to give students the chance to reflect on their experiences with nature and to express their feelings in an individual, artistic way.



Examples of the team work of Bavarian UNESCO project schools around the area of the mouth of the river ISAR.

From bud to blossom: watching a maple tree









Dry branches become green: watching a birch tree









The soil of a riparian forest: watching the changing vegetation









Conclusion after all the activities which have been organized:

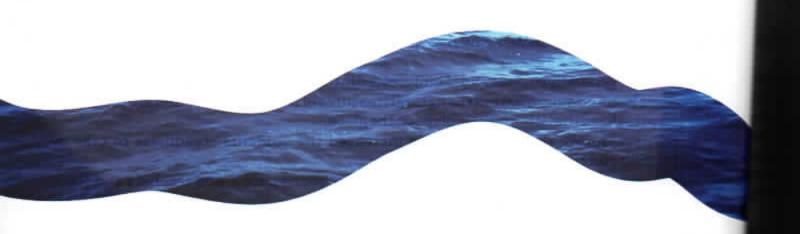
- Students are generally curious and are interested in things they don't know.
- They have become more aware of the natural treasures of their home area and are proud of it as they have realized that it is a unique place on the globe.
- Experiences during the activities have increased the students' readiness to take over responsibility for this unique place.
- They are even more open to cooperation with other young people and teachers and feel the pleasure of team spirit.
- Students appreciate cooperation and communication with external experts as they realize the mutual benefits sharing the same objectives.
- They feel united trying to achieve the same targets with politicians, experts, NGOs, artists, local citizens.
- They feel encouraged to develop critical thinking and motivated to create new ideas themselves.

If you want to know why nature is the best teacher just have a look at the dandelion: It sleeps in the dark to achieve full blossom in the sun.





Author: Agathe Lehr, German coordinator UNESCO Blue Danube River Project
Pictures: private pictures and pictures provided by the Lower Bavarian nature conservation authority
Drawings: Louisa Förg, student Dillingen
Bavarian UNESCO Blue Danube River Project Schools in Dillingen, Bogen, Aiterhofen





Austria Danube-Auen National Park

Danube-Auen National Park - Austria



Foundation

In the beginning of the 80 a hydroelectric power plant was planned east of Vienna near Hainburg. But many conservationists wanted to prevent the construction of a hydroelectric plant and many people were of the same opinion to save the last Danube-Auen. The protests against the power plant in Hainburg were increasing and the federal government initiated a thinking break. In the meantime investigations showed that in the area there were living many more animals, especially fish than had been assumed. So the Danube-Auen National Park was created in 1996 and the hydroelectric power plant in Hainburg was never built.

General Information

The Danube-Auen National Park includes 9.300 ha where hundreds of species of plants are found. There exist 30 mammal species, 100 breeding bird species, eight reptile and 13 species of amphibiansas, as well as 60 different species of fish that find a natural habitat in the reserve.1 The National Park is one of the largest intact primeval forests of Central Europe along the Danube. The area has a length of 38 kilometers. Through the National Park leads the long-distance trail 07 (German: Weitwanderweg 07) and the Danube cycle path (German: Donauradweg).



Danube-Auen National Park - Austria

Geographical Position

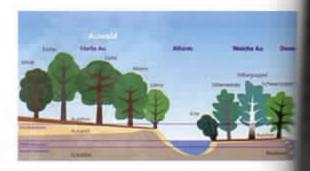
The Danube-Auen National Park extends from Vienna to the mouth of the March (German: Mündung der March) in Lower Austria on the border to Slovakia. The National Park includes areas in the municipalities of Vienna (Lobau), Groß-Enzersdorf, Orth an der Donau, Eckartsau, Engelhartstetten, Hainburg, Bad Deutsch-Altenburg, Petronell-Carnuntum, Regelsbrunn, Haslau-Maria Ellend, Fischamend and Schwechat.²



Flora

The forests on the Danube are divided into two basic types: The Soft and the Hard Au. The two terms stand for soft-and hardwood species, which means, the two types can be found in different habitats.

In the Soft Au, the typical trees are willows, poplars and alder. On the other side, in the Hard Au you'll find trees like Oak, maple, ash and lime.³







Typical for our climate in Austria are the trees from the family of the aceraceaes, like "Bergahorn", "Eschenahorn" and "Feldahorn", which are located in the national park because they prefer a coolhumid mountain climate. The "Berberitze" is a most-hated shrub, it is the only one of its kind to be located in Central Europa.

Why do people hate that shrub? Because the "Berberitze" is an intermediate host for a dangerous thrush, the so called stem rust that is responsible for the destruction of wheat. The longest of the native grasses is the reed, which reaches a height of up to four meters. Another typical grass the "Wald-Segge", thrives on the Danube because in Austria we have acidic deciduous and mixed forests."

Fauna

Besides the many frog species, like the treefrog and the marshfrog, the Danube shows the "Donau-Kammolch". Earlier this amphibium was spread from eastern Austria to the black sea, but nowadays you will only get to see this salamander on the Danube. Due to habitat destruction of small waters and waters surrounding dry areas, the "Donau-Kammolch" is in big danger of becoming extinct.

The salamander has a special look because on the top they are brown, but on the ventral side, the amphibium is colored orange.

The distinction between the males of a "Donau-Kammolch" and a newt is the back comb, which is serrated on the one and however, the newt males show a sinuate-lobed back comb. §





Danube-Auen National Park - Austria

A lot of mammals inhabit the Danube Auen because of the variety of the habitats. Apart from the rodents like beaver or squirrel and animals from the family of the cloven like deer, you can also find mufflons. The mufflon is a sub-category of the sheep. Originalle these ruminants lived on Corsica and Sardinia, but they got introduced in Europe. As a habitat they prefer mixed forests, but the animals even need stony ground to clean their claws.

The food range is big because there is enough if they even eat something like barks, grasses, herbs, frame fruits and seeds. At the age of one month, the hollow, spiral horns of the ram lamb begin to grow and at the age of six months, a young animal needn't be suckled anymore. According to the IUCN (International Union for Conservation of Nature), the mufflons are considered as endangered.⁷

The rare tree marten lives in the habitat of the Hard Au. The characteristic identification is a yellow stain on the throat. The maroon colored fur was very popular and so the marten is also called noble marten. The only natural enemies are raptors like owls and land-based predators like foxes, but because of the road construction and the car traffic, many places get destroyed and this means minimization of habitats. If you want to see this mammal, you have to get outside in the dawn or in the night because mostly they are sleeping during the day.





The wild boars, that are known to be aggressive, are living in woods and prefer wet areas because there they are able to burrow after roots and worms. Boars even eat ground breeding birds, frogs, snakes etc.

Unlike other ungulates, these mammals are suckling pigwhile lying down and if you come too close to a piglet, you can expect getting attacked by a mother.

The dangerous thing about them are their big canine which the boars use in violent fights."

Tourism

When you visit the Danube-Auen National Park then you start at the "Schloss Orth" where the National-Park-Centre is. On the Castel-Island (German: Schlossinsel) they are presenting habitats, animals and plants of the National Park and there you can also find an underwater station with native fish. You can make guided excursions with the National Park Ranger like hikes and boat-trips with dinghy or canoe. You can take part in workshops, theme events, festivals and project weeks for schools.



Excursions and events

You love to be on the water? Then the boat-trips are perfect for you. There you can experience the river and the Au-waters. When you want to explore the Danube-Auen National Park by yourself, an extensive network of trails is available where you can also find instructions for typical location traits. You can also choose a theme excursions where you can learn amazing things about the countless facets of the wild water forest.

When you want to visit the National Park with a group, you have to book a group-tour which takes two to three hours with a National-Park-Ranger who supports you to understand nature, notice details and see fascinating things. For children- and school-groups the National Park offers an excursion program where the children explore and discover the water wilderness of the Danube.

You want to spend several days in the National Park? Then you can choose multi-day programs and summer camps. Common outdoor experiences, learning, creativity, games and group-dynamics experiences turn these outdoor-days into something special. The Danube-Auen National Park organizes happy - family festivals around the various topics of the National Park annually, where there is for socializing, cuisine and music.

Danube-Auen National Park - Austria

They also offer work activities in nature for groups called "Arbeitstags der anderen Art" where you help to obtain and improve the habitats of floodplains-landscape to support rare species of animals and plants, to remove non-native plants, to maintain hiking trails - and get an exclusive insight into protected-area-management.¹⁸









Changes

The extreme Danube-flood at the beginning of the year 2013 flooded the area in the national park for several days.

Indeed, the Au is fit for floods because the typical thing of the habitat Au is that there are some floods during the year to bring nutrients in the mud to the surface, so the national park can regenerate quickly, but still many deaths of younger animals can be recorded.

Mostly floods aren't a big problem because the ecosystem Au is prepared for flooding with dynamic plants which can survive many days in the water and the animals escape to higher places or even to trees. 18

Since the 19th century the Danube has been regulated to adjust it to man's needs. Due to these works the riverlandscape has changed. Now the target ist o take back the "hard" hydraulic engineering structures. In order to activate landscape-forming processes like erosion, landing etc., because these processes restore the natural balance. When this is accomplished, water should flow freely into the side arms.

Another problem is the erosion of the Danube sole since 1985 that causes that water is not led over long distances in some parts of the national park.

A change in the vegetation effects the minimization of the soft Au. 20







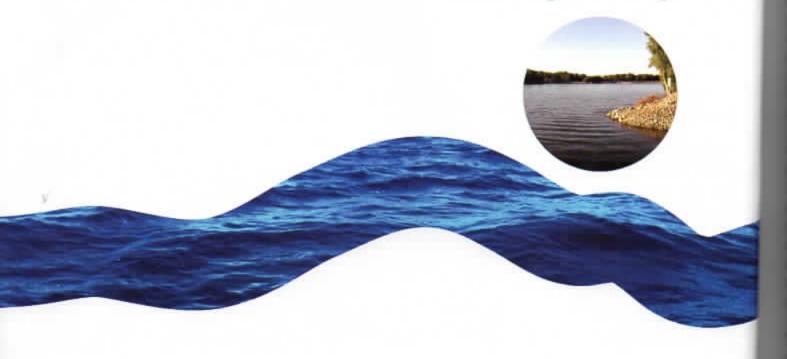
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- 8 http://de.wikipedia.org/wiki/Europ%C3%A4ischer_Mufflen
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- 8 http://www.donaueuen.at/nature/fauna/mammals/baummarder/18253
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Photos are from the same links

Authors: Salome Boss, Iris Miklautsch HLW-Steyr

Slovakia Ivanka pri Dunaji



Ivanka pri Dunaji, Slovakia

Water-the source of life

In our everyday life we don't realize how specific and unique the water is. It is everywhere around us, we drink it, we wash with it and we use it when we are cooking and doing housework. There are also many jobs using water, too. Doctors, nurses, cooks, food manufacturers, builders, painters and cleaners - all these professions need water in their work. And there are also millions of animals and plants which wouldn't survive without water, too.

Water is the mostly spread liquid in the world. Its amount is estimated to 1,3 billion cubic km. In nature it can be found in 3 forms: liquid, vapour and solid. And we use it in all these forms.

When we want to study the role of water we have to start with its chemical structure. The molecule of water is very little. And it consists of one atom of oxygene and two atoms of hydrogene. The molecule of water is not straight, it is bent. The angle between oxygene-hydrogene bounds is about 104". When we are thinking about similar molecules in nature (let's think of carbon dioxide or sulfur dioxide), we can't help but notice, how unique the water is. All molecules consisting of 3 atoms are in a gaseous form—because of their low molecule weight. So, how could it happen that a molecule of water is still liquid? The explanation is simple. There are so called "hydrogene bridges" between water molecules to keep them close to each other. And the result of this is its liquid form.

The bonds between oxygene and hydrogene are covalent and polar. Only chemists would understand the meaning of this fact.

We can observe the other anomalies of water when it gets frosen. It happens when the temperature declines. When all other liquids in the world get frosen (become solid) they simultaneously reduce their volume and the freezing process tarts at the bottom. It is true for all other liquids other than water. But water is different. Why is it like that? And what is it good for?

When water gets frosen it increases its volume and decreases its density. The density of water increases till 4°C when it reaches its maximum. In fact the freezing process starts from the surface of water. With all other liquids the process of freezing starts from the bottom. It is very important for all animals and plants living in the sea. In winter when temperature drops bellow zero, water starts freezing from the surface and all the animal and plant species can survive

Ivanka pri Dunaji, Slovakia

under the thick layer of ice at the bottom of the sea. If the water is the heaviest when being frozen, it would accumulate at the bottom and it wouldn't allow animals and plants to survive.

Water also has other exceptional properties. In comparison to other substances, except for hydrogene, it gets warmer at the slowest speed. On the other hand, it has the highest heat capacity-it acts as the most versatile tile stove. At first it must be heated for a long time but then it keeps its warmth for a long time. Thanks to these properties oceans may act as a reliable air conditioning device. This process is supported by the fact that continents are modelled in a way in which they ease the movement of water masses in the north-south orientation.

In addition these freezing rivers and lakes release large amounts of heat and the upper ice layers insulate lower layers of water during long winters. This way the water protects the life against demice.

When the American scientist Th. D. Parks was asked about his relationship to the world and God, he said that water itself would give the evidence. He compared various hydrogene compounds closely related to water. He took into account ammonia NH_3 in which the nitrogene is linked to the hydrogene. He was thinking of hydrogene sulfide H_2S . He found out, however, that none of related compounds does not act like water.

Let's focus on the water itself - it is a substance that not only quenches fire but it is also a perfect solvent of organic substances and minerals. Their existence in water is a necessary condition for creation and preservation of life in water. Thanks to the thermal properties, water is also a very important factor in the thermal regime of living matter. Just for its large thermal capacity the water becomes a kind of thermal reservoir in living organism, thus reliably compansating for thermal fluctuations. In a large scale - on the global level - this role is played by oceans.

When thinking about life in water there is also the other important factor. Water has a high ability to absorb a large quantity of oxygene at low temperatures. It is very important for all animals and plants to exist in water.

At this moment we are still not at the end of listing various miraculous virtues and strengths of water.

There are many animal and plant species and all of them use water. Fish live in water - some of them at the bottom of deep oceans, but all of them consume water for living. Even animals living in deserts survive using water-saving regime.

We have chosen some animals which could be interesting in their relationship to water.

Platypus

The platypus is one of the most unusual creatures in the animal kingdom. Platypuses have a paddle-shaped tail like a beaver; a sleek, furry body like an otter; and a flat bill and webbed feet like a duck.

In fact, the first time a platypus was brought from Australia to Britain, people couldn't believe that it was a real animal.





Ivanka pri Dunaji, Slovakia

Size & appearance

Atypical platypus is 38 centimeters from its head to the end of its rump. Its tail adds an additional 13 cm to the animal's length.

An individual weighs about 1.4 kg, Though platypuses that live in colder climates are bigger than those living. In warmer areas, according to the Austalian Platypus conservatory.

Blobfish

Blobfish is the deep sea fish. It inhabits the deep waters off the coasts of mainland Australia and Tasmania as well as the wathers of New Zealand. Blobfish are typically shorter than 30 cm. They live at depths between 600 and 1,200 m.

