



PEDAGOGICKÁ
FAKULTA

ABSTRACTS

XIII. Student's Conference of Biological, Ecological and Geological Themes 10th February 2016



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Masaryk University
Faculty of Education

***XIII. Student's Conference of Biological,
Ecological and Geological Themes***

10th February 2016

ABSTRACTS



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Program

09.00–09.10 Opening of the Conference

09.10–09.20 **Beníček Tomáš, doc. RNDr. Jindřich Štelcl, CSc.**

Příprava naučné stezky s význačnými geologickými lokalitami
na Uherskobrodsku

*Preparation of an Educational Trail with Significant Geological Localities
in the Uherský Brod Region*

09.20–09.30 **Horáková Monika, doc. RNDr. Zdeněk Řehák, Ph.D.**

„Biodiverzita- to jsme my" - využití zoologické zahrady v základním vzdělávání

„Biodiversity is Us“ – Usage of the Zoo in Elementary Education

09.30–09.40 **Kalandrová Nikola, Mgr. Robert Vlk, Ph.D.**

Mapování společenstev rovnokřídlých v okolí obce Osvětimany

Mapping of Orthopteran Communities in the Environs of the Village Osvětimany

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*Monitoring of Populations of the Mediterranean Slant-faced Grasshopper and
the Green-winged Grasshopper in the Region of Bzenec*

09.50–10.00 **Lamparter Tomáš, Mgr. Blažena Brabcová, Ph.D.**

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Educational Collection of Fruits

10.00–10.10 **Paličková Monika, Mgr. Natálie Čeplová**

Vybrané jedovaté rostliny a povědomí o nich

Selected Toxic Plants and Common Knowledge of Them

10.10–10.20 **Partlová Silvie, Mgr. Blažena Brabcová, Ph.D.**

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Algal Flora of Selected Springs near to the Brno Reservoir

10.20–10.30 Coffee break

10.30–10.40 Pikartová Veronika, Mgr. Martina Jančová, Ph.D.

Potravinové senzibilizace a psychosociální vliv dietního stravování na zdravý
rozvoj žáků 2. st. ZŠ

*Susceptibility of Second Grade of Elementary School Pupils to Food
and The Psychosocial Influences of Diet Food on Healthy Development*

10.40 – 10.50 Bc. Brabencová Eliška, Mgr. Libuše Vodová, Ph.D.

Návrh materiálních didaktických prostředků pro výuku vybraných botanických
témat na ZŠ

*The Concept of Material Didactic Instruments for Teaching Selected Botanical
Topics at Elementary Schools*

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Floristická studie s přípravou na projektový den v okolí obcí Tvarožná Lhota
a Kněždub

*Floristic Study and Preparation for the Teaching Day in the Surroundings
of the Villages Tvarožná Lhota and Kněždub*

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Přírodní a těžební poměry dobývacího prostoru velkolomu Mokrá a jejich využití
při výuce neživé přírody

*Natural and Mining Conditions of Mokrá Quarry and their Use in Teaching
Abiotic Nature*

11.10 – 11.20 Filipová Šárka, Mgr. Blažena Brabcová, Ph.D.

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Algae of the Stream "Stržský potok" in the PLA Žďárské vrchy

11.20 – 11.30 Jansová Eliška, Mgr. Natálie Čeplová

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Natural Conditions and Flora of the Area Southeast of the Village Příštpo

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*Using the Integrated Thematic Teaching Model in the First Class of Primary
School*

11.40 – 12.00 *Vote for the best Bachelor and Diploma thesis with the announcement
of the winners*

12.00 End of the Conference

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Preparation of an Educational Trail with Significant Geological Localities in the Uherský Brod Region

Tomáš Beníček, Jindřich Štelcl

The bachelor thesis is focused on a geological characteristic of White Carpathians near the town of Uherský Brod. The theoretical part of the thesis depicts natural characteristics of the monitored area, including the main types of rocks and minerals protruding from the geological localities. The practical part of the thesis is realized by fieldwork and photography. The practical part deals with preparation and processing the materials, as well as with creating an educational trail among geologically interesting localities in this area. The outcome of the work is the draft of information boards for each locality.

