

Conference Proceeding

8th Student Cloudberry Conference

Staré Polesí, Horní Malá Úpa, Krkonoše

March 20th–22th 2013



Program of Cloudberry Conference

20.3.	18:00 -19:00			arrival, dinner (goulash from the local deer)
	19:00-20:00 20:00-??	Goliáš Viktor	Geology / Hydrology	Radioactive water of the Krkonose Mts. and the Saint Vojtech spring at Horni Mala Upa (invited lecture) welcome party with live music
21.3.	9:00-9:15	Šťastná Petra	introduction	Why is this conference called Cloudberry (introduction, welcome words)
	9:15-9:45	Pawliczek Piotr	GIS/Climate	Thermal conditions of northern slopes in Karkonosze Mts. but division into climatic subregions
	9:45-10:15	Hrušková Lenka	Geology/hydrology	Springs of the radioactive medicinal water in the spa Libverda - Świeradów-Zdrój area
	10:15-10:45 10:45-11:00	Černík Tomáš coffee break	Geology / Hydrology	Radon in underground waters of Czech-Polish border: first results from the exploratory survey for radioactive mineral waters
	11:00-11:30	Knapik Roksana	Hydrology	Hydrological monitoring in the Karkonosze National Park
	11:30-12:00 12:00-13:30	Hladíková Zuzana lunch	Hydrology	Evaluation of the water quality of the upper watercourses in the Krkonose Mts.
	13:30-14:00	Jansa Václav	Forestry	Operational forest inventory in the Krkonose Mts.
	14:00-14:30	Gašpariková Petra	Forestry	Proposal of the cultivating management for the forest unite Vrchlábí for the next 10-15 years
	14:30-15:00 15:00-15:15	Bartošová Alena, Vítová Alena a Langová Lenka coffee break	Botany	Analysis of vegetation on avalanche slopes in the central part of the Giant Mts.
	15:15-15:45	Šťastná Petra	Botany	Biodiversity of vascular plants, lichenized fungi, cyanobacteria, algae and bryophytes of the Harrachova jáma cirque in the Labský důl valley
	15:45-16:15	Blahník Jan	Botany	Effect of mowing time on the flowering of Euphrasia rostkoviana in the Krkonose (Giant) Mountains
	16:15-16:45	Kosmowska Anna, Stanek Magdalena	Zoology	Concentration of the European otter <i>Lutra lutra</i> and its habitat preferences in the area of Jelenia Góra valley

	16:45-17:15	Martini- Dobrowolska Karolina	Zoology	Observations of very rare bird species in polish part of Karkonosze in recent years Ranger service in the Krkonose - impacts of the visitor flows to the protected phenomena voluntary walk to the spring Saint Vojtech and nature wellness
	17:15-17:45	Moštěk Ondřej	Ranger service	
	17:45-19:30	dinner		
	19:30-21:00			
	21:00-??	party with live music		
22.3.	9:00:00-14:00	excursion on snowshoes		<i>(will be specified due to weather conditions)</i>

Invited lecture:

Radioactive water of the Krkonoše Mts. and the Saint Vojtěch spring at Horní Malá Úpa

Goliáš Viktor, Faculty of Geology, Charles University of Prague, wiki@natur.cuni.cz

The region of the Krkonoše Mts. is known for many remarkable geological phenomena. One of them are springs of radioactive medicinal groundwater. By the radiohydrogeochemical mapping methods was discovered more than 15 previously unknown radioactive medicinal springs in the years 2005–2012. Field research works were realized mainly in cooperation of Prague and Wrocław sister institutions.

The Saint Vojtěch spring at Horní Malá Úpa is the most geologically explored object. Easy availability of this source makes suitable its healing properties for the general public use.

Student presentations:

Thermal conditions of northern slopes in Karkonosze Mts. but division into climatic subregions

Pawliczek Piotr, University of Wrocław, piotrp90@gmail.com

There is a traditional division into two climate subregions in the Polish part of Karkonosze Mountains: Karkonosko-Izerski (in the west part of mountains) and Wschodniokarkonoski (east part). The author of this presentation considers that an appointed border, which divides them, is run in completely different place. To check this hypothesis, it is going to be installed a few automatic recorders of temperature and humidity on northern slopes of Karkonosze Mountains.

