Value of Transboundary Nature Protected Areas Situated near the EU Outer Border (TRANPAREA)

Per Angelstam & Marine Elbakidze

Oslo 2013-11-25
Warsaw 2013-12-03

Narodowe Centrum Badań i Rozwoju

norway grants

Polish-Norwegian Research Programme

Sveriges Lantbruksuniversitet SLU

Białowieski Park Narodowy

Who we are


Kjell Andersson


Per Angelstam


Robert Axelsson


Marine Elbakidze


Pablo Garrido


Ida Hansen


Michael Manton


Vladimir Naumov


Simen Pedersen


Natalie Stryamets

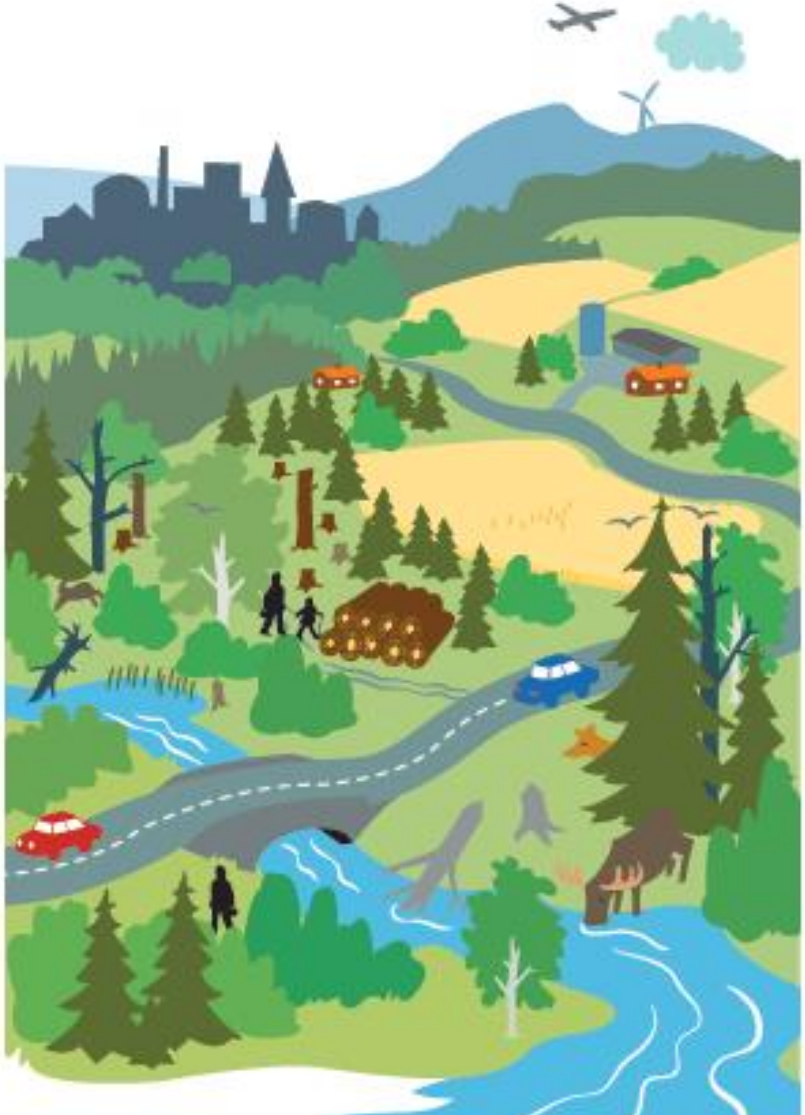

Sara Teitelbaum


Johan Törnblom


Slava Valasiuk


Taras Yamelynets

Forest Landscape Society



Citizens' views on the management of trans-border national parks

- National parks as case studies
  - Bialowieza
    - Poland and Belarus
  - Fulufje/ället
    - Norway and Sweden
- Management values
  - Ecological
  - Social