Key words

Western Carpathians, White Carpathians, Magura Nappe, flysch, neovolcanities, trachyandesite, basalt, Komňa, Nezdenice, Bánov, Bystřice pod Lopeníkem, Záhorovice, Starý Hrozenkov

Algae of the Stream, “Stržský potok” in the PLA “Žďárské vrchy”

Šárka Filipová, Blažena Brabcová

The bachelor thesis deals with the algal flora in a longitudinal profile of the stream Stržský potok in the PLA Žďárské vrchy. The theoretical part of the thesis consists of a description of the taxonomic structure of the flora at chosen places and natural conditions in the area nearby the stream Stržský potok. The taxonomical structure of communities of benthic cyanobacteria was observed at seven localities in the longitudinal profile of the stream Stržský potok from the source to the confluence. The samplings of cyanobacteria, algae and the physical-chemical parameters measurements were carried out on three dates – spring, summer and autumn 2015. There were 29 samples of cyanobacteria and algae taken over the course of the experiment and a total of 80 species found. The most frequent algae were diatoms.

Key words

Algae, diatoms, taxonomical structure, stream Stržský potok, PLA Žďárské vrchy

“Biodiversity is Us” – Usage of Zoo in Elementary Education

Monika Horáková, Zdeněk Řehák

The bachelor thesis deals with the campaign “Biodiversity is Us” in which The Brno City Zoological Garden is involved with. The thesis involvement in the campaign is a result of the creation of work and methodic sheets for primary school pupils and teachers. Employees of the Zoo Brno will use the content and results of the thesis.

The thesis is divided into a theoretical part and a practical part. The theoretical part consists of brief clarification of elementary terms such as: diversity, zoological garden and RVP ZV. The theoretical part also covers the general characteristics of the Africa Pavilion and a selected species of animals. The practical part is made up of the observation, sets of photographs of animals, and the creation of work and methodic sheets that will be used by primary school pupils and teachers directly associated with the Brno Zoo.

Key words

Biodiversity, zoo, animals, Africa, RVP ZV

Natural Conditions and Flora of the Area Southeast of the Village Příštpo

Eliška Jansová, Natálie Čeplová

The thesis discusses the characteristics of the natural conditions and the flora in the territory southeast of the village Příštpo. The thesis consists of the theoretical part and the practical part. The theoretical part includes the characteristics of the selected area (geomorphic, geological, pedological, climatic, and hydrologic characteristics, as well as characteristics of the flora and fauna).

The practical part is based on field research. The field research was focused on vascular plants in a selected territory within an area of 3 square kilometers. The result is a list of vascular plants that are found in this territory. In the discussion the results are compared with an existing knowledge of botanical research of this area and its surroundings. 150 taxa of vascular plants were found in the researched territory.

Key words

Natural conditions, natural park Rokytňá, vascular plants, flora, Jaroměřice nad Rokytnou

Mapping of Orthopteran Communities in the Environs of the Village Osvětimany

Nikola Kalandrová, Robert Vlk

The thesis deals with the mapping of Orthoptera groups near the village Osvětimany. The theoretical part of the thesis is devoted to a description of the Orthoptera group, characteristics of Ždánicko-litenčický bioregion, and characteristics of the surroundings of the village Osvětimany in terms of natural conditions. It also contains a description of specific localities where the field research was conducted. These localities offer a variety of living conditions for insects. The practical part of the thesis summarizes the results of the collection of Orthoptera representatives caught or observed on the chosen experiment sites and compares them to the studies by other authors.

Key words

Orthoptera, insect community, mapping, Osvětimany

Monitoring of Populations of The Mediterranean Slant-faced Grasshopper and The Green-winged Grasshopper in the Region of Bzenec

Adriana Kolářková, Robert Vlk

The bachelor thesis deals with the monitoring of populations of the Mediterranean Slant-faced Grasshopper and the Green-winged Grasshopper in the area of Bzenec. Until now, only three works related to this topic have been published. Therefore, this is not a very well examined issue and the results could be used as the foundation for articles in scientific journals.

