

WETLAND RESTORATION IN LITHUANIA

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"Wetlands for Clear Water", Graifswald, 24 March, 2011

In almost one hundred years of **land reclamation** in Lithuania, the total area of drained land has reached 3,021,400 ha (**47%** of the country's area) including 2,620,200 ha reclaimed by tile drainage.

During that time and for different purposes more than 1,200 **ponds** and **water reservoirs** were built and 400 **rivers** dammed (50 of them were dammed in a few places).

In 1955–1995, there disappeared almost 50,000 ha of **wetlands**.

Presently, **wetlands in Lithuania** occupy **16,373.8 km² or 25.09 %** of the country's territory.

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4

Wetlands

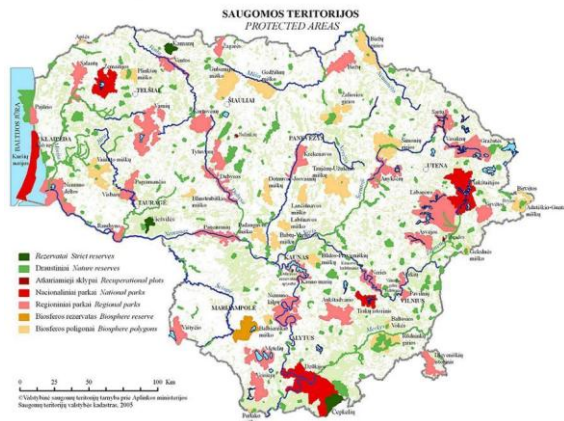
Territories where the **water** is the main forming component of the environment and the related flora and fauna.

Three main features of wetlands are emphasized:

- 1) **hydrological** – permanent or seasonal saturation of soils;
- 2) **botanical** – the plants that grow in the water or in the soils lacking oxygen due to moisture surplus;
- 3) **pedological** – hydric soils saturated long enough to develop anaerobic conditions in the root zone.

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2



For water protective purposes the **Lithuanian wetlands** have been classified according to their capacity to retain or transform organic and biogenic materials. **17 types** of wetlands were distinguished according to this feature:

- | | |
|--|--|
| 1) raised bogs , | 10) drained wet or seasonally flooded meadows , |
| 2) drained raised peat bogs , | 11) peat-covered depressions and lakes , |
| 3) exploited raised peat bogs , | 12) drainage ditches, |
| 4) fens and intermediate bogs , | 13) regulated rivers, |
| 5) drained low-lying and intermediate peat bogs , | 14) ponds , |
| 6) exploited fens and mixed bogs , | 15) water reservoirs for fish breeding, |
| 7) natural wet forests , | 16) flooded quarries, |
| 8) drained wet forests , | 17) water level regulated lakes . |
| 9) waterlogged and (or) seasonally flooded meadows (not drained), | |

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3

Puččia bog in Gražutė Regional Park

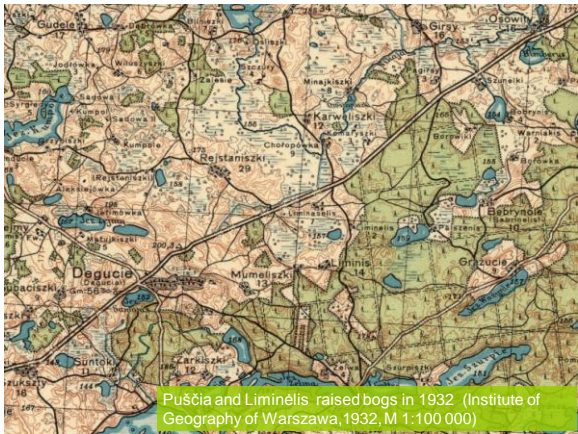
Puččia telmological reserve (101 ha)

Puččia bog is potential Site of Community Importance (SCIs):

1. Raised bogs still capable of natural regeneration (7120) (area - 88 ha).
2. European weatherfish (*Misgurnus fossilis*)

Restoration Project of Puščia bog in year 2000-2003.

