



Registered summaries of research posters

1.

Title: The Baltic Sea Project programmes to promote the interests of science

Authors: Linda Narutavica; Egija Sladze; Diāna Ivaskevica; Sintija Igaune

School: Lielvarde secondary school, Latvia

Supervisor: Skaidrite Vilcina; Agita Berzina; Ingrida Tamane

Helpers: Ieva Cedere; Daiga Martinsone

Summary

Activities in the Baltic Sea Project programmes "Phenological studies", „Air Quality” and „Environmental Measurements” promote students' interest in science. It is an opportunity to take measurements, store information in the long term, to compare own and other students' results, analyze and conclude on changes for both in nearby destination and across Baltic Sea region.

2.

Title: Water quality

Authors: Anna Skrastina; Lana Burdeiko; Ieva Ozola; Oskars Otankis; Aksels Jancis; Gustavs Grāveris

School: Aizputes secondary school, Latvia

Supervisors: Ausma Bruneniece; Aija Antone; Vika Vasilevska

Helpers: Andris Kikulis; Anda Deksnē (teacher)

Summary

Through water quality studies in rivers, lakes and the sea, we have mastered the skills of scientific inquiry. Starting with the hypothesis formulation and ending with an analysis of the results. We have learned some practical water research methods. For example, do phosphate ions analysis with spectrophotometer and determined the transparency of water samples using the light sensor.

3.

Title: Phenological results from Bothnian Bay, Oulu in the spring 2015

Authors: Liimatta Siiri, Turita Viljami, Meriläinen Essi, Lohi Niina

School: Kello School, Finland

Supervisor: Tuovinen Mervi

Summary

The thermal spring starts in the end of April or beginning of May in the Northernmost parts of Bothnian Bay. The growing season starts in the beginning of May (Finnish Meteorological Institution years 1981-2010). Birds. In March the first Whooper Swans (*Cygnus cygnus*) and Greylag Goose (*Anser anser*) migrate into the Oulu area, about 65° N 25°E. In April thousands of swans, bean goose (*Anser fabalis*) and cranes (*Grus grus*) arrive. The first birds in the order of Passeriformes arrive also in April. Some years, like 2013, the Common chaffinch (*Fringilla coelebs*) arrives already in early March. White wagtail (*Motacilla alba*) migrates to Oulu area in the end of April or beginning of May. This year the first time we saw it 2nd of May. The delicate voice of European robin (*Erithacus rubecula*) was heard first time April 27th 2013; April 20th, 2014 and May 4th 2015. of Starlings (*Sturnus vulgaris*) are not very common this far in North and they are usually seen first time in the beginning of May (May 12th, 2014 and May 6th, 2015). Gulls (*Laridae*) arrive in March and April, for example we saw the black-headed gull (*Larus ridibundus*) April 15th, 2013; April 8th 2014 and March 16th, 2015. In the order of Falconiformes the Kestrel (*Falco tinnunculus*) is quite common in Oulu region and we saw it first times April 18th 2013; 20th 2014 and 15th, 2015. Plants. Coltsfoot (*Tussilago farfara*) started blossoming in the beginning of May in 2011 and 2012 and in the end of April in 2013-2015. Common horsetail (*Equisetum arvense*) had its sporangium in May in 2011-2014 and in the end of April in 2015 and the first dandelions (*Taraxacum*) are also seen in the end of April and beginning of May. In the end of May or beginning of June first starts blossoming Marsh marigold (*Caltha palustris*) and then wood sorrel (*Oxalis acetosella*; May 25th 2014), Blueberry (*Vaccinium myrtillus* May 24th 2014) and May Lily (*Maianthemum bifolium* June 10th 2014) is "June Lily" in Oulu area.



4.

Title: Air Quality, Bird Ecology and Phenological Studies

Authors: Sylwia Mroszczyk, Michał Szydełko, Witold Zardzewiały, Mariola Tomaszek, Anna Masłoń

School: High School No 1 in Łańcut, Poland

Supervisors: Ludmiła Smęt – Dudziak

Helpers: Marcin Ziajka - translation

Summary

Our observations and research were conducted in Łańcut, Poland and its neighbouring area. They show that air quality in our area is getting better thanks to building a combined heat and power plant and decline of local industry. As a result we recorded greater development of different species of lichens as well as improvement of the condition of deciduous trees. As far as our bird observations are concerned, we did our research on local water reservoirs, which are natural habitats for many species. Our research shows that every year the number of various specimens increases. What is more, due to warming of the climate, many species of birds either stayed for winter season or returned earlier in the spring. The last field of our studies was connected with phenology, which is associated with one of the most natural phenomena - a cycle of events happening in accordance with passing seasons. According to our observations, because of warming of the climate, phenological seasons do not coincide any longer with the calendar ones.

5.

Title: Green Roofs/Monitoring the Climate

Authors: Birthe Zimmermann

School: Denmark

Supervisor: Science on Stage

Helper: Michael Jensen

Summary

Climate change leading to monster rain and floodings.

6.