Due to its low density flesh, the blobfish's shape is very different when it is out of water. Its unappealing looks have created much discussion in media outlets.

In September 2013 the blobfish was voted the "World's Ugliest Animal", based on photographs of decompressed specimens, and adopted as the mascot of the Ugly Animal Preservation Society, in an initiative "dedicated to raising the profile of some of Mother Nature's more aesthetically challenged children"

A talking blobfish appears in the film Men in Black 3, sat on the worksurface in the kitchen of the Chinese restaurant along with a couple of other alien food animals, probably suggesting tongue-incheek that the blobfish came from space due to their alien appearance.





Atlantic salmon

The Atlantic salmon is a salmon in the family Salmonidae. He is found in the northern Atlantic Ocean, in rivers that flow into the north Atlantic and in the north Pacific. Atlantic salmon are the largest of the salmon. Atlantic salmon are the largest of the salmon. After two years at sea they average 71 to 76 cm in length and 3.6 to 5.4 kg in weight. The most Atlantic salmon follow an anadromous fish migration pattern, in that they undergo their greatest feeding and growth in saltwater; however, adults return to spawn in native freshwater streams where the eggs hatch and juveniles grow through several distinct stages.



Camel

A camel is an even-toed ungulate within the genus Camelus. She bearing distinctive fatty deposits known as "humps" on its back. They provide milk, meat, hair for textiles or goods such as felted pouches, and are working animals with tasks ranging from human transport to bearing loads.

The average life expectancy of a camel is 40 to 50 years. A full-grown adult camel stands 1.85 m at the shoulder and 2.15 m at the hump.

Common kingfisher

The common kingfisher is also known as Eurasian kingfisher. It migrates from areas where rivers freeze in winter. The common kingfisher is widely distributed over Europe, Asia, and North Africa, mainly south of 60°N.



Ivanka pri Dunaji, Slovakia

Narwhal

This whale has "sword" on it's head. Narwhal can live 50 years. Narwhals normally congregate in groups of about five to ten. When in their wintering waters, narwhals make some of the deepest dives recorded for a marine mammal, diving to at least 800 metres over 15 times per day.



Goblinshark

The goblin shark is a rare species of deep-sea shark. Sometimes called a "living fossil". It is long usually between 3 and 4m. Goblin sharks lives at depths under 100 meters. Given the depths at which it lives, the goblin shark poses no danger to humans.

Blacksea

The longest east-west extent is about 1,175 km. It's only sea on the world on whichyou can just float.



Endemicanimal species

Zebramussel

The Black Sea along with the Caspian Sea Zebra mussel's native range.

The mussel has been accidentally introduced around the world and become an invasive species where it has been introduced.



Commond Carp

The Common Carp's native range extends to The Black Sea along with the Caspian Sea and Aral Sea. Like the Zebra mussel the Common Carp is an invasive species when introduced to other habitats.

Round Goby

Is another native fish that is also found in the Caspian Sea. It preys upon Zebra mussels. Like the mussels and common carp it has become invasive when introduced to other environments, like the Great Lakes.





Nile

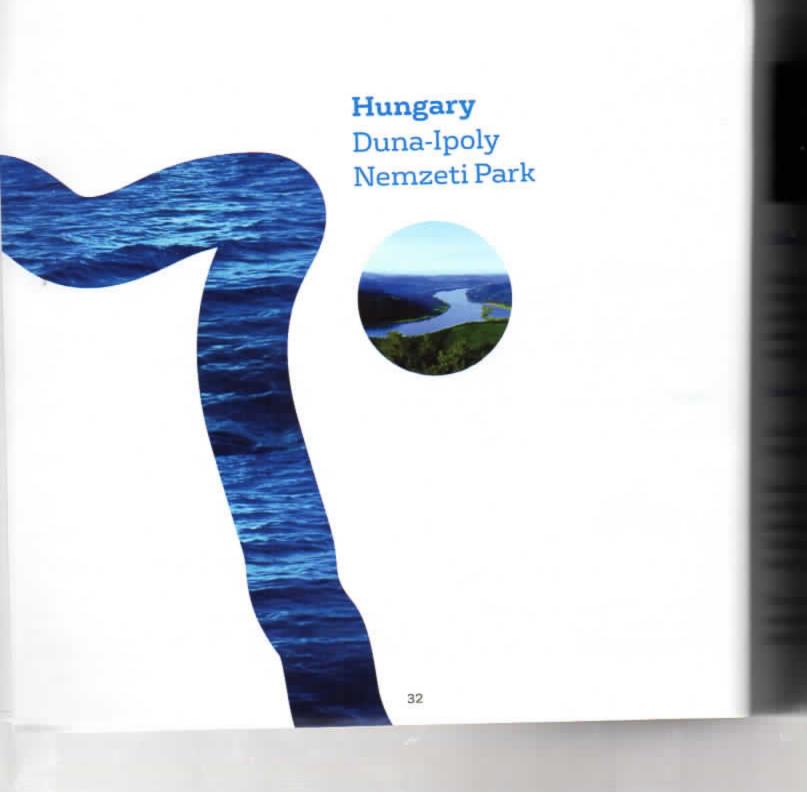
It's the longest river on the world. It is 6853 kilometers long. The Nile is an "international" river as its water resources are shared by eleven countries, namely, Tanzania, Uganda, Rwanda, Burundi, Congo-Kinshasa, Kenya, Ethiopia, Eritrea, South Sudan, Sudan and Egypt.

Conclusion

There is an important scientist who says that the Earth is such a blessed planet that even the rain falling on its surface contains the vitamine B12.

Taking into account all miraculous, amazing and unique properties of water, thinking of its all specific functions we have come to the conclusion that water is wonder of all wonders.

Coordinators: Headmaster Katarina Kubišová, Teacher Marta Kompaneková Students: Eva Augustínová, Monika Lamešová, Matej Chovanec, Patrik Cesnek, Silvia Klubníková United Secondary School, Ivanka pri Dunaji



Duna-Ipoly Nemzeti Park



The location of the country

Hungary is a country without a seacoast, which lies in the Carpathian Basin, in Middle Europe. It has seven neighbours: Slovakia at the north, Ukraine at the north-east, Rumania from the east and south-east, Serbia and Croatia from the south, Slovenia from the south-west, and it's adjacent with Austria as well, which lies at the west. The Capital of Hungary is Budapest, which is also included at the orbit of the "Duna-Ipoly Nemzeti Park".

The importance of the national park

Our choice fell on this national park so we can introduce it's rare and almost extinct races. Most of these races are only able to stay alive at this area.

Numoerous animal and plant species can only stay alive there on Hungary, even though they're such special creatures. Luckily these problems are about to get solved, and several programs have been started to help the species which are on the verge of extinction.

The Danube's importance on this area also influenced our choice - As an evidence of that, the river has a part in the name of the national park.

The coast has two great highlands: the Börzsöny, and the north-east part of the Dunazugmountain, which are seperated by the Danube Bend. One-one partion of the Middle- and Down Ipoly-valley also belongs to the national park.

Duna-Ipoly Nemzeti Park

The features of the national park

One of the big specialties of the national park that is has three terrain types adjacenting each other on it's area: the river-valleys, the mountains, and the plain.

Thesurface

The landscape protection area of the Börzsöny was founded in 1978. The vulcanis activity of the mountain had some effects: it's highest peaks are located on a 12 km long ridge. It's highest peak is called Csóványos (938m). By the means of geology the Visegrádi-mountain isn't seperated from the Börzsöny, so the experts think of it as a part of the Middle-Northern Highlands. The erosion made some deep canyons in the deep vulcanic rock: the Holdvilág-ditch, the Salabasina-ditch, and the Rám-deeps.

Flora

The flora of the park is kind of temporarly, but at the same time really various and multicolored. On the higher areas you can find the rare "Woodsia Alpina" and the "Rosa pendulina". The specialaties of the Pilis are involving the "Sesleria sadleriana" and the "Ferula sadleriana". Also, on the plains of Ipoly you can always catch the "rétiszalag".

Fauna

The fauna is really rich and various, it's colored by many rare and protected species. In the Middle-Ipoly Valley dwells the native "Dioszeghyana schmidtii", and you can find many rare snail species around the Danube Bend. On the top of that, there are numerous rare fish types at this area like the "Barbus peloponnesius", and amphibians just like the "Salamandra Salamandra".

The precious area

The "Duna-Ipoly Nemzeti Park" is located at the norhern part of Hungary, and it's terrority contains three county-s: "Borsod-Abaúj-Zemplén", "Heves" and "Nógrád". In the county of "Borsod-Abaúj-Zemplén" you can find the stalactite cave of "Aggtelek" which is the oldest and

the "Mátra" are also to be found on this area, as they're part of the hungarian Norhertn-Middle Highlands. These mountains can offer some very beautiful scenes to anyone who travels there. The county of "Nógrád" is mostly famous about it's cultural heritage, they hold great pride in the traditional hungarian folk clothing and folk-dancing.

Itinerary

Summer

First of all, you sould visit the "Duna-Ipoly Nemzeti Park", then go to "Dobogókő, so after a tripping walk you can arrive at the "Szív" rock, which has an interesting mythical story. It says that this rock is the center of the underground energies of Hungary, and if you touch it with both your hands, you can feel it pulsing. Besides, f you are lucky enough, you can meet with the "foltos szalamandra" which is one of the most beutiful animals of the Pilis.

If you want to stay further int he nature, you can visit the "Mátra", where you can find the highest point of Hungary: the "Kékestető". The wildlife is rich and various, and that fact is true for the fauna and the flora as well. Dozens of snail and butterfly species live there. For example, the "nagy fehérsávos lepke" is really special as it dwells in East and Middle-Europe as well, but still you can find more of them here in East-Europe. The "alpesi göte" is a quite inteersting specie as well, sadly it's in the danger of extinction, so it was declared protected. But if we're talking about Norht Hungary, we shouldn't forget about the "szirti sas" either. They either live alone or in pairs, and they often visit Hungary so they can lay eggs here.



If you're not satisfied with the "Márta", you can always visit the "Bükk", which is famous about it's national park. After starting a tour here, you will see a lot of "bükk" tree around this area, that's where the name of the mountain comes from after all. Whereever you go, you won't miss all of the special rocks of the mountain, like the limestone, dolmit, clay, sandstone and even more. If you're here, you shouldn't miss the cave baths of "Miskolctapolca" either.

Duna-Ipoly Nemzeti Park

If your're not a man or women of tours, then Budapest, the capital of Hungary is the ideal place for you. There are a lot of monument to sightsee here, like the castle of "Buda", the "Heroes' Square", the "Szent István Basilica", the Country House, or the "Széchenyi Bath".

Not far from there you can find the "Danube Bend", where the river changes it's course from westeast to north-south. The Danube is surrounded by varied mountains, with valley-s. It's natural values contains well-kept forest reserves, wild reserves, natural rarity-s and also resorts, islands, water-and winter-sport activities, which are all important when it comes to Hungary. On the right side of the Danube you can find Esztergom, Dömös, Visegrád, and Szentendre, which cities are proud of their cultural values.

Winter

If you're a fan of winter-sports, then either "Kékestető" or "Dobogókő" is the place for you to go. Or, if by any chances you want to visit some waters at these times, you should give a chance to the "Aqua Park of Budapest", or the "Széchenyi Thermal Bath", they 'Illive up to your expectations. If you want to try your skills on a huge piano, or you're interested in the world of optical illusions, then you must not miss the "Palace of Wonders". Sadly, Hungary doesn't have it's own sea, but the "Tropicarium" can fill up the needs, when it comes to a bride selection of sea animals.



Hungarian customs, traditions, and myths

When it comes to hungarian myth-s, every hungarian people will find the "legend of the Miraculous Deer" coming to his/her mind, which is an origin tale. The myth is about two kings, Hunor and Magyar, who went on a hunt with fifty-fifty men on a plain, and they found themselves in front of a deer. They chased the animal for days, yet they found no success. That's how they ended up around the area of "Meotis", where they decided to abduct two queens, and a hunder women. As a result of the future weddings, both kings had successors for their people: Hunor's ones became the "huns", while Magyar's the "magyarok", or, as you would say, the hungarians (or our ancestors at least). That's our most common saga, and we have various versions of it. Our country finds great pride in it's folklore and customs.

The main integridents of the hungarian kitchen are the pork, the onion, pepper, and the sour cream. One of the most time-honored hungarian food is the "kenyérlángos", or "pomos", in it's other name. Our most important national drink is the wine. It has it's own customs that which wine should be served with the different kind of foods. Our most important wine regions are "Tokaj" and "Eger", as their products are well known around the world.



One of our special national day-s is the 15th day of March, as this was the day when our modern parlamentaric country born. The revolution of March ¹⁵th was aiming to break the chains of the Habsburg-rule, so the country could find it's independence, and have a new beggining with it's own constitutional system. The other important national day-s are being celebrated on the 20th day of August, and on the 23th day of October. During the earlier one, we celebrate the founding of our nation, while on the later one we pride the memories of the victims, who lost their lives during the revolution.

Our folk-dance has great tradition, various shools are still teaching it aorund the country. The hungarian folk-dance is part of the folk art, it's a combination of rythmical moves, accompanied by singing or instrument plays. The exercising of the hungarian folk-dance, or the mere liking of it has it's own community-forming power. Just as the dancing, our traditional costumes are highly valued as well, mostly in norhern Hungary. Back int he time, the clothing normals were regulated by laws. The nobels, commoners, and bondsman had to wear different type of clothes. The inhabitants of the different areas also distinguished themselves from their neighbours by their clothing, The men had great proud in their mustache, they took good care of it, and used scissors for shearing. A long time ago both the nobles and soldiers wore handleber mustache-s, so the commoners grow a liking to it as well. They banned this custom by the end of the 18th cetury. By the second half of the 19th century the rolled-out mustaches became quite popular, especially on the "Alföld". They crafted it to a sharp, or snail-like shape. The beard meant status and old-age. The hairstyle-s took a couple of changes in the circles of man. For example the conquesting hungarians had short shair, while after adapting the Christianity the hungarians let thir hair grow long. During the Turkish-era, the shaving of head also became a custom, and it was able to stay on around some areas by the end of the 18th century. They used to braid the long hair, which lenght grew under the shoulders. Some said that cutting the hair is the same as truncating someone.

Duna-Ipoly Nemzeti Park

We hungarians highy perserve our folk music. It's selection is really wide, with more than known 100.000 folk song. They have three great groups, based on their application-s: They either can be songs bound to occasions like: worksongs. soldier marches, or dance-songs; or songs which are not bound to any occasions like songs based on epic or lyric melodies. The most important instruments are the violet and clarinet, but it's not rare to use items like pots or spoons either. The folk music is storngly correlated to the folk poetry. It's most important artists are: Kölcsey Ferenc, Erdélyi János, Kriza János, Vörösmarty Mihály, Petőfi Sándor and Arany János. The hungarian folk poetry has created it's own traditions and something lasting.