The research was conducted at the military training site in Bzenec, which is located about 2 km south of Bzenec. This is a fairly large area where two sites were set to measure Grasshopper occurrence. The method CMR (capture-mark-recapture), which means trapping, marking and subsequent discharge back into the environment, was used for the research. The trapping was conducted five times in two-week intervals from July through September 2015. There were 24 individual Mediterranean Slant-faced Grasshoppers captured and subsequently marked in total. There were 15 green and 5 beige males, 3 green and 1 beige females recorded. There were no Green-winged Grasshoppers found during the experiment so its occurrence was negative.

Key words

*Mediterranean Slant-faced Grasshopper, *Acrida ungarica*, Green-winged Grasshopper, *Oedaleus decorus*, region of Bzenec, bioregion of Hodonín, Czech Republic*

Educational Collection of Fruits

Tomáš Lamparter, Blažena Brabcová

The objective of the bachelor thesis “Educational Collection of Fruits” is to create a collection of plant fruits that have been preserved and dried and to make the photographic atlas to be used as an educational tool for students and teachers of the Department of Biology at the Faculty of Education at Masaryk University. The theoretical part of the thesis is a treatise on the preparation of items for the collection and photographic atlas. The thesis includes the system of classification of fruits and presents selected representatives of all categories.

Key words

Fruit, collection, photographic atlas, education

Selected Toxic Plants and Common Knowledge of Them

Paličková Monika, Natálie Čeplová

The objective of the thesis is to describe commonly occurring poisonous plants growing in our country that may be encountered by primary school pupils. The theoretical part of the thesis deals with a description of the plant itself, its occurrence, ecology and reproduction with a further goal to describe the effect of the toxic substances if contained on the human body. Along with a description of poisoning, the thesis will also focus on the possible first aid actions and explain how to proceed in finding the poisonous plant.

The practical part of the thesis was conceived by a questionnaire. It deals with issues related to general toxicity of plants, as well as focusing on the specific selected plants' toxicity. Questions concerning the selection of poisonous plants focused on the characteristics of plants (appearance), their toxicity and possibly some unique traits associated with the plants. The conclusion will be coupled with the knowledge of pupils, and will be used for further processing in the diploma thesis.

Key words

Elderberry, toxic substances, aubergine, poison, first aid, buttercup, belladonna, yew

Algal Flora of Selected Springs near to the Brno Reservoir

Silvie Partlová, Blažena Brabcová

The bachelor thesis deals with algal flora in chosen springs near the Brno Reservoir. The samplings of cyanobacterium and algal were taken and the physical-chemical parameters of water were measured in eight springs in spring, summer and autumn period in 2015. The highest number of species was found during the first sampling in the natural spring called “Na rokli”. Diatoms were the most frequent algae. The natural conditions of the observed area of the Brno Reservoir are described in the thesis as well.

Key words

Algae, cyanobacteria, diatoms, springs, the Brno Reservoir

Susceptibility of Secondary Grade of Elementary School Pupils to Food and The Psychosocial Influences of Diet Food on Healthy Development

Veronika Pikartová, Martina Jančová

The bachelor thesis focuses on the issues of susceptibility to food and its influence on psychosocial development of second grade of elementary school pupils. The bachelor thesis considers whether dietary restrictions disrupt the integrity of development in some way. The objective of the bachelor thesis is to evaluate how significantly determinative the element of susceptibility to food is according to the disruption or non-disruption psychosocial development of secondary school pupils. The evaluations are based on a questionnaire survey and appropriate compensatory possibilities of solutions can be found. The thesis is divided into two main parts – a theoretical part, which is based on the study of themed literature, and a practical part, which deals with the questionnaire survey. The practical part consists of two questionnaires and their evaluation. The practical part also includes the concept of methodological procedures and activities in selected subjects of elementary schools, which could lead to better adaptation of children with susceptibility to food in the normal school environment.