Harmonization of EU directives in water management



Puščia and Liminėlis raised bogs in 1932 (Institute of Geography of Warszawa, 1932, M 1:100 000)

Aukštumala raised bog in Nemuno Delta Regional Park (RAMSAR site)

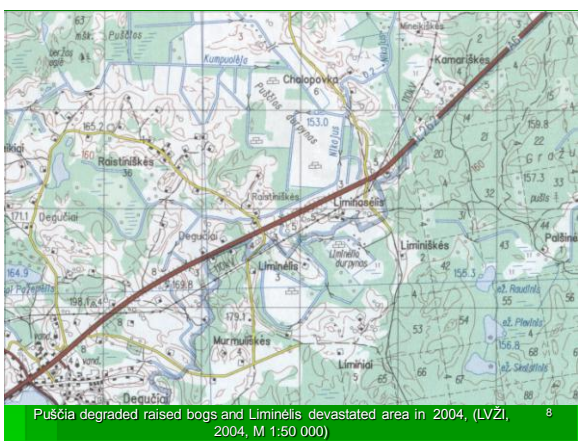
The first scientifically investigated raised bog in Europe. German scientist **Carl Albert Weber** published the results of investigation in monograph in 1902.

Total area – 2500 ha: 1017 ha – telmological reserve, other part – exploited.

In 2007 from GEF Small Grants Programme funds the restoration of raised bog started: blocking of drainage channels and installation of membrane separating exploited part from natural.

<http://www.youtube.com/watch?v=TDtQliP8oP4>

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Puščia degraded raised bogs and Liminėlis devastated area in 2004, (LVŽI, 2004, M 1:50 000)



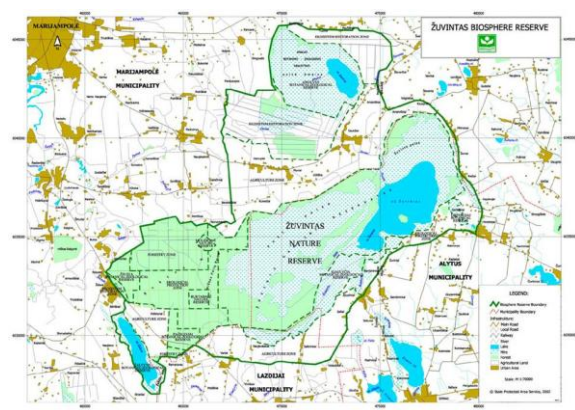
Dovinė – right tributary of Šešupė river. Total lengths 47,0 km, area of the catchment 588,7 km².

46,6% of natural courses are regulated in Dovinė river basin.

Five largest lakes in the Dovinė river basin covers 93,5 % of total lakes area:

- Dusia 2334,2 ha,
- Žuvintas 934,3 ha,
- Simnas 243,8 ha,
- Giluitis 235,1 ha and
- Amalvas 193,0 ha.

Dovinė starts in Dusia lake, later is passing through Simnas and Žuvintas, other lakes are situated in the basins of tributaries of Dovinė river.



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Planning documents (**strategical and territorial (physical) plans**) serve as legal basis for restoration of wetlands.

The project produced:

- nature management plan** (for the Amalvas wetlands) as **strategical planning document**. It was approved by the Order of Minister of Environment on 22 of October, 2007;
- draft **nature management plan** (for the Žuvintas Strict Nature Reserve).

Both territories were designated under the **Birds and Habitats Directive**.

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Management and Restoration of Natura 2000 sites through an Integrated River Basin Management Plan of the Dovine River (Lithuania)

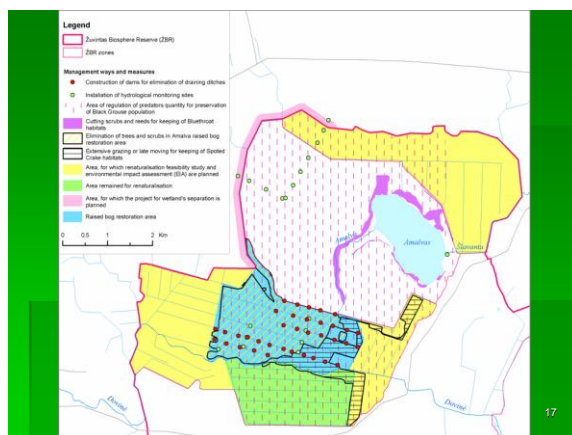
Overall Project Purpose

To produce a **Management and Restoration Plan** for the Dovine River Basin as input to the Integrated River Basin Management Plan of the Nemunas River Basin District.

