Conference on wetland protection in Poland on the occasion of World Wetlands Day

February 4-7, 2023, Warsaw, Poland

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ABSTRACT

Wetlands have been drained for millennia. However, for over a century, many of them have been recognized and protected as reserves, national parks, and/or Natura 2000 sites. Nevertheless, most of Poland's swamps have suffered degradation, making it worth considering their restoration. This is an immensely challenging issue, especially in the context of the war in Ukraine, growing social polarization around the NRL (Nature Restoration Law) project, the humanitarian crisis at the Polish-Belarusian border, and the ecological crisis in the Odra River. Therefore, World Wetlands Day 2023, celebrated annually on the initiative of the Wetlands Conservation Centre, on the anniversary of the Ramsar Convention signing, had an unusually rich program this year. Apart from the usual debates, open lectures, poster presentations, and field trips held each year, in February 2023, the agenda also included: a strictly scientific conference on wetland protection, two extra field trips, and a series of workshops for practitioners.

Key words: World Wetlands Day 2023, Ramsar Convention, wetlands, swamps, climate change

Introduction

Wetlands (marshes, swamps) – areas characterized by consistently high moisture levels (peat bogs, marshes, mudflats, and silt areas) with distinctive fauna and plant life – have been drained by humans for thousands of years, For over a century many of them have been recognized and protected as reserves, national parks, and in the European Union, as Natura 2000 sites. The conservation of wetlands helps mitigate adverse climate changes and safeguards biodiversity. However, the majority of Poland's swamps and bogs, which cover around one-fifth of our country's land according to most recent estimates, have suffered degradation, making it worth considering their restoration. This is an immensely challenging issue to address, especially now – amidst the war in Ukraine, growing social polarization around the NRL (Nature Restoration Law) project, the humanitarian crisis at the Polish-Belarusian border, and the ecological crisis in the Odra River [Jabłońska (ed.) 2022].

Therefore, **World Wetlands Day 2023**, celebrated annually at the Faculty of Biology of the Warsaw University, on the initiative of the **Wetlands Conservation Centre**, on the anniversary of the **Ramsar Convention** signing, had an unusually rich program this year.

Apart from the usual debates, open lectures, poster presentations, and field trips held each year, in February 2023, the agenda also included: a strictly scientific conference on wetland protection, two extra field trips, and a series of workshops for practitioners.

The celebratory events spanned four days, from February 4th through February 7th, and included:

- Saturday, February 4th: two relatively long excursions to the wetlands of the Kampinos Forest;
- Sunday, February 5th: an open day (open "Pact for Wetlands"), with meetings open for everyone (no registration required);
- From Sunday evening, February 5th, through Tuesday, February 7th: the main event - the "Pact for Wetlands - Scientific Conference", workshops for practitioners, and further debates, only upon registration and payment of a participation fee.

Such a versatile program of the "Pact for Wetlands", both in its scientific, promotional, and educational aspects was made possible solely thanks to the following sponsors:

- The "Excellence Initiative Research University" program of the Warsaw University
- Wetlands International Europe,
- The "FORCE" project of the Warsaw University of Life Sciences (funded by Iceland, Liechtenstein, and Norway via the European Economic Area funds as well as funds granted by Norway),
- The "PRINCESS" project (funded by the National Science Centre as part of the "BiodivClim" program),
- CUMULUS s.c. company,
- The University of Warsaw Foundation.

Wetland excursions in the Kampinos Forest

The wetland excursions took place on the eve of Open Day, February 4, 2023. Participants of the trips (guides and guests of Wetlands Day along with their families) met with guides from the Kampinos National Park (KPN) and the Regional Environmental Center (REC) around 8:45 in Truskaw, at the bus loop of the 210 bus line. The number of participants, exceeding 200 people, pleasantly surprised the organizers. This was due not only to the wonderful weather and the nature of the walking routes, but also due to the fact that the excursions were free of charge, and no registration was required.