The last folk tradtion which we preserve is the folk dramatics. It can contain mythical-based dances, which are played without any speeching. Other than the peasant-custom based folk dramatics, we can find plays where the text is not the part of any folk art, but some kind of literary work. Our carnival is bound to this custom as well.

Tourism

The Danube Bend stands as a basic beauty spot and recreation area for the citizens of Budapest. Other than the economical uses, the local forest has a great role of satisfying the needs of resting, touring and sporting.

The untouched parts of the "Ipoly-valley", like the "Börzsöny", "Szentendre-island", and the Danube Bend are always attracting sights for adventurous picnics, sunshiny shipping tours, and some resting alongside a forest creek. There are a lot of places around this area, which are famous about their exhibitions. For example, the cave of "Pál-valley" has various selection of stalactites and shell imprints. Other than these, there are several nature trails which are worth visiting, just like the ones around "Sas-hegy" and "Jág". Both prides it's rare flora and fauna, and on top of that, the prviously mentioned one has really nice rocks and dolomite-mountains, while on the "Jág" we can find a beautiful lake with it's own wildlife.

Pollution

When it comes to pollutants, it is the surface ozone which exceeds the air quality limit most often. It is quite a common problem to srtuggle with for the country-s of this area. Some national parks and landscapes are laying on polluted areas, just like the "Duna-Ipoly Nemzeti Park". The signs of pollution are around with different type-s and extencts.

For example, the gene-erosion shown itself in the "Arborétum of Alcsút" and is causing the destruction and deterioration of the flora. Around this same area the quaility of the water is deteriorationing as well, as the water collecting areas are polluted, and the lakes are filled with sludge. At the caves of "Szellő-hegy" and "Pál-völgy" the constructions on the surface are being considered as risk factors, as these activities are causing the numbers of infiltration areas to drop, and increasing the pollution caused by malfunctions.

In order to stop the increase of pollution, several precautionary measures have been put in order.



Duna-Ipoly Nemzeti Park

Flooding

Hungary is one of the most endangered country-s in Europe when it comes to floodings. 23 percent of the terrorities of the country are being endangered by these floodings.

The Danube project have been started in order to stop the continuous floodings. It's an emphasized national project, which also affects the area of the "Dunalpoly Nemzeti Park".

The goals of the Danube project are the following: to stenghen the flood protection around the river, to increase the safety, and to protect the human lives, the natural resources, and the environmental values. The work of the Danube project is highly increasing the safety around the endangered flooding areas.



By the Danube (A Dunánál) (József Attila)

On the bottom step that from the wharf descends
I sat, and watched a melon-rind float by.
I hardly heard, wrapped in my destined ends,
To surface chat the silent depth reply.
As if it flowed from my own heart in spate,
Wise was the Danube, turbulent and great.

Like a man's muscles bending at his toil,
Hammering, pitching, leaning on the spade,
So bulged and then contracted in recoil
Each wave that rippling in the current played.
It rocked me like my mother, told me a wealth
Of tales, and washed out all the city's filth.

And drops of rain began to fall, but then,
As though their fall had no effect, they stopped.
Yet still, like one who stayed at the long rain
Out of a cave, my gaze I never dropped
Below the horizon. Endlessly to waste,
Drably like rain fell all bright things, the past.

The Danube just flowed on. And playfully
The ripples laughed at me as I reclined,
A child on his prolific mother's knee
Resting, while other thoughts engaged her mind.
They trembled in time's flow and in its wake
As tottering tombstones in a graveyard shake.

Resources

http://hu.wikipedia.org/wiki/%C3%89szak-Magyarotsz%C3%A1g

http://www.parkerdo.hu/_user/browser/File/letoltes/pilis_csuszi_screen120307ps.pdf

http://hu.wikipedia.org/wiki/Nagy_feh%C3%A9rs%C3%A1voslepke

http://hu.wikipedia.org/wiki/B%C3%BCkk_(hegys%C3%A9g)

http://www.sielok.hu/siterepek/magyarorszag/

http://itthon.hu/csaladi-programok-telen/-/article/10-tokeletes-belteri-program

http://sulihalo.hu/diak/olvasonaplo/841-arany-janos-rege-a-csodaszarvasrol-olvasonaplo

http://www.tradicio.org/magyar/huncsodaszarvas.htm

http://hu.wikipedia.org/wiki/Magyar_n96C396A9pt96C396A1nc

http://hu.wikipedia.org/wiki/Magyar_n%C3%A9pviselet http://hu.wikipedia.org/wiki/Magyar_n%C3%A9pl_hangszerek

http://hu.wikipedia.org/wiki/Magyar_n%C3%A9pzene

http://mek.oszk.hu/02100/02115/html/3-2132.html

http://hu.wikipedia.org/wiki/Duna%E2%80%93Ipoly_Nemzeti_Park

http://hu.wikipedia.org/wiki/Magyarorsz%C3%A1g

http://tourinform.hu/nemzeti-parkok/duna-ipoly

http://www.dinpi.hu/index.php?pg=menu_733

http://www.dinpi.hu/index.php?pg=menu_7S5

http://www.dinpi.hu/index.php?pg=menu_773

http://www.dinpi.hu/index.php?pg=menu_779

http://www.zoldmuzeum.hu/a-duna-ipoly-nemzeti-park-turaparadicsoma

http://www.dunaprojekt.hu/projektrol.php

http://www.meteoline.hu/?m=231

http://www.babelmatrix.org/works/hu/J%C3%B3zsef_Attila1905/A_Dun%C3%A1n%C3%A1i/en/1766-By_the_Danube

http://www.schefferj.ps.hu/images/Hungary/Hungary_AerialLandscapes/HunAerial_Panorama.jpg

https://utazom.com/sites/default/files/galeria-2012/3350hoviragc.jpg

http://newnaturalist.com/new/wp-content/uploads/2007/11/dscn4891_medium.jpg

http://www.parkerdo.hu/_user/oldal_images/hirkepek_meretezve/308_large.jpg http://users3.ml.mindenkilapja.hu/users/andromeda/uploads/Csodaszarvas.jpg

http://m.cdn.blog.hu/co/cookaholics/image/keny%C3%A9rl%C3%A1ngos2.jpg

http://pctrs.network.hu/clubpicture/2/3/3/_/vadvirag_hagyomanyapolo_kor_ada_233394_92825.JPG http://www.programturizmus.hu/media/image/big/ajanlat/program/termeszet/nemzeti-parkok/duna-ipoly-nemzeti-park/11/2867-9867-sas-

hegy-tanosveny-a-budai.jpg

http://www.magyar-vizitura.hu/wp-content/uploads/2011/03/4.jpg

http://m.blog.hu/bo/borzsony938m/image/20100606/20100606%20021jj.jpg

http://pozitivnap.hu/uploads//files/aggtelek_baradla-barlang-4-o.jpg

Teachers: Szilágyi Annamária, Sallai Zoltán Students: Lencsés Olivér, Morzsik Orsolya, Shen Dávid Ady Endre Gimnazium, Budapest



Croatia Mura-Drava-Danube Biosphere Reserve

Mura-Drava-Danube Biosphere Reserve



The Drava River basin in Croatia, part of the Mura-Drava-Danube Biosphere Reserve

The Mura-Drava-Danube is a transboundary biosphere reserve, which stretches along the Drava, Mura and Danube Rivers in five European countries (Austria, Slovenia, Hungary, Croatia and Serbia). The Croatian and Hungarian parts of the Reserve are already approved by UNESCO. This biosphere reserve provides an important tool in learning different approaches to floodplain management.

Declaration Date: 2012

Administrative authorities: Mura-Drava Regional Park (Croatia) and Danube-Drava National

Park Directorate (Hungary)

Surface Area in Croatia: 395,860.71 ha

Ecological characteristics

The majority of habitats within the Biosphere Reserve are covered by softwood or hardwood gallery forests, but there are also extensive grassland areas along the Drava River. The area contains a variety of wetland habitats, including those that are among the most threatened in Europe: alluvial forests, wet grasslands, gravel and sand bars, islands, steep banks, oxbow lakes, stagnant backwater, abandoned riverbeds and meanders. They are surrounded by riparian forests and arable land with scattered pastures. This variety of habitats provides shelter for a great number of species.

Mura-Drava-Danube Biosphere Reserve



The most significant protected animal species are as follows: Wild cat (Felis silvestris), Otter (Lutra lutra), Beaver (Castor fiber), Pond bat (Myotis dasycneme), Pygmy Cormorant (Phalacrocorax pygmaeus), Willow Warbler (Phyloscopus trochilus), White-tailed Eagle (Haliaeetus albicilla), Little Tern (Sterna albifrons), Danubian newt (Triturus dobrogicus), Blackwinged Stilt (Himantopus himantopus), Bittern (Botaurus stellaris), Purple Heron (Ardea purpurea), Great White Egret (Egretta alba), Black Stork (Ciconia nigra) and others.

The unique wetland area of Kopački Rit in the east of Croatia is also a Ramsar site, being protected as a Nature Park as well.



Social and economic characteristics

Most of the population lives in the transition zone of the biosphere reserve. In Croatia, the buffer zone has a total population of 27,239 and the transition zone has a population of approximately 470,000 people. In this part of the biosphere reserve the main towns are Osijek, Varaždin, Vukovar, Koprivnica, Virovitica, Čakovec and Ilok.

One of the major functions of the biosphere reserve is to provide a training ground for the revival and modernization of floodplain management, which will ensure an extra source of livelihood for local people, and help preserve the natural values of the floodplain region. The major activities in the area are agriculture, forest management, sand and gravel extraction, diverse types of industry, and ecotourism.



Protection of the Reserve

The distinctive natural values of the Mura, Drava and Danube are at risk. Conflicting management practices such as ongoing and planned channelling of the natural river courses, extraction of gravel and sand from the riverbed and new hydropower dams are threatening the ecological integrity, biodiversity values and natural resources of the area.

Contrary to EU environmental laws and international standards, river management in Croatia, Hungary and Serbia is still partially based on outdated concepts. The idea of transforming natural rivers into uniform channels denuded of gravel and sand is actually a dangerous practice. Such practice might be contributing to navigation and flood protection, but they are a threat to ecological values and natural resources of the Mura, Drava and Danube area.



Mura-Drava-Danube Biosphere Reserve

River channelling and extraction of sediments from the river cause devastating environmental impacts: it leads to deepening of riverbeds, dries out wetlands and floodplain forests, ruins natural river habitats and threatens endangered species. This is evident in the decline of the sand martin along the Drava from 12,000 breeding pairs in 2005 to 3,000 in 2010.

Beside the loss of biodiversity, such river management causes considerable economic damage: e. g. decreasing water levels have negative impacts on drinking water, forests, agriculture and fish stocks. River channelling also increases the risk of floods in downstream settlement areas.

Currently, the most affected areas by newly planned large scale river channelling are the natural stretches of the Danube and Drava rivers in the border area between Croatia and Hungary, including the zone of the Biosphere Reserve like the "Kopački Rit" Nature Park.



The Dravariver basin in Croatia

Our focus of the project was the Drava River basin in Croatia, due to the proximity, and due to the fact that the lower Drava River is one of the best preserved lowland rivers in Europe.

The Drava is the fourth longest tributary of the Danube. Its source is in Italian South Tyrol, and such it connects the Alps with the Danube and the Black Sea.



After Italy, it flows eastwards through Austria into Slovenia and then southeast, passing through Croatia and forming most of the border between Croatia and Hungary, before it joins the Danube near Osijek.

In ancient times the river was known as Dravus. It is 725 kilometres long (although the information about its length vary according to the source). Near the town of Osijek, it is 320 metres wide.

The Drava has been considerably regulated with dams constructed to generate hydroelectricity and channels dredged to direct its flow. Along the upper reaches, above Donja Dubrava in Croatia (before its confluence with the Mura), more than 20 dams have been constructed to harness the powerful volumes of water to generate hydroelectricity. Nevertheless, natural habitats along the middle and lower reaches host unique assemblages of flora and fauna, and several endemic species. Among all the rivers in Croatia, the Drava is the richest when it comes to the number of fish species. Even 65 different fish kinds live in this river.



Tourism

Cycling along the Drava is probably the best way to experience this river. It combines riding through unspoiled nature as well as urban environments, connecting several towns in Croatia, Slovenia and Hungary. When cycling, one can easily stop at the edges of the forests, in forest clearings or next to embankments and experience a captivating feeling of peace, as well as many cultural and natural attractions, and many traditional restaurants where one can be refreshed with specialties of local cuisine. The entire path is divided into smaller stages.

Mura-Drava-Danube Biosphere Reserve

The focus of the project-three fauna samples from the Drava River basin

Pine Marten (Martes martes)

General characteristics

The body is up to 53 cm in length, and its bushy tail can be 25 cm. Males are slightly larger than females; on average a marten weighs around 1.5 kg. Their fur is usually light to dark brown and growslonger and silkier during the winter months.



Habitat

Their habitats are usually well-wooded areas. European pine martens usually make their own densinhollow trees or scrub-covered fields.

They are good climbers, but tend to hunt on the ground. They are mainly active at night and dusk. They have small rounded, highly sensitive ears and sharp teeth adapted for eating small mammals, birds, insects, frogs, and carrion. Their diet is broad, and it depends on the availability of certain food throughout the year. For instance, small rodents, birds, beetles, carrion and eggs are all taken, and berries are very important in the autumn. In Eastern Croatia, martens often like to hide in the attics of the villages near the Drava, they also raise their young there. Sometimes they even steal eggs from henshouses.

Their fur is of such a fine quality that it was even used as the means of payment in the Middle Ages. The picture of the marten was engraved in the silver coins popularly called banovci, just as it is today on Croatian coins.

Threats

Although they are preyed upon by golden eagles and red foxes, humans are the largest threat to pine martens. Persecution (illegal poisoning and shooting) by gamekeepers, and loss of habitat

leading to fragmentation, and human disturbance, have caused a considerable decline in the pine marten population. They are also prized for their very fine fur in some areas.

Martensthrough winter and spring

As it is important to prepare for winter, martens start to grow their winter fur in September. The coloration includes a creamy-orange throat patch, a grayish tint on the belly, and darkening on the paws. The tail is long and bushy and the ears are relatively large and triangular. They also prepare for winter by storing food, which they do in summer and autumn to compensate for low winter resources. In early spring, their young are produced. At birth, young of Martes martes weigh about 30 g. Martens produce one to five deaf, blind, helpless young, beginning to emerge from the den by the middle of June and will be fully independent around 6 months after their birth.

DEER (Cervus elaphus)

General characteristics

The deer generally weigh from 30 to 300 kg. They generally have compact bodies and long, powerful legs suited for rugged woodland terrain. Deer are also excellent jumpers and swimmers. The teeth of deer are adapted to feeding on vegetation.

The deer through winter

In winter, deer move to suitable cover. They move around less and decrease their metabolism and body temperature. This biological "fine-tuning" enables deer to conserve energy and survive cold winters. In Eastern Croatia, landowners sometimes provide food for the deer in winter, which has a direct influence on deer survival. However, the effects of this are both positive and negative.

