

JUNIOR ECO-EXPERT PROJECT



6th JUNIOR ECO-EXPERT PROJECT

Veselí nad Lužnicí, Czech Republic
6-11 June 2004

„Ground, water and air in Veselí mikroregion over Lužnicí”

Höhere Lehr-Anstalt Umwelt u. Wirtschaft, Yspertal, [A]

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Zespół Szkół Ponadgimnazjalnych nr 1 im. Władysława Szybińskiego, Cieszyn, [PL]

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Project description

Participating schools in this programme have organized a similar project in their own countries. The last meeting in Veseli was the 6 project. The Polish school was included in this programme for the first time. Every country was represented by a group of 20 students.

This time the meeting was organized by the school of environmental studies in Veseli over Lužnici. The school was founded 10 years ago. This is a beautiful new object with a boarding- school and a modern gymnastics hall. The school has modern biological and chemistry laboratories. The Faculty of the Charles University in Prague have actively participated in this project.

The students worked in six international teams which explored the microregion of The **Třeboň Basin** in the drainage-basin of the Lužnici river, in the South of the Czech Republic. The goal of project was to understand the composition of water, air and soils in this unique terrain. The didactic trails over swamps had left unforgettable impressions. The participants of the programme had the opportunity to get know the culture of the region. During the tour we visited castles, museums. We observed the architecture of old towns and villages, construction of 16 eternal dams and canals. We watched the peats.



The schedule of our activities

Day 1

We left the 11.00 a.m. on our way to Veseli we did sightseeing in the city of Telcz, with a renaissance city square market (City is on the list of the UNESCO treasures). We arrived to Veseli at about 6 p.m.

Day 2

The official opening of the project “Ground, water and air in Veseli mikroregion over Lužnici”. Students joined to individual thematic groups of the project. Then the groups collected ground and water samples and also explored the air.

Day 3

A touring trip to marshes and peats. Tourist trips in the afternoon. Each group toured a different locality. The Polish group toured the Jindřichův Hradec castle.

Day 4

Working in a laboratory. Groups studied earlier collected samples and analyzed the data. A didactic trip connected to a subject matter of investigations.

Day 5

Day 5 the studies groups compared results of explores with the gained knowledge about mikroregion in the form of a multimedial presentation. Then they introduced their presentations during official presentation with following participants: The Headmasters of schools which part in project and the representatives of local authorities. After the end of scientific part of the meeting there was artistic performances from participating schools were observed.

Day 6

We Leave Veseli. Sightseeing of Prague. Return to Cieszyn at about 11.45 p.m.

The Character of Třeboň Biosphere Reserve

Veseli over Lužnici is a town of 6000 people in the south of the Czech Republic. Lužnica is the main river which diverts water from Třeboň Basin. The whole territory of Třeboň Biosphere Reserve, is 700 km², It was included in 1977 under UNESCO patronage. In 1979 the ministry of Culture of Czechoslovakia provided for this terrain additional protection by creating a **Landscape Reserve**. On the terrain of the Reserve there are about 500 fish ponds founded by Jakub Krčín. Both natural and artificial biotopes created by man caused significant concentration of diverse species of plants and animals on a comparatively small area.

The characteristic landscape elements of Třeboň Reserve are peats, wet meadows and forests which are places for the colonies of birds - IBA(Important Bird Area in Europe) and animals. A system of hundreds fish ponds connected with irrigation - drainage channels was created in the XVI century. The system of ramparts and canal locks is today an ancient technique. There are 500 cultivation pounds in about 10 000 ha area at the time.

On muddy, wet terrains has developed specific peat vegetation , rare trees species - Muddy pine (*Pinus rotundata*), flowers - Ordinary swamp (*Ledum palustre*), water lily (*Numphat luteum*), narrow-leaved woolen (*Eriophorum gracile*), mosses and shrubs. We can see species which are on the verge of extinction for example dewers and club-mosses. Among animals there are otter and moose.