Route I, longer: Along the forgotten Rgilewnica River

The route was a little over 10 km long. It ran along the loop from Truskaw to Zaborów Leśny and back. The main goal of the excursion was to explore the course of the Rgilewnica River, mentioned in a medieval chronicle from 1419... and later forgotten by historians, geographers, foresters, and land improvers/relievers. The inhabitants of the Kampinos Forest themselves no longer remember the Rgilewnica River. Nevertheless, remnants of this stream can still be observed in the Kampinos marshes and meadows, and in some seasons, water flows through the former Rgilewnica valley in the spring.

Route II, shorter: On the drainage divide. Between Wilcza Struga and the Zaborowski Canal

Slightly shorter than the first route, almost 8 km in length. It followed educational paths (tourist boardwalks) and forest trails through the source section of the Wilcza Struga (which later turns into Łasica a few kilometers away) and the initial section of the Zaborowski Canal. The highlight of this trip was the drilling of peat from under the snow by Prof. Wiktor Kotowski at Długie Bagno – the most extensive interdune peat bog in the Kampinos National Park, famous for the Chamaedaphne calyculata sites.

The aforementioned members of REC (including its founder, Mr. Michał Miazga) and KPN employees assumed the role of guides on both routes, enthusiastically sharing their knowledge about the history of the Kampinos marshes, their significance for the climate, biodiversity, archaeology, etc., current issues related to their protection within the national park and Natura2000 sites. Both routes followed paths through forest trails and partly on tourist boardwalks, ending in Truskaw, with a walking time of 3 to 4 hours.

Conference for academics and practitioners

Apart from researchers, representatives of state and local institutions, administrative bodies, the military, the Border Guard, and other uniformed services engaged in defending the eastern border, as well as foresters, businessmen, and artists were invited to participate in the nationwide wetland conference. The scope of topics discussed was as diverse as the swamps of Poland and neighboring countries, encompassing subjects such as wetland ecology and paleoecology, protection and restoration of wetlands, their contribution to the country's overall ecosystem, as well as the history and present relations between man and wetlands, including the humanitarian crisis in the Białowieża Forest.

All scheduled events were held as planned: parallel thematic panels, plenary lectures, a poster session, and thematic workshops within the scope of restitution and protection of wetlands. Many potential participants delayed their registration until the last minute. Due to safety reasons and the convenience of the participants, the organizers had to close registrations earlier than planned.

Workshops

During the "World Wetlands Day 2023", four workshop sessions and a debate with audience participation were organized on topics related to wetland conservation and preservation. The organizers' aim was to facilitate a free and uninhibited exchange of experiences between moderators, lead speakers, and participants.

Carbon offset as a source of financing peatlands restoration in Poland – presentation and discussion of the program's main goals and assumptions

Lead speaker/moderator: Monika Łaskawska-Wolszczak

Workshop 1 was primarily intended for business representatives and third-sector professionals who profit from or are interested in profits from carbon offset. The workshop revolved around the certification scheme and sale of carbon credits for peatland restoration. This certification scheme was developed by the Wetlands Conservation Centre in collaboration with scientists, researchers, practitioners (drainage experts, hydrotechnicians, foresters, climatologists, economists, etc.), and representatives of various non-governmental organizations.

Protection and restoration of wetlands in practice

Lead speaker/moderator: Paweł Pawlaczyk

Workshop 2 was meant for officials, engineers, and non-governmental organization activists involved in wetland restoration. Effective climate- and biodiversity-friendly protection of peatlands and non-peat-forming wetlands requires extensive practical knowledge of environmental law, water engineering techniques, construction, land improvement and reclamation, geology, and biology. Panelists discussed the entire process of obtaining necessary permits (environmental decisions, water-rights permits, construction notifications, construction and modernization permits, etc.), selection of protection techniques, financing sources, progress of construction and engineering works, and finally, project acceptance and monitoring the effectiveness and efficiency of implemented restoration activities.

Formal and legal protection of peatlands – why conservation action plans and protection plans are not always effective?