Deer start to prepare for winter as early as in late summer, when they begin building up fat that will become their winter fuel. Acorns and beech nuts are valuable sources of this fat. Fat reserves can supply almost one third of a deer's winter energy needs. During winter the deer may appear normal, but internally they are operating in slow motion. Their body temperature is lowered,

Mura-Drava-Danube Biosphere Reserve

particularly in the legs and ears. As the quality and quantity of the food declines, body functions such as digestion are also slowed. Deer also develop highly insulated winter coats. Dense inner fur and long, hollow outer hairs create a coat 10 times thicker than the summer coat.

Ideal wintering areas provide the shelter close to food supplies. In winter, deer subsist on buds and twigs of deciduous trees and shrubs such as yellow birch, hazel, dogwood, striped, red and sugar maple. As winter progresses, the survival of deer depends on three primary factors: the amount of stored fat, the availability of natural foods, and the severity of the winter. Deer will also eat snow for water in winter. It is interesting that winter is also their mating time. As with so many things involving nature, only the strong deer survive the winter.

When the spring comes

Once the snow begins to go away and the grass and other plant life begin to grow, once again the deer able to find the food they need. In many cases they may be quite frail by the end of the long winter, so this is the time to start building up their nutrition once again. Often before the snow even melts, the deer are able to find grass starting to grow beneath the snow or new leaves to eat on low hanging trees as they begin to bud in the spring.



There are a variety of different foods that the deer have to enjoy during the spring months. Many of the foods they are now able to eat are full of nutrients, which is a great change, compared to the sparse, nutrient depleted food that they were eating during the winter months. Eating all the great foods with the nutrients will help them replenish the needed nutrients within their body once again. During the spring, the deer also begin to get rid of their winter coat as well. Instead of the brownish gray coat, they begin molting and getting rid of the coat, which will be replaced with a sleeker reddish brown coat that looks wonderful.

Although the spring is the time when the does are having their young, the male deer are not involved with this process in any way. They are not present for the birth and they do not help with raising the young.

It is interesting that the deer are great swimmers. They like water, and they often swim across rivers like the Drava or the Danube, the latter being even 600 metres wide at some places in Eastern Croatia.

White-tailed eagle (Haliaeetus albicilla)

General description

Body length of the white-tailed eagle is 66-94 cm, with wingspan between 1,80 and 2,50 m and average body weight of 4-7 kg.

For the period 2005-2008, the population of white-tailed eagles in Croatia was estimated at 150 pairs. In Europe, they are mostly endangered by deforestation, water regulation and pollution.

Wintertime

The white-tailed eagles spend winter in courtship and nest building. Nesting begins in late January by taking the territory and starting to build their nests on old and tall trees whose strength is necessary for holding construction weighing up to several hundred kilograms.

Mura-Drava-Danube Biosphere Reserve

In December, fish makes below 50% of their food. According to Croatian surveys, birds are the second most important food source, although since December mammals tend to be more important than birds. During winter, carrion is another important food source for them.

Springtime

In March, the eagles' eggs are laid. Females normally lay 1-2 eggs, which are incubated for about 38 days. Exceptionally, three young can be raised from successful nests each year. It is interesting that both parents participate in the incubation, as well as in the nest construction and repairing.

Young birds spend spring in the nest, usually for 10 - 13 weeks before fledging. Although they are capable of taking care of themselves about 30 days after leaving the nest, they will continue to beg for food from the adults for several months.



The white-tailed eagle has a very varied diet. It feeds on fish, birds and mammals, but it is an opportunist - it will use the food source that is most easily available. During the breeding season, fish is often the most important source of food (followed by birds). In April, for instance, fish makes almost 90% of their food. However, this can vary depending on local food supply.

Other typical animal and plant species of the Drava River basin in Croatia

European Beaver (Castor fiber), European Otter (Lutra lutra), Wild boar (Sus scrofa), White stork (Ciconia ciconia), Black stork (Ciconia nigra), Mallard (Anas platyrchynchos), Pheasant (Phasianus colhicus), Grey heron (Ardea cinerea), Pond Terrapin (Emys orbicularis), Carp (Cyprinus carpio L.), Catfish (Silurus glanis L.), Common Oak (Quercus robur), Ash (Fraxinus angustifolia), White willow (Salix alba), Water lily (Nyphaea alba)

Mikuska, T. (2009): Monitoring populacije orla štekavca Haliaeetus albicilia u Vukovarsko-srijemskoj županiji. Hrvatsko društvo za zaštitu ptica i prirode. Osijek.

Romulić, M. and Mikuska, J. (2003): Kopački rit. IBL d.o.o. Osijek.

Safarek, G. (2011): Rijeke Hrvatske. Veda, Zagreb.

http://www.unesco.org/new/en/natural-sciences/environment/ecological-sciences/biosphere-reserves/europe-north-

america/croatiahungary/mura-drava-danube/

http://www.dzzp.hr/novosti/k/prekogranicni-rezervat-biosfere-mura-%E2%80%93-drava-%E2%80%93-dunav-1138.html

http://www.crorivers.com/obiljezja_panonske.php

Teacher: Tomislav Vuković Students: Jovana Bućkalović, Marija Dokić, Adrijana Kujavić, Mihaela Savičić Osnovna škola Dalj





Serbia Park of Nature Jegrička

Park of Nature Jegrička

One Tiny Point on the Earth

Dark empty place.

We can not see anything but dark. It is probably the typical windshield from the space aircraft. Tiny objects are sometimes at the end of something. Galileo was probably guilty for this imaging of something in Dialogo sopra i due massimi sistemi del mondo (Dialogue Concerning the Two Chief World Systems). Tycho Brache had wondered this dark place before Johanes Kepler calculated, published and showed us the Harmonices Mundi (The Harmony of the World) in 1619.

Then, the last magician connected math, nature and something that was mentioned before.

Today we are celebrating the 25th Anniversary of the ultimate frontier of something with Hubble Telescope. Today "something" is the SPACE. We are in the space flying on the most beautiful spaceshift of Earth. We are still wondering for places that will take all our attention. Are there any places that we still do not know? There is one, still waiting for further investigation and enjoyment for us.

Park of Nature Jegrička

It has unique living species, the diversity of natural habitat and colour of its scenery. Jegrička refreshes the monotonous relief of the agricultural area in the middle of Vovodina. Having recognized the significance of preserving the natural values of this watercourse with its very rich ecological and species' diversity, Jegrička was given the status of area under protection as Jegrička Nature Park, with high category—natural asset of great importance.

Geographical Position

Jegrička Nature Park is located in the south of Bačka in the area of Bačka Palanka, Vrbas, Temerin and Žabalj municipality. It encircles the canals and lakes of Jegrička, spreading from the Mali Bački Canal near Despotovo in the West, to its estuary in the river Tisa, in the East, that is 64 km of the Tisa's watercourse and the area of a 144,8 ha. The protected land is divided into three areas. Due to its very favourable location and elongated shape, Jegrička Nature Park is intersected with

Park of Nature Jegrička

numerous travel routes which makes it well connected with the rest of Vojvodina from different directions. Some of the most important roads that intersect the course of Jegrička are surely the international motorway E-75, as well as the roads Novi Sad - Srbobran - Subotica, Novi Sad -Bečej, Novi Sad - Vrbas, Novi Sad - Žabalj - Zrenjanin, and also the local road Žabalj - Čurug.



Natural Values

Relief

The valley of Jegrička has mostly been formed on the loess terrace, and its smaller part has been formed on the alluvial plateau of the Tisa. The formations from the age of Pleistocene and Holocene take part in the geological forming of the valley of this autochthonous river of Bačka. In the structure of Pleistocene or loess terrace, so called (deposited loess) sediment, alluvium loess is present, whereas the fine material made of sand and clay present in the alluvial plateau of the Tisa.

The valley of Jegrička spreads in West-East direction, with its length of 60 km. It starts in the depression which is situated in the triangle between Ratkovo, Paragovo and Pivnica, in the West, and ends with the estuary of Jegrička into the river Tisa, in the east. In its downstream, there is a basin of canals (width 4-5m). Based on a considerable size and the fact that it consists of the number of arks which represent the abandoned courses of some larger river as well as geological research, one can conclude that the present valley of Jegrička represents the transformed valley of some larger watercourse.

Climate

According to the values of the climatic elements observed at the meteorological stations in the area, the lowest approximate monthly air temperature is in January (about -1°C) while the highest temperature is in July (about 21°C). The average annual air temperature is about 11°C. The most precipitation is in June, approximately 80 mm; on the other hand, the least

precipitation is received in January 35mm. In this part of Bačka the most common winds are of southeast, northwest and west direction.

Hydrography

The hydrographical base of the nature park is surely the river Jegrička. It is the autochthonous watercourse of Bačka, which is the branchy river system formed within the borders of the wide water area of about 1440 km.

It is important to emphasize that Jegrička had the character of natural watercourse till 1889's when the first hydro technical works were conducted in its lower, and later in its middle part of the watercourse, all with the reason of introducing the safety measures against excess inner waters. Nowadays, after the new hydro technical works, and especially after the introduction of its main course (from Despotovo to the estuary) in the basic net of the Danube-Tisa-Danube Canal (in the late 1960s), this river adopts a conducted regime. For these reasons, the Jegrička can no longer be considered the natural watercourse.

Flora and Fauna

The enormous marshes, bogs and swamps used to dominate this area. Today, the nature of this region is typically agricultural area while the ecosystems are common in only small areas. Despite the changes, the development and life of the specific aquatic flora and vegetation are possible.



Based on the scientific research, 76 plant species and 16 communities have been registered. Among the flora of Jegrička, some rare plants could be seen (listed in the Red List of Flora from Serbia), such as: Marsh Fern, White Water Lily, Water Chestnut and Common Bladderwort. Based on the presence of a great number of species of international importance, in zoos, the area was recognized as the internationally important plant habitat IPA area.

Park of Nature Jegrička

Fauna is represented by classes grouped in 6 families. Based on the number of representatives, the family of carps is the most dominant. There are several rare and endangered species listed. The most significant representatives are Weatherfish, Northern Pike, Pikeperch, Catfish and Common Carp. As a very important area, Jegrička provides favourable habitat conditions for the development and life of amphibians and reptiles. The representatives of the amphibians are several types of frogs, while among the representatives of reptiles there are rare and endangered European Pond Turtle and two types of snakes: Grass Snake and Dice Snake.

Birds are the most significant part of biodiversity of the watercourse. The total number of species recorded is 198 out of which 98 have the status of nesting birds, 62 migratory birds and 23 winter guest birds, 7 guest birds and 8 types are rare guest birds. Many of the birds are nationally and inter-nationally important which testifies their presence on many lists, declarations and conventions. The international importance of Jegrička was confirmed in 1997 when it officially became internationally important bird habitat - IBA area. Jegrička represents the most important habitat for the species like Eurasian Bittern, Spoonbill Duck, Little Crake and Whiskered Tern. This is also the largest and the most stable population of these species in the country. The presence of globally endangered Ferruginous Duck is of the most significance, so as other rare species: Blacknecked and Little Grebes, Greylag Goose, Western Marsh Harrier, Black Tern, Blue throat Redpoll and Grasshopper Warbler.

The numerous species of mammals linked to the water, influence the richness of the nature. The great numbers of species are protected as the nature rarity, and there are also those on the Preliminary List of Species for the Red Book of Vertebrates of Serbia.





Cultural and Historical Values

Farms used to be the main decoration of the landscape in the area of this protected nature property. There were a lot of farms but today, there are only traces of their foundations, branchy grange tree crowns and only few well preserved farms. The village of Čurug, where the two preserved cultural monuments are, is very close to the Nature Park. The windmill in Čurug is very important. It was built in 1843 in Hungary, and transported to Čurug in 1846. Until the beginning of the 20th century and the appearance of steam and electrical mills, there used to be a lot of windmills. The last one, in Čurug, was built in the shape of cone, with diameter of 10 m, made of sun dried brick and standard brick with the wooden roof specially made and covered with wooden piles. The roof is movable since there is a mechanism for moving, linked to the wings inside. All parts are made of wood and hand-made by the members of the family Stojšin, the master millers, known by the nickname "Rodjin". Therefore, the mill is called Rodjin. It became their property in 1890. In every mill including this one were at least two pairs of mill stones which were set up depending on the object of milling. At the beginning of century, Rodjin's mill is in a very poor condition.

 $The \, Church \, of \, Ascension \, of \, Our \, Lord \, has \, had \, trouble some \, history. \, It \, is \, the \, third \, church \, in \, \check{C}urug.$





Park of Nature Jegrička

Construction started in the first half of the 15th century; it was made of wood, but it was destroyed in the fire in 1774. Soon after the restoration, the Hungarian Revolution 1848/1849 church was devastated inside. Then the people of Curug decided to build the new church on the current location. The first version was finished in 1858 and had only one tower, which was not representative enough in the eyes of the Church, so the two more towers were built and finished in 1860. Therefore, the main tower is 55 m high, and the two side towers are 32 m high. The inside iconostasis is painted by Djordje Krstić, an academic painter (born in Curug). He painted it between 1893 and 1896. The interesting thing about this iconostasis is the fact that the painter sketched the villagers, particularly shepherds, cow and swine herders, in the image of Saints. Several old church bells were replaced by the new ones in 1931, and they are still in the bell-tower of the church. The most special one among them is a "counter G", the bell with the icon of Saint George, the images of the rulers and state coat of arms, which weighs almost five tons. It represents the largest bell in the Balkans, and it is considered to be one of the biggest village bells in Europe.





Economically speaking, a very interesting monument is a well preserved irrigation station with its installation north of the Jegrička estuary. It was built along with the drainage system in 1898. Its purpose was to drain unnecessary waters. The irrigation station had the steam machinery. After 74 years of work, "the steam pump" has been conserved and put under protection. Nowadays it represents the hydrotechnical value of the 19th century and it is the unique example throughout Europe, which definitely deserves to be converted into a museum. Only a few hundred meters from the irrigation station, there is a monument devoted to the squad of Partizans resistance, with the memorial house and the museum. The monument is the work of academic sculptor Jovan Soldatović from 1972, and it represents three 9 m tall figures, which connect the plain and the sky. "A Proud man is a Free man" is an instruction for all of us.

Conditions and Possibilities of Tourism Development

Tourist potential of Jegrička is substantial. The area with rich wildlife, preserved nature values and beautiful scenery like Jegrička, represents a very attractive place for programmes of ecology education and recreation.