Springs of the radioactive medicinal water in the Lázně Libverda – Świeradów-Zdrój area

Hrušková Lenka, Faculty of Geology, Charles University of Prague, lehruskova@centrum.cz

The region Lázně Libverda – Świeradów-Zdrój is located in the Krkonoše-Jizera crystalline complex with considerable occurrence of orthogneiss in a relatively large area. For this reason the area is very promising in light of finding the radioactive mineral water springs there. The 508 sources were tested by preliminary gamma activity measurement, overall 93 of them were chosen for the measuring of the ^{222}Rn activity. Total of 19 springs exceeds the volume activity of ^{222}Rn 1500 Bq/l and thus these springs are classified as mineral waters.

First results from the exploratory survey for radioactive mineral waters in the Chrastava – Bogatynia area

Černík Tomáš, Faculty of Geology, Charles University of Prague, polodrat@seznam.cz

Exploratory works began in this area since June 2012. Geological background of the area is very varied (granites, Jizera orthogneiss, eger rift with tertiary volcanism etc.). It has been discovered 28 new radioactive springs yet. We found also sulfur spring and exhaust of dry CO₂. The biggest attraction is the Soumar spring – it is a mineral water of Na-Ca-Cl type, with 1.5 g/l TDS.

Evaluation of surface water quality of upper flow Jizera River

Hladíková Zuzana, Institute of Chemical Technology Prague, hladikoz@vscht.cz

The project deals with the long-term evaluation of surface water quality (since 2010 years) in the territory of the Krkonoše national park in general. Closer study deals with evaluation of surface water quality of upper flow Jizera River (2012 year), from the spring to the confluence with Jizerka River, together with significant inflows from the touristic areas as Kořenov, Rokytnice nad Jizerou, Harrachov etc. There were chosen 47 sampling profiles in total. Monitoring was done from May to November 2012. Sampling intervals were monthly and attention was focused on evaluation of indicators TOC, COD, pH, conductivity, some selected cations and anions.

The proposal of (silvi)cultural management on the territory of forest governance Vrchlabí in the Krkonoše Mts. National Park, in unit 421 for the following 10–15 years

Gašpariková Petra, Mendel University in Brno, Gasparikova.Petra@seznam.cz

The diploma thesis is focused on proposal of (silvi)cultural and harvesting management in unit 421 on the territory of forest governance Vrchlabí. One part of the thesis is aimed to set the types of forest evolution, types of plant covers and segment of type of plant covers in unit 421. The objective of the study is to plan the detailed recovering and educational impacts in separate groups of plant covers. The proposed impacts will lead to formation of nature-friendly and rich structured forests. Reserve of plant covers and the basic dendrometric characteristics were detected in group of plant covers 421Ai₂₇ and 421Bk₂₇ on 88 sample plots on total area 500 m². The determination of types of forest evolution, types of plant cover and segment of type of plant cover was done due to project of Ministry of Environment (2010): „The methodology for regulation of farming management in production forests“ with specifics for the Krkonoše National Park. The results are figured on maps created in

ArcGis program with the relevant verbal commentary. The dendrometric characteristics were processed in programs STATISTICA 10 and Microsoft Excel 2010. The study should help to the Administration of the Krkonoše National Park as a basis data for an additional planning of management disposals which are part of modification of forest management plan.

Analysis of the vegetation on avalanche slopes in the central part of the Giant (Krkonoše) Mts.

Vítová Alena, Bartošová Alena, Langová Veronika, Faculty of Science, University of South Bohemia, vitova.alena@centrum.cz, bartosova.alena@gmail.com, veronikalangova@seznam.cz

In our study, we tried to estimate the influence of snow avalanches on vegetation dynamics. A response of vegetation on avalanche events was observed at several avalanche paths in the Giant Mts., Czech Republic, where avalanche occurrence, frequency and extension is monitored from 60ties. The study is based on (1) observation of changes in herbaceous vegetation and (2) dendrochronological data analysis. (1) In avalanche paths disturbed in different time (from 1998 to 2010), we recorded species composition and cover in disturbed sites in avalanche starting zone. By their comparison, we tried to find out a successional consequence of vegetation to explain a spatial pattern of vegetation at paths. (2) Next, dendrochronological methods were used to estimate the avalanche effect on a tree deformation and growth. A comparison with avalanche cadastre allowed us to reconstruct big avalanche events further in history.