Lead speakers/moderators: Ewa Jabłońska and Jan Kucharzyk

Workshop 3 was aimed at specialists involved in the implementation of the aforementioned plans for Natura 2000 sites, reserves, and national parks. During the workshop, many references were made to the 10th anniversary of the issuance of Poland's first-ever order concerning the conservation action plan (CAP) for a Natura 2000 site, which coincided with the celebration of Wetlands Day. Although issuing CAPs is obligatory, such acts of local law have not been approved for a significant portion of Polish Natura 2000 sites. The obligation to develop protection plans for nature reserves (PP) is even worse. Theoretically, it has been in force since Poland's political transformation, but in reality, most reserves have not received the necessary administrative decisions. Moreover, complex and sometimes contradictory regulations, individual interpretations of the same regulations in different offices (General Directorate for Environmental Protection, Regional Directorate for Environmental Protection, Ministry of Agriculture, Ministry of Infrastructure), errors in published monitoring methodology solutions, and mistakes made by persons in charge of implementation of both PPs and CAPs, along

with the lack of a proper methodology of inventory management within the scope of developing and updating the aforementioned plans, lead to anomy, undermining of the law, glaring instances of wasted human efforts, degradation of wetlands along with their biodiversity and, as a result, degradation of climate itself. As part of the panel, examples of large-scale inventories for PPs or CAPs needs were discussed as examples of errors made and proposals of solutions aimed at avoiding them in the future.

When will Polish agriculture stop draining wetlands?

Lead speaker/moderator: Wiktor Kotowski

During the fourth workshop, discussions were held on making Polish agriculture more climate and biodiversity-friendly through a new approach to wetlands. The debate centered around what is better: the development of paludiculture, technological retreat, or the inclusion of wild enclaves amidst modern, farming agriculture? Much attention was given to the role of marshes in the new Rural Development Program (PROW), paludiculture, and marshy buffer zones along watercourses.

Why do rivers keep nagging our thoughts? How to talk to people about rivers?

Lead speakers/moderators: Ilona Biedroń and Robert Feluś

A debate with an active contribution from:

- Magdalena Bobryk founder of the "515 km Odry Association",
- Małgorzata Owczarska anthropologist from the Institute of Ethnology and Cultural Anthropology at the Warsaw University,
- Mateusz Grygoruk hydrologist from SGGW (Warsaw University of Life Sciences), expert on the Biebrza Marshes,
- Roman Konieczny an independent expert in non-technical flood mitigation methods implemented in collaboration with local self-government authorities.

The debate was moderated by the creators of the "Zdrowa rzeka" ("Healthy River") podcast. The four aforementioned panelists acted as advocates for river rights. Together with the audience, they attempted to outline the key components of effective communication, providing accessible and reliable knowledge about sustainable water management. Special emphasis was placed on the protection and restoration of flowing waters, reestablishing their longitudinal and transverse continuity. Many insights from the "zdrowarzeka.pl" program/podcast were utilized.

Lectures and posters at the World Wetlands Day 2023

During the scientific conference, the following lectures were given:

- 13 plenary lectures (longer lectures, upon invitation)
- Dozens of short, several-minute talks as part of 10 separate sessions, which included:
 - Paleoecology of peatlands
 - Swamps of the Polesie region

- Peatlands and climate mutual dependence
- Hydrology of wetlands
- Biodiversity and protective actions in peatlands
- · Remote sensing, mapping, and monitoring of wetlands
- Wetland conservation and agriculture conflicts and synergies
- Hydrology and hydrobiology of wetlands
- The functioning of peatlands
- Social aspects of protection and restoration of wetlands in cities.

Over 30 posters on various wetland-related topics were also presented.

Among the lecturers and poster authors, women were significantly represented, most notably from:

- The Wetlands Conservation Centre,
- The Nature Club,
- The "Hektary dla Natury" Foundation,
- The "Zakole" Group,
- The Polish Society for the Protection of Birds (OTOP),
- Royal Society for the Protection of Birds,
- The "515 km Odry" Association.