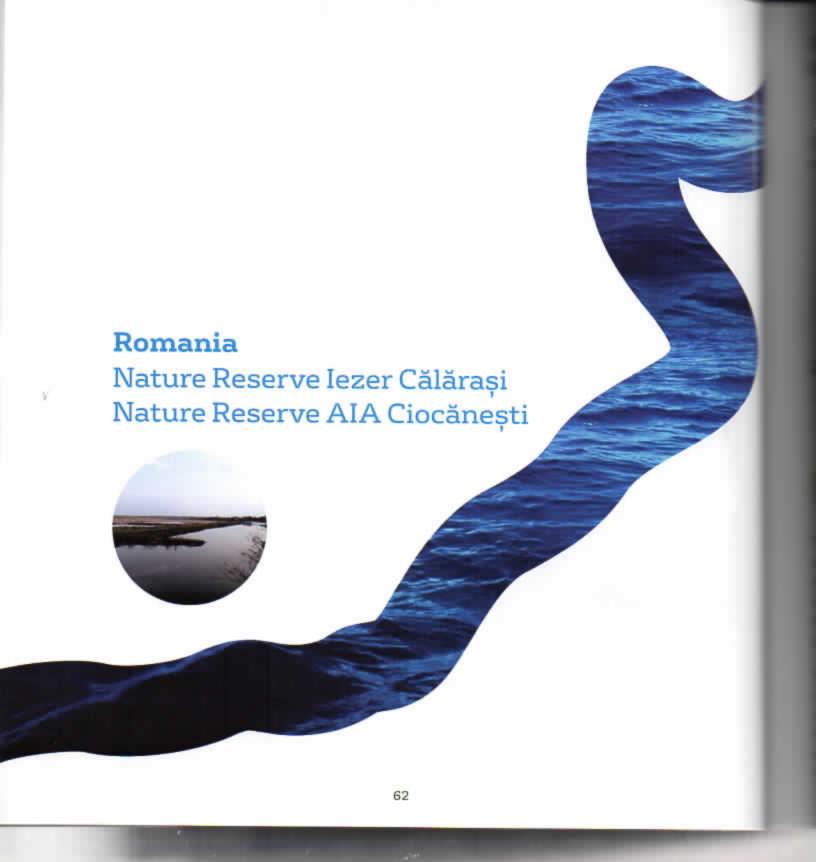




Attheend

The Nature park of Jegrička is a place where all senses can enjoy. Our activities could be measured and written in the story of Jegrička. In the far future some other people will point our activities these days in the deep dark space of somewhere.

Teachers: Msc. Marinko Petkovic, Nada Mojak, Nebojša Nikolić, Mihajlo Kanjuh, Nevenka Kitanović, Zorica Nanić-Babić Students: Anica Santo, Danijela Gazibarić Škola za osnovno i srednje obrazovanje "Milan Petrović" sa domom učenika, Novi Sad



Nature Reserve Iezer Călărași Nature Reserve AIA Ciocănești

The area studied lies between Lake 'Iezerul Jegălia' and a complex of lakes from Ciocănești. It is a synthesis of various transformations suffered by the floodplain of the Danube.



The analysed area comprises parts that have a high natural value, Area Nature 2000 (which was turned into areas of special flora and funa protection): the Nature Reserve from Iezer Calarasi comprises 2877 ha (the water stretches over 550 ha and farm fields, canals, grasslands, roads and piers comprising 2347 ha) and the Nature Reserve from AIA Ciocanesti (a stretch of 220 ha) which, according to the Calarasi Environmental Protection Agency, consists of 12 small ponds surrounded by piers and canals and submerged lush vegetation.

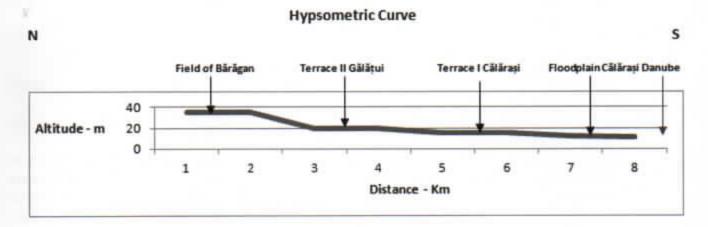
There are narrow strips of reed and other water immersed plants on the cannals while fields, crops and poplar plantations neighbour the area. Romania has very diverse nature elements that should be known and protected while at the same time promoting development schemes that allow to preserve its biodiversity. Selecting one area as site of 'Nature 2000' means acknowledging its importance at the European level as well as a matter of pride for the locals since it offers economic opportunities.

Nature Reserve Iezer Călărași Nature Reserve AIA Ciocănești

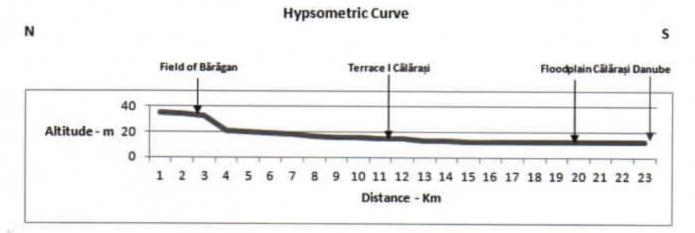
The changes occurred in all environmental components, slower in the past, starting from the Stone Age (Neolithic) and faster in the contemporary period, particularly during the Communist regime, but, regardless of the period covered, the government tried to optimize the economic potential of the Danube area. Hereafter we are showing the environmental changes as far as the structural level is concerned.

Relief - it is staggered and visible at any point of observation from the field: field (above 35 m) Terrace II Danube ("Galatui", between 20 and 32.5 m), Terrace I Danube ("Calarasi", between 15 and 20 m), and Danube Valley ("Floodplain Calarasi, between 9.5 m at Jegălia and 12 m to 15 m at Ciocănești).

Viewpoint 1 - Ciocănești - County Călărași (Coordinate: 44°11'59"N 27°03'49"E).

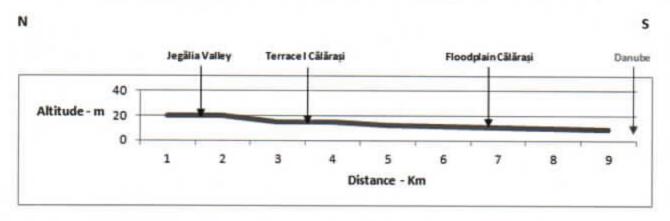


Viewpoint 2 - Chiciu - Călărași - County Călărași (Coordinate: 44°12'N 27°20'E).



Hypsometric Curve

Viewpoint 3 - lezeru - Jegălia - County Călărași (Coordonate:44°17'48"N 27°38'59"E).



The main cause of changes in relief has been the development of agriculture, which has led to an extensive program of land transformation, sacrificing the original landscape. Thus, the alterations have generated inserted fields, terraces and floodplain.

Nature Reserve Iezer Călărași Nature Reserve AIA Ciocănești

Baragan Field: irrigation canals - main adduction, type I and II feeders, sector feeders. The old mounds are maintained (of anthropogenic origin, having signal or funeral roles).

Galatui and Calarasi Terraces: irrigation canals and mounds are similar to the field. The various drainage ditches, are present here along the tributary valleys of lakes systems. Building these cannals (5 m deep) resulted in lowering the groundwater, eliminated the risk of gleysol. It is to be noted the arrangement at the top of Calarasi terrace, opposite - the Dumbrava Park area where there is an extension with walkways and ornamental plants.

"Waterfront" Calarasi is arranged at the top of the terrace. The floodplain is missing in this section because of the bank groove, which promotes the erosion of the left shore and the isle extension on the right side.



Floodplain Calarasi: includes drainage cannals, "privaluri", anthropogenical lake basins (for fish and riziculture) and dams. The transformation of the floodplain lasted from 1963 to 1970. The most important aspect of this was controlling the level of flood drainage cannals and pumping stations through extensive reconfiguration flatwork and water basins, therefore tens of natural flooding channels and floodplain lakes have disappeared and fish ponds were created in Ciocanești and Calarasi. Also, the number of cannals linking Jegălia (abandoned arm of the Danube which crosses field in the S - N direction, from the Danube to the proximity of Ialomita throughout the Southern Baragan) and Galatui to Borcea Branch have been doubled.



Ciocanești Lake Complex - a number of ponds on the site of the former floodplain Boianu -Sticleanu Lake Complex.

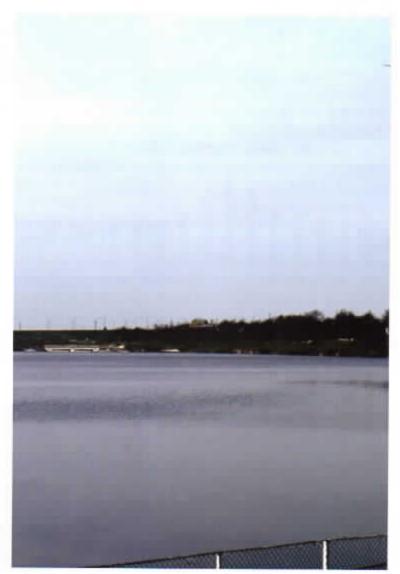


Lake "Iezeru" Jegălia – an abandoned arm of the Danube, today a "mostiste" (pond crossed by a land bridge).

The "Belicine"- Ciocanesti Cannal (today - used to regulate the groundwater in the floodplain and in the past-a part of a natural channels complex through which the Danube used to enterduring the largest flows.)

Connection Cannal - this is a connecting cannal between the Lake "Iezerul-Jegălia" and the Danube.





Nature Reserve Iezer Călărași Nature Reserve AIA Ciocănești

Climate—it shows slightly different values from those specific to the field, Danube Valley slightly tempering the extreme values recorded in Eastern "Baragan". At Calarasi Station, the average temperature (average of the last 100 years) is 11.4 °C; the average rainfall being497 mm. The lowest temperature recorded in Calarasi dates back to January 8, 1938 when there was -30 °C, and the highest at 41.4 °C on 10 August 1951. Calculations have shown that Calarasi city benefits from a potential high thermal capacity, whose value reaches 125 kcal/cm². A peak is recorded annually in May-June and high values in July and August, during which the sky is mostly clear, which favours heat and drought and irrigation is widely used to combat scorching heat. The snow layer does not persist due to temperature rise occurring in winter; snow usually begins to melt in early March. The annual number of days with snow cover oscillates at around 30. During the cold season, snow cover reaches its greatest thickness in late January and early February. Typically, the snow depth is relatively low; however, in recent years, weather conditions have caused the production of abundant snowfalls and very thick spreading a layer that exceeded 1.5 meters (1954).

Regarding the winds, which are located in the city area, they are under the influence of the northeast (northern wind -"Crivats"), to the southeast ("Austru") and the south ("Băltărețul") circulation. Cold winds ("Crivats") emphasize winter cold and the dry wind (especially "Austru") intensifies the heat and dryness of summer. Regarding the frequency and intensity of winds, the weather station from Calarasi recorded a maximum in April (from westerly direction) and November (in the north). The highest values were recorded in 1957 when wind speeds exceed 40 m/s. The development plans in the floodplain and at the lake have also reduced the production sources of local areas with minimum pressure, with clear effects in reducing the force of "Baltarets", a local wind



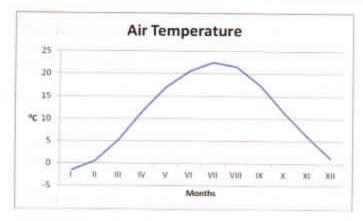


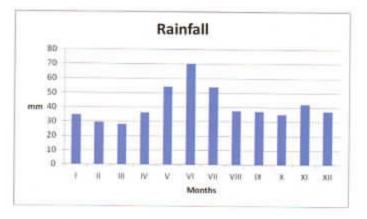












The values above were measured in the period 1901 - 1990. The measurements in expeditions can register unapproved values other than those listed above, but normal in the local shelter climate of the valley.

Hydrography - the waters observed in the analyzed area are classified into the following categories:

 Danube "Borcea" (Borcea an arm of Danube which is separated from the main course of the Danube upstream of Calarasi in Calarasi ferry crossing point - "Ostrov" and meets the river downstream near the village Giurgeni. On this arm there are the towns Calarasi and Fetesti. This arm is approximately 100 km long, draining 20% of the total recorded on the Danube.

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- "Jegalia": the ancestry valley with the springs begin slightly from south of Saveni (Ialomita County) but permanent leaking goes on for a few miles north of Jegalia village. It is comprised in the "Jegalia" irrigation system (22,269 ha).
- Barza Baba Ana Galatui: the ancestry valley and the springs lie north west of the village of "Plevna", Lupṣanu village, Calarasi County. It is a typical valley called "furcitură" = fork (because of the aspect of confluences). Leakage is disturbed by numerous dams and artificial feeding from the Danube. For this course, the changing leak in the irrigation system "Gălățui-Calarasi" (696 ha), is the most important anthropogenic intervention.
- The irrigation cannals "Calarasi Terrace" (10059 ha) is an anthropogenic implant in this area without a natural river system (excluding the Danube).

The environmental heritage - The lezer Calarasi Reserve comprises 271 well monitored bird species that are protected on the basis of the Berna (L13/1993) and Bonn (L13/1998) Conventions. As far as the AIA Ciocanesti Nature Reserve is concerned, according to Marin Hodorogea, the director of Ciocanesti Piscicola trading company, the WWF team has identified 138 bird species in this area.

The project team have focused their attention on the biology and ecology of three species: the rednecked goose (Brantaruficollis), the tench or doctor fish (Tinca tinca) and the otter (Lutra lutra).

Our study started from the analisys of specialised data, we have followed the development of the main ecological events and changes which are generally determined by the alterations that happened in the configuration and microclimate of the habitats. The set aims were: creating a data base to reflect the current state of the ecosystems and avicenozas of the two reservations, doing a qualitative and quantitative inventory, studying the fauna from a phenological and bioecological points of view, establishing the degree of endanger and conservation at the local and European level, identifying natural and anthropical factors that have influenced the dynamics of the three fish species population and their habitats as well as finding proper measures of protection and conservation.

The team has benefited from the total support of the A.P.M. Calarasi specialists who are our partners in the project (executive director Elena Adrian and head of the biodiversity department Manuela Iordache).

The tench or doctor fish (Tinca tinca)

Cls. Actinopterygi/Ord. Cypriniformes/Fam. Cyprinidae

Description: it lives at the bottom of the clear standing waters whose bottom is muddy. Besides lakes and swamps, it can be found in the eyeholes left behind after the retreat of the Danube waters. Its body length is between 20 and 30 cm, its back part is curved, its stomach is lowered, the heah is short and thick, its mouth is fleshy and it has two small feelers at the corners. The mullets are small and covered in mucus; the finns are rounded and the side line is well marked. Its colour is influenced by the water it lives in; therefore, it is dark green, olive on the back and it becomes yellow-golden on the ribs and abdomen.

The colour of the eyes is bright red. It mainly feeds on larvae, worms and insects. It is considered to have disappeared from the anlysed areas but there are plans to reintroduce this species in the AIA Nature Reserve from Ciocanesti.



Nature Reserve Iezer Călărași Nature Reserve AIA Ciocănești

The Red Necked Goose (Branta ruficollis)

Cls. Aves/Ord. Anseriformes/Fam. Anatidae/Gen Branta

Description: it is one of the smallest and rarest goose species in the world and it is currently considered to be an endangered species, being included in the IUCN red list. In Romania this bird can be found in the North of Lake Razim, the South Lake Sinoe, Lake Fundata, a few locations in the Danube Delta, in the South of Calarasi County. Its body length is between 54-60 cm, it is extremely beautiful red plumed bird. Its neck, chest and side parts are bright tile-coloured and the rest of the plumage is dark colured with white stripes.

