



FIELD REPORT

Marketing title: Belarus Wetlands

PI name: Natallia Zeliankevich

Research site/ region: North, mid and south Republic of Belarus

Country: Belarus

Research site latitude/ longitude: 27-29 degrees E, 54.5-56 degrees N

Protected area status: State National Parks "Pripiatsky" and "Braslav Lakes"; Especially Protected Natural Territories (EPNT) "Osvejsky", "Morochno" and "Krasny Bor"; bog "Brotsky Moch" is non-protected area.

Period covered by this report: 6 Jul 2009 - 17 Aug 2009

Report completed by Natallia Zeliankevich on 10 Dec 2009



НАЦЫЯНАЛЬНАЯ АКАДЭМІЯ
НАВУК БЕЛАРУСІ

ДЗЯРЖАЎНАЯ НАВУКОВАЯ ўСТАНОВА
ІНСТЫТУТ ЭКСПЕРЫМЕНТАЛЬнай
БАТАНІКІ ІМЯ В. Ф. КУПРЭВІЧА

220072, г. Мінск, вул. Акадэмічная, 27
тэл. +375 (17) 284-18-51; факс: 284-18-53

НАЦИОНАЛЬНАЯ АКАДЕМИЯ
НАУК БЕЛАРУСИ

ГОСУДАРСТВЕННОЕ НАУЧНОЕ УЧРЕЖДЕНИЕ
ИНСТИТУТ ЭКСПЕРИМЕНТАЛЬНОЙ
БОТАНИКИ ИМЕНИ В. Ф. КУПРЕВИЧА

220072, г. Минск, ул. Академическая, 27
тел. +375 (17) 284-18-51; факс: 284-18-53

E-mail: exp-bot@biobel.bas-net.by

Dear Volunteers,

We thank everyone who visited project BELARUS WETLANDS in the summer field season 2009!

We did so much with you! As you know, these data will be used in geobotany for the next 50 years. All the data will be processed during winter time and used in the future for preservation of our nature. We also use the data to write scientific articles and books. So, next year comes in the light of the book about the vegetation of the bog Yelnya. Each volunteer that worked at the bog Yelnya will be able to find his name in the "Acknowledgments."

We thank all of you very much for your kind help on the field. Without your help we could not do so much. All our researchers remember the fine time that has been spent together with you, our wonderful, hard-working, cheery, inquisitive and courageous volunteers!

We hope that you have not forgotten the Belarusian hospitality, Belarusian Land, our people and our wetlands, of course.

All our best to you and thank you so much,

Natasha Zeliankevich

Dmitry Grumo
Oleg Sozinov

SECTION ONE

Top highlight from the past field season

For the first time we are carrying out complex research on the vegetation of raised bogs in Belarus. There are now 300 high-grade geobotanical descriptions, 7 new ecological profiles with 32 new typological sample plots on the bogs created, on which the full volume of the geobotanical research (including ecological, phytocenosis, dendro-chronological research, construction of ecological profiles, the account of phytomass, studying of soil conditions) have been carried out.

As a result of research:

- ecological and phytocenological laws of formation of raised bog vegetation of Northern, Central and South geobotanical subzone have been expanded and studied;
- principal causes of degradation of bog ecosystems have been analysed and an orientation of anthropodynamic processes in the structure of oligotrophic bog vegetation has been revealed;
- vegetative resources of natural bogs, used in the procuring purposes (medicinal raw material, berry-fields) have been logged;
- geobotanical map of a modern ecological condition of vegetation (M 1:50 000) have been supplemented;
- geobotanical scales of definition of safety of vegetation of raised bogs have been developed.