Among universities, the most represented were: the Warsaw University, SGGW (Warsaw University of Life Sciences), University of Agriculture in Krakow, University of Greifswald, UMCS (the Maria Curie-Skłodowska University), UAM (the Adam Mickiewicz University), UŚ (University of Silesia in Katowice), UŁ (University of Łódź), and ZUT (West Pomeranian University of Technology) in Szczecin. Among governmental institutes and the Polish Academy of Sciences, IMGW-PIB (Institute of Meteorology and Water Management. National Research Institute) and IUNG-PIB (Institute of Soil Science and Plant Cultivation State Research Institute) in Puławy were predominant. The World Wetlands Day was attended by numerous employees of ministries and central offices (Ministry of Agriculture, Ministry of Climate; however, there were no employees from the Ministry of Infrastructure), regional authorities (RDOS Krakow, Wrocław), Kampinos National Park, and some local governments. Representatives from various scientific societies, universities, and foreign institutes, especially German, Norwegian, Swedish, and British, also contributed to the events. This latter group of scholars and activists included political refugees from Ukraine and Belarus, as well as economic emigrants from Poland.

However, representatives of the Polish Army, Border Guard officers, or representatives from other uniformed and special services of the Republic of Poland did not accept the invitation, which made discussions about the migration crisis in the Białowieża Forest and the Polesie swamps quite one-sided.

Conclusion

Widely understood marshes (swamps, wetlands) cover around 18% of the surface area of Poland within its current borders. The vast majority of them have undergone drainage, invasions by alien species, and other forms of degradation, causing them to cease providing at least some ecosystem services. 85% of Poland's peat bogs have been so heavily and irreversibly drained that they have transitioned from being carbon sinks to carbon emitters. While Poland's rivers are considered relatively wild compared to neighboring countries, 80% of the country's lotic waters have also been subjected to various forms of regulation (mainly during periods of Partition and occupation, to a lesser extent during the time of the Polish People's Republic). This has significantly reduced their self-purification capacity, devastated habitats, and reduced the abundance and species diversity of fish. "Blue energy" from hydropower plants is not climate-neutral, as methane emissions from reservoirs accelerate the climate crisis. Plants and animals typical of marshes and freshwater environments predominate in the Polish Red Lists and Vascular Plant and Bird Books, being among the most threatened or already extinct in Poland. Examples of wetland birds that have become extinct in Poland include Willow Grouse, purple heron (Ardea purpurea), Microchera albocoronata, Dotterel, jacksnipe, dunlin, golden plover, stone curlew, little gull, red-breasted merganser, and black-throated loon [Głowaciński 2022]. The situation for many fish species is also dire, especially those that can still be legally caught, despite being rarer than many protected species, such as the European eel, which is much closer to extinction than the bitterling, spined loach, and Misgurnus fossilis. In addition to the European eel, both native sturgeon species (acipenser sturio and acipenser oxyrinchus), Atlantic salmon, and Danube salmon have become entirely dependent on stocking [Głowaciński 2022].

There is a broad social consensus regarding the preservation and restoration of wetlands in order to:

- Prevent floods and droughts,
- Mitigate climate change,
- Protect water quality,
- Ensure protection against fires,
- Secure energy sources during blackouts,
- Safeguard cooling solutions for future nuclear power plants,
- Establish energy storage through pumped-storage power stations essential for the new renewable-energy and nuclear mix,
- Defend against future military and/or hybrid aggression.

As part of the new nationwide Wetland Protection Strategy [Jabłońska et al. 2022], current inter-ministerial negotiations have set the goal of reducing greenhouse gas emissions from Polish peat bogs by one-third over the next decade. This strategy also includes large-scale protection of existing wetlands, restoration of degraded ones, and the creation of entirely new floodplain and marsh buffer zones - artificial land-water ecotones - along rivers.

Upcoming EU legislative acts such as the "Biodiversity Strategy" and the "Nature Restoration Law (NRL)" also mandate a radical tightening of wetland protection and enhancement of restoration efforts. However, implementing such ambitious plans and regulations under unfavorable geopolitical circumstances (war in Ukraine, migration crisis in the EU and USA), societal challenges (COVID-19 pandemic, hyperinflation, currency depreciation), and natural pressures (climate change, invasions of alien animal species, increasing risk of extinction for most megafauna, wild pollinators, parasitoids, amphidromous/diadromous and potamodromous fish) may exacerbate climate and social crises rather than resolve them successfully.