PIN/Matra project

Funded through the Programme International Nature Management Central and Eastern Europe (PIN) and the Fund for support to social changes (Matra)

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Hydrology WG:

The following two stages were recommended for the implementation of the proposed measures:

Stage 1:

- **Reconstruction** of the **sluice-gates** into the overflow-type spill weirs in Žuvintas, Simnas, Dusia and Amalvas Lakes;
- **Repair** of protective **dikes** at Simnas, Žuvintas and Amalvas lakes;
- **Blocking** of the **channels**, located in Amalvas raised bog (groundwater level restoration);
- **Reconstruction** of the Bambena River watercourse downstream Simnas Lake;
- **Repair** of the drop-inlet spillway at Kalesninkai pond.

Stage 2:

- **Cleaning** of the Spernia River watercourse along with arrangement of sediment retention ponds;
- **Renovation** of Amalvas polder's pumping station and land reclamation structures;
- **Over-digging** of the ditches draining the western and the north-western parts of Amalvas wetland with subsequent separation of the wetland from the drainage system.

Estimation of required costs was made.

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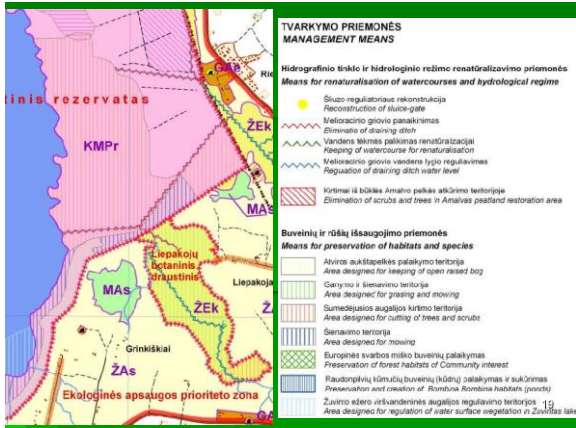
Žuvintas biosphere reserve **management plan** as **territorial planning document** for whole territory of biosphere reserve was approved by the Order of Minister of Environment on 23 of June, 2006.

This plan was produced within the PHARE project „Development of the management plans in protected areas of Lithuania“.

In all prepared planning documents the recommendations and proposals elaborated during PIN/Matra project on harmonization of Directives became as a background for planning decisions.

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Harmonization of EU directives in water management



The first steps implementing proposed measures by planners were started during **UNDP/GEF** project „**Conservation of inland wetland biodiversity in Lithuania**“ (executor – NHF).
www.wetlands.lt

Management activities, for example, cutting Žuvintas lake vegetation with amphibian reed mower were started right after approval of management plan.

In addition to management carried out by staff of the reserve, contracting of local farmers and entrepreneurs is involved for cutting of bushes, trees in the areas foreseen for meadow restoration, managing of grasslands, blocking the drainage ditches.

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20



In 2009 NHF started **LIFE+** project **"Restoring Hydrology in Amalvas and Žuvintas wetlands"** <http://wetlife.gpf.lt/en>

The main objective of the project is to restore **hydrology and ecological functions** of the Amalvas and Žuvintas wetlands so to secure achievement of **favourable conservation status** of bog, swamp wood and lake habitats of pSCI.

Such activities were planned within the project:

- reconstruction** of the Amalvas polder bordering the Amalvas mire area in the north;
- blocking** of the drainage system in the southern part of the Amalvas mire area;
- re-naturalization** of water level in the Žuvintas wetland complex by **reconstructing** sluice-gate of the Žuvintas lake outlet into permanent overflow type spill weir and improvement of dams.

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24

Harmonization of EU directives in water management



25

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Ministry of Environment

Restoration of water regime in two drained peatlands from budget money:

- Velniabalė (Zarasai municipality)
- Gegužinė (Vilnius district municipality)

Total restored area – 100 ha, 388 dams built up.

More than **40 abandoned territories** are on the list for restoration – no budget money...

For 5 territories technical projects were prepared and approved.

Nature management plans (~ 20) for NATURA 2000 sites – water regime re-naturalization.

28

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26

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Environmental Protection Agency (EPA) under the Ministry of Environment

Project

"Preparation of feasibility studies with the purpose of elaboration of **water protective measures**"

(11 feasibility studies).

One of them:

"Analysis of possibilities in **establishment/restoration of wetlands** on purpose to decrease input of organic and biogenic materials to water bodies and preparation of recommendations for **establishment/restoration of wetlands**".

Monograph "Lithuanian wetlands and their water protective importance", Vilnius, 2011.

"National **Strategy** on sustainable use of peatlands", 2011, UNDP/GEF (NHF).

27

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