Non-technical overview of results

- Our big achievements were finding new habitats of plants which are very rare, and protected in Belarus: *Carex pauciflora* Lightf. (1 place); *Sphagnum molle* Sull. (1 place); *Rubus chamaemorus* L. (6 places) ; *Oxycoccus microcarpus* Turcz. ex Rupr. (12 places).
- During all expeditions we have made 7 new ecological profiles. Researchers with volunteers levelled 15.8 kilometres of a bogs surface in total.
- In total 32 new TSP (typological sample plot) with all geobotanical work on each plot.
- On every TSP, the forest stand is completely investigated: diameter of each tree, species identification, timber quality (alive or dry wood), and height of trees on TSP is determined. In total, volunteers have measured about 4500 trees.
- Completely investigated ground vegetation: on 25 plots (1sq.m) on each TSP (the full description of species structure, percent of a covering of species, height of plants).
- Productivity of ground vegetation of all TSP has been investigated on 5 plots (50sq.sm) on every TSP. The vegetation from the 160 plots has been weighed (wet weighed). We took 1300 samples of mosses and plants for weighing in the lab (dry weight).
- We took 120 tree core samples.
- On every TSP we dug to find a peat-profile. We have taken about 100 peat samples.
- We have completed more than 300 geo-botanical descriptions of vegetation.
- Prepared material for constructing maps of bog vegetation (bog area 1569.2 ha)
- We have made 1950 measurements of environmental parameters (water level, pH, temperature, mV, mineralization of bog water).

Acknowledgements

Thanks to all volunteers participating in our project. Volunteer help was useful and necessary. We'd like to thank them for their patience, goodwill, diligence, enthusiasm and interest. Thanks to all who helped us in the field, and employees of Reserves and Forest Services. We'd also like to express our gratitude to all staff of the Earthwatch Institute that worked with our project, especially Vicky Potts and Emma Sharp for their kindness and understanding.

SECTION TWO

1. REPORTING ON RESEARCH OBJECTIVES

Objective 1

On the basis of obtained data, to find (and recommend to conserve) the most unique and valuable natural complexes.

A survey this year and taking into account the results of studies of past years Technical Code of Practice (TCP) Estimates of Environmental Impacts (EEI) for the evaluation of peat deposits of Belarus will be prepared and agreed.

Objective 2

To obtain current data on geobotanical structure and changing conditions of Belarusian raised bogs.

During the 2009 project the following bogs were investigated:

- # 36 - Osvejsky – 27754ha – Landscape Reserve (national level), Ramsar sites;
- # 37 - Braslavsky – 69115ha – National Park (national level);
- # 38 - Pripiatsky – 82252ha – National Park (national level);
- # 39 - Morochno – 5700ha – Local Reserve (local level);
- # 33 (continued research) - Dokudovskoje – 1989ha – Biological Reserve (local level);
- # 40 - Brodsky Moch – near 20000ha - non protected
- # 41 - Krasny Bor – 34231ha – Landscape Reserve (national level);

Objective 3

To locate new areas where rare &/or endangered species can be found.

20 new places of growth of 4 rare protected and endangered plants have been found: *Carex pauciflora* Lightf. (1 place); *Sphagnum molle* Sull. (1 place); *Rubus chamaemorus* L. (6 places); *Oxycoccus microcarpus* Turcz. ex Rupr. (12 places). Materials from the research will be included in next edition of Red Book of Belarus.

40 places containing rare plant communities of raised bogs in territory of Belarus have been found and described. Materials from the research are included in a cadastre of rare and unique plant communities developed by the National Academy of Sciences.

Objective 4

To create a methodological base and criteria for the conservation of wetlands together with a complete study of vegetation of the most representative bogs of Belarus; to carry out a full array of geobotanical investigations on them.

At each bog investigated in 2009:
the geobotanical structure was studied;
an estimation of the current condition was made;
maps of bog vegetation were created;
the ecological and phytocenosis structure and productivity of raised bogs were investigated.

On the basis of the research, the results are:

- this is the only location at which these kind of bogs are studied and included in a protected area;
- results of research are included in System of Monitoring of Vegetation.
- materials of research are used by employees of Reserves and National Parks.

Objective 5

To investigate anthropogenic influence and the dynamic processes involved in the structure of bog vegetation.

An array of experiments to determine the influence of the anthropogenic use of bogs was conducted on different types of bog vegetation.

Objective 6

To develop criteria for the allocation and protection of unique bog complexes.