Effect of mowing time on the flowering of *Euphrasia rostkoviana* in the Krkonoše (Giant) Mountains

Blahník Jan, Faculty of Science, Charles University of Prague, blahnikj@seznam.cz

During the works on Black and Red List for the Flora of the Krkonoše Mts. was found missing knowledge about the distribution and consequent information of the plant species *Euphrasia* in the Krkonoše Mts. Genus *Euphrasia* is the hemiparasite and can positively increase the biodiversity of mountain meadows. The aim of this study was to fill this „white places“, therefore were established management experiments for analyzing of the influence of the mowing term to number of flowering individuals on selected localities (6 localities with 5 blocks at each locality) of East and West Krkonoše Mts. The impacts were done since June to July of 2011. The altitude of monitored localities reached from 660 m to 1002 m a.s.l., the expositions varied from south, southwest, east and west slopes, the pH of soils reached from 5,78 to 7,65 with accessible phosphorus in concentrations from nearly 0 to 2,76 mg/kg. The result is that the term of mowing significantly influences the number of flowering individuals – the sooner was the meadow mowed the higher number of flowering individuals were founded there. For the good maintenance of the *Euphrasia* population, I recommend to mow meadows around 15th June and remove the litter.

Concentration of the European otter *Lutra lutra* and its habitat preferences in the area of Jelenia Góra Valley

Kosmowska Anna, Stanek Magdalena, Faculty of Evolution Biology and Ecology, University of Wrocław, anka.kosmowska@gmail.com, magdalena.anna.stanek@gmail.com

Abstract: The European otter, a mammal from the weasel family, had been systematically exterminated throughout the 20th century. It resulted in nearly total decline of its population. Sudety Mountains was one of the latest areas in Poland recolonised by this animal. The aim of this presentation is to describe recent concentration of otters in the main rivers of Jelenia Góra Valley: Kamienna, Wrzosówka, Podgórna, Jedlica, Łomnica, Łomniczka and Karpnicki Potok. There will be presented also some information about the otter's habitat preferences.

Presentations of the employees from Czech and Polish Administrations of the Krkonoše/Karkonosze National Park:

Hydrological monitoring in the Karkonosze National Park

Knapik Roksana, Administration of the Karkonosze National Park, roksana@kpnmab.pl

Water is the most valuable component of nature in the Karkonosze National Park. Pollution and pressure of new ski resorts development create a need of carefully control of water conditions in the Karkonosze Mts. Since 2011 Administration of Karkonosze National Park carries on wide-developed hydrological monitoring. Three representative river catchments (Kamieńczyk, Wrzosówka and Łomnica) were chosen for quantity and quality water analysis. Also the meteorological data is analyzed for all of these three areas.

Operational forest inventory in the Krkonose Mts.

Jansa Václav, Administration of the Krkonoše National Park, vjansa@knap.cz

Relatively new method of forest inventory is used for determination of actual forest condition as a nature ecosystem and also enables to describe a dynamics of various the forest stands. Methods of statistical selective searching are established on fact that only very small part of studied locality is analyzed in detail. In practice it means that the studied unit is composed from specified complex of inventory areas. This method is used for creating of new management plan for the Krkonoše National Park.

Biodiversity of vascular plants, lichenized fungi, cyanobacteria, algae and bryophytes of the Harrachova jáma cirque in the Labský důl valley

Šťastná Petra, Kučera Jan, Halda Josef, Hauer Tomáš, Mühlsteinová Radka, Administration of the Krkonoše National Park, pstatstna@krap.cz