Title: ESD Rice Project

Authors: Miki Saito

Country: Japan

Supervisor: Dr. Jose Roberto Guevara, Dr. Yoshiyuki Nagata and Ms. Wongduan Suwansiri

Summary

ESD Rice Project is an international collaborative learning project in the Asia and the Pacific. Rice is a common staple food in many parts of the Asia-Pacific region. The project aims to nurture children to contribute to sustainable development as 'Agents of change' through the common theme of "rice" though implementing school and community based ESD practices. Through rice, learners will understand global challenges, think of solutions and take actions for positive change, towards creating a sustainable community and a sustainable world. In 2013-2015, the Project has been conducted at 19 schools from elementary level to secondary level from six countries (India, Indonesia, Republic of Korea, Japan, Philippines and Thailand). HOPE Framework which aims to improve quality of education utilized during the project. There are five outcomes of the project first, HOPE Framework was effectively utilized among the participating schools. Second, teachers who nurture 'Agents of change' trained through in-service trainings. Third, international understanding deepened through international collaborative learning activities. Fourth, collaboration between school and community build through the project. Lastly, ESD Rice Project contributed to improvement in the quality of education of participating schools.



7.

Title: Moss bag research

Authors: Anne Kettunen

School: Meri-Porin Upper Secondary, Finland

Helpers: Iida Ranne, Roosa Kaunisto, Marianna Koskimaa, Loviisa Salokangas

Summary

The aim is to study lead and cadmium concentrations in the air by using moss balls. When it rains, the moss absorbs water and air impurities with it to the cells. The measuring area was in the surroundings of polluting industrial plants in Harjavalta and Pori. We also measured some foreign samples which our friendship schools had sent to us. The moss was dried properly in 40 °C and from the dried moss the cadmium and lead contents were measured by (graphite oven) atomic absorption spectrophotometer in Huntsman. Our school has organized those measurements already twenty five years. In comparison with the last year the heavy metal concentrations in the air of Harjavalta has decreased in spite of increased production. Air in Harjavalta is worse than in Pori because there is more heavy industrial than in Pori. The measured heavy metal values from foreign samples were mainly low.

8.

Title: Air quality research in Radvilos gymnasium territory

Authors: Žymantas Černius, Dominykas Makštutis

School: Vilnius Radvilai Gymnasium, Lithuania

Supervisor: Genovaitė Kuzmickienė

Summary

Our main goal was to examine air quality and inform people about air pollution and bad consequences. The air quality has been watched in busiest Vilnius streets and our school area. Three methods have been used: mathematical calculation, VGTU's mobile laboratory and diffusion test tubes. Research has showed that air pollution level in Vilnius is reasonable level. Research information has been presented to school students. And the number of preventive measures was suggested.

9.

Title: Air Pollution With SO₂ Examination By Using Moss Method

Authors: Dominyka Vaiginytė, Dominika Jarmal, Laura Litvinaitė

School: Vilnius Radvilai Gymnasium, Lithuania

Supervisor: Miglė Parachnevičienė, Gražina Drebigienė

Summary

One of the most urgent issues nowadays is pollution, as everyone wants to live in a clean environment. We had to examine air pollution with SO₂ around Vilniaus Žemynos Gymnasium by using moss method. It has been found out that our environment is polluted with SO₂ (gasses).

10.

Title: Air pollution research methods in Kasiadorys Algirdas Brazauskas gymnasium in 2011-2014 year

Authors: Monika Kunigonytė, Martynas Žilionis

School: Kaišiadorys Algirdas Brazauskas Gymnasium, Lithuania

Supervisor: Laima Sabaliauskienė

Summary



Our research is about methods people can use when researching air pollution in different areas. We have talked about quite simple methods, which we use in our school. As the topic "Science of Change" requires, we have set out the methods in a specific way - from the simplest, like counting species of lichen or observing fir trees, to working in modern mobile laboratories. The main idea of the work is to show how air pollution investigation methods changed in Kaisiadorys Algirdas Brazauskas gymnasium through the past three years.

11.

Title: Constitution of species and number of population of chosen species of birds in the area of Gdynia Bay and near Kościuszko Square

Authors: Kinga Muza, Aleksandra Gładka

School: X Liceum Ogólnokształcące w Gdyni, Poland

Supervisor: Ewa Faka

Helpers: Brian Dall Schyth from Denmark

Summary

In winter, there are a lot more gull birds than anatidae birds because gull birds have no problem with gaining food due to the fact that they mainly feed on fish. While the anatidae have smaller access to their food. In addition, ducks are often fed with bread by humans what causes deaths and illnesses. Bread, which they eat, is frequently stale and mildew in birds' stomachs. Other species of birds that occur in winter are Great Cormorants and Bar-Headed geese. These geese are not typical species to be found in the Baltic Sea area but in the area of Central Asia.

12.

Title: Invasive species

Authors: Adrian Szczecina

School: I Nowodworski Secondary School in Krakow, Poland

Supervisor: Malgorzata Fedor - Kubas

Summary

The presentation depicts invasive species which are in the area of Poland and Eastern Europe. At the beginning the definition of an invasive species is given. Later, the zebra mussels are described. It generates a lot of losses especially in the industry of water treatment. The next invasive species characterised in the presentation is the Sosnowsky's hogweed. It is dangerous for people and animals and has a negative impact on agriculture. The aim of the presentation is to inform that the issue of invasive species, which do not have natural enemies and influence functioning of the ecosystem, is a big, difficult problem.