Based on this and previous research, has been the decision to create a National System of Monitoring on the condition of natural bog vegetation by the Ministry of Natural Resources to 2006-2010.

2. PARTNERSHIPS

Partners:

Komarov Botanical Institute, St. Petersburg, Russia - consulting, joint field work

Latvian Fund for Nature, Riga, Latvia - consultation

Institute for Nature Management, Minsk, Belarus - consulting, joint research

Belarusian State University, Minsk, Belarus - joint research

Grodno State University, Grodno, Belarus - joint field work

Vitebsk State University, Vitebsk, Belarus - joint field work

3. PROJECT DEVELOPMENT

N/A

4. DISSEMINATION

Printed:

Proceedings of the International Theoretical and Practical Seminar "Vegetation of Mires: Modern Problems of Classification, Mapping, Use and Protection", 30 September - 1 October 2009, Minsk, Belarus

Grumo D.G., Sozinov O.V., Zeliankevich N.A., Galanina O.V. "Formation features of the vegetation under the influence of fires in recent years (case study reserve Dokudovsky)" // Vesnik of Grodno State University. Series 2. Biology. . 2 (82), 2009. - P. 140-146.

Grumo D.G., Zeliankevich N.A., Sozinov O.V., Broska T.V. "The vegetation of Belarus raised bogs: geography, mapping, classification and protection" // Proceedings of the

- International Theoretical and Practical Seminar "Vegetation of Mires: Modern Problems of Classification, Mapping, Use and Protection", 30 September - 1 October 2009, Minsk, 2009. - P. 126-138
- Grumo D.G., Ilyuchik M.A., Zeliankevich N.A., Sozinov O.V. "Geobotanical and ecological vegetation mapping (case study bog complex Yelnya)" // Proceedings of the International Theoretical and Practical Seminar "Vegetation of Mires: Modern Problems of Classification, Mapping, Use and Protection", 30 September - 1 October 2009, Minsk, 2009. P. 138-152
- Sozinov O.V., Grumo D.G., Zeliankevich N.A., Galanina O.V., Broska T.V. "Ecological characteristics of the community Sphagnum molle SUMM (case study reserve Dokudovsky)" // Proceedings of the V International Scientific and Practical Conference "Actual problems of ecology" 21 - 23 October 2009., Grodno, 2009. - P. 264-267.
- Grumo D.G., Shustova S.U., Zeliankevich N.A., Yermokhin M.V., Stepanovich I.M. "Vegetation map of 30-km zone around the site of proposed construction of the nuclear power station" (1:100 000), 2009
- Grumo D.G., Shustova S.U., Zeliankevich N.A., Yermokhin M.V., Stepanovich I.M. "Vegetation map of 5-km zone around the site of proposed construction of the nuclear power station" (1:25 000), 2009
- Grumo D.G., Ilyuchik M.A., Zeliankevich N.A. Map of vegetation of landscape reserve "Yelnya" (M 1: 90 000), 2009
- Grumo D.G., Ilyuchik M.A., Zeliankevich N.A. Map of species diversity of phytocenoses of landscape reserve "Yelnya" (1:100 000), 2009
- Grumo D.G., Ilyuchik M.A., Zeliankevich N.A. Ecological structure map of vegetation of landscape reserve "Yelnya" (1:100 000), 2009
- Grumo D.G., Ilyuchik M.A., Zeliankevich N.A. Map of valuable rare plant communities of landscape reserve "Yelnya" (1:100 000), 2009
- Grumo D.G., Ilyuchik M.A., Zeliankevich N.A. Map of habitats protected in Europe, in accordance "EEC Habitats Directive" in the reserve "Yelnya" (1:100 000), 2009
- Grumo D.G., Ilyuchik M.A., Zeliankevich N.A. Zoning the reserve "Yelnya" by the degree of damage by fires in 2002 (1:100 000), 2009
- Grumo D.G., Ilyuchik M.A., Zeliankevich N.A. Map of stability of vegetation to the fire of landscape reserve "Yelnya" (1:100 000), 2009
- Grumo D.G., Ilyuchik M.A., Zeliankevich N.A. Map of stability of vegetation to recreational impacts of landscape reserve "Yelnya" (1:100 000), 2009
- Grumo D.G., Ilyuchik M.A., Zeliankevich N.A. Map of anthropogenic disturbance of vegetation reserve "Yelnya" (1:100 000), 2009
- Grumo D.G., Ilyuchik M.A., Zeliankevich N.A. Map of direction of contemporary processes in ecosystems of the reserve "Yelnya" and adjacent territories (M 1: 90 000), 2009
- Grumo D.G., Ilyuchik M.A., Zeliankevich N.A. Map of changes moisture conditions induced by vegetation successions reserve "Yelnya", 2009
- Grumo D.G., Ilyuchik M.A., Zeliankevich N.A. Map of age structure of forest of reserve "Yelnya" (1:100 000), 2009
- Grumo D.G., Ilyuchik M.A., Zeliankevich N.A. Map of forest productivity of reserve "Yelnya" (1:100 000), 2009
- Grumo D.G., Ilyuchik M.A., Zeliankevich N.A. Map of common stock of stem wood forest of reserve "Yelnya" (1:100 000), 2009
- Grumo D.G., Ilyuchik M.A., Zeliankevich N.A. Map of cranberry crop in the reserve "Yelnya", 2009
- Grumo D.G., Ilyuchik M.A., Zeliankevich N.A. Map of Ledum stocks in reserve "Yelnya", 2009
- Grumo D.G., Ilyuchik M.A., Zeliankevich N.A. Map of the ecological functions of vegetation reserve "Yelnya" (1:100 000), 2009