*Ilustracja 1: Čerwené Blato reserve, the view of the blooming Swamp (*Ledum palustre*)*

Isolated ecosystems create similar conditions for forests of northern tundra and taiga although they are located in the Central Europe. Above the banks of Lužnici river we can see sandy dunes and similar terrains to grasslands' forests. The microclimate creates conditions for the development of

varied insects, butterflies, bees, spiders, ants and snakes. There are here for e.g. moths and butterflies species being 'Post-glacial relicts' for e.g. *Lipidoptera*, Auser Auser. There are over 150 species of birds here. Among them, *Ardea cinerea*, *Aithya fuligula* (grey heron) and *Heliaetetus albibicula*. In the rivers and ponds we see many species of fish (except home-bred carp).

Sedimentary rocks (mainly sandstones, loams and limestone) are the geological base of the Trebon Basin. They were used for product glass and ceramics. The silica soil is used for dynamite and for filtration beer

8 500 habitants live mostly in small towns (68), villages and settlement. The administrative center is Třebon – an old town (7300 occupants).

The realization of project in investigative groups:

“Dendrology” – under the direction of Mr. J. Michal, technical engineer

The group recognized species of trees and growing plants in different kinds of environments for e.g. in Čerwenè blato reserve. It is placed on about 470 m a.s.l. The surface has the area of 331,43 ha and is about 10 000 to 12 000 year old. There are glacial relicts of florae and fauna. We can observe the last step of slow drying process on this swamp in these days.

The minimum depth of swamp is about 3,1 m to 7,6 m and the age of trees is estimated at just about 200 years.



The "Peat analysis" – under the direction of Mr . Bumerl

Magdalena Musioł, Izabela Staniek, Grzegorz Malchar and Paweł Michalski took samples of the peat in reserves: Borkowickie Blato and Kozohloudki.

The Samples were taken from different depths. The Polish group alongside with the Austrian group dealt measurement of phosphorus content the collected samples. Hungarians with the help from Czech students measured the content of potassium. The analysis was made by photometric method and also by preparing a colorful standard scale. The highest content of phosphorus was confirmed in a sample from Borkovická Blata reserve - 35-100 mg/kg dry mass on depth 200cm. Samples that showed the highest content of potassium from that reserve also - 270mg/kg dry mass was collected on depth of 300 cm.

“Water analysis from rivers, ponds and marshes” – under direction of Mrs. L. Zahorowa

Mateusz Wojtas, Jakub Hołyst, Wojtek Skudrzyk shared their marking work at active and convertible acid,

content of potassium, phosphates and nitrates in the water with the foreign friends.



The “State investigation of oaks sanitary condition” – under the direction of doc. M Švecova

After the theoretical preparation the group estimated the state of foliage, barks, presence of pests, bracket fungi and the state of crown of 40 oaks. Sanitary condition of trees was estimated in the scale from 0 (healthy) to 5 (dry). Most of oaks were estimated in this scale at 2 and 3.



The “Microbiological control of air and water” – under the direction of dr Gyurusiova

Renata Stonawska, Barbara Śliż, Konrad Broniek during the first expedition took samples of water. They took the Petri dishes with feeding media and exposed them to air for 10 minutes. The dishes were kept in the temperature of 30°C for two days to stimulate bacterial growth. Then they analyzed the bred cultures under the microscope.

“Analysis of soil and water in Veseli region n/L” – under direction of eng. Sochorova.

Michalina Grygiel, Natalia Żurek and Kinga Szczotka dealt with exploration of water and soil. The samples of water were taken in nine places from lakes near Veseli. In taken samples there was marked content of NH_4^+ and NO_3^- ions.

The official end of the programme

The representatives of all the school met in the school auditorium. The school headmasters, university faculty, local government official were formally invited to this occasion.

Each team presented results of the three-days' work in a form of 10 minutes multimedia presentations. After official ceremonies there was time for our 15 minutes artistic performances.



Summary

1. We would like to express our great appreciation for the Principal of the Veseli school and the representatives of the school. district in Yspertal for inclusion of our school in this program.
2. The main accomplishment was collaboration in the conduction of most interesting work focused on exploration of complex environmental terrain together with participants from other countries.
3. We broke cultural and linguistic barriers and used English to communicate and conduct our research work.
4. We established international collaborations which are now especially important in a unified Europe.

One of the most important educational experience was the preparatory stage of our research work. We had study the basic principles of water and soil sciences. We had a “hands-on” experience in the work of the sewage plant in Cieszyn We improved a lot of skills in scientific and colloquial English

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