

# **Management of Aquatic Warbler breeding habitats in Belarus**

**- experiences and conclusions**

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# **Analysis of Belarusian population of Aquatic Warbler (since 1995)**

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**Complex study of mire ecosystems (water, soil, vegetation, insects, birds)**

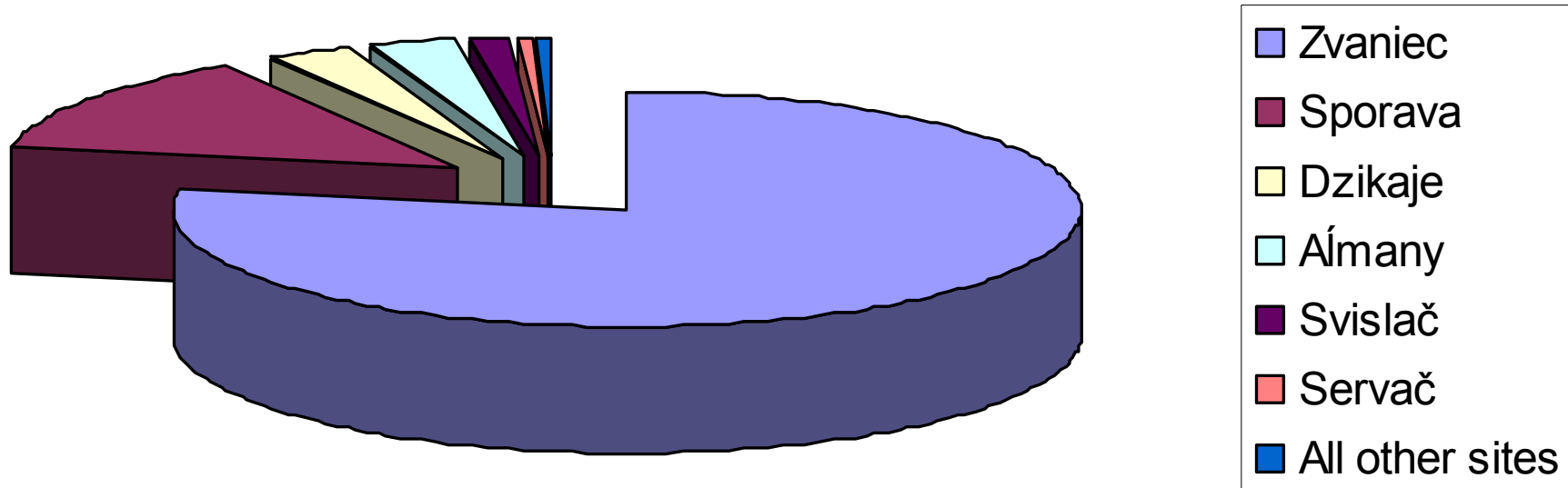
**Monitoring of AW density and main habitat parameters (6 key monitoring plots since 1996)**

**Monitoring of breeding success and causes of nest mortality (destiny of 164 nests followed)**

**Study of feeding and nutritive base evaluation (1300 ligature samples)**

**Study of migrations (450 birds ringed, 5 returns)**

# The key Aquatic Warbler breeding habitats in Belarus



- Zvaniec, Sporava and Dzikaje hold **95%** of Belarusian and **46%** of the global AW population.

**Main threats:**

**- floods**



**April 2005, Zvaniec**

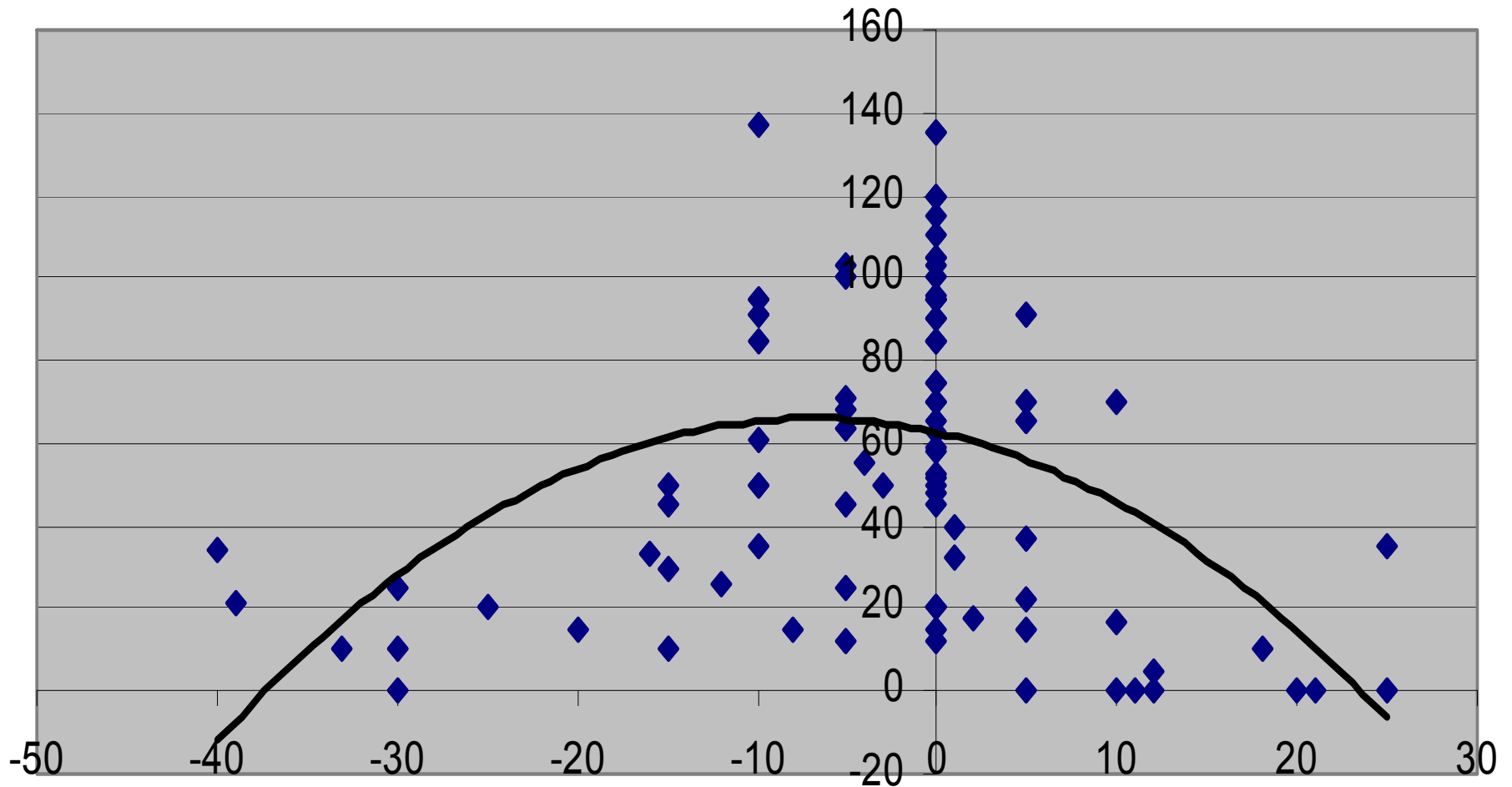
# **Main threats:**

- lack of water**



**Zvaniec**

# The correlation between water level and density of signing males.



**The main species adaptations to unfavorable factors.**

*(fires, floods, droughts)*

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**The ability to move to more favorable mire plots (up to 20 km) even during breeding season**

**Variable breeding terms**

**The ability to construct nests in not typical places**

# **The Project :**

## **Implementing urgent conservation actions in mesotrophic fen mires in Belarus**



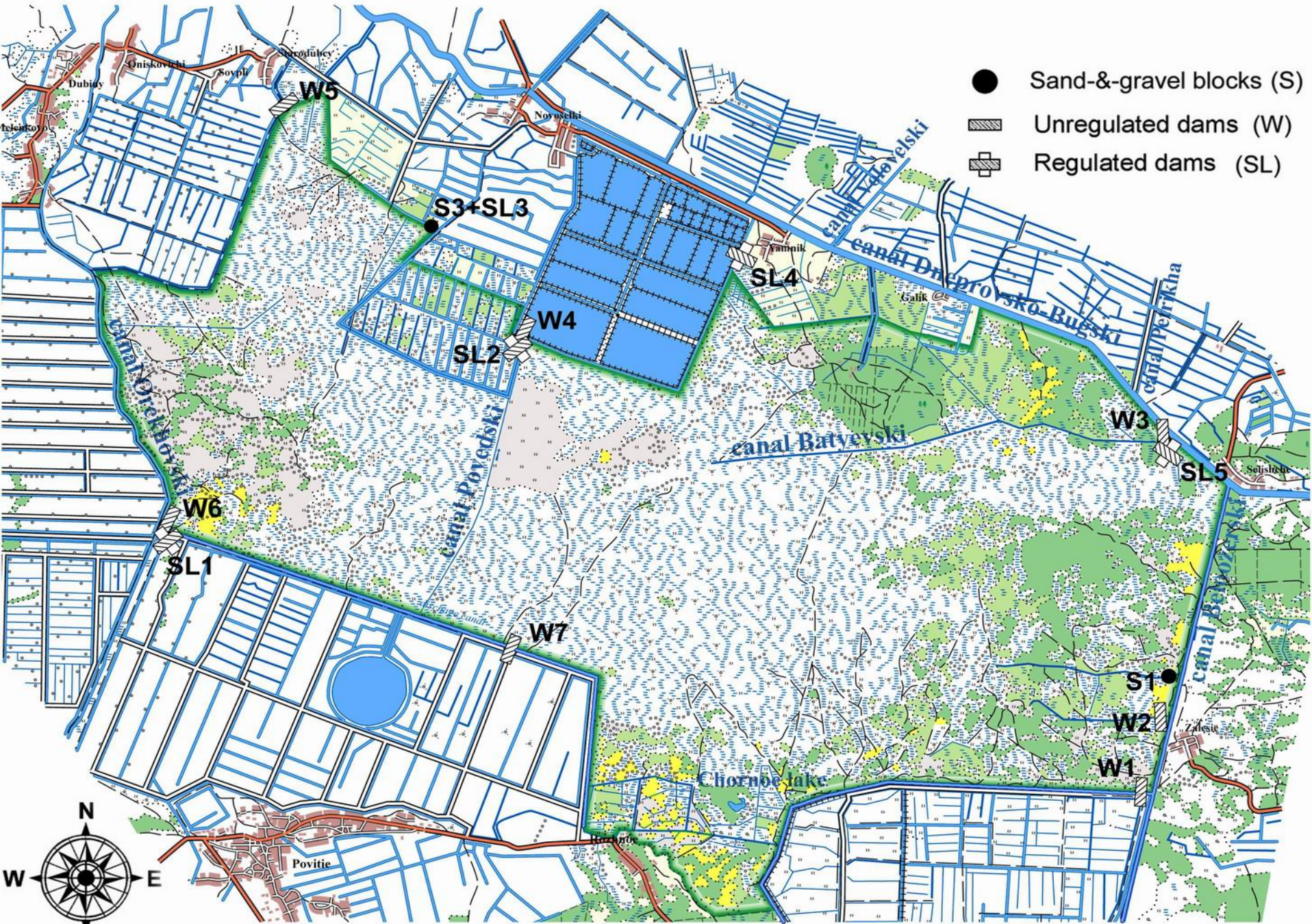
**Aim 1. Optimisation of hydrological regime of fen mires (Zvaniec, Dzikaje and Sporava)**

**Aim 2. Development of hydrological and species monitoring system to evaluate the effectiveness of taken measures**

**Aim 3. The establishment of management units for reserves**

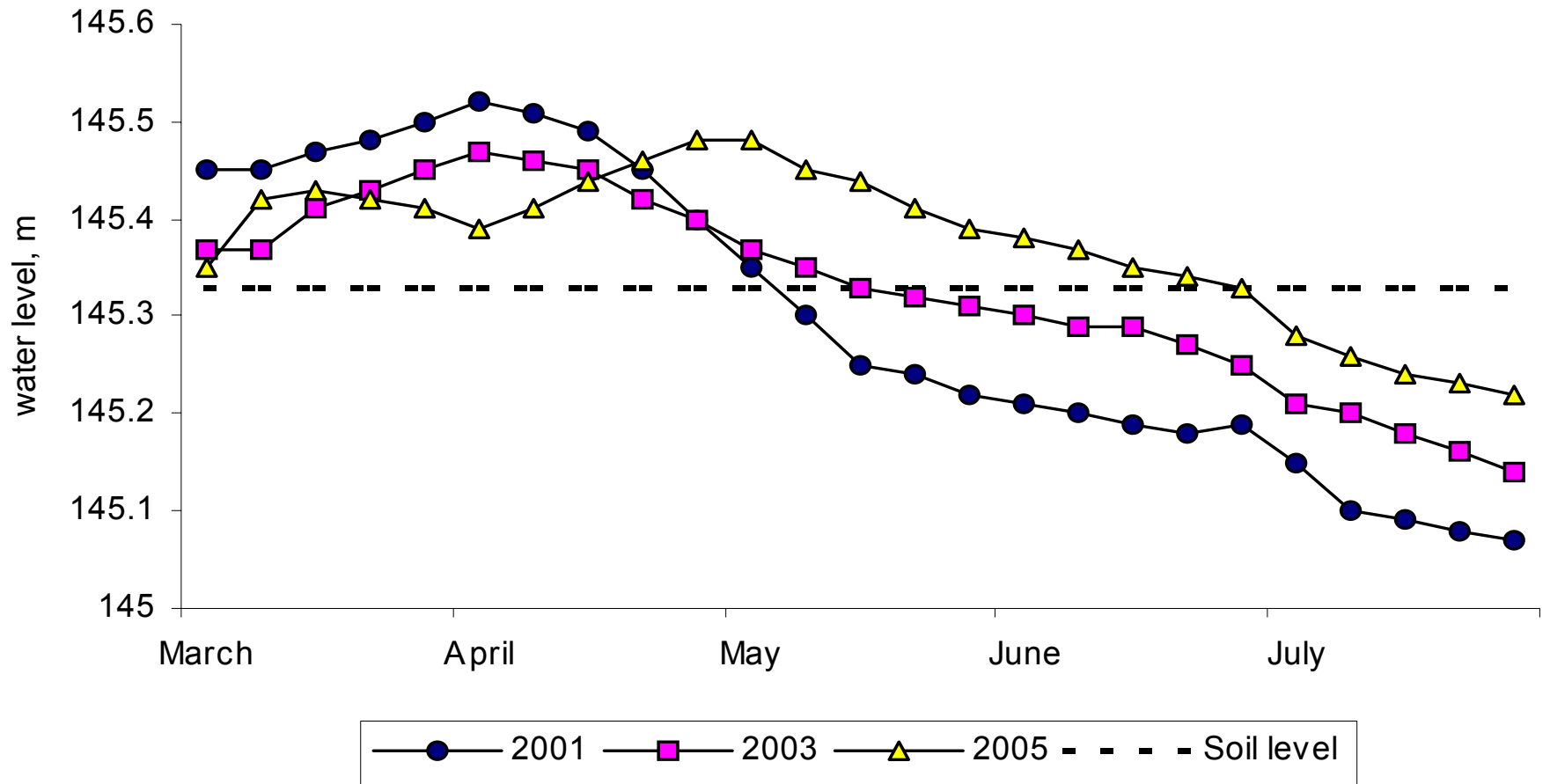


# ZVANETS MIRE



1:100 000

# Monitoring of water level at Zvaniec mire





**Dam and sluice on Batyjeŭski canal**



**Dam on discharge canal of fish farm**

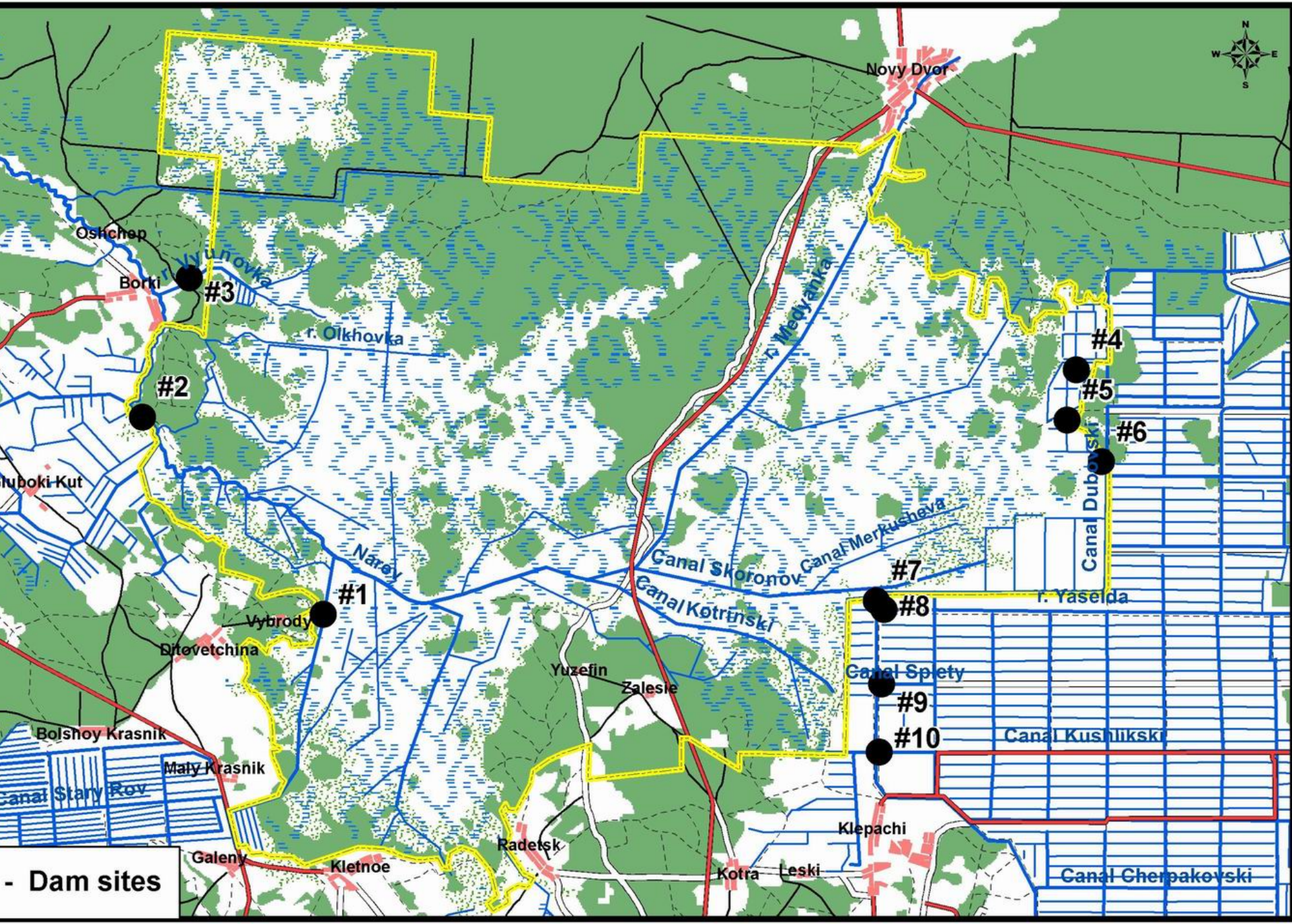


**Sluice on Paviedski canal**



**Dam on catch canal near Arehaūski canal**

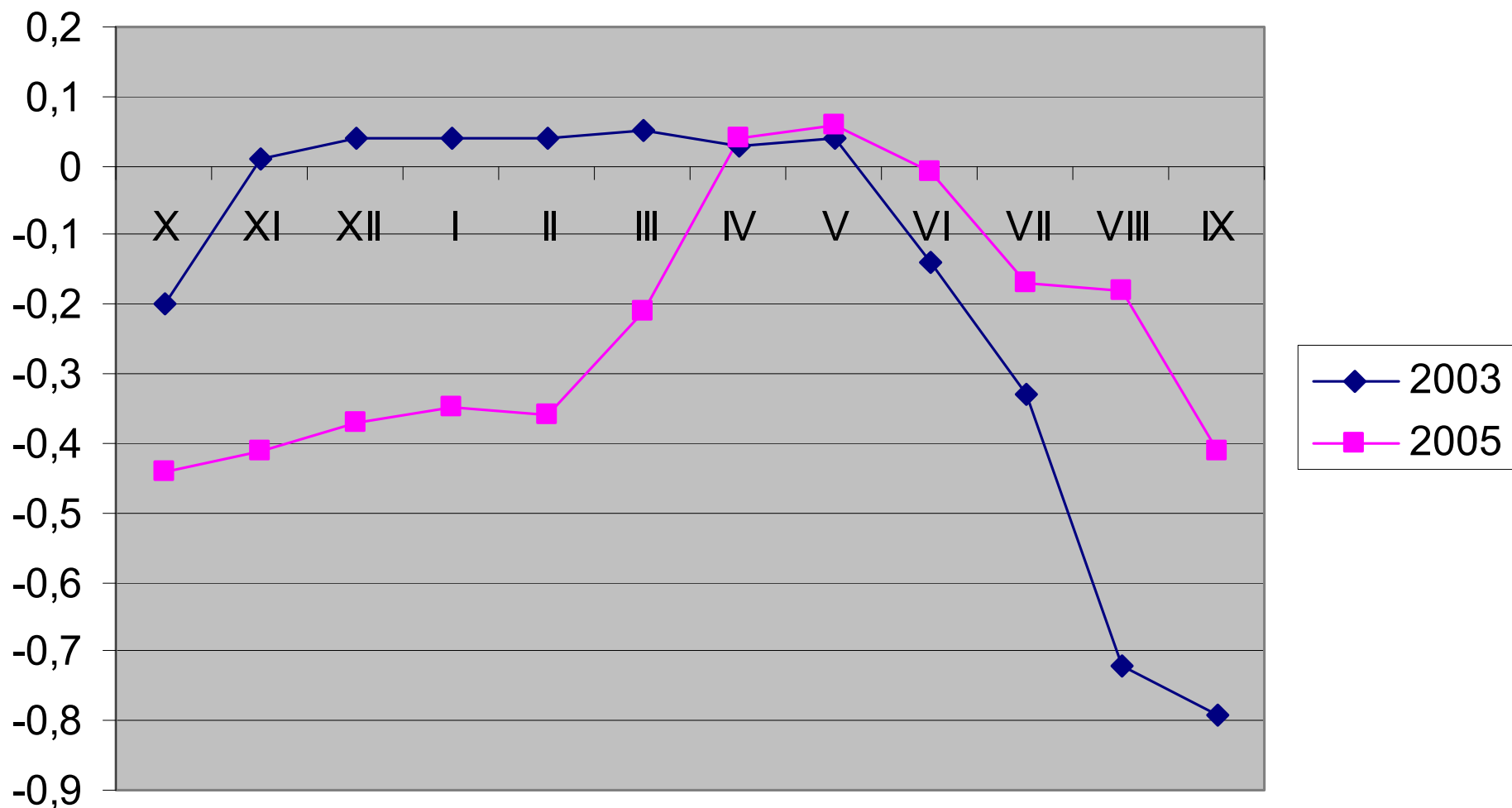
# DZIKOYE MIRE



- Dam sites

# Dynamics of ground water level at Dzikaje mire

(0 – ground level)





# **The main targets of the project at Dzikaje mire:**

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- To stop losses of water through draining canals;
- To develop operation regulations of drainage system adjacent to the mire



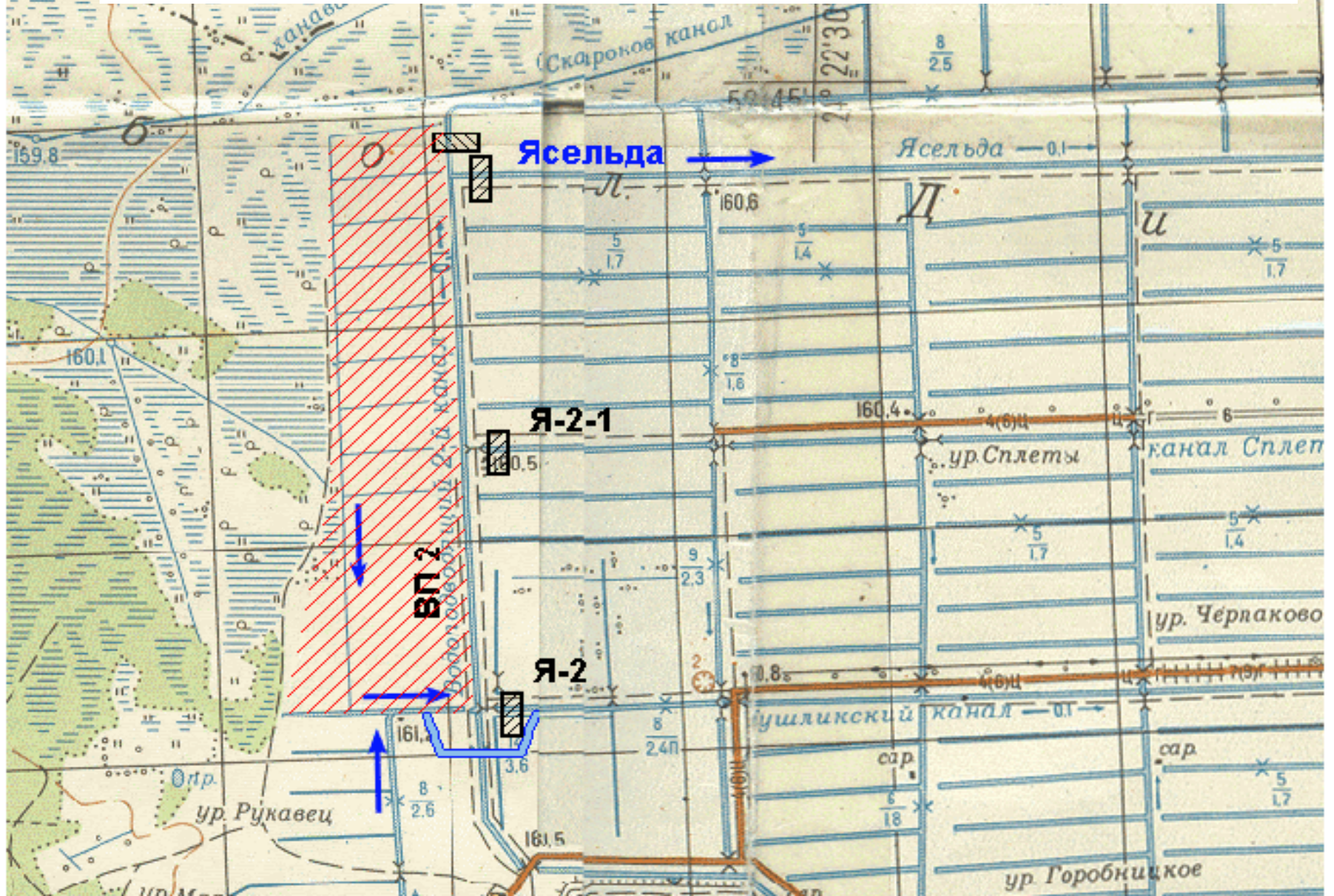


**Dam on canal near  
Vjunaūka**

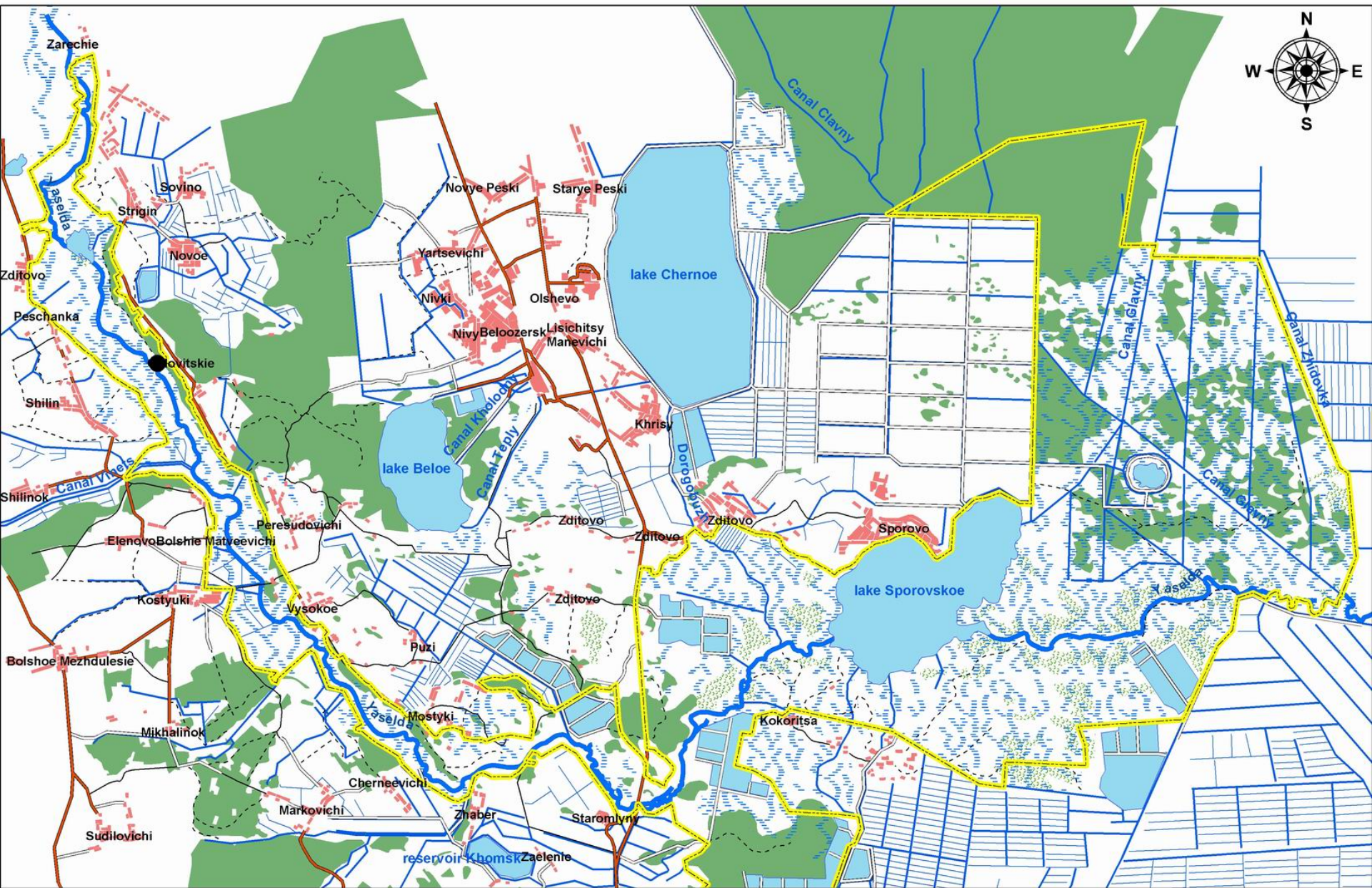


**Dam on the Naraū river**

Special water operation regulations were developed for the drainage system adjacent to Dzikaje mire.



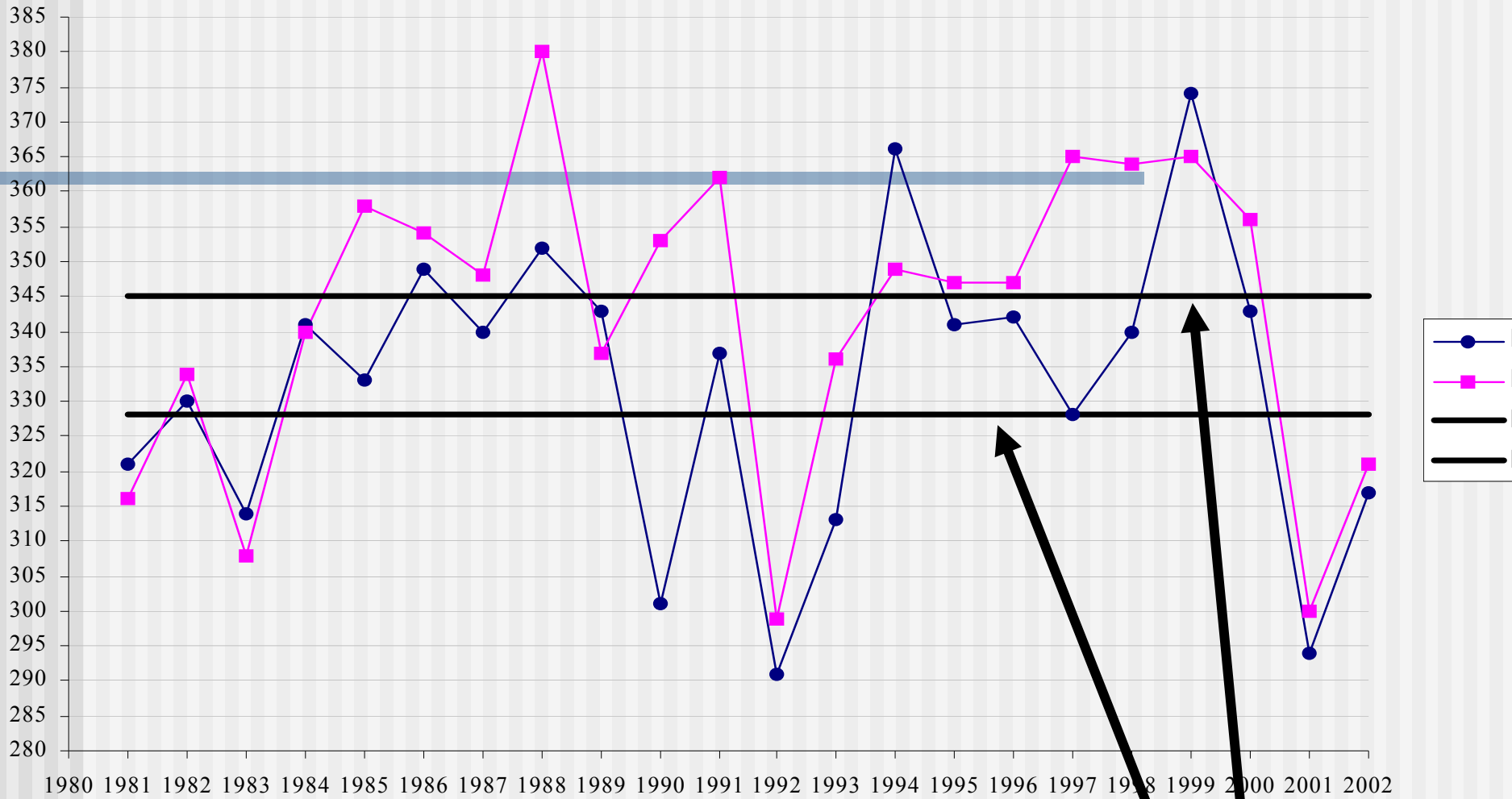
# SPOROVO MIRE



1:100 155



# Dynamics of water level 1st June and 1st July since 1981 till 2002 (monitoring plot at the river Jaseída floodplain)



**11 years – first clutch is successful (47,8%);  
4 years – second clutch is successful (17,3%);**

**Water level  
suitable for AW**

*Optimal water regime of the Jasélda river floodplain:*

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- **May-June – 5-10 cm above the ground level,**
- **July – on the ground level.**

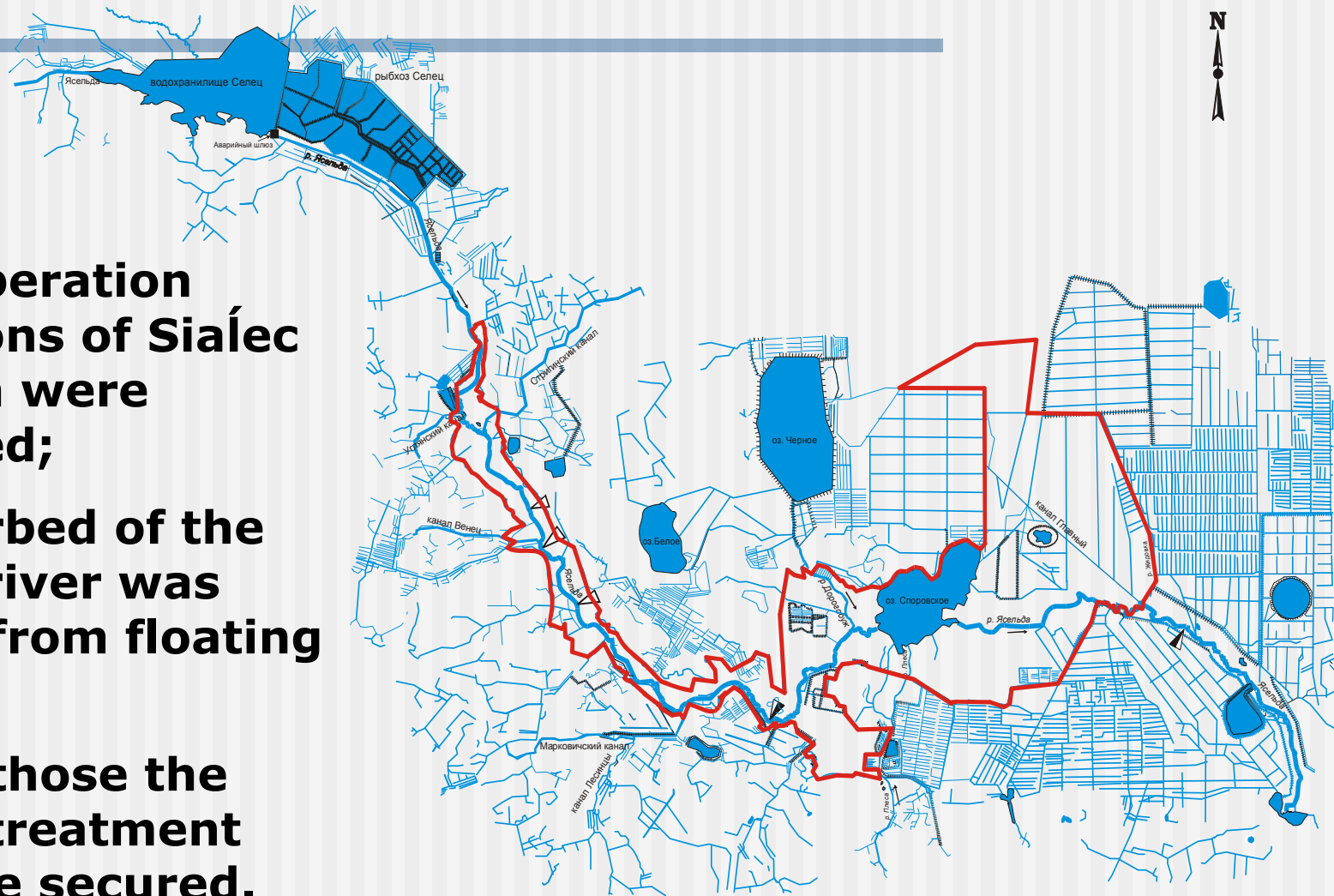
Unacceptable:

- **Flooding higher than 15 - 30 cm,**
- **Decreasing of water level lower than 10 cm below the ground.**



# To organize management of hydrological conditions in Sporaūski reserve

- Water operation regulations of Sialec fish farm were developed;
- The riverbed of the Jaseida river was cleaned from floating bogs;
- Besides those the sewage treatment should be secured.



# **Main threats:**

**- overgrowing**

Here were only single bushes in 1996

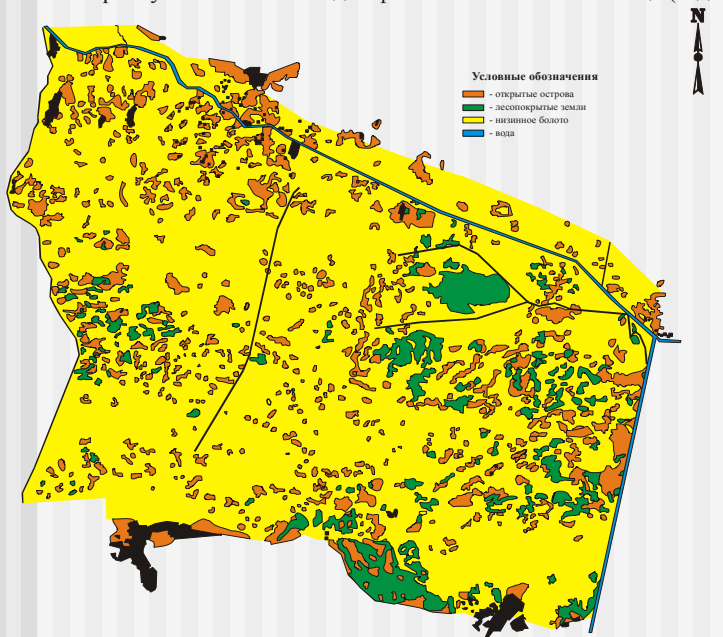


# Changes in the area of different ecosystems, %

	Sporava 1955-2006	Zvaniec 1955-2006	Dzikaje 1950-1996
Open fen mire	-20,9%	- 11,4%	- 10%
Forest and bushes	+19,1%	+13,5%	+8%

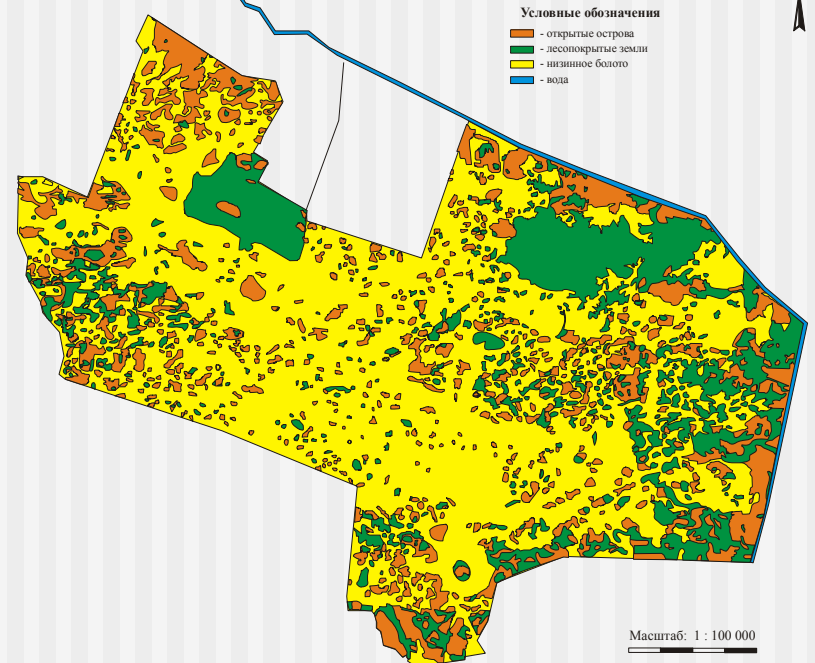
## Zvaniec in 1950

Основные биотопы республиканского ландшафтного заказника "Званец" (год 1950)



Основные биотопы республиканского ландшафтного заказника "Званец" (год 1996)

## Zvaniec in 1996



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# Conservation of open fen mires in “Sporaŭski” reserve

Belarusian biological reserve «Sporaŭski»  
APB-BirdLife Belarus



# Open fen mires "Sporava"

- Current land use



Mowing

20-30 years ago  
the whole mire  
was mown  
regularly

Mowing has nearly  
stopped today.

# Open fen mires "Sporava"

- Current land use



Grazing

has nearly stopped

«... cows do not want to eat mire hay any more...»

# Overgrowing

## - Reasons

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The following factors favor fast natural succession:

- Artificial water regime (the absence of floods) of the Jaseĺda river and the lake Sporaŭskaje caused by fish ponds situated upstream the river;
- The lack of water caused by melioration of adjacent lands.

# Overgrowing

## - Perspective

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- The high density of aquatic warbler near the lake Sporaūskaje (close to Kakoryca village) is registered ONLY in places that are mown or were mown during the last 5-7 years.
- If mowing is ceased the following consequences are expected:
  - Quick decline (within the next 5-7 years) of the core population of aquatic warbler near the village Kakoryca
  - Further 50-70% aquatic warbler population decline within the next 10 years in the whole reserve.



# Hand-mowing championship in Sporaŭski reserve

- Attracts public's attention to the problem of open fen mires overgrowing



# Hand-mowing championship in Sporaŭski reserve



## Першы чэмпіянат Беларусі па ручному сенакашэнню “Спораўскія сенакосы”

Рэспубліканскі біялагічны заказнік “Спораўскі”  
15 жніўня 2007 года      в. Шылін, Бярозаўскі р-н, Брэсцкая вобласць

Пры падтрымцы:



# Restoration of mowing using machinery

- Is it real? Yes, it is real.



## Mowing 2006-2008

217 ha – close to village  
Matviejevičy,

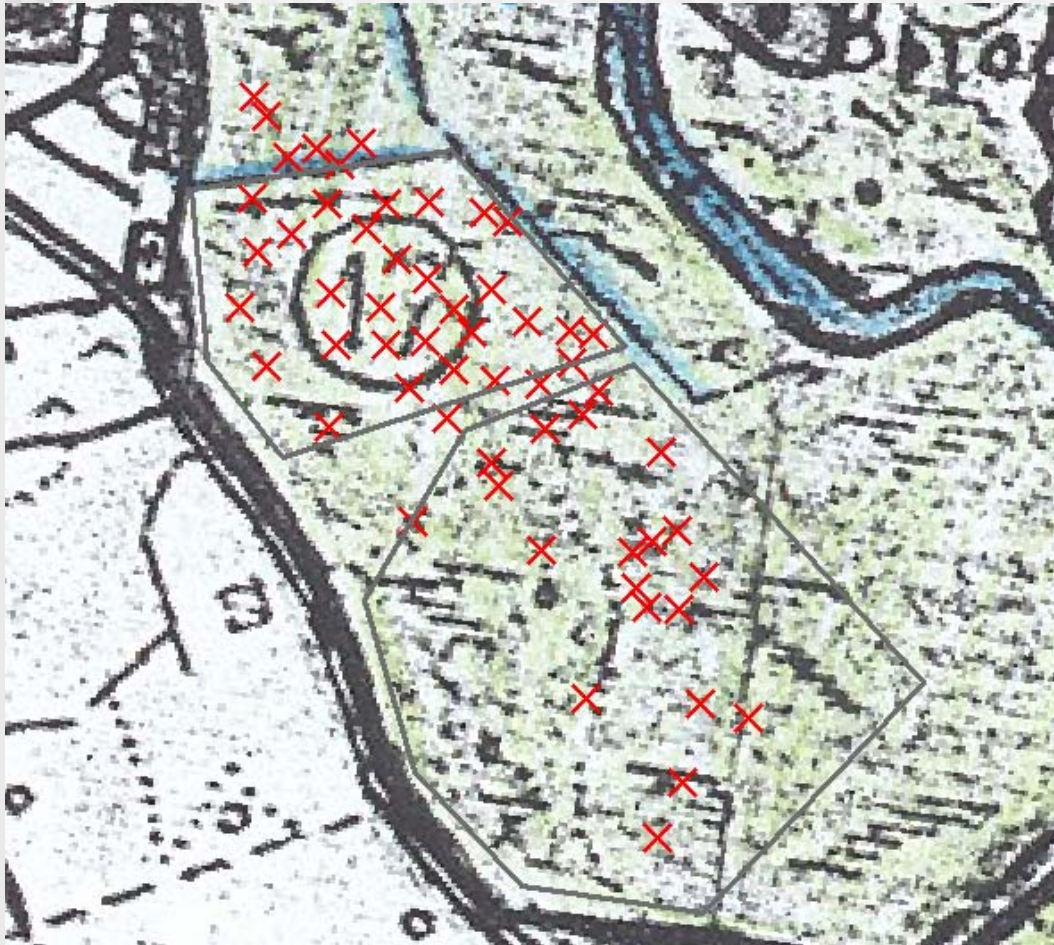
30 ha - Kasciuki,

120 ha – Kakoryca

**Total – 367 ha**

# Restoration of mowing

- How effective is it? Yes, it is effective.



Monitoring plot near the village Kasciuki, according to 2008 census.

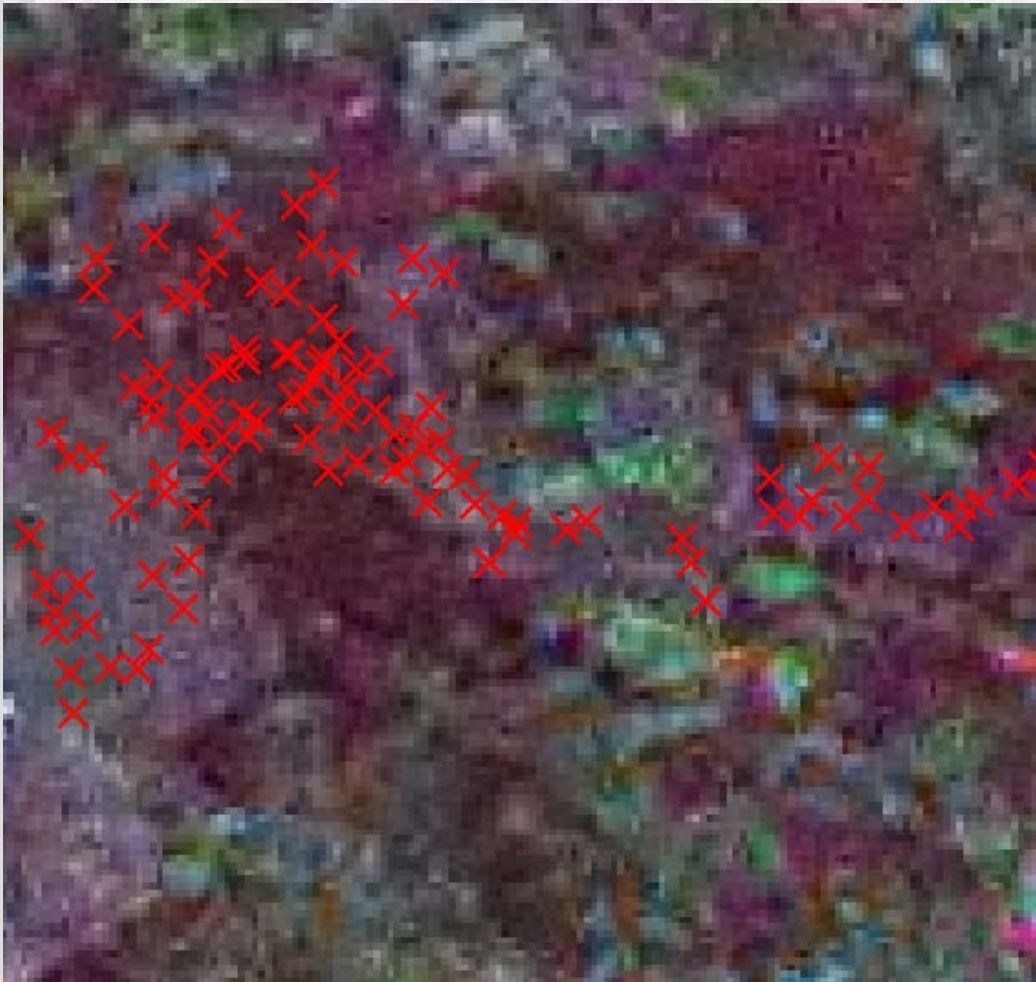
Aquatic Warbler density

males/km<sup>2</sup>

Mown area	103
Not mown	28

# Restoration of mowing

- How effective is it? Yes, it is effective.



Monitoring plot near the village Kakoryca, according 2008 census

Aquatic Warbler density

males/km<sup>2</sup>

Mown area up to	(!) 165
Not mown	0-50

# Bush removal

- Is it real? Yes, it is real.



Bush removal

30 ha – close to  
Kasciuki village

# Mowing and bush removal

## - conclusions

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- Mowing is extremely needed to stop succession
- Mowing is technically possible
- Mowing can be economically justifiable

# Mowing and bush removing

- **economical details** (according stakeholders data)

## **Mowing for hay**

Speed : 13 ha/day

Productivity : 3-4 tons of wet biomass/ha

Cost : 35 EUR/ha

## **Mowing for silage**

Productivity : 1,3 tons of silage/ha

Cost : 71 EUR/ha or  
60 EUR/1 ton of silage

- Area suitable for mowing in Sporaūski- up to 500 ha/year



# Controlled burning



20 km<sup>2</sup> of Zvaniec in December 2007.

# Management of AW breeding habitats in Belarus.

## - conclusions

1. Management of Aquatic Warbler breeding habitats in Belarus is based on thorough research implemented since 1995 and currently focused 3 key Aquatic Warbler breeding sites: Zvaniec, Sporava and Dzikaje.
2. As the first step, management plans for these key territories were developed. The management plans identified main threats and specified and prioritized actions that need to be implemented.
3. For all three sites, water management was deemed as priority action and several conservation projects targeted restoration of hydrological regime of these sites, resulting in construction of 13 sluices and dams (6 at Dzikaje, 6 at Zvaniec, 1 at Sporava).
4. Following restoration of water regime, habitat management (mowing and controlled burning) was pioneered. Altogether 367 hectares of Sporava mire were mown and 30 hectares cleared from bushes. In 2007 controlled burning was piloted at Zvaniec.
5. Hydrological management helped stabilize water level and prevent further quick habitats' degradation. Monitoring works implemented showed positive effect of habitat management, leading to up to 3 times increase in the density of vocalizing males of the Aquatic Warbler.