Visual:

Natallia Zeliankevich - Exhibition stand (area of 2 square meters) and presentation "Environmental audit of natural plant complexes in their economic development, health and environmental disasters" // XIV Belarusian Energy and Ecology Forum ENERGY EXPO 13 - October 16, 2009 (Minsk, Belarus).

Digital:

Dmitry Grumo - Database of vegetation of bog plant communities (further data)

Mass media:

Natallia Zeliankevich - participation in XIV Belarusian Energy and Ecology Forum ENERGY EXPO 13 - October 16, 2009 (Minsk, Belarus).

Dmitry Grumo - "Vegetation of the "Lungs of Europe"" - newspaper "Vedy" #41 (2249), 4/12/10/2009

Oleg Sozinov - http://portal.grsu.by/portal/?p=/FACULT/BIOL/NEWS/p_gazeta

<http://nasb.gov.by/docs/conferences/wetlands.pdf>

nasb.gov.by/docs/conferences/wetlandsprog.pdf

<http://www.peatlands.ru/?file=news.php&page=556&lang=ru>

http://fbe.grsu.by/NauchRab/conferentions/konf_31

http://portal.grsu.by/portal/?p=/FACULT/BIOL/EXPED/p_index

http://portal.grsu.by/portal/?p=/FACULT/BIOL/NEWS/p_gazeta

<http://braslav.vitebsk-region.gov.by/ru/news/region?id=3436>

http://www.grsu.by/cgi-bin/newlook.cgi?path=documents/smi/smi_docs/smi_july3

<http://www.imcg.net/imcgnl/pdf/nl0704.pdf>

<http://ru.wikipedia.org/wiki/%D0%94%D1%83%D0%B1%D0%B0%D1%82%D0%BE%D0%B2%D1%81%D0%BA%D0%BE%D0%B5>

www.portal.grsu.by/portal/FACULT/BIOL/DOC/hrumo.pdf

http://www.portal.grsu.by/portal/?p=/FACULT/BIOL/LITRA/p_index

<http://grodno-region.gov.by/ru/news/society?id=6765>

Meetings and conferences:

Organised and conducted International Theoretical and Practical Seminar "Vegetation of Mires: Modern Problems of Classification, Mapping, Use and Protection", 30 September - 1 October 2009, Minsk

Educational resources:

"The ecological, geographical and structurally functional analysis of vegetation of raised bogs of Belarus, technique field and lab researches" – rate of lectures of "Ecology" and "Geobotany", special course "Belarus vegetation":

Stepanovich I.M. – professor of faculty of biology, Belarus State Pedagogical University

Sozinov O.V. – docent of faculty of botany, Grogno State University.