13.

Title: Floods in Finland

Authors: ...

School: Linnajoen koulu, Finland

Supervisor: Jaana Räty

Summary

14.

Title: Physical and chemical parameters of Põlva County rivers

Authors: Triin Mirjam Tark, Helen Piir, Reimo-Taavi Lõbu

School: Põlva Ühisgümnaasium, Estonia

Supervisors: Lily Veidenberg, Krista Untera, Urve Lehestik

Summary



Water temperature, pH level, oxygen concentration and transparency were measured by Vernier measuring instruments. Nitrites, nitrates, phosphates and ammonium ion concentrations in water were measured with water analysis suitcase "Ökotest". Water flow rate and calculated flow was also measured. Measurements were taken from the highest sandstones of Põlva County scenic rivers - Ahja, Piusa and Võhandu. It was found that water in all studied rivers corresponds to the characteristics of the first category drinking water requirements. The slogan of our homecounty - "Põlva County - a greener life" - turned out to be true. Ahja, Võhandu and Piusa rivers flowing into the Baltic Sea clean water.

15.

Title: AGS going green

Authors: Anna Louise Todsén, Caroline Jessen, Line Bleshøy, Ilirjana Morina

School: Alssundgymnasiet Sønderborg, Denmark

Supervisor: Christian Gars Lindekran

Summary

This year, the environmental council of our school, Alssundgymnasiet Sønderborg, has had two main focuses: to raise awareness about the environmental challenges that we are currently facing and to make our school and everyday life more sustainable. In the beginning of the school year, we did a survey of all the students at AGS, about how much they knew about The Baltic Sea Project, the schools environmental council and the year's Green Flag-topic; sustainability. The results of the survey showed that many students didn't know much about any of these things. We got the idea of a full day dedicated to the environment and sustainability, to raise awareness and to educate the rest of the school about these matters. During this day, we got all the students involved in the process of making our school more sustainable, and they came up with many ideas on how to make our school more environmentally friendly. At the conference in Talinn we would like to present these ideas and encourage the other participants of the conference to come up with their own ideas.

16.

Title: Research on distribution of woodlots in the area of the village of Iwkowa in Southern Poland

Authors: Sylwia Glogowska

School: I Nowodworski Secondary School in Krakow, Poland

Supervisor: Agnieszka Osipowicz, M.A.

Summary

INTRODUCTION Woodlots are clusters of trees, bushes and other plants, mainly herbaceous plants, which grow between fields. They are also the habitat for animals living in the wild. Their existence in the nature is essential for maintaining biological variety. They are also a characteristic element of the landscape.

SUMMARY The aim of the paper was to analyse the distribution of woodlots and the factors which influence their occurrence. The research done in the vicinity of the village of Iwkowa indicate that the distribution of the woodlots has a connection with, for instance, the presence of borders, watercourses and the occurrence of woods.

RESEARCH METHODOLOGY The method of phytosociological pictures and the analysis of satellite pictures were applied in the paper.

CONCLUSIONS 1. The areas not used for agriculture, borders, are subject to ecological succession which favours the development of woodlots. 2. The presence of waters favours the development of the woodlots, which prevent soil erosion and limit the dangers connected with possible floods. 3. The species composition of the woodlots depends on the species composition of phytocenosis of the surrounding woods.

17.

Title: Environmental project "Around the World at Tsarskoye Selo reservoirs"

Authors: *Students of the Center for Nature and environment*

School: *Centre for Nature and Environment of State educational institution of additional education of children Palace of children (youth) creativity of the Pushkin district of St. Petersburg, Russia*

Supervisor: *Zelenkovskaia Galina*

Helpers: *Filippovih Elena, Drozdova Alexandra, Oshovskaia Kristina*



Summary

The staff and students of the Center for Nature and Environment, understanding responsibility for conservation of the aquatic environment of the Baltic Sea, for the health and well-being of citizens and the environment for future generations, realize their environmental strategy in the field of water conservation. One of our activities in this field is a school monitoring of natural waters of native land. The purpose of the project is environmental education and training of students through the organization of school ecological monitoring of water. At present, students monitor 19 water bodies. We found that the ecological quality of water in reservoirs studied worsens. Monitoring data indicate increasing eutrophication. It is believed that the cause of the "disease" of the aquatic ecosystem of Pushkin Park lies in the destruction of water pipes, which delivered water in Tsarskoye Selo and Pavlovsk for over 200 years. A serious threat to waterways of the area where the town of Pushkin and Pavlovsk are situated represents the beginning of construction of a new satellite city "South", which is located on the catchment area. According to environmentalists, Kondakopshino forest is a green lung of St. Petersburg, and the swamps are the source of recharge for the ponds in Pushkin historical parks, such as Alexander, Catherine, Babolovskiy ones. If this oasis of Nature is destroyed, the south of St. Petersburg will suffocate with the smog, and the famous ponds in the parks will become shallow or even dry out.