Managing the wetlands of Eastern and Central Europe has always required painful compromises between agriculture, water engineering, defense, and nature conservation. This was apparent for the "founding fathers" of the Polesie National Park: Władysław Szafer and Stanisław Kulczyński, as well as their Belarusian successors [Łotysz 2019, 2020].

This article is complemented by photographs of wetland vegetation (Photographs 1 through 16). Photographs 1 through 15 were taken by Adam Kapler, and photo 16 by Arkadiusz S. Nowak.



Fig. 1. Frosted Pearl(s) (Succisella inflexa (Kluk) Beck), Valley of the Sieniocha River



Fig. 2. Bi-colored Butterwort(s) (Pinguicula bicolor Woł.), Valley of the Sieniocha River



Fig. 3. Felwort (Swertia perennis L.), Valley of the Sieniocha River



Fig. 4. Felwort (Swertia perennis L.), Valley of the Sieniocha River



Fig. 5. Dwarf Marsh Violet (Viola epipsila Ledeb.), Wigry National Park, fruiting specimen



Fig. 6. Dwarf Marsh Violet (Viola epipsila Ledeb.), Wigry National Park, habitat



Fig. 7. Marsh Saxifrage (Saxifraga hirculus L.), Valley of the Szeszupa River, Rudawka Marsh, habitat



Fig. 8. Marsh Saxifrage (Saxifraga hirculus L.), Valley of the Szeszupa River, Poszeszupie village, habitat



Fig. 9. Marsh Lousewort (*Pedicularis palustris* L.), Biebrza National Park



Fig. 10. Marsh Lousewort (Pedicularis palustris L.), Biebrza National Park, habitat



Fig. 11. Marsh Saxifrage (Saxifraga hirculus L.), Biebrza National Park, flower



Fig. 12. Siberian ligularia (Ligularia sibirica (L.) Cass.), a specimen cultivated at the Botanical Garden of the Polish Academy of Sciences (PAN), Centre for Biological Diversity Conservation



Fig. 13. Dwarf Marsh Violet (Viola epipsila Ledeb.), Bialowieża National Park, Hwoźna 1 site



Fig. 14. Marsh violet and Dwarf marsh violet crossbreed (Viola epipsila x palustris), Krutyń village, habitat



Fig. 15. Angelica palustris, also known as Marsh angelica (Ostericum palustre), Valley of the Labuka River



Fig. 16. Felwort, low (nominative) subspecies (Swertia perennis ssp. perennis L.), Łosiniany village (species' population already extinct or severely diminished)

Source Materials

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¹ On June 22, 2022, the European Commission (EC) presented a proposal for a regulation of the European Parliament and of the Council on the restoration of natural resources (Nature Restoration Law), along with accompanying impact assessment. The proposal is related to the European Union's 2030 Biodiversity Strategy, "Bringing Nature Back into Our Lives". Currently, working group discussions are underway within the Council of the European Union under the Swedish presidency, and parliamentary committees of the European Parliament are also working on the draft regulation regarding the restoration of natural resources (NRL).

Joint declaration of participants of the Pact for Wetlands conference

From February 5th to February 7th, 2023, on the occasion of the 52nd anniversary of the Ramsar Convention signing, over 350 people devoted to wetland ecosystem conservation gathered at the Faculty of Biology of Warsaw University. Participants of the conference represented diverse backgrounds, including scientific researchers from various fields, conservation and wetland restoration practitioners from non-governmental organizations, farmers, activists, and public administration officials (including the General and Regional Directorates for Environmental Protection, National and Landscape Parks, State Forests, and Polish Waters). During the conference, 71 reports were presented along with 30 posters, and several panel discussions and workshops.

As part of the joint conference declaration, the participants have adopted the following statement:

Wetland ecosystems, such as marshes, peatlands, rivers, and lakes, are a vital part of nature, and their protection and restoration are essential to combat the global climate and ecological crisis and ensure a safe future for people and sustainable access to environmental resources.