Other:

Preparations for the monography edition: Flora and vegetation of landscape reserve "Yelnja". We plan to send for the print – January, 2010.

Anon volunteer - owing to the fact that she was a participant of the project she entered a 2-year degree course: Landskape Ecology and Nature Conservation (Master of Science) in Ernst-Moritz-Arndt University of Greifswald (Germany)

5. CAPACITY DEVELOPMENT AND EDUCATION

Anon volunteer - owing to the fact that she was the participant of the project she entered a 2-year degree course: Landscape Ecology and Nature Conservation (Master of Science) in Ernst-Moritz-Arndt University of Greifswald (Germany)

Leonid Zhukov - the use of data to write student's thesis

Marina Rogovskaya - the use of data in master's work

Ruslan Tsvirko - the use of data in writing a dissertation

The results of research have been implemented in practice and learning processes of universities, as evidenced by 4 acts.

6.1. CONTRIBUTIONS TO INTERNATIONAL CONVENTIONS, AGENDAS, POLICIES, MANAGEMENT PLANS

All of our work has influenced and is contained in different structures at the state level.

6.2. CONTRIBUTIONS TO LOCAL, NATIONAL AND REGIONAL CONVENTIONS, AGENDAS, POLICIES, MANAGEMENT PLANS

State Program "Resources of flora and fauna"; task - "Investigate geobotanical structure, productivity, and the modern state of vegetation of raised bogs of Belarus" 2006-2010.

State Program "Peat" - task - "To assess the effects of peat extraction on vegetation adjacent territories" 2008-2012, up to 2020.

Research results used by the Ministry of Natural Resources and Environment as part of feasibility of 9 reserves of national importance.

7. ACTIONS OR ACTIVITIES THAT ENHANCE NATURAL AND SOCIAL CAPITAL

1) The type of action: Land/Water Protection; Land/Water Management; Species Management; Education & Awareness; Livelihood, Economic & Other Incentives; Other; 2) The people involved in the action (Earthwatch Scientists/field staff, EW volunteers, local people, other); 3)The region impacted by the action)

1) Land protection

Research results used by the Ministry of Natural Resources and Environment as part of feasibility of 9 reserves of national importance; changes and monitoring the status of many of sanctuaries and unprotected areas.

2) Scientists, field staff, EW volunteers, local people, employees of forestry, environmental officials

3) Areas throughout the territory of Belarus

8. LONG TERM IMPACT OF PROJECT

Taxa of conservation significance enhanced, restored or maintained

Found new (previously unknown) habitats of rare and endangered plant species: 2009:

Carex pauciflora Lightf. (1 place) - VN;

Sphagnum molle Sull. (1 place) - VN;

Rubus chamaemorus L. (6 places) - EN;

Oxycoccus microcarpus Turcz. ex Rupr. (12 places) - VN.
Information on the previous year - in the previous reports.

Habitats enhanced, restored or maintained

Research results used by the Ministry of Natural Resources and Environment as part of feasibility of 9 reserves of national importance; changes and monitoring the status of many of sanctuaries and unprotected areas.

Elnya - 23200 ha, expanding the boundaries of the reserve, Ramsar sites, hydrological reserve;

Podveliky Moch - 10647 ha, expanding the boundaries of the reserve, hydrological reserve;

Zapol'skii - 794 ha, expanding the boundaries of the reserve, biological reserve;

Zabolot'e - 1957 ha, initial registration, biological reserve;

Chistik - 300 ha, expanding the boundaries of the reserve, biological reserve;

Moshno - 399 ha, expanding the boundaries of the reserve, biological reserve;

Lonno - 439 ha, expanding the boundaries of the reserve, biological reserve;

Korytinsky Moch - 1350 ha, expanding the boundaries of the reserve, hydrological reserve;

Boloto Moch - 4840 ha, expanding the boundaries of the reserve, hydrological reserve;

Fomino - 640 ha, change the status of protection, biological reserve.