The beak is short and the neck is quite thick. The legs are grey and the tail is black. It feeds mainly on grass as well as seeds and insects. It nests in Siberian Russia in the Gydan, Taymir and Yamal peninsulas. The male and female mate for life. The female lays in June 3-7 green eggs, incubation lasts for 23-25 days. In Romania it comes only at the end of October and it can be sighted until march. The wild red necked goose is an emblematic species for Dobrogea and the specialists at the Calarasi Environmental Protection Agency have followed its route and monitored its state.



The otter (Lutra lutra)

Cls. Mammalia/Ord. Carnivora/Fam. Mustelidae/Gen Lutrinae

Description: this species is 63 to 83 cm long. The otter's average body weight is 6 to 15kg. The female is smaller than the male. Their head is small, flat and wide, the ears are rounded and short the small eyes have rounded eyeballs. Their feet have five webbed digits and while swimming it uses the hind legs and the tail. The back is dark brown and gluey; the abdomen it is cinnamous coloured and it has green irisations on the neck and body sides. Otters can stay under the water for 8 minutes, closing their nostrils and ears. They mainly feed on fish and therefore it lives on the wooded banks of rivers and standing waters. It lives for 15-18 years. The otter species is strictly protected on the basis of international legislation and different conventions.

It is listed in Appendix I of CITES, Appendix II of the Berna Convention, Appendices II and IV of the Habitat Directive and the EU Species Directive and Appendix I of the Bonn Convention (the convention regarding the conservation of migrating wild species (CMS), which recommends the highest level of protection. It is highly sensitive to water and environmental quality. The greatest danger that can affect the otter consists in the alterations suffered by its habitat due to the anthropical factor by habitat destruction, pollution, poaching and noise.





Water Quality in the Borcea River

All living things need water. Monitoring the changes of the river is important and the data collected can help to make determinations about water quality. Water quality is the physical, chemical and biological characteristics of water.



The Blue Danube Project team has chosen some basic measurements in order to investigate Water Quality. They are pH (a measure of the acid content of water), water temperature, transparency (the degree to which light penetrates into water), dissolved oxygen, nitrates, nitrites, alkalinity (the ability of water to neutralize acids), total hardness (the sum of the calcium and magnesium concentrations), ammonium and phosphorus (as phosphate). The Borcea River has had good water quality for the indicators tested.

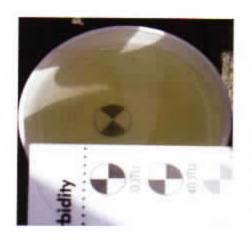


Some of measurements must be made on-site (temperature, pH, dissolved oxygen), in direct contact with the water source in question. Other measurements can be made in a lab and require a water sample to be collected.

Nature Reserve Iezer Călărași Nature Reserve AIA Ciocănești

Analyzing water in Calarasi - Romanian report

Water Quality Parameters	1" Sampling Site - Calarasi (Central Park) Borcea River Date 6 Time			
	Temperature	11°C		14°C
Turbidity	38		57	
Ammonium	0.25 mg/l		0.20 mg/l	
Carbonate hardness	4.7 °d		4.2 °d	
Nitrate	10 mg/l NO3-		10 mg/l NO3-	
Nitrite	0.2 mg/l		0.1 mg/l	
pН	8.0		7.0	
Phosphate (PO43-)	0.5 mg/l		0.25 mg/l	
Dissolved Oxygen	6.2 mg/l		5.5 mg/l	







Cultural heritage

'There are places that touch people's souls and people who mark places.'

Wallachia has always played an important part in the history and the shaping of today's Romania. The region that stretches along the lower course of the Danube attracts countless visitors impressing them by means of its spirituality, cultural richness and outstanding sights. The old land situated in the South of Romania was once part of the kingdom of the great Dacian king Burebista. In ancient times it was inhabited by the tribes of the Getae, who were specifically a branch of the Thracians. Herodotus, the 'father of History' himself mentioned that 'the Getae are the bravest and the justest of the Thracians.'

Today it is an absolute truth the fact that the Romanian culture displays its perennial and deep relationship with the material and spiritual folk creations. The folk poetry is a literary source considered to be more precious than gold without which our great Eminescu and Brancusi might not have been so brilliant. Drawing inspiration from the Romanian folk genre, our greatest artists marked their works with the particular characteristics of our nationality.

The traditions and customs that define the Romanian people have a prominent place in the outstanding heritage of traditional folk culture, a culture that was regarded by Doctor T. Stamati to 'mirror the past of our nation'. On the whole, these traditions and customs represent real folk celebrations rich in songs, dances, poetry and acting. Numerous folklorists and ethnologists have thoroughly studied our customs and their contributions have been included in comprehensive scientific volumes.

Each region and ethno cultural area of our country has its own ways of expressing customs and traditions. This is due to a number of influences from the remotest parts of the country—this is the case of the border areas. Calarasi is one of the areas where the structure of the rural population is very heterogeneous. For example, Ciocanesti, a village that lies along the Danube between Calarasi and Oltenita, is a place about which oral tradition and reference sources mention three distinct parts: Ciocanesti-Pamanteni, the locals who have always lived here; Ciocanesti-Margineni, a settling that consists of the Romanians who have descended from the region called Marginea Sibiului and Ciocanesti-Sarbi, an area in which the settlers have come from the Danube bank because they could no longer stand the Ottoman oppression.

Nature Reserve Iezer Călărași Nature Reserve AIA Ciocănești

Therefore, in Ciocanesti one can find traditions that are also known in other parts of the country as well as particular ones that can only be found here. In spring, 14-year-old teenagers sing a song called 'Lazarul', a sort of carol and visit the houses in the neighbourhood and in return they get eggs which they later paint. On Easter day the parents and their unmarried children visit their godparents with a special kind of bread called 'colaci', a bottle of wine and a chicken in order to ask the godparents to wed their offspring.

Our trip as a team to the Ciocanesti Piscola Farm has brought into light the constant need of protecting this gift of the nature and the influence that it has on the local population.

Cristina Andreea as local person of this area and having an entire family living here, has found out a delicious dish inherited from our ancestors that the Danube has given: **Baked rice with dried fish**. It is simple recipe that her grandmother and mother cook every time they have the ocassion.

The necessary ingredients are fish, of course, 250 grammes of rice, an onion, 50 millitres of oil. The fish has to be washed, the scales are removed and then it is dried. It must stay for at least one week to be well dried. The next step is frying the fish and afterwards you put it in a tray above the rice. The onion is chopped and put above the rice. It should stay in the oven for aproximately an hour. The dish is ready to be served. Enjoyyour meal!







The cult of water is deeply rooted in the Getae-Dacian spirituality and has been passed on to Christianism. Certain fountains, springs and water courses were worshipped and religious ceremonies and rituals were organized next to them. The clean water from these sources was always collected in different dishes before sunrise and was called 'pure' and used in all rituals, either for purification, healing diseases or keeping away evil spirits.

Let us not forget that before engaging in battle the Dacians used to take part in solemn rituals that involved receiving the Holy Communion and drinking water from the Istru or Danube, the river which they perceived as a real God-ancestor.







The Gaetic settlements that lie on the left bank of the Borcea Arm and along the entire Borcea village represents a element that is particular to the cultural heritage of the area. Also, it should be mentioned that there is a Gaetic settlement on the left bank of the Raul Arm, in the Swamp of Calarasi.

The elemnts of the Dacian culture that contribute to building the cultural identity of the area are also ilustrated in the legend of Traian's Bridge over the waters of Borcea. The elements that are make up the legend are: The Emperor's Valley/ Valea Imparatului (there are three valleys bearing this name at Jegalia, Pietroiu, and Borcea), Traian's Bridge/Podul lui Traian, Melcisiul Road/Drumul Melcisului (it is marked on air maps) that connects the Borcea bank to the Danube bank, having a ,Cetatuie'/'Small Stronghold' at the middle. Moreover, a bas-relief embodying, Cavalerul Trac'/'The Thracian Knight' was discovered on the Borcea bank, where the end of the bridge is supposed to be.

Nature Reserve Iezer Călărași Nature Reserve AIA Ciocănești

Other activities

1" April - Bird Day ("Ciocanesti" Lake)







"Ciocanesti" Lake - Birdwatching













Empathy is the one greatly needed quality if we are going to survive and flourish in the 21st century. By designing and developing project activities the students show increased empathy and they are more open to educational assimilation, to dialogue, they develop critical thinking, constructive ideas. They are "building" their own knowledge by testing ideas and approaches based on their prior knowledge and experience, applying these to a new situation, and integrating the newly gained knowledge with pre-existing intellectual constructs.

The main aim of the learning activities in our project involves cooperation, team work so that negotiation and knowledge testing can occur.

Today students need an additional set of new critical skills such as collaboration, communication, creativity, and skillful citizenship. But the demands of our modern age require these skills to be carefully and effectively taught. Again, project based learning is an effective and efficient means for learning these types of essential skills.

When project based learning is expanded to the community, it can take all the benefits of experiential learning and create an excellent opportunity for students to become deeply knowledgeable. Experts can step into the school to share their knowledge, and community business leaders and officials can provide internships that are incomparable learning experiences.

Nature Reserve Iezer Călărași Nature Reserve AIA Ciocănești

Legend

Legend says that the Danube was likened to a monster. The existence of eddies caused by its depth, which was on the whole route from the Black Forest to the Black Sea, was the cause why boys, in general, were 'swallowed up' by it. This is their mothers' statement when it comes to talking about the sons' disappearance. So, every female, whose child died in this way, cursed the Danube, thing that made it be considered a monster with supernatural powers, despite its landscape, which seems as normal as possible.



Thanks to Blue Danube River Project team. Colegiul Național "Barbu Știrbei" Călărași, România

The project team: 35 students (grades: aIX-aE, aX-aA, aX-aC, aX-aEsiaXI-aD)



Resources

http://ghidpescuit.ro/specii-de-pesti/din-ape-de-ses/linul/http://www.info-delta.ro/https://romanialutra.wordpress.com/vidra-in-romania/

Coordinators: Marinela Dincă, Marioara Cristian, Tanța Dumitru, Cristian-Silvian Puișor, Alina Vișinescu Colegiul Național "Barbu Știrbei" Călărași





Bulgaria Roussenski Lom Nature Park

Roussenski Lom Nature Park



"Our lifestyle - in a hurried and high-tech environment, yet away from nature, makes us feel responsible for the capital created by people. However, at the same time, we forget that our main needs still depend on the capital created by nature"-Todorova

"Roussenski Lom" is a nature park, situated about 20 km south of Rousse, one of the ten Nature parks in Bulgaria. It is named to the river Rusenski Lom-the last major right tributary of the Danube on the Bulgarian side which forms the core zone of Roussenski Lom Nature Park, a breathtaking landscape of forests, meadows and pastures.

The area was declared a national park with an area of 22 267 dca on February 26, 1970. The territory of the national park is located along the rivers Baniska (Small) Lom, Black Lom and White Lom. The park boundaries, which are still valid today, were adopted in 1989. The territory of the park is 3260 hectares.

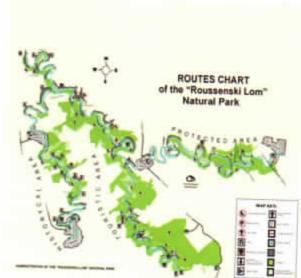
The first steps-our own "lighted"

map of the Protected area

Then-bordering the map with thrown bottle caps at school







Roussenski Lom Nature Park



Natural features and shaping of the region

Over millions of years the water, the wind and the earth movements patiently modelled grand canyon gorge with its characteristic appearance.

Upon formation of the typical landscape of the Danube valley played a major role formation of the Alpine-Himalayan mountain system. Stara Planina is part of this mountain system. In the folding of layers of crust, in the formation of the mountain range is specified pressure to the territories, which were located near the emerging mountains. This is the reason for the emergency of many right tributaries of the Danube, which lead back to the Stara Planina. Because of this folding of the upper layers of the crust is due to the characteristic shape of river valleys in the Danube valley. It is believed that today's Danube valley, about 120 million years ago was a bottom of the water basin. When it ceases to exist on its territory remained a residual limestone cliffs.

Due to the relief of the Danubian valley and particularly of the territories of the nature park "Roussenski Lom" numerous caves and other karst formations have appeared. The areas with limestone base are characterized by extraordinary diversity of the biological world.

The main rocks in the area of the park are composed of loess, limestones and marls. The valleys of river Rusenski Lom and its tributaries are incised in the lower cretaceous limestones. Their colour is off-white or pure white. In the lower layers of calcareous marls prevail.

Flora and Fauna

The flora in the catchment area of the river Rusenski LOM consists of 877 species belonging to 87 families and 399 genera. On the area of about 100 km223.1% of the species of Bulgarian flora are found here.

The high percentage of species of Lamiaceae and Apiaceae families is due to the specific geographical situation of the region. The Northern continental Center, encompassing the Territories North of the Black Sea (Ukraine) and part of southern Russia, constitutes the steppe or Ponthic element of the flora in the catchment area of the river Rusenski Lom.

The 212 species (24.2%) are an indicator for the high influence of the Ponthic Center, and Northeast Bulgaria is a natural continuation of the steppe zone. The movement of species from the North continental Centre is carried out without hindrance throughout the North Bulgarian in the direction East-West, as Dobrudza is the connecting surface.

The most insignificant share have North American species-about 1%.

In conclusion it can be said that the flora of the Rusenski Lom in the main part is built from the species of 3 phitogeographical areas-East-Mediterranean (maloazijska), pontijskata (steppe)

RESEARCHWORK

visiting the National Park at the end of February the students decided to monitor three plant panacorn.

- an oak tree and
- $Scarletelf cup or as we call it: {\it grandmother's ear} (Sarcos cypha coccinea).$

The children gathered some **acorns** from oak trees in the National park although it was very fficult as most had rotten during the winter. We tried to make an experiment covering them in oist cotton to see if they would grow a plant.

Roussenski Lom Nature Park

2) The forests in the Nature park are mainly with oak, ash and Elm trees. We decided to pay particular attention to an oak tree as it is a home to many unknown species: birds like: an woodpecker, a jay and insects like: beetles and butterflies which appear in summer.



3) The students knew that the saprobic fungus grows on decaying sticks and branches in damp spots on forest floors, generally buried under leaf litter or in the soil. The cup-shaped fruit bodies are usually produced during the cooler months of winter and early spring. The brilliant red interior of the cups—from which both the common and scientific names are derived—contrasts with the lighter-colored exterior. For my students it was the first touch with this amazing fungus-flower: as if they were holding the heart of the spring in their own hands. They heard the throbbing of this scarlet wonder on a rotten branch among the foliage. They felt indescribable excitement.



The **firebug**, *Pyrrhocoris apterus*, is a common insect of the family Pyrrhocoridae. Easily recognizable due to its striking red and black coloration, it is distributed throughout the Palaearctic from the Atlantic coast of Europe to northwest China.

Firebugs generally mate in April and May. Their diet consists primarily of seeds from lime trees and mallows. They can often be found in groups near the base of lime tree trunks, on the sunny side.