Wetlands used to cover approximately 18% of Poland's surface area, but nearly all of them, as a result of degradation, have ceased to fulfill their former ecosystem functions. Due to drainage and land improvement measures, about 85% of peatlands have lost their characteristics as wetland ecosystems, transforming from carbon dioxide sinks into sources of emission into the atmosphere. The condition of approximately 80% of rivers has significantly deteriorated due to regulation and pollution input, impairing their self-purification capabilities and destroying habitat diversity. Moreover, the ecological status or potential of over 80% of lakes is worse than satisfactory. Species associated with wetlands dominate in Poland's Red Books of fauna and flora, belonging to the fastest declining ones.

Although previous wetland restoration projects conducted in Poland and abroad have provided essential scientific and technical knowledge, the spatial scale and the number of completed projects are disproportionately small in relation to the needs. At the same time, wetland conservation and restoration are increasingly cited by various communities as necessary actions to combat droughts and floods, protect water quality, mitigate the effects of climate change, and enhance national defense. Additionally, new European Union laws, such as the "Biodiversity Strategy" and "Nature Restoration Law", require us to immediately increase the effectiveness of wetland conservation and restoration. To implement these plans, we need the collaboration of different communities across all divides.

As participants of the "Pact for Wetlands" conference, we express the need and willingness to work together for:

- 1) Recognition of wetland conservation and restoration as key actions for climate change adaptation, mitigation, and species preservation, as well as the implementation of appropriate measures across various sectors of the State's policies.
- 2) Collaboration among scientists from various fields and scientific disciplines in planning and implementing wetland conservation and restoration, as well as establishing a monitoring system for their ecological status and assessing ecosystem functions.

- 3) Collaboration between public administration institutions and scientists as well as conservation practitioners to improve existing and develop new effective legal, administrative, and financial instruments supporting wetland conservation.
- 4) Establishing legal and organizational frameworks to encourage private sector involvement in wetland restoration, especially the rehabilitation of degraded peatlands as part of greenhouse gas emissions offsetting.
- 5) Developing new soil management principles in the agricultural and forestry sectors, such as paludiculture, to minimize greenhouse gas emissions and restore lost ecosystem functions like water retention and purification.
- *6) Restricting peat extraction and use in the horticultural industry and other sectors.*
- 7) Revising the current approach to the formal protection of wetlands in protected areas to enhance its effectiveness and prevent erroneous administrative decisions.
- 8) Effective protection of well-preserved wetlands and the development and implementation of a national plan for the restoration of degraded wetlands to restore nature and recreate lost ecosystem services, including strategic functions in the country's defense.
- 9) Effective and widespread education of society on the role of wetlands in nature and our lives, as well as the needs and methods of their restoration.
- 10) Strengthening international cooperation of Polish scientists, practitioners, and decision-makers in the field of wetland conservation and restoration, especially concerning the protection of cross-border wetland areas, such as the Belarusian-Ukrainian-Polish Polesie region.

Warsaw, February 7, 2023

Konferencja o ochronie obszarów wodno-błotnych w Polsce z okazji Światowego Dnia Mokradeł, 4-7 luty 2023, Warszawa

STRESZCZENIE

Mokradła były osuszane przez tysiąclecia. Od ponad wieku wiele z nich chroni się jednak jako rezerwaty, parki narodowe i/lub tereny Natura 2000. Większość bagien Polski uległa jednak degradacji, toteż warto pomyśleć o ich odtworzeniu. Jest to problem szalenie trudny do rozwiązania, szczególnie w dobie wojny w Ukrainie, rosnącej polaryzacji społecznej wokół NRL [2022], kryzysu humanitarnego na granicy polsko--białoruskiej oraz klęski ekologicznej w Odrze. Dlatego Światowy Dzień Mokradeł 2023, obchodzony corocznie z inicjatywy Centrum Ochrony Mokradeł, w rocznicę podpisania Konwencji z Ramsar, miał w tym roku szczególnie rozbudowany program. Prócz wygłaszanych corocznie debat, wykładów otwartych, prezentacji posterów i wycieczek terenowych w lutym 2023 r. zorganizowano dodatkowo: ściśle naukową, parodniową konferencję o ochronie obszarów wodno-błotnych, dwie wycieczki terenowe tudzież szereg warsztatów dla praktyków.

Słowa kluczowe: Światowy Dzień Mokradeł 2023, Konwencja Ramsarska, bagna, zmiany klimatu

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