Key words

Susceptibility to food, food intolerance, diet catering, psychosocial development

“Biodiversity is Us” – A Nature Trail for Primary School Pupils

Eliška Procházková, Zdeněk Řehák

The bachelor thesis deals with leading primary school pupils towards cognition and conservation of nature by way of the campaign “Biodiversity is Us!” lead by The Brno City Zoological Garden. The theoretical part of the thesis describes the characteristics of biodiversity, European and Worlds associations of zoos and aquariums, and The Brno City Zoological Garden. It also includes descriptions of certain kinds of animals. The practical part of the thesis consists of worksheets for primary schools pupils and methodological worksheets for teachers supplemented with photos related to the tasks. The results of this nature trail are evaluated according to the new knowledge gained by the pupils.

Key words

Biodiversity, ZOO Brno, WAZA, EAZA, environment

The Concept of Material Didactic Instruments for Teaching Selected Botanical Topics at Elementary Schools

Eliška Brabencová, Libuše Vodová

The diploma thesis deals with the material didactic instruments used for the teaching of bryophytes and ferns, horsetails, and lycophytes at primary schools. These didactic instruments are designed for basic types of lessons and for fieldwork.

The concept is preceded by a questionnaire given to teachers of natural history at primary schools. 50 teachers from Brno and its surroundings took part in answering the questionnaire. The survey contained suggestions of topics and didactic instruments, which teachers should be interested in. According to the chosen topics such as bryophytes and ferns, horsetails and lycophytes, the following instruments were created: a simplified atlas for the determination, a simplified key for the determination, and flashcards for didactic games.

The thesis consists of a theoretical part, a practical part, and a didactic part. The theoretical part deals with the creation of the questionnaire, characteristics of the didactic instruments and the status of the selected botanical topics (bryophytes and ferns, horsetails, lycophytes) in the curriculum.

The practical part is devoted to the evaluation of the questionnaire, the analysis of the textbooks for primary school, and a description of the different designs of didactic instruments (atlas of selected bryophytes, key for the determination of ferns, horsetails, lycophytes and the flashcards for didactic games). The pupils of The Primary School Jihomoravské náměstí tested the Atlas of the selected bryophytes during their fieldwork. The rest of the instruments were tested in the basic classroom lesson setting at The Primary School Bosonožská. The results of the verification of the suggested didactic instruments at two primary schools are discussed in the didactic part of the thesis.

Key words

Didactic instruments, teaching of the natural history, botany, primary school, bryophytes, ferns, horsetails, lycophytes, questionnaire, key for the determination, atlas for the determination, material didactic instruments

The Integrated Thematic Instruction Model tested on The Region of “Brno, Královo Pole”

Jana Macalíková, Iva Frýzová

The thesis deals with regional elements in education at primary school. The thesis consists of two parts: an analysis of literature and research. The research part deals with the implementation of the integrated thematic instruction model, in the third year of primary school with a focus on the region of Brno, Královo Pole.

The goal of this work is to prepare complete didactic materials for integrated instruction about the region and to compare their effectiveness to conventional instruction. The first phase of the research is dedicated to the diagnosis of pupils' knowledge and attitudes to the region “Brno, Královo Pole”. The second phase involves a preparation of documents necessary for the creation of teaching materials, which are created with regard to the existing knowledge of pupils. In the third phase, the effectiveness of integrated thematic instruction is evaluated using the didactic test comparison method.

Created teaching materials represent a fundamental support for integrated thematic instruction about pupils' home region for the 3rd year of primary school. From the performed didactic test we can conclude:

- Pupils who attended integrated thematic instruction had better cognitive skills regarding the region “Brno, Královo Pole” than pupils who attended regular classes
- Pupils who attended integrated thematic instruction had a more intense attitude to the region “Brno, Královo Pole” than pupils who attended regular classes

The main contribution of this work is the combination of expert information about the region “Brno, Královo Pole” and educational materials for the third year of elementary school. The effectiveness of created teaching materials was empirically tested in cognitive and affective domain by comparing integrated thematic instruction with regular instruction. The purpose of this work is to support teachers in the region “Brno, Královo Pole” during the classes about their home region.