They can be seen in tandem formation when mating which can take from 12 hours up to 7 days. Red fire bugs go through simple metamorphosis (egg, nymph, adult) and typically have one generation per year, although some adults can live up to two years. The entire life cycle can take 2 to 3 months depending on the temperature. Overwintered females lay 40-80 eggs in a lifetime, starting in April and May. Eggs are white but gradually turn yellow-red before hatching in 10 to 14 days.

Red fire bug nymphs go through five instars in 17 to 24 days before molting into adults. Young nymphs look similar to boxelder bugs while older nymphs look like the adults except are smaller and have reduced wing pads. Adults begin mating within a week of emerging; however, females do not lay eggs until the next year. Red fire bugs are 6.5-12 mm long, and in general the females are slightly longer and wider. The forewings are variable in size, ranging from shortened to absent.

Viola odorata is an evergreen Perennial growing to 0.1 m by 0.5 m at a fast rate.

It is in flower from February to April, and the seeds ripen from April to June. The flowers are hermaphrodite (have both male and female organs. We found the species near the edges of forests or in clearings.





Roussenski Lom Nature Park

MYTHSandLEGENDS

The students have collected myths and legends related to the villages along the river Rusenski lom. The first one is about Basarbovski rock monastery.

Basarbovski rock monastery is the only functioning rock monastery in Bulgaria. It is located in the village of Basarbovo, along the banks of the Rusenski Lom River. The monastery is situated on the rocks along the banks of the Rusenski Lom River and its tributaries. Black and White Lom. Its extremely loose rocks were "inhabited" by the monks who turned them into cells for shelter and prayers, and in churches, away from worldly vanity. According to legend, Dimitar was an ordinary herdsman. One day, while he was grazing the village herd, he trampled a bird's nest. This is considered a great sin, and to redeem it, Dimitar became a monk and spent the rest of his days secluded and lived righteously.

Legend has it that a few years later the Saint appeared in the dream of a blind girl who lived in the village and told her where his body was, which was in the river. When the relics of the Saint were discovered, they were imperishable and fragrant. The girl could see, and the glory of the Saint spread throughout the surrounding area. During one of the Russian-Turkish wars, after the victory of Russia, General Peter Saltikov heard about St. Dimitar Basarbovski and wished to bow in front of his relics. Again it was agreed that the body of the Saint is carried over, this time in Russia.

The road passed through Romania, where at that time there was plague. It was narrated that when the relics of the Saint entered in Bucharest, people stopped dying from the plague.

The Church in the village of Krasen

At the time of Tsar Ivan Asen II, future Patriarch Joachim I dug a cell in the rocks and later, with the help of the King, founded the monastery "St. Archangel Michael" near Ivanovo. The village church of Krasen is one of the few built in the 17th century. Almost all the churches in the villages of Lom River Valley were built in the 19th century. It is a single church built of stone, used for tombstones. According to local legends, the Lord builds a paradise of human souls, while people build the House of the Lord of tombstones.

Rock-Hewn Churches of Ivanovo

The rock churches are in the Valley of Rusenski Lom River near the old village of Ivanovo. They have the status of archaeological reserve and are under the protection of UNESCO.

High on the cliffs of 40-50 meters above the ground, the natural caves were expanded by the monks and made in churches and cells. The living conditions were austere-bridging the connection with the Earth and growing daily relationship with God. Historical sources attest to the presence of figures from the history of the second Bulgarian Kingdom in the monasteries. Some researchers managed to read in the inscriptions on the rocks the King's name and indicate the location of his grave.

It is assumed that George Terter I became a monk and led a humble life in the monasteries of the Lom River valley.

The images on the walls were almost wiped out, only those on the ceiling are left. There are 25 fields in which were painted New Testament scenes, showing the last days of the life of Jesus Christ.

Pisanets village is located 30 km away southeast of the town of Rousse, along the Beli Lom. Around the village there is a ProtoBulgarian fortress on two hills, which played a strategic role in the region in the 13th-14th century. At this time the castle was equal in importance to the medieval town of Cherven. Pisanets was the regional center of the old Bulgarian iron industry. Along the banks of the Beli LOM you can see numerous caves, some of which were used for churches and monasteries.

About an hour away from our town is the large Nisovo monastery where you can see a 700-yearold elm tree which has witnessed a large part of the Bulgarian history. Local people call it the tree of wishes – they rest up to it, wish three things, then write them in three pieces of paper, and throw them into the waters of the river Lom. Which of the "wishes" goes first – that of the wishes will come true. According to experts and lovers of birds in this area may be observed multiple birds that elsewhere could not be found-the Golden Eagle, Egyptian vulture, Ruddy Shelduck, black stork.

Roussenski Lom Nature Park

The legend about the origin of the name of the village of Koshov. In the present the doe is a symbol of God's mother-the monastery was probably with the patron the Virgin Mary. Friends of the birds could also monitor many of the rare species. In these places since time immemorial the man and nature lived in balance. In the cultural-historical zone of the Nature Park you should not light a fire and dispose waste.

Tourism

Rusenski Lom Natural park offers very good conditions for cave and cycling tourism. For tourists looking for extreme experiences the Park offers canoe rafting, trekking, horse and bike riding, rock climbing.

Protection

Protection and maintenance of the Nature Park is a difficult but compulsory action when faced with constantly growing global consumption. Our increasing needs bring about bigger volumes of production, and this puts strong pressure on natural capital (water, forests, and agricultural land) for extraction of natural resources and for waste and greenhouse gas management. At the beginning of February a lot of flat places along the river were flooded.





The students have learnt that since the Nature Park had been founded there was no deforestation in the area.

At the beginning of the project the students from the clubs "UNESCO" and "My world" were divided into teams. The first one had to compile information about the Nature Park "Roussenski Lom", its flora and fauna.

Their peers from the second team had to do research on three samples - an acorn, an oak tree and saprobic fungus. The third team was responsible for the artistic work-photos, maps, a logo.

At first the students, some of which have no previous experience working on such kind of projects, were timid and they lacked self-confidence.

Step by step, under the supervision of their teacher and more experienced peers, they became more creative with more constructive ideas.

A great variety of activities were proposed so as to reach the final goal. A lot of meetings with the local people from the villages in the Nature Park took place where students heard interesting legends relating to the origin of the names of the rock churches, monasteries and villages. At the end of that short-term project one could notice a students' increased responsibility to the environment and its protection.



The mud on the bicycles did not prevent the students from achieving their goal. What is more, the unsuitable weather conditions make them meet with determination the challenges that lie ahead.

On the whole, the young researchers came to the conclusion that God has given them the natural beauty but it's their duty to preserve it for the next generations.

School coordinator: Silviya Ruseva Teachers: Hristiana Koseva, Presian Bonev, Pavlin Banev, Victor Minchev, Hristo Simeonov, Daniel Borislavov, Alpay Mustafov and the students from "UNESCO" and "My World" clubs Vocational School of Electrical Engineering and Electronics, Rousse

The beauty of the reserve "Codrii"

Acknowledgements

This project consumed a significant amount of work, research and dedication. Still, implementation would not have been possible if we did not have a support of many individuals and organizations. Therefore we would like to extend our sincere gratitude to all of them.

First of all we are thankful to Mr. Iurie Apostolachi, Director of the "Moldsilva" Agency and Mrs. Victoria Covali, adviser at the same Agency for their openness and logistical support.

As well, we are grateful to Mr. Vitalie Gogu, director of Reserve "Codrii", Mrs. Ecaterina Barcari, vice-director of Reserve "Codrii" and Mr. Nicolae Sturza, scientific collaborator for informational support and cooperation, for providing necessary guidance concerning projects issues. Without their superior knowledge and experience, the Project would like in quality of outcomes, and thus their support has been essential.

Introduction

Those who once travelled to Moldova were eternally charmed by the beautiful landscapes stretching between the Dniester and Prut Rivers. They say that Moldova resembles the legendary Mesopotamia with its garden-towns and its agricultural lands. These are spread out like a mosaic among the forest areas, meadows, small rivers and pictures que lakes – which form true natural oases for a very diverse wildlife.

Many of these areas are protected as prime examples of Moldova's unique natural heritage. The oldest scientific reserve of Moldova is "Codrii" Reserve, founded by the Decision of The Council of Ministers of SSRM on 27th of September, 1971, located near the village of Lozova, about 50 km from Chisinau. Currently, the reserve surface constitutes 12 300 hectares. It is divided into three functional zones-a strictly protected zone, the buffer zone, and the transition zone.

The Head Office of the Reserve is situated near the village of Lozova, Strășeni district. The Reserve is subordinated to Forestry Agency "Moldsilva" and works according to special Regulations adopted by the Government.

The beauty of the reserve "Codrii"

The strictly protected zone includes areas with animal habitats and rare plants that have a universal scientific value. Any activity, except research and protection activities, is prohibited. The buffer zone surrounding the strictly protected area, being intended to limit the impact of human activities. It consists of forest formations similar to those it surrounds but are degraded and requires reconstruction. The transition zone is a band of about 2 km, which extends around the pad area. It consists in fact of agricultural land to public or private destination. Any form of economic activity that does not affect the natural system is authorized to do.

The nature here surprises by the variety of forms and species that are rare or can disappear. There are about one thousand species that are under state protection that includes a half of Moldovan fauna, 43 species of mammals, 145 species of birds, 7 species of reptiles, 10 types of amphibians and more than 10 thousand species of insects. Oaks and beeches predominate here.

I. Hidden Legends of "Codrii"

Codrii are famous by the multitude of legends and adventures to which they have been witnesses. Codrii were those who saw how Moldova was born and was raised. Ancient forests were the first house, when Dragos-Vodă dismounted and then forests grew the bravest and the most beautiful people. It was once a prince named Dragos. It was a good manager and a clever ruler, and master of hunting. He liked very much to hunt bison, bears, deer, wild boars and wolves. The legend says, that he was walking to hunt with his warriors Dragos crossed the mountains to the east. Through the mountains, in the path of Dragos and his mighty men, came out an aurochs or a bison, greater than a bull with horns bristling with thick neck, strong hoofs, with long black hair, with fierce staring eyes, with wide nostrils, coming from an unknown part of Codrii.



Dragoş and his men fought with the bison, who took them into the Codrii, near a river. In this fierce battle, his dog Molda, had drowned in the water of this river. After Dragoş beheaded the bison, he gave the name Moldova to the river, in memory of his dog. Then, Dragoş settled in those

territories, in the heart of the woods. He founded the actual country called Moldova and the bison became the symbol of his power, represented on the coat of the arms, which has been preserved till today.

The nobleman's lake

It says that the nobleman's lake was built long ago by people of village Lozova. They gathered stone by stone, worked day and night to bring up a great lake. Lake swans and vegetation were awesome. Surrounded by flowers and bridges, thousands of people came to Codrii to see it's beauty. However, after the wars waged consecutive years, the lake was destroyed. Currently, the nobleman's Lake was rebuilt, but hasn't retained the glory of other times.

Hâncu Monastery

Many legends are being kept in the ancient woodland – Codri. One of them is linked with the foundation of a beautiful orthodox monument – Hîncu convent. They say that in those distant times, the local nobleman Michael Hincu with his daughter found the shelter in this forest from Tatars' pursuit. Tired travelers stopped for rest at one of the forest glades and Michael Hincu promised to build here a church in case he and his daughter would be able to escape from enemies. Moreover, in 1678 the church was constructed. Nowadays the Hincu Convent symbolizes the inviolability of the Orthodox faith.

II. Discover natural Reserve "Codrii"

The natural forestry unique value of the "Codrii" Reserve built up its large diversity of faunistical, floristical, landscape, ecosystemical forestry complexes, and also, by its historical, cultural, scientific didactical importance, has been mentioned often by the first-rate naturalist specialists and by the state personalities from our country and from abroad.

The scientific researches council and the technical-engineer staff of the "Codrii" Reserve is eager, in any season of the year, to offer to all jointly interested, the possibility to become acquainted on life with the forestry landscape's miracle.

The beauty of the reserve "Codrii"

The Nature's Museum

The nature's museum has a thematic aspect: groups of mammalians, birds, amphibians, reptiles and insects are seasonally ornament and presented here. The museum has season's sections. The sector presenting an autumn scenario has in its frame: wild boards, squirrels, martens, birds. In the winter scenario - the weasel, the roebuck and many winter guest birds. The spring-summer scenario represents the big variety of birds specific for these seasons: the wrens, the silvias, the blackbirds.

Here there are exposed 32 species of mammalians, that is more than 85% of the whole number met in the Reserve.





Photos: Vasilița Cristina

The Monasteries-cultural monuments

Căpriana Monastery

Located in one of the most picturesque places of the Codry, Capriana is the oldest and beautiful monastery, dates back to the early 1420s being initially built of wood.



Căpriana Monastery



Hancu Monastery



Codrita Monastery



Suruceni Monastery

III. Flora

The geographical location of the reserve is favorable to the reproduction of more than a thousand species of plants. It includes almost half of the entire flora specific to Moldova. Also, another favorable condition is soil.

A great part of reserve's flora is consisted by trees, mostly beeches, common oaks and oaks. In addition, there are pine trees forest.





Photos: Vasilița Cristina

Vascular plant flora of the reserve includes more than 40% of all species of flora Moldova. On the territory of the reserve are growing 18 species of lichens, macromycetes, 69 species of bryophytes, 774 species of filum, ferns and angiosperms.

Mosses

Mosses are in the phylum Bryophyta, which formerly also included hornworts and liverworts. These other two groups of bryophytes are now placed in their own divisions. There are approximately 12,000 species of moss classified in the Bryophyta.



The beauty of the reserve "Codrii"

Anemone ranunculoides

Anemone ranunculoides (the yellow anemone) is a species of herbaceous perennial plant. It's occasionally found as a garden escape. It flowers between March and May.



Photos: Vasilita Cristina

Pulmonaria officinalis

Pulmonaria officinalis is a herbaceous perennial plant of the genus Pulmonaria, belonging to the family Boraginaceae, that flowers in March-April.



From winter to summer, intense changes can be observed. In the following pictures we can see the evolution of forest's flora: early spring (left) and middle of summer (right).



Photos: Vasilița Cristina



IV. Fauna

The animal world of the reserve illustrates quite large forest complex fauna of Central Moldova. The Reserve's animal world is consisted of 225 vertebrate species (45 mammalians, 153 birds, 8 reptiles, 10 amphibians and 10 species of fish). The invertebrate animals (worms, molluscs, spiders and insects) constitute about 1178 species. The most representative species of mammalian are: the common deer, the roebuck, the wild boar, the common marten, the badger, the European wild cat, the fox, and the hare.

The common deer

The common deer is an acclimated species in the Rep. of Moldova. The number of common deer on the Reserve's territory is about 40-45 samples.



The Japanese spotted deer

The Japanese spotted deer is an acclimatized species in the Rep. of Moldova. It was introduced in the Forests of Central Area in 1978-1983, and at present reaches the number of about 70 samples in the Reserve.



Theroebuck

The roebuck on the Reserve's territory is met very frequently in a number of about 70 samples. It prefers the sunny forests with large openings, rich in grassland thickets. Their longevity reaches 7-8 years, rarely 10-12 years.