The aim of this study was to find new species and their habitats of the lichenized fungi, cyanobacteria, algae and bryophytes in the Harrachova jáma – a small cirque in the Labský důl Valley. We began to inventory this rugged and large area in 2011 and finished the in 2012. For the mapping of 130 m high rocks and other not easy accessible places we used rope techniques. We also collected samples of water lichens from most of waterfall in the Labský důl Valley. We have found several of new, missing or endangered species of lichen fungi (*Catolechia wahlenbergii*, *Pilophorus strumaticus*, *Dermatocarpon luridum*, *Ionaspis lacustris*, *Porina lectissima*, *Sporodictyon cruentum*, *Verrucaria funkii*, *Verrucaria margacea*). From bryophyte species was the most significant finding of *Lophozia atlantica* which was thought to be for long time missed. Special microclimate of this locality host for example cold-climatic *Anthelia julacea* a *Sphagnum lindbergii*, or boreal-oceanic *Marsupella alpina* and many other rare and interestnig species. Than we found 108 species of cyanobacteria and algae, interesting findings were *Chroococcus Montanus* – second locality in the Czech Republic, *Scytonema mirabile*, *Scytonematopsis starmachii*, *Stigonema informe*, *Cosmarium decedens* and *Staurostrum pileolatum* – species with very rare morphotypes within our country. From the view of vegetation was whole area mapped into vegetation units. Valuable findings were new localities for several rare species e.g. *Prunus padus* subsp. *borealis*, *Carex capillaris*, *Poa laxa*, *Trichophorum alpinum*, *Drosera rotundifolia*, *Dactylorhiza fuchsii sudetica*. In the future we would like to continue in mapping of other difficulty accessible parts of not discovered Labský důl Valley and finish mapping of all waterfalls in this locality.

Observations of the rare bird species in the Polish part of Karkonosze Mts. in recent years

Dobrowolska-Martini Karolina, Administration of the Karkonosze National Park, karolina@kpnmab.pl

The dotterel *Charadrius morinellus* is in Poland extremely rare species and nests only exceptionally. In last 20 years only one case of breeding was recorded in the Tatra Mts. During the 19th century and until 1946 the dotterel bred in the Karkonosze Mts. on the Polish-Czech frontier, mostly on the Czech side in the subalpine zone in Luční hora Mt. area. Since 1990 it has been repeatedly observed on the Czech side, but breeding was confirmed only in 1999 and 2002. There was no certain information about observations of the dotterel on the polish side in the western part of the Karkonosze Mts. so far. On 13th, 16th and 17th May 2009 the adult female and male of the dotterel was observed in the alpine tundra in the area of Śnieżne Kotły and Wielki Szyszak on the Polish side of the Karkonosze. No nest or young were found so there are no evidences of breeding.

On 19th May 2012 a male of a Rock Trush *Monticola saxatilis* in a breeding plumage was recorded in the Śnieżne Kotły area in the Polish part of the Karkonosze Mts. The

individual was presumably a migrating bird. Since the only data on encounters of the Rock Thrush in this region are related to the 17th and the 19th century, this is the first contemporary record of this species in the Polish part of the Karkonosze Mts. In the Czech part of the Karkonosze Mts. the Rock Thrush has bred in shortly after the World War II and also the species was recorded in 1955, 1969 and 1971.

On May and June 2012 the singing males of a Greenish Warbler *Phylloscopus trochiloides* were observed several times in various locations in the Polish part of the Karkonosze Mts. Birds were recorded in different, not necessarily optimal habitat for the species, which suggests, that at least some of these individuals was the migrant birds. Greenish Warbler is a rare breeding species in the Karkonosze Mts. and it is characterized by the extreme deviations of the population size in this area. It is also known, that during this period in 2012 the Greenish Warbler was recorded also on many stands in the Czech part of the Karkonosze massif and, moreover, in different parts of Poland.

All observations mentioned above were accepted by the Polish Avifaunistic Commission.

Ranger service in the Krkonoše – impacts of the visitor flows to the protected phenomena

Moštěk Ondřej, Administration of the Krkonoše National Park, omostek@knap.cz

The presentation deals with the problem impact of visitors to the nature and landscape items and phenomena of the Krkonoše Mts. related to the tasks of service of Park Rangers. There are shown practical examples of the indifference of the human population to maintaining the unique nature of the park for other visitors and future generations. The aim of the presentation is to explain "Why we can not do everything what we like to do in the Krkonoše National Park" and find new possible compromises and solutions to regulate about 6 million tourists visiting the park every year.