Key Words

RVP ZV, Man and his world, region, town, part of town, integrated thematic instruction

Floristic Study and Preparation for the Teaching Day in the Surroundings of Villages Tvarožná Lhota and Kněždub

Luděk Machynka, Natálie Čeplová

The thesis is focused on a detailed description of the floristic conditions in the areas close to the villages Tvarožná Lhota and Kněždub. It is also focused on the use of gained knowledge at The Primary School Vnorovy. The thesis is divided into three parts. The first part deals with the characteristics of natural conditions and the main vegetative types of the explored area. The second part concludes the particular research of the area. The final part designs a Biological teaching project and presents its realization at The Primary School Vnorovy. The teaching project uses the knowledge of the research.

The natural conditions characteristic include topographic, geologic, pedologic, geomorphologic, hydrologic and climatologic aspects of the explored area. The chosen area belongs to the middle part of “Dolnomoravský úval” (valley). Two-thirds of the area belongs to “Bílé Karpaty” PLA (Protected Landscape Area). The rest – approximately one third – is located in close proximity to PLA “Bílé Karpaty” and is intensively used in agriculture. The altitude of the explored territory is between 176 to 398 m and the total area is about 5 km². The river “Velička” flows through this area and belongs to the catchment area of the Morava River.

The particular research is divides the 306 taxa of vascular plants found into six vegetative types. The objective is to record the current development of plant habitats in the area.

The final part of the thesis presents the design and realization of the teaching project in class 8 concerning fieldwork in a closed area of the explored territory. Pupils are supposed to identify vascular plants and use their floristic research results in Biology lessons to ultimately improve exploration skills of their nature and environment.

Key words

Floristic study, vascular plants, Kněždubsko, fieldwork, exploring nature

Using the Integrated Thematic Teaching Model in the First Class of Primary School

Nikol Říhová, Iva Frýzová

The diploma thesis deals with the integrated thematic teaching (ITV) by using the model in the first year of primary school. The theoretical part of the thesis defines basic terms, and provides a summary of the prior resolution, knowledge of the issues, and didactic processing curriculum modeled on ITV. The practical part of the thesis focuses on the preparation, implementation and reflection of modules based on ITV for the first class of primary school pupils, while integrating the theme based on the subjects educational sphere *A Human and His World* (Člověk a jeho svět) and appropriately connects other educational subjects. The outcome of the diploma thesis is an analysis of the evaluation interviews with teachers about the possibilities of using the ITV model in teaching the first year of primary school.

Key words

Integrated thematic teaching, teaching in the first class of primary school, science education

Natural and Mining Conditions of Mokrý Quarry and their Use in Teaching Abiotic Nature

Petra Zahradníčková, Jindřich Štelcl

The thesis is focused on a characterization of the geologic and natural conditions of the southeastern part of the Moravian Karst and the opencast mining area of Mokrý and Lesní quarries in Brno-Líšeň and its application in teaching abiotic nature in primary schools.

The theoretical part of the thesis deals with the geological features of the deposits, character and adjustment of the cement production, and the history of mining and processing technologies for cement production. The didactical part of the thesis is devoted to the creation of a didactic test for the region being examined, fieldwork, and the hypotheses.

One of the outputs of the practical part is a realization of the need for fieldwork for two different types of primary school classes. Another output of this thesis is the establishment of an appropriate didactic test, evaluation, comparison, and the hypotheses creation. The thesis also contains an evaluation of the samples of the main types of lithostratigraphic limestone, which shapes the area of observation. The last part of the thesis contains a photo-documentation of the quarries and limestone for teaching purposes.

Key words

Geology, primary school, limestone, quarry Mokrý, Lesní quarry, building materials, extraction, reclamation, didactic test, fieldwork

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