Benefits of a National Park

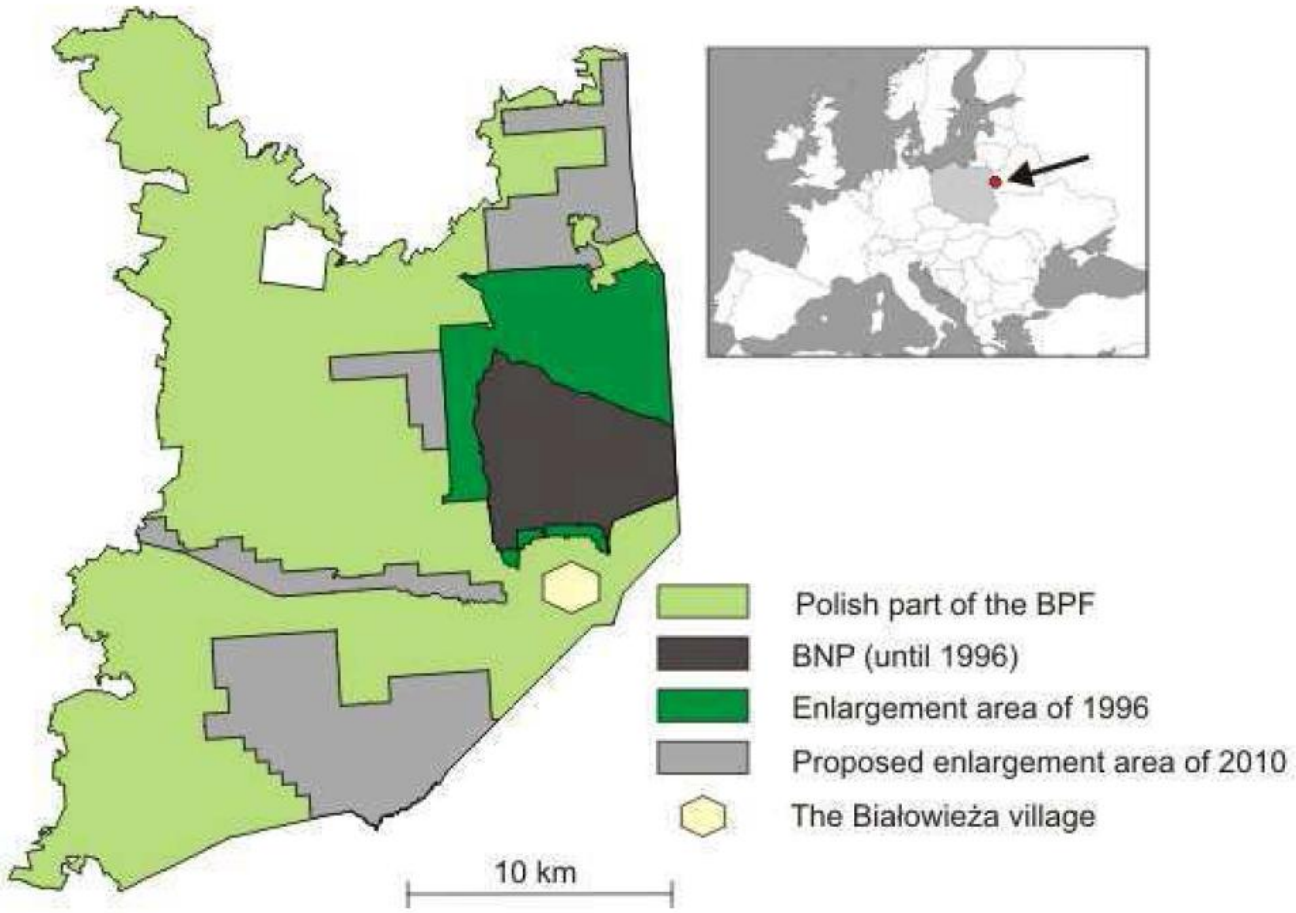
- Ecological system - biodiversity conservation
  - Conservation status within the NP?
  - Is there connectivity between the NP and other patches in ecological networks?
- Social system - benefits, participation and power
  - Local/regional (within and near NP)
  - National (policy, legislation, existence value)
  - International (policy, legislation, existence value)

Maintaining ecological qualities

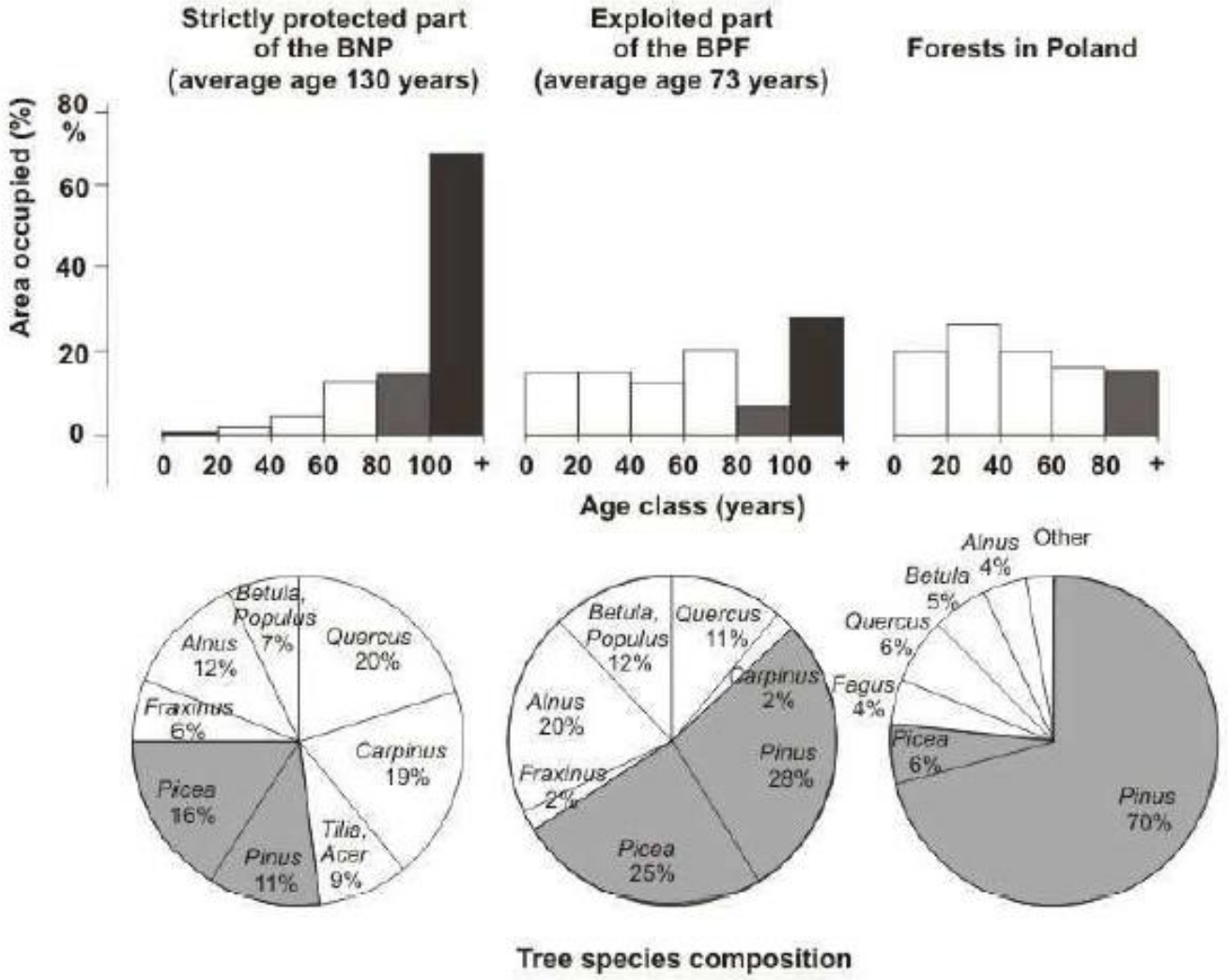
- Within the NP
  - Manage zones differently
    - Increase the size
    - Laissez-faire to increase dead wood in some parts
    - Active management to restore populations, habitats and processes, steer visitors/control predators
- Outside the NP
  - Connectivity as part of green infrastructure across landscapes and regions
    - Habitat restoration
    - Corridors
    - Matrix quality


SVEASKOG
EOS 5D

Fig. 3. A map of the Polish part of the Białowieża Primeval Forest (BPF) with the Białowieża National Park (BNP) and enlargement areas

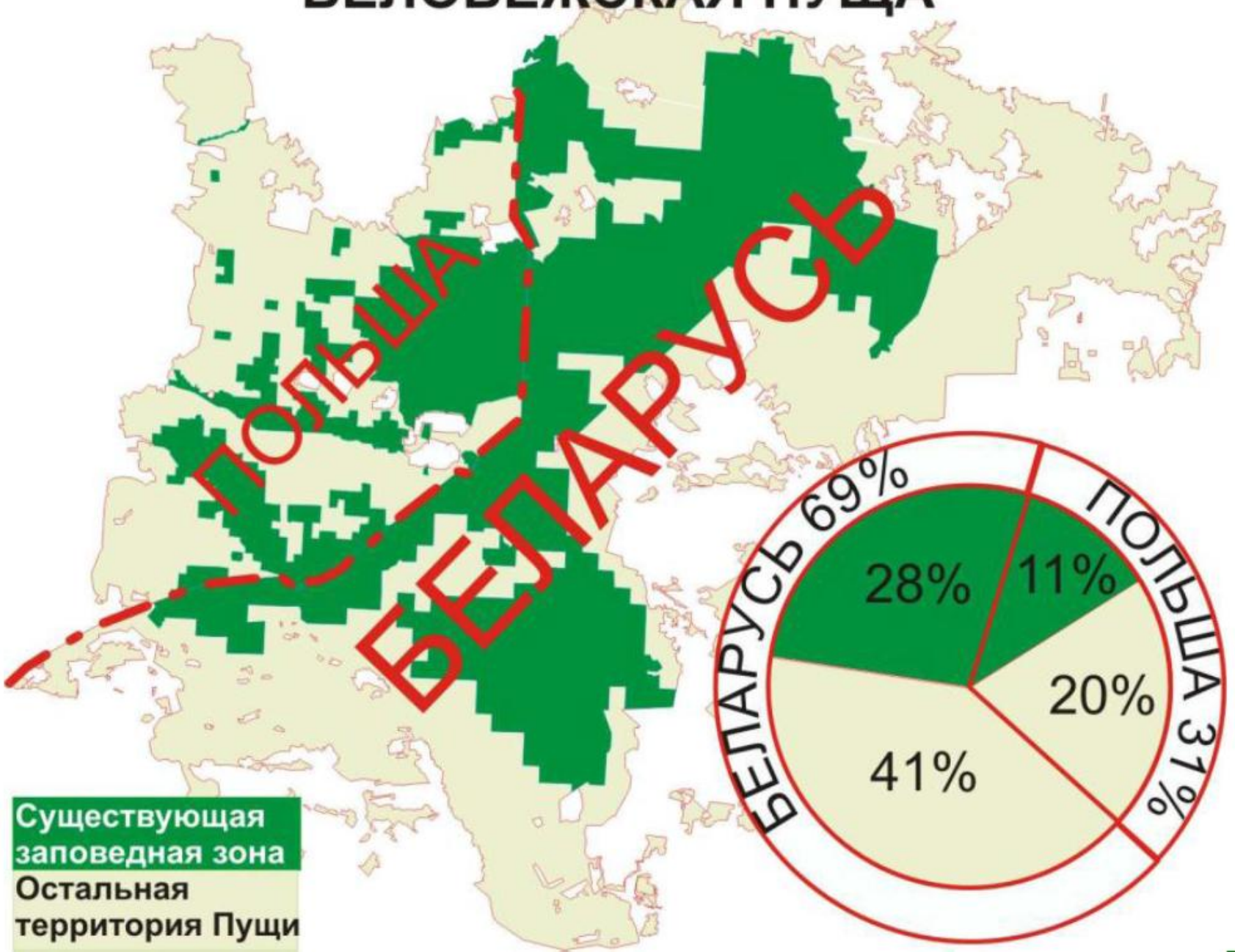


Forest quality

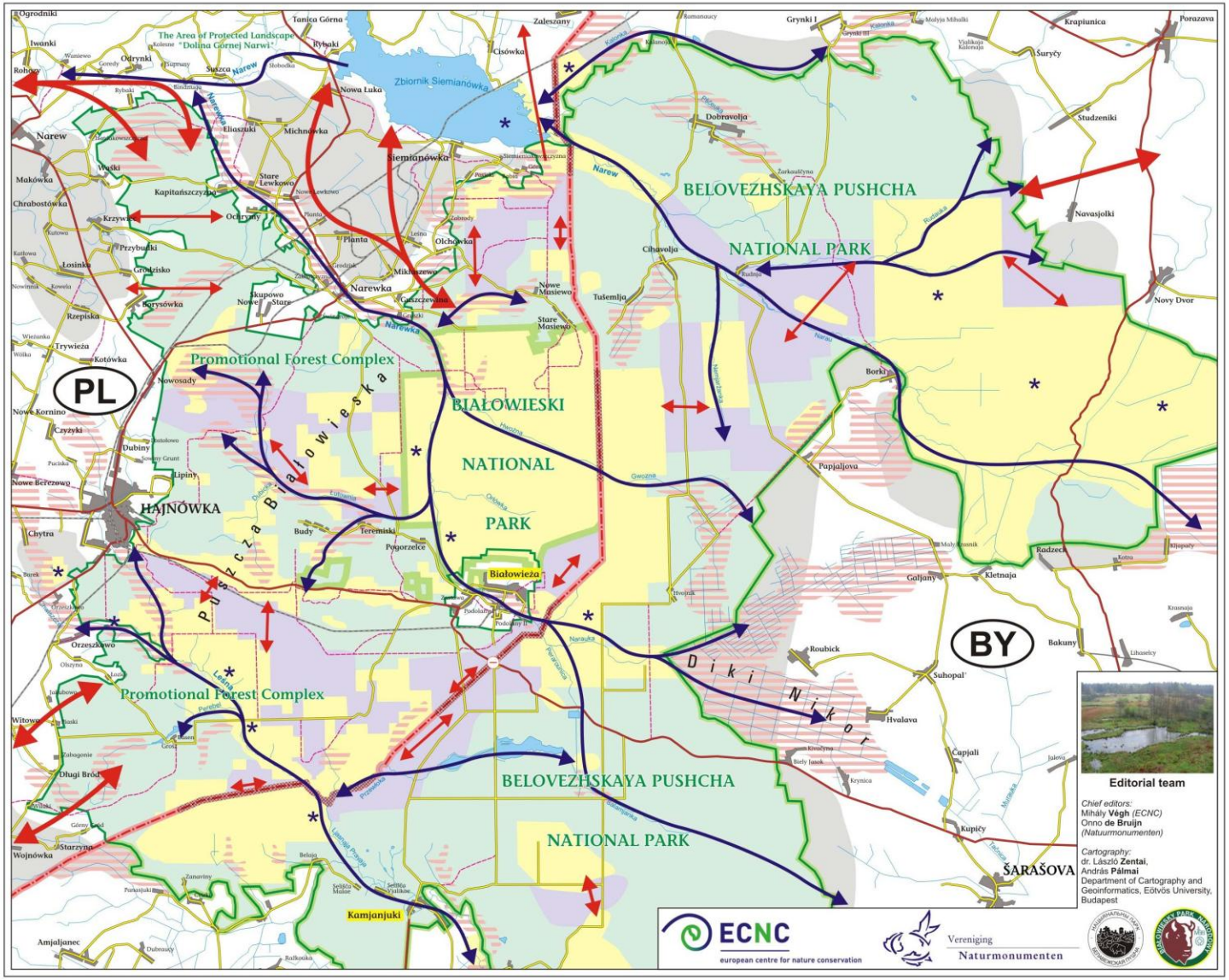



Białystok
POLAND
Białowieża
Hotel
Żubrówka
BIAŁOWIEŻA
FOREST
BELARUS
Latvia
Lithuania
Białystok
Belarus
Warsaw ★
Poland
Czech Rep.
Slovakia
Ukraine

БЕЛОВЕЖСКАЯ ПУЩА



CROSS-BORDER ECOLOGICAL NETWORK OF THE BIAŁOWIEZA FOREST REGION



Legend

- State boundary
- Borders of Bialowieza Forest
- National Park boundaries
- Railways
- Main roads with border crossing
- Secondary roads
- Local and country roads
- Tourist trails

Ecological network elements

- Core areas and stepping stones (primeval and old natural forests; * =open fens/moors)
- Potential ecological corridors
- Buffer zones
- Migration corridors between the forest and the wider surroundings
- Internal migration corridors
- Aquatic migration corridors
- Search areas for potential gateways (100–200 meters wide) enabling migrations of large mammals across the border between Poland and Belarus
- Feeding areas on agricultural land
- Restoration areas

Editorial team

Chief editors:
Mihály **Végh** *(ECNC)*
Onno **de Bruijn**
(Natuurmonumenten)

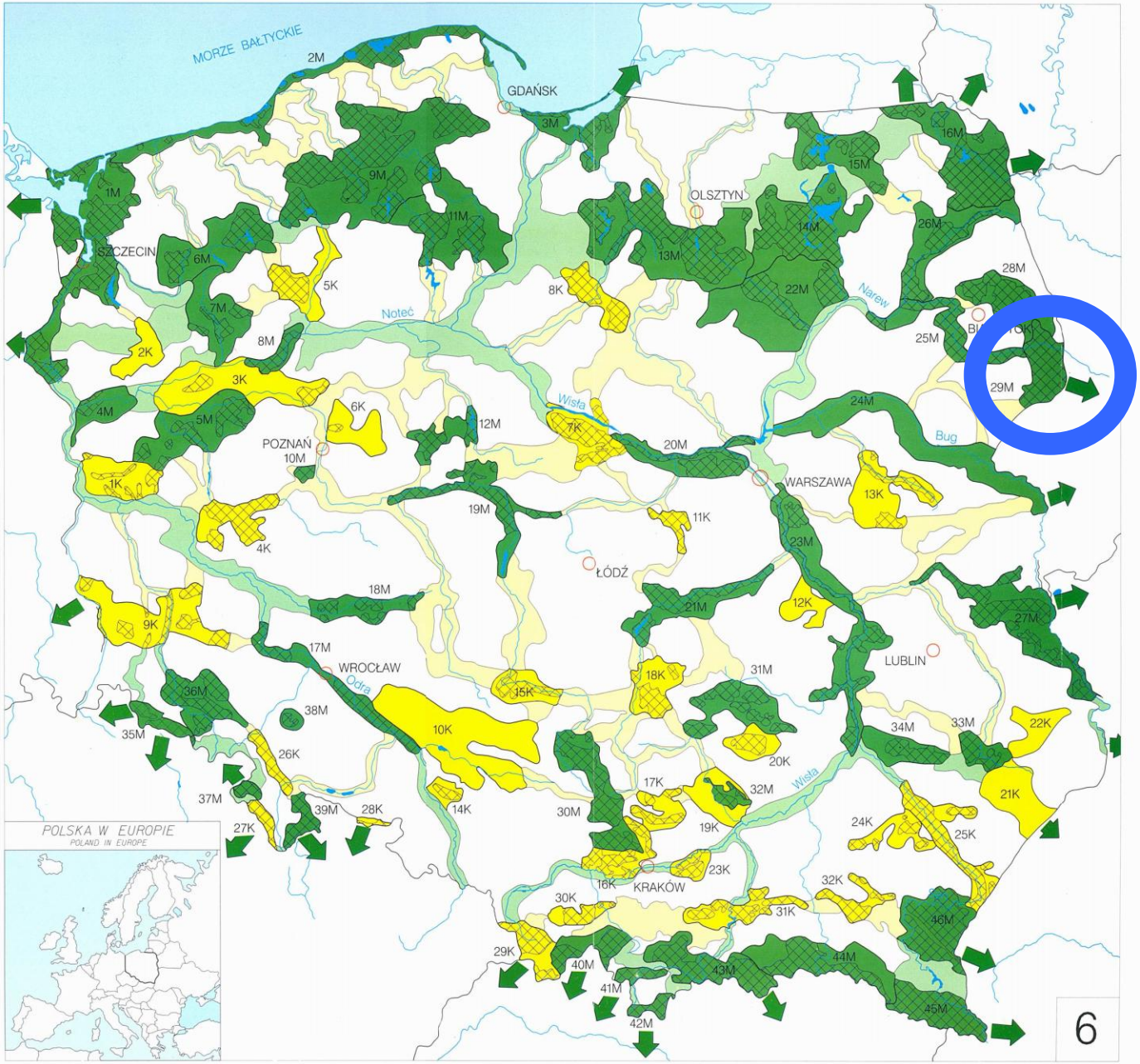
Cartography:
dr. László **Zentai**,
András **Pálmai**
Department of Cartography and Geoinformatics, Eötvös University, Budapest

1 : 135 000

0 1 2 3 4 5 6 7 8 9 10 km

The depiction of geographical entities on this map does not imