



UNIwersYTET WARSZAWSKI  
**Warszawski Ośrodek Ekonomii Ekologicznej**



Institute of Transport Economics  
Norwegian Centre for Transport Research

# Białowieża/Biełavieskaja Pušča: history, current state and problems (POV)

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BPN Headquarters



# Białowieża/Biełavieskaj Pušča

Total area:

2173 km<sup>2</sup> (including Dzikaje Mire)

1529 km<sup>2</sup> in BY

643 km<sup>2</sup> in PL

## Strictly protected area

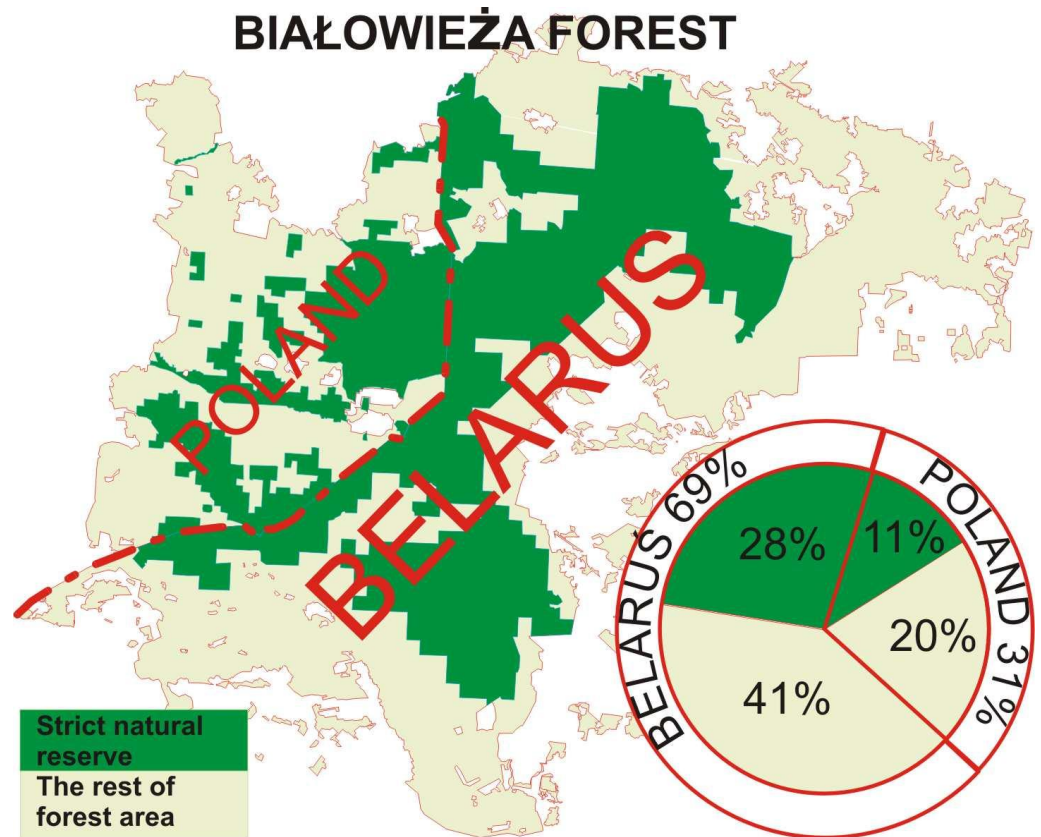
BPN (PL) 10 517,27 ha

Reserves (PL) 12 206,33 ha

Strict reserve zone of the NP „Biełavieskaja Pušča” (BY)

57 071,00 ha

TOTAL: 79 774,6 ha





# History of Land Tenure

- 1409: Big Royal Hunt with military purposes – the first record of the 'Białowieża forest' title in history
- 1538: The first recorded law protecting the forest;
- 1541: declared a hunting reserve to protect the bison;
- 1557: A forest charter was issued, appointing a special board to examine the rights of forest usage;
- End of the XVIII century – industrial logging began for the naval purposes at the most;
- Royal road Hajnówka – Prużany built

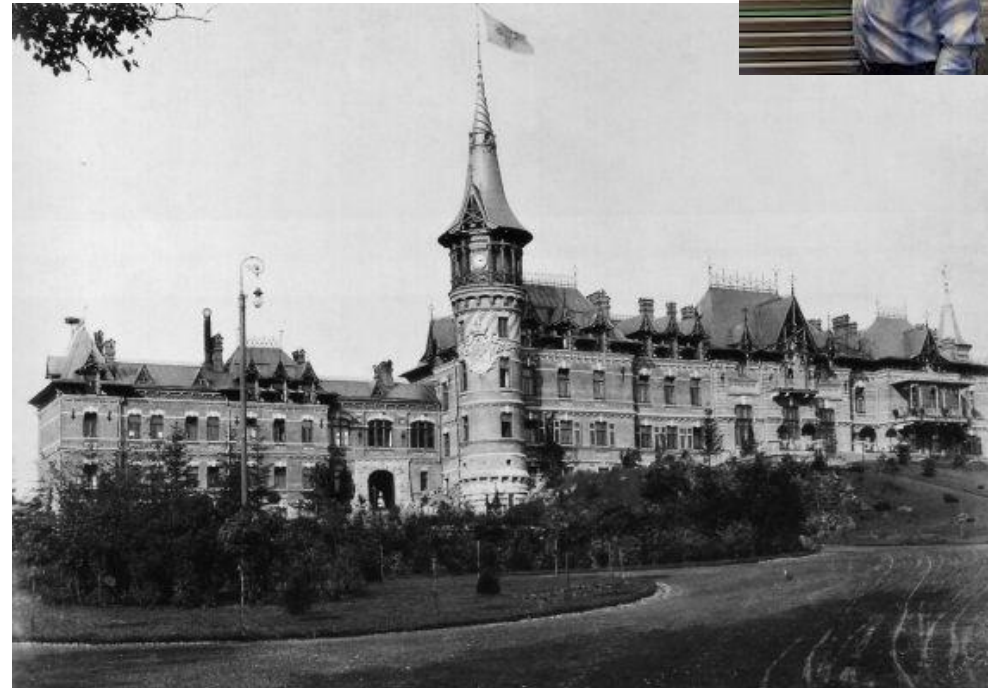




# History of Land Tenure: Russian Empire (1795 – 1914)



- 1795 -- Considerable plots of land granted to Empire's top nobility, the forest opened to public use;
- 1802 – decree of Alexander I on bison's protection
- 1811 – first artificial feeding of bison in winter introduced after the great wood fire
- 1847 – first forestry management plan implemented (German type) – industrial logging of mast pines
- 1859 – the first Emperor's hunt
- 1888 – forest in royal family's possession, industrial logging suspended
- 1894 – royal autumn residence in Białowieża established
- 1894, 1897, 1900, 1903 , 1912 – ,brilliant' hunts

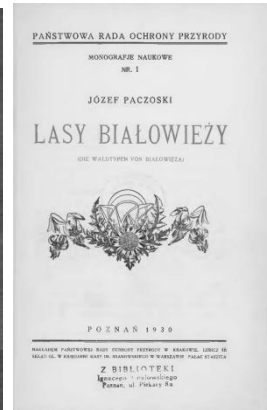


Император Николай II на охоте в пуце



# History of Land Tenure: 1914 – 1944

- 1914 – 1918 heavy mechanised logging by Germans, 4 sawmills and 300km of narrow-gauge railways built, 4,5 mio m3 harvested
- 1917: the forest formally nationalised after the Russian February revolution
- 1918 – ‚Naturschutzpark’ established (4640ha)
- 1919: The last free bison female killed
- 1921: National Forest Reserve established
- 1923 Bison’s restitution started
- 1931: Białowieża National Park designated (4,500 ha);
- 1927-1928 „Centura”’s logging 2 mio m3
- 1934-1935 – 1,2 mio m3 logged
- 1940: Soviet State Industrial Forestry and Game Reserve established. Plans to fell down 1 mio m3 per year.
- 1941 – 1944 – Reichsmarschal Göring’s personal game reserve



# History of Land Tenure: Transboundary Period

1947 -- BNP re-established

1959 – Emperor's palace  
in Białowieża destroyed

1976 -- designated MaB-  
UNESCO Biosphere  
Reserve

1992 -- UNESCO World  
Heritage Site designated

1997 -- awarded Diploma  
of Council of Europe

1996 – BPN surface more  
then doubled

2004 – Natura2000 Site  
designated



1944 -- State Reserve (*Zapovednik*)  
„Biełavieskaja Pušča” established

Railroad demounted

1957 – reorganised into ‚hunting  
reserve’

1980s – frontier system  
constructed

1991 – reorganised into National  
Park

1992 – designated UNESCO World  
Heritage Site

1993 – designated MaB-UNESCO  
Biosphere Reserve

1997 – awarded Diploma of Council  
of Europe

2002, 2004 – NP enlargements

2002 – 2007 ‚struggle’ with Spruce  
bark beetle

2008 – first Management Plan  
adopted

2012 – new zonation implemented,  
strict reserve zone almost doubled



# Current Land Use

PL



Regionalna Dyrekcja  
Lasów Państwowych  
w Białymstoku

BY



- Białowiecki National Park (10 517,27 ha)
  - Polish State Forests: Hajnówka (19 665,2 ha), Białowieża (12 588 ha) and Browsk (20 385 ha) forestries united into the Forest Promotional Complex
  - Minor private land-owners (3 464,84)
- National Park „Biełavieskaja Pušča” (152 900 ha)



# Location & Physical Features

60 km north-northwest of Brest (BY)  
62 km south-east of Białystok (PL)  
Latitude: 52° 25' to 52° 59'N  
Longitude: 23° 28' to 24° 33'E  
Altitude: 145m to 202m



- Flat to rolling lowland plain on the hydrological divide between the Baltic and Black Seas.
- Mosaic of peatlands, streams and river valleys.
- Glacial formations with deposits of deep sands overlying clays and loams, podsoles and bog soils above Cretaceous bedrock.
- The organogenic peat and marshy peat formations in river valleys and local depressions often contain mire systems.
- Soils are predominantly acid.

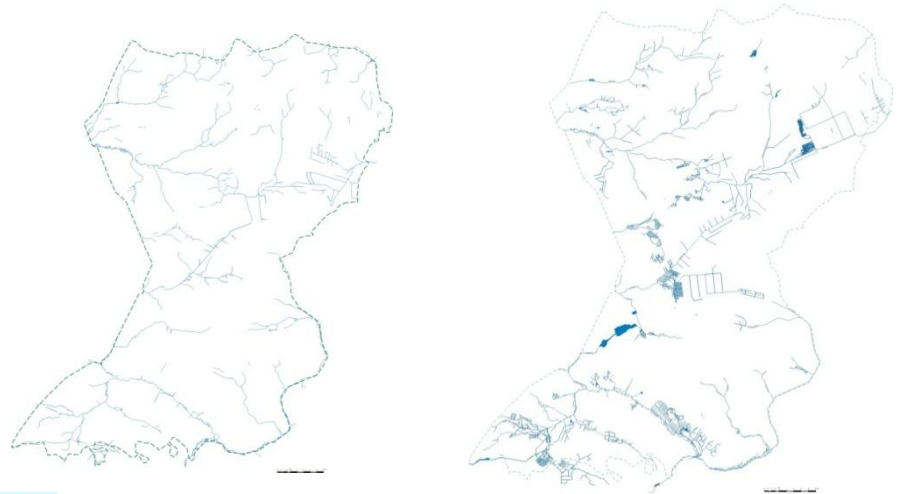


# Climate

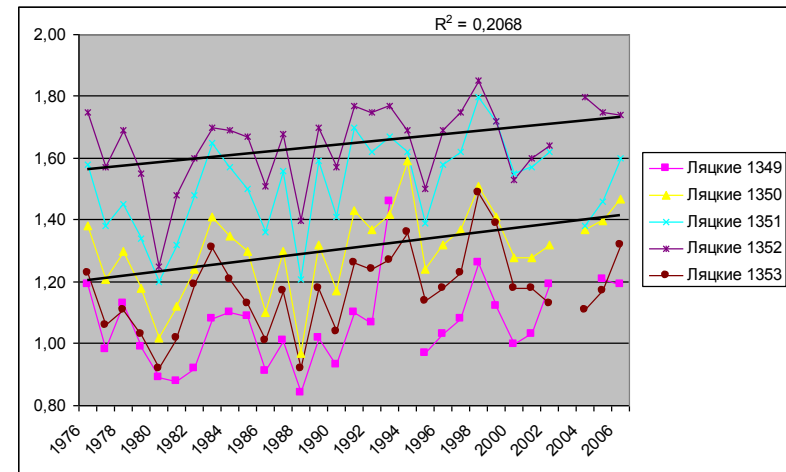


- cool-temperate continental
- mean annual precipitation of 620mm
- mean annual temperature is +7°C
- average January -5°C
- average July +18°C
- snow cover average of 92 days
- vegetation 205 days per year

# Hydrology



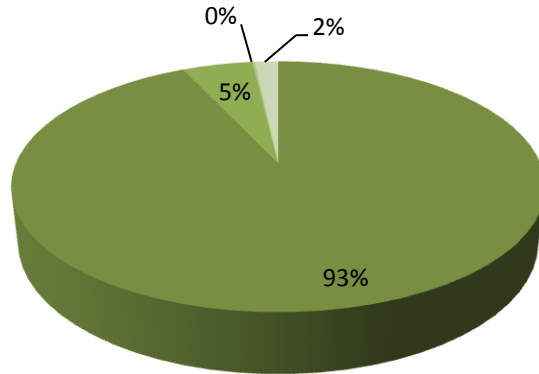
Drainage of the forest and adjacent area has significant impact on natural habitats



# Habitat structure

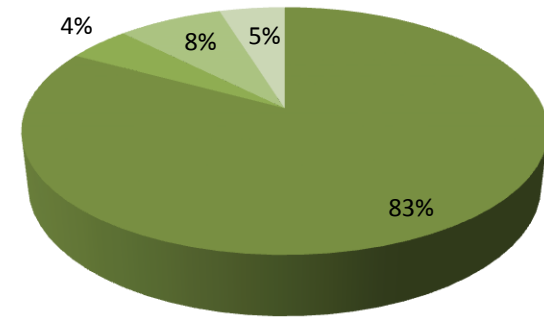
**BPN**

■ Forest ■ Non-forest terrestrial ■ Wetlands ■ Other



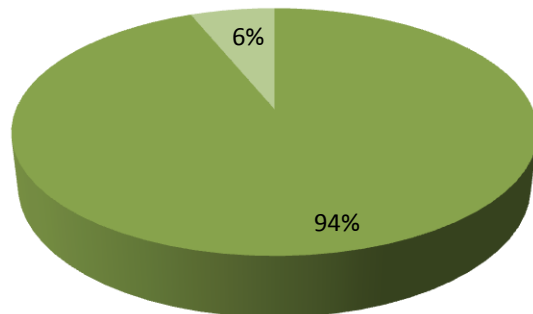
**NP "Biełavieskaja Pušča"**

■ Forest ■ Meadows ■ Wetlands ■ Other



**Białowieża forest (PL)**

■ Forest ■ Other



- Afforested areas absolutely dominate.
- Watercourses and large wetlands have been drivers of variety of ecological conditions and natural barriers to overexploitation.
- High habitat diversity and heterogeneity.



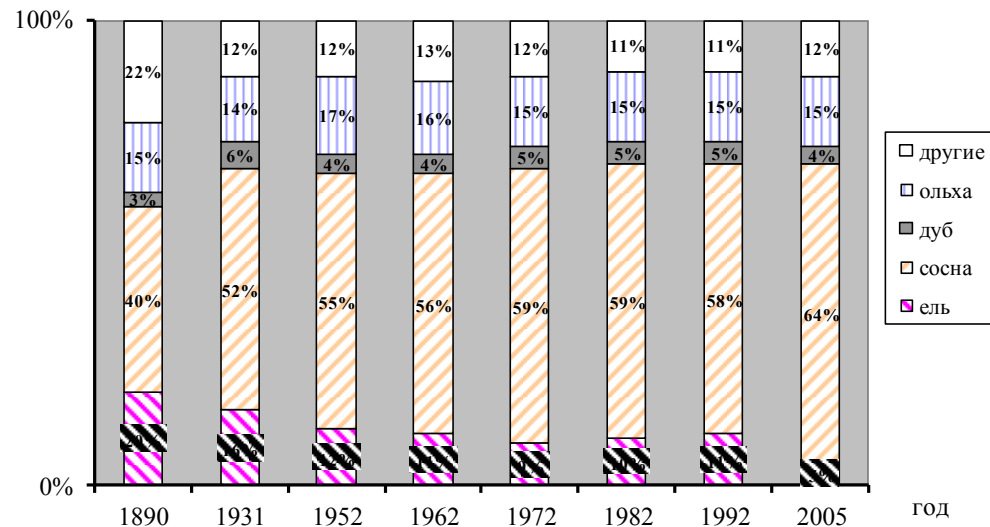
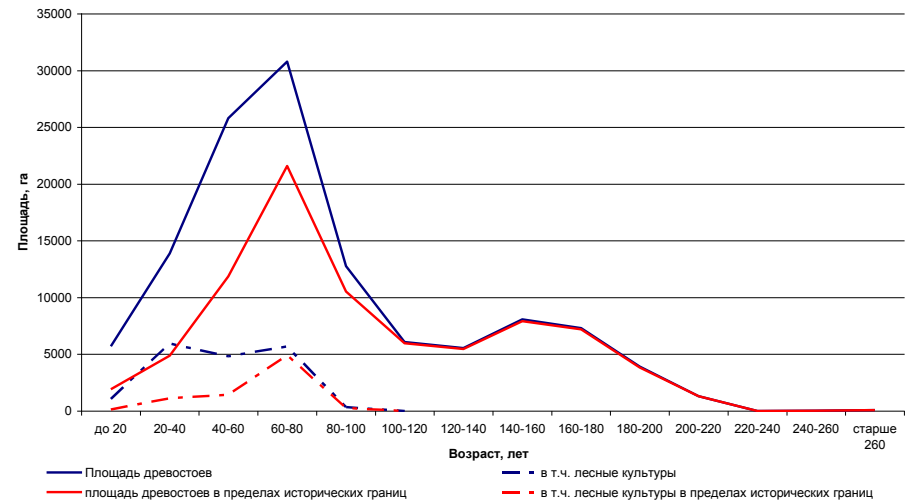
# Vegetation & Flora (BY)

- Mean age of stands 97 years, 105 years in the old part
- 1024 species of vascular plants, (62 protected)
- about 200 algae
- over 3000 (12) fungi
- 270 (5) moss
- 292 (17) lichen

- 9 forest formations (of 10 in BY)

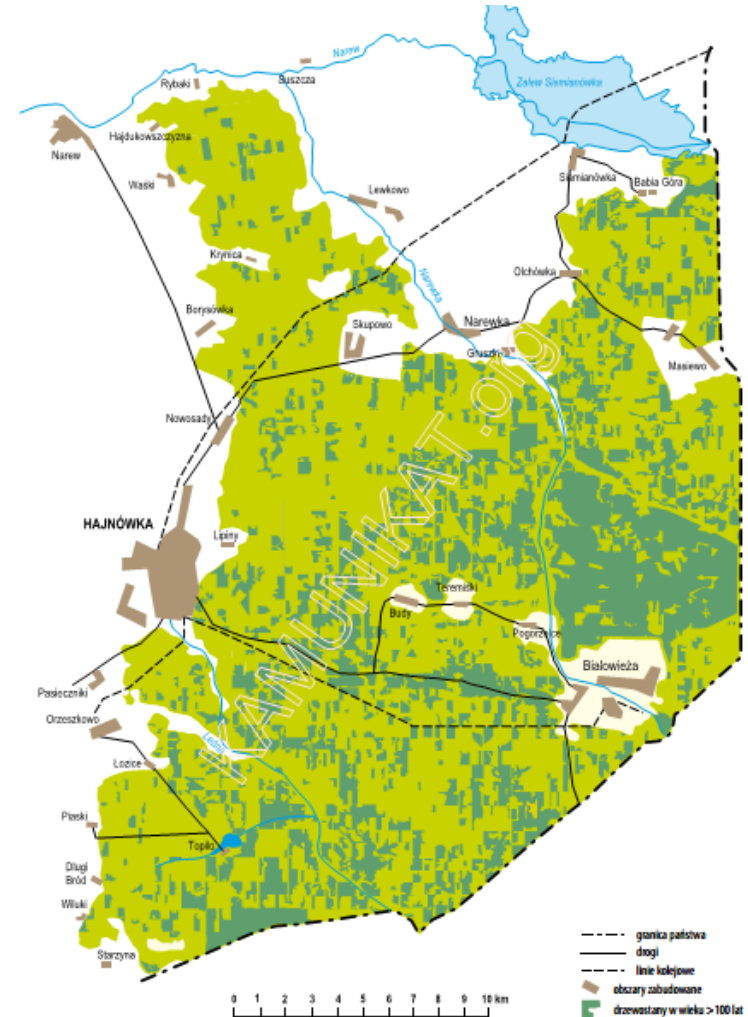
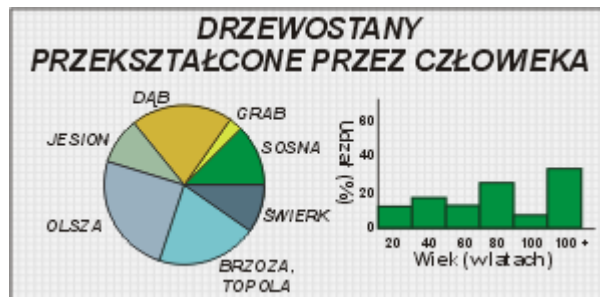
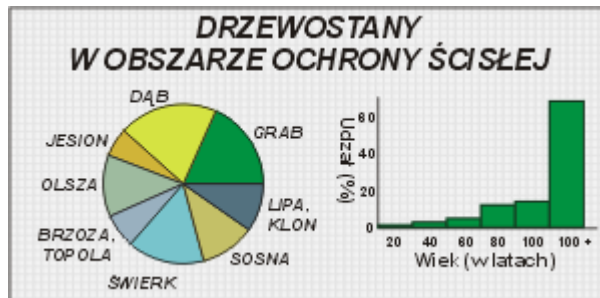
- Lies in between the two geobotanical zones: predominantly coniferous Eurasian and predominantly deciduous, Western
- Age of tree stands differs in the core ('old') and adjacent ('new') parts of the forest
- Forest diversity is stable enough
- Pine woods absolutely dominated throughout the XX century
- Alder woods have been the most stable due to the most stable water regime
- Spruce stands decline as a result of drainage, windfalls and European spruce bark beetle breakouts

Распределение древостоев по возрасту



# Vegetation & Flora (PL)

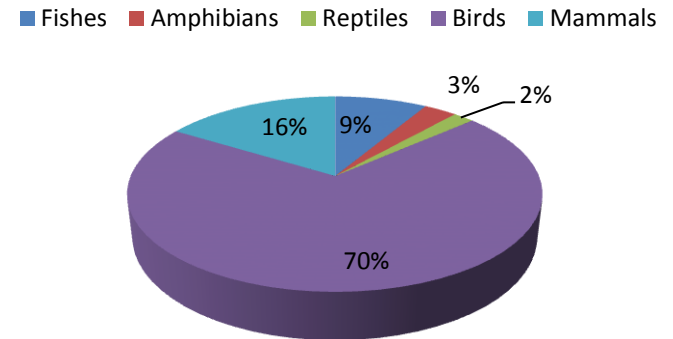
- A bit lower mean age of stands as compared with BY part: around 73 years
- However, even higher mean age in the strict reserve: 130 years
- 786 species of vascular plants (including 76 protected)
- 1585 (31) fungi
- 352 (63) lichens
- 145 (31) mosses



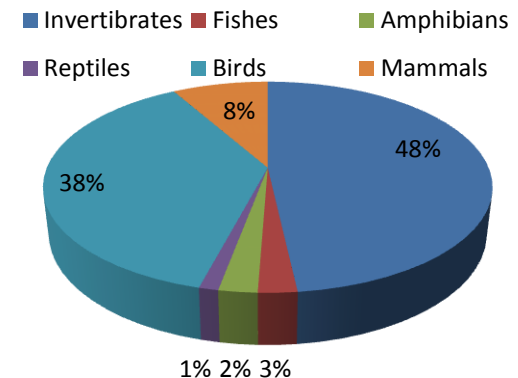
# Fauna and Animal Population (BY)

- Over 12000 species of invertebrates, 31 fishes, 11 amphibians, 7 reptiles, 253 (184) birds, 59 mammals

## Vertebrate species



## Protected species



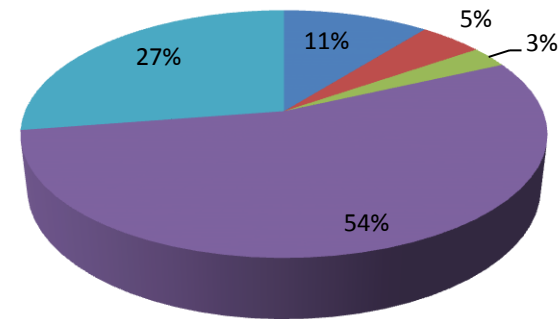


# Fauna and Animal Population (PL)

- Over 10500 species of invertebrates, 23 fishes, 10 amphibians, 6 reptiles, 117 (108) birds, 59 mammals

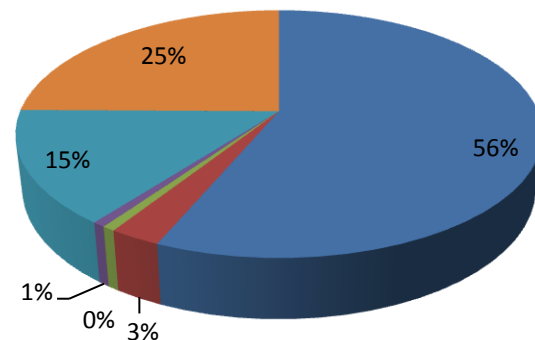
**Vertebrate species**

Fishes Amphibians Reptiles Birds Mammals



**Protected species**

Invertebrates Fishes Amphibians Reptiles Birds Mammals



# Forest dependent species

- European bison
- Lynx
- Capercaillie
- Woodpeckers
- Owls
- Wolf





# Cultural Heritage

- Multi-cultural environment
- “Natural” character of cultural heritage
- Historical isolation, ‘local climate’





# Human Population and Its Occupation

- Anthropogenic landscapes: clearings, hunting grounds, riverside meadows, road systems and trails, forest settlements, narrow-gauge railways.
- Use of the forest for bee-keeping, charcoal-burning, animal rearing, game-keeping and hay-making.
- In BY about 2 500 people live within the Park, 1 500 in the buffer zone, over 30 000 in closely adjacent areas. Few financial benefits to the local population. Work and training opportunities in forestry, nature protection and other services.
- In PL there are no human settlements in the strict preservation area but some 3,000 people live in villages nearby: foresters, park servicemen, business owners.
- The nearest towns are Hajnówka (PL), Kamianiec and Pružany (BY).
- Tourism development



# Most important features

- (One of) the largest semi-intact aged forest on European lowland
- Big and relatively stable island of wilderness surrounded by human transformed lands
- High diversity of habitats driven with variety of relief, hydrology, soils and vegetation
- Natural processes preserved in the strict reserve area including deadwood biomass storage
- Floristic and faunistic complexes reference for forests of the given biogeographic region
- Many typically forest species, especially fungi, invertebrates and avifauna (109 forest bird species including 9 woodpeckers)
- Merely last refuge for some of the species (invertebrates)
- Full range of ungulates (including the Europe's largest semi-wild horde of the European bison)
- Full range of carnivores
- Relatively little penetration with alien and invasive species
- Transboundary character
- Long record of wildlife protection
- High values of traditional culture correspond with high natural values



# Conservation Management (BY)

## Zoning of NP "Biełavieskaja Pušča"

■ Strict reserve ■ Managed ■ Recreational ■ Economic

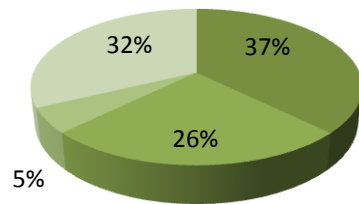
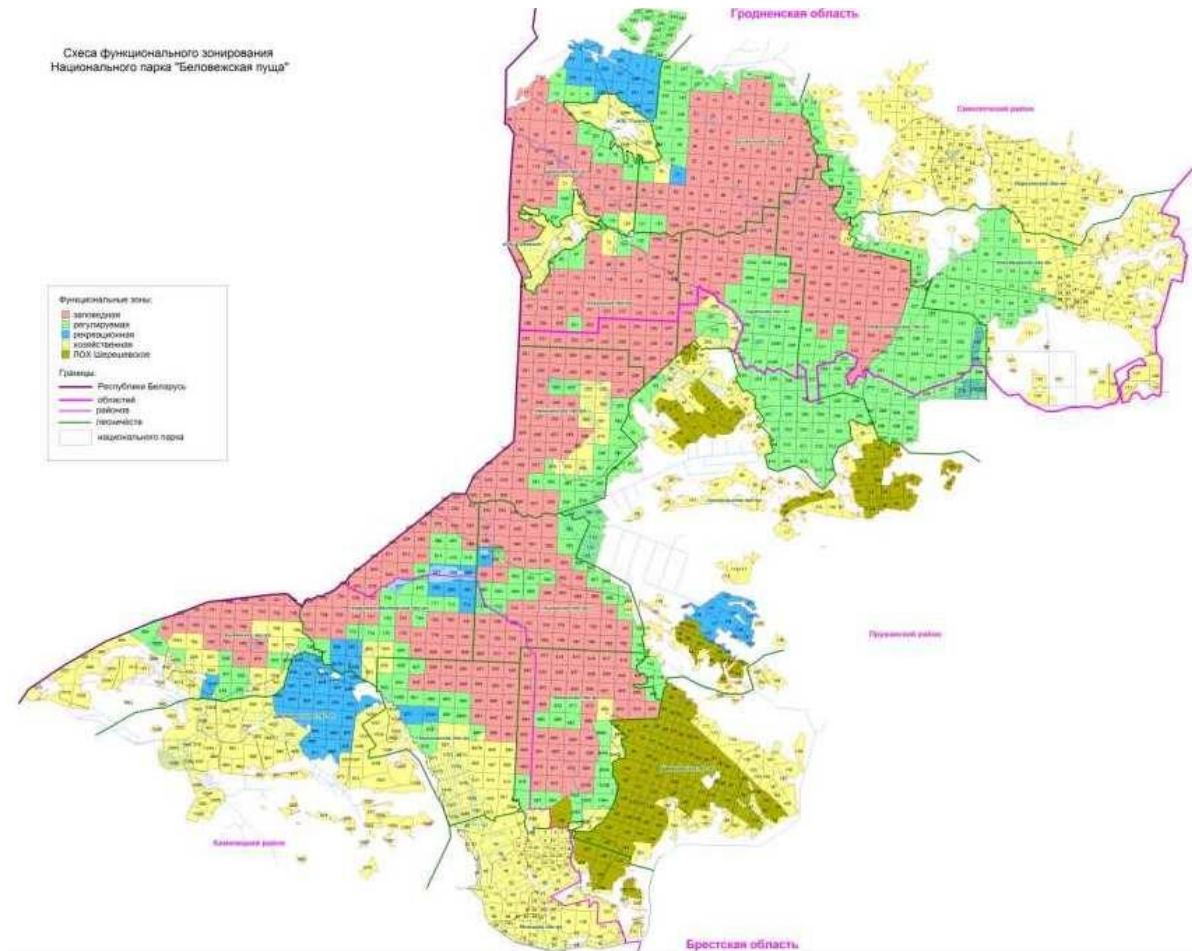
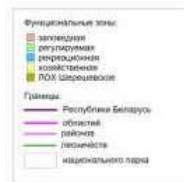


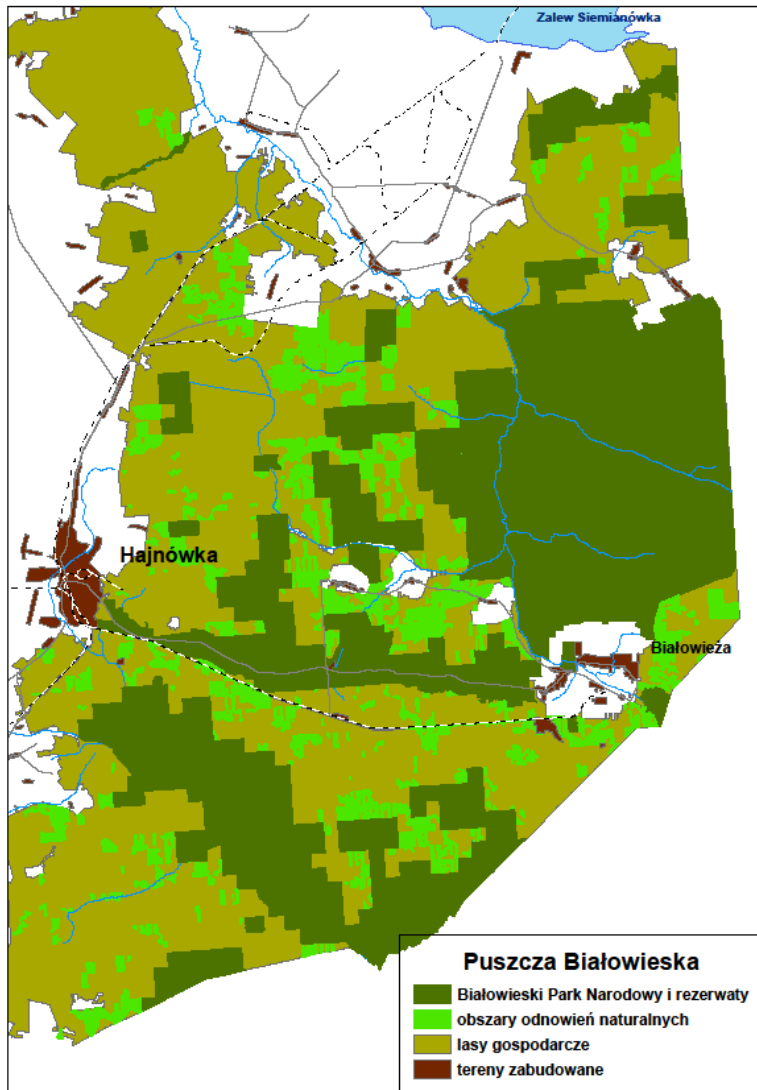
Схема функционального зонирования Национального парка "Беловежская пуща"



- Strict reserve zone
- Managed reserve zone
- Recreational zone
- Economic zone
- Šarašova game reserve
- Outer protected zone

Management Plan 2008-2013

# Conservation Management (PL)



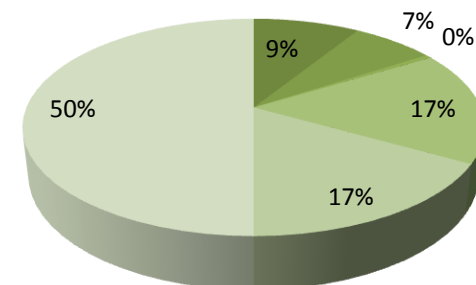
- BPN Strict reserve
- BPN Active protection zone
- BPN protected landscape zone
- Outer reserves
- Natural forest regeneration areas
- Industrial forestry

Conservation Tasks Plan (PZO) for BPN (2010)

Conservation Tasks Plan (PZO) for Natura 2000 site yet to come

## Białowieża forest (PL)

- Strict
- Active protection
- Landscape protection
- Outer reserves
- Natural regeneration
- Industrial





# Problems (BY)

- Hydrology (water table lowering)
- Ungulates' overpopulation/wolf
- Mass tourism
- Centralised governance (+/-):
  - Struggle with Spruce bark beetle
  - +Enlargement
- Lack of holistic approach to conservation

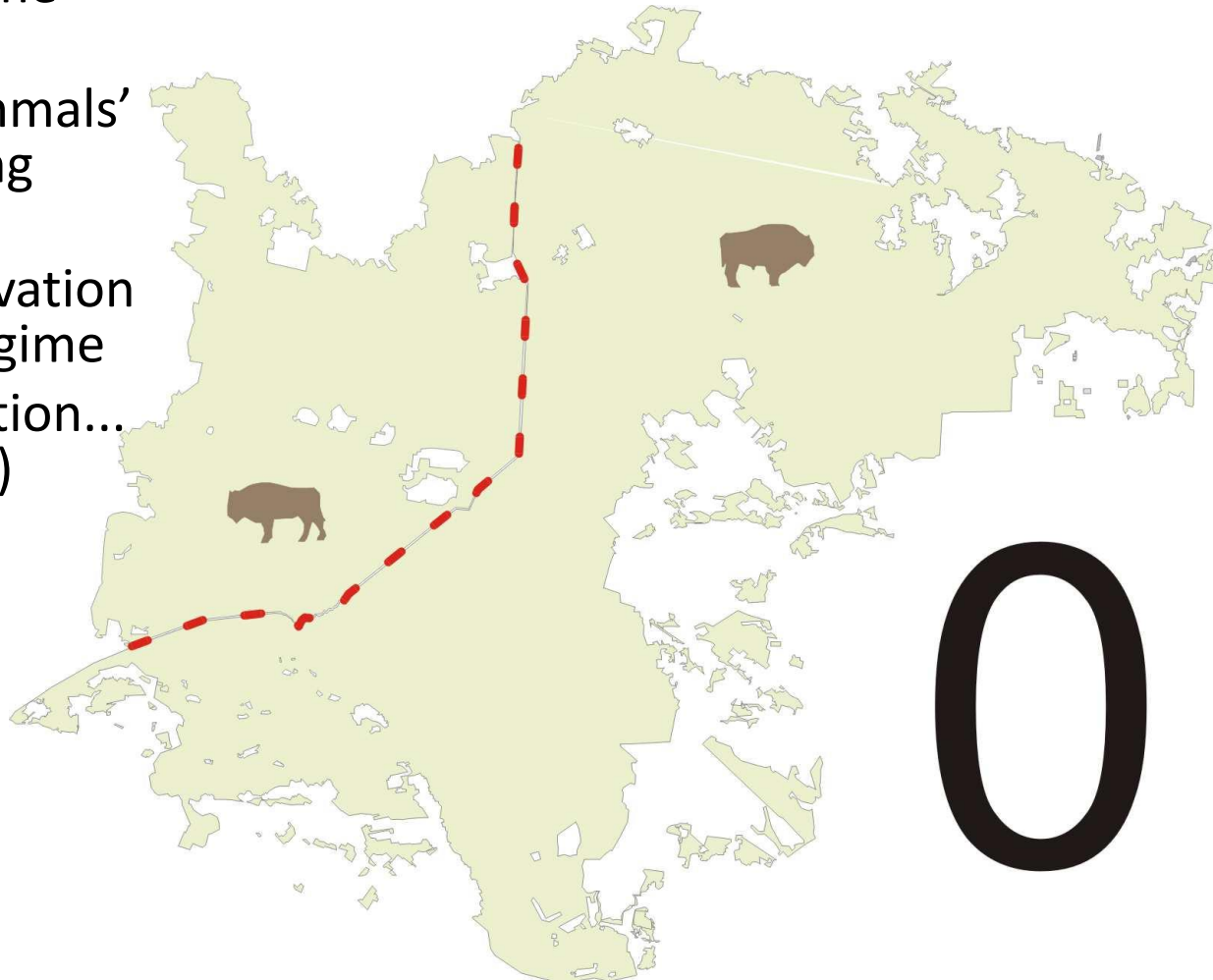


# Problems (PL)

- Conflict 'conservationists – foresters' (Blicharska & Angelstam 2010)
- Heterogeneity of preferences 'local – national'

# Transboundary aspect

- Physical division of the all-of-a-piece site with the frontier system
- Isolation of big mammals' populations, including bison
- Difference of conservation management and regime
- Difference in perception...  
...and preferences (?)



# Conclusion (POV)

Introduction of the unified conservation regime, namely -- strict reserve -- on the both sides and its spacial expansion on adjacent forests would have facilitate regeneration of the aged semi-natural forest there in a long run





Thank you for your attention!