The beauty of the reserve "Codrii"

V. Rare species

The flora's rare species represent about 113 species belonging to 90 genera and 44 families. The Red Book included the following species: Bulgarian onion (Nectaroscordum bulgaricum), strawberries longifolia (Cephalanthera longifolia), strawberries grandiflora (Cephalanthera damasonium), and black vetch (Lathyrus Niger).

Some rare species grow only in Moldova reserve:







Some mammalian species are considered to be rare and have been included in The Red Book. Some of these are: the European wild cat, the common marten, the polecat steppe, the bicolored white-toothed-shrew. Arather reduced number have:





Ourfeelings...

Moldova's green hills and pastoral countryside, serene lakes and vast fields of sunflowers - that is steeped in "a peculiar charm, which is due to a long and turbulent history of this land. Although often cited as the poorest country in Europe, Moldova is a small, but beautiful country with a fascinating history, culture and people. Its lush green hills, dense forests, and the wonderful sunflower fields are a treat to the eye. The land is very fertile, and vineyards occupy a major part of the region. After visiting the Reserve "Codrii" we remained deeply fascinated by the beauties that lies between the rivers Nistru and Prut. One of the most beautiful and impressive places in Moldova in the Reserve Codrii. The cultural heritage of Moldova is rich with traditions and customs. Its professional craftsmanship brought the country an international fame by making fine objects of embroidery, wood carvings, clay, knit carpets, metal decorations, baskets of osier.

Unfortunately, all this beauty isn't as unspoilt as it seems and as it should be. The human impact is hardly sensed here: there are wraps and plastic glasses thrown after picnics, there are polluted water, soil and air. It's a pity that you may found old packs from food, cookies or other things when you go for a walk in the Codri's forests. We remained deeply disappointed that our society doesn't care about our natural treasures because we, the today's people have a lot of possibilities to help our environment develop safely, like organizing some expeditions and campaigns of collecting and cleaning the green zones that surround us.

We thought that it would be useful to share our thoughts, experience and feelings with other people, so we decided to organize a presentation The beauty of reservation Codri in our lyceum. Also, we wrote an article what was posted on our site www.liceu.asm.md to remind to all of our mates that there is something we can do about deplorable situation of our environment.

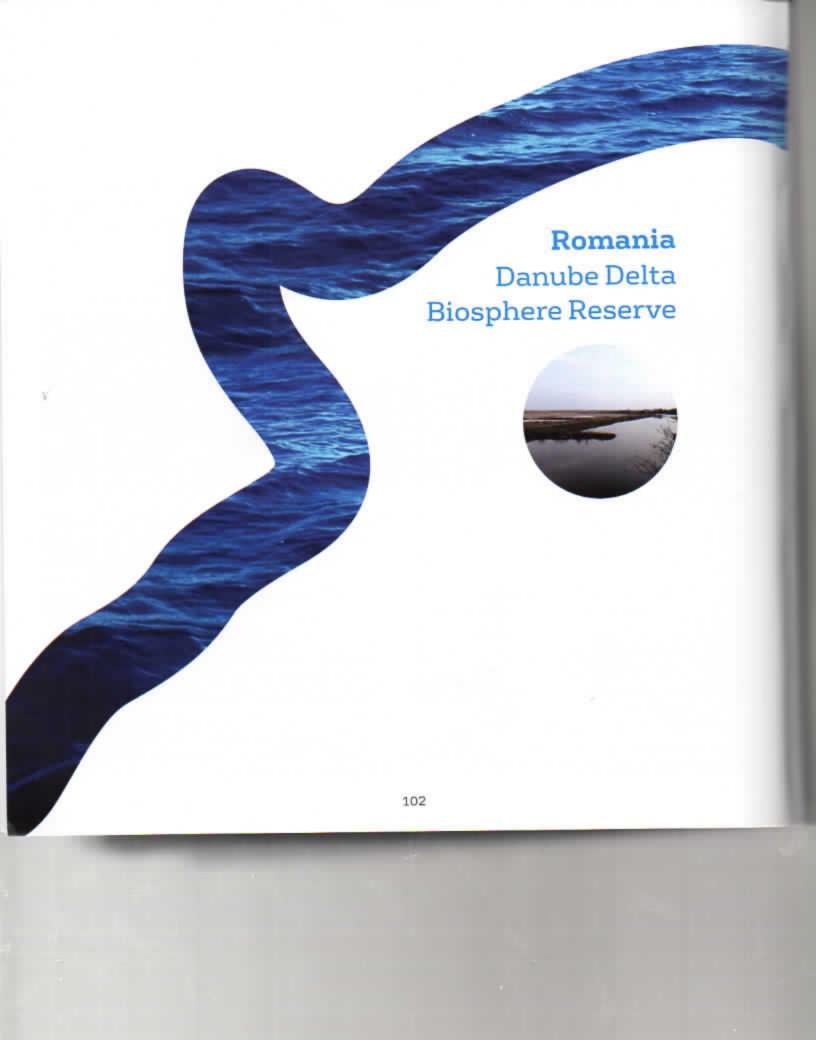
Sources in Romanian:

Manic Ş., Negru A., Cozari T., Barcari E., Cârlig V., Manic Gh. - Rezervația Codrii. Diversitatea Biologică, Editura Știința, Chișinău, 2006; Ursu A., Barcari E.-Solurile Rezervației "codrii", Tipogr. Aşm, Chişinău-lozova, 2011; Palancean A., Comanici L.-Dendrologie, Tipogr. Centrală, Chișinău, 2009;

Agenția "Moldsilva" - Rezervația Codrii, Editura Știința, Chisinău, 2011;

Гавриленко В., Гавриленко Н., Гончаров П., Чегорка П. - Лесной Заповедник "кодры", Типография Цбнти, Москва, 1988.

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Danube Delta Biosphere Reserve

Delta is an intermediary area zone between land and water, comparable to an outdoor laboratory, rich in plant and animal species, some of them endemic, threatened and endangered species. Environmental conditions are specific and therefore habitats (territories with living species and their surrounding environment) are fragile and full of life. The Delta has wet soils, temporarily covered with water, and plants have adapted to living in wet conditions. These are waterloving plants (called hydrophytes) and give the well-known appearance of a wetland.



In the Danube Delta there are fixed or mobile sand dune areas with psamophilic plants growing on them. Substrate can often be salty and plant species are succulent, with special adaptations to absorb water from the substrate. These plants are called halophytes. The Delta as a wetland helps in regulating horizontal and vertical water flow in the biosphere. Thus, water is stored in delta lakes, being a freshwater reservoir and a biomass reservoir that supports delta ecosystem functioning. Then from these lakes, by evaporation, water contributes to cloud formation and later returns to Earth through rains, beneficial to all land creatures. In other words, wetlands contribute to the proper functioning of hydrographic basins.

Danube Delta Biosphere Reserve

An immediate and necessary benefit brought by the delta is the self-purification of water by capturing and retaining sediment with excess nutrients and pollutants (e.g. heavy metals) and water retention in the soil more then in other soil types. But lately the Danube Delta suffered maninduced modifications, with or without understanding the mechanisms of deltaic ecosystems functioning. Activities in the Delta, in a not too distant past, were focused only on exploitation of natural resources without taking into account their regeneration rate, while nowadays we seek sustainable development, respecting the support capacity and adapting accordingly the consumption of resources from natural ecosystems.

The complexity of ecosystems in the Delta is easy to discover, and a visit into the "kingdom of water" is an enjoyable and educational experience for the general public, accustomed to life in urban and rural areas. Visitor will recognize habitats (presented in ascending order of their numbering) in which there are species of plants, invertebrates and vertebrates, will understand the complex ecology of wetlands, and will experience wilderness and natural life on the chosen tourist routes.



The Danube Delta is the third largest delta in Europe, and is located in Southeastern part of Romania, covering an area of $580.000\,\mathrm{ha}$

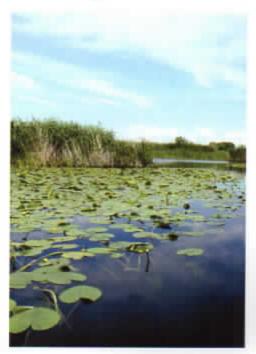


Sustainable development is achieved by exploiting renewable natural resources (reeds, fish, etc.) in a controlled manner using ecological techniques while at the same time preserving the traditions of over 20 nationalities living together in this area for hundreds of years.

In the current context when everyone discusses about climate changes we must keep in mind that these are influenced by our actions themselves, more or less controlled.

His apparently small part of the world is a shelter for more than 7400 species of which:

- over 135 species of fish
- over 54 species of mamals
- over340 species of birds



Danube Delta Biosphere Reserve

The Danube bifurcates and distributes its waters on the three main arms:

Chilia, with its many ramifications and islets, is the youngest and longest (120km); its strength is given by the fact that it carryes the greatest water volume and sediments (58%). Throughout its evolution, it has formed several secondary deltas—the first one in the Pardina depression, the second one downstream Chilia Veche village and the third, beginning downstream from Periprava. Riven navigation takes place on this arm, the most important ports being Izmail and Vilcov (Ukraine);

Sulina, was preferred for maritime navigation according to the studies of the Fanube Commission (1856) which led to meanders' correction and the deepening of the riverbeds between 1862 and 1902. As a result, the length was reduced from 92km to 63.7 km, while the water volume and transported silts increased from 7-8% to 18.8% (currently) compared to the Chilia arn which before, used to carry 70%. Sulina Town, as entrance port for marine vessels suffered changes in its economic development. Due to the silt deposited at the arm's mouth, a canal was built stretching progressively into the sea, (currently has 10km) in order to protect the navigation.

St. Gheorghe, the most Southern and the oldest arm with a length of 109km, in 1980 - 1990 suffered changes by correctingthe six meanders and shortering down to 69.7km. The volume of water and the silts flowing on this arm is about 23.2%. Beforeits end into the Back Sea, from the Sfantul Gheorghe arm, another arm branches out on the right side, which in turn, bifurcatesinto Garla de Mijloc and Garla Turceasca.

Both reach a bay called Meleaua Sfantu Gheorghe, resulted from the occurrence (1897) and the development of the islands Sacalin (currently joined to the mainland, forming a 19km long peninsula). On the left bank of Garla Turceasca, (the Turkish stream) the wooden Turkish Lighthouse building was there from 1862 until 1978 when it burned down.



Saraturi Murighiol

As a stricted protected area Saraturi lake is located between the villages of Plopu and Murighiol, bounded to East by Murighiol village, to South by Plopu - Murighiol road, and to the West and North, by Murighiol hills. Murighiol Saraturi Lake is situated on the Danube terrace, it has a length of about 2km and a maximum width of 500m. The lake waters are highly saline chlorosulphate type, that is where the name came from, unsuitable for fish but having plenty of zoo and phytoplankton. It is the only place in Romania where a Mediterranean Gull colony - around 150 pairs (Larus melanocephalus) which are nesting on the small islands on the lake, Black - headed Gull, around 400 pairs (Larus ridibundus), Common Tern (Sterna hirundo), around 2000 pairs, some pairs of Black - winged Stilt (Himantopus himantipus), Kentish Plover (Charadrius alexandrinus), Red-crested Pochard (Netta rufina) and Avocet (Recurvirostra avosetta). Due to low salinity characteristic, in winter time, the lake is frozing only when the temperature is very low and on short periods. This fact leads to a high concentration of fowls which find plenty of food and shelter, especially for: White-fronted Goose (Anser albifrons, A.erythropus), Swan (Cynus cygnus) and a lot of limnicole birds. The habitats around are represented by: Mediterranean salty meadows (Juncetalia maritimi); halophile Mediterranean and thermo - atlantic brushwood (Sarcicirnetafruticosi); halo-nitrophile brushwood (Pegano-Salsoletea).



Danube Delta Biosphere Reserve

The route is proposed for tourists that are visiting Murighiol area and addressed, mainly, to those passionate for birds watching, Saraturi Lake being an optimal habitat for various species of birds: black-winged Stilt, Avocet, Red-crested Pochard, Black-headed Gull, Common Tern and Black-necked Grebe, protected under Strictly Protected Area Saraturi–Murighiol.

The route begins in Murighiol and continues on the DJ 222 country road for about 3 km, up ti the take and then it continues around the lake path for about 9-10 km, returning to the country road. Along the route, stops can be made to observe different birds species hosted by the lake and its surroundings, depending on the season. Appropriate hiking equipment is recommended, together with bird watching devices (binoculars or telescopes), with great results. The route has a length of about 13 km and can be done in about 3-4 hours by foot.

The origin of the name comes from the Turkish language, which in translation means violet lake.

Bird Watching

Mainly tools used for bird watching are: telescope, binoculars and a camera.





Recurvirostra avosetta Pied Avocet

Is a protected species in Europe. It nests in marine bays, lagoons, brackish lakes or lakes with shallow water. It has a slim silhouette with white plumage and black spots. The long thin beak is curved upwards. When searching for food in water moves his beak from side to side. It feeds on insect larvae, crustaceans, worms (oligochaeta and polychaeta), molluscs, small fish and aquatic plant seeds or roots. Chaotic development of infrastructure in wetlands, anthropic disturbance and pollution are the main threats concerning the existence of this species. Many nests are destroyed by cattles, dogs, gulls (Munteanu, 2009).





However, from cattle grazing in coastal pasture areas benefits nesting of this species (BirdLife International, 2012). A more strict control of grazing is required only during egg laying periods. Reduction of anthropic disturbance and limiting populations of natural predators species that entered the delta (raccoon dogs and jackals) may represent protective measures for this species.

Danube Delta Biosphere Reserve

Califarul Alb (Tadorna Tadorna)

The common shelduck resembles a small short-necked goose in size and shape. It is a striking bird, with a reddish-pink bill, pink feet, a white body with chestnut patches and a black belly, and a dark green head and neck. The wing coverts are white, the primary remiges black, and the secondaries green (only showing in flight) and chestnut. The underwings are almost entirely white. Sexes are similar, but the female is smaller, with some white facial markings, while the male is particularly crisply coloured in the breeding season, his bill bright red and bearing a prominent knob at the forehead.



Ducklings are white, with black cap, hindneck and wing and back patches. Juveniles are similarly coloured, greyish above and mostly white below, but already have the adult's wing pattern. The call is a loud honk.

As a curiosity, common shelduck nest in fox lairs, without attacking each other, but they rather protect each other from common enemies.

Himantopus himantopus Black-winged Stilt

Modification of natural habitats due to global warming and habitat deterioration by human intervention are the main threats for this species. Nesting birds are drastically affected by water level fluctuations. It has many natural enemies: dogs, foxes, raccoon dogs, gulls (Munteanu, 2009). It requires protection of nesting and feeding sites during breeding periods or during migration. It is necessary to limit the number of predators affecting this species (Munteanu, 2009).

Nests in shallow marshes and lagoons inside the Danube Delta. Use to gathers in small groups. It has very long red legs, plumage is white with dark back and wings. Taking the food from water or sand, the black-winged stilt feeds on insects, crustaceans, molluscs, spiders, worms, newts, fish eggs, small fish and aquatic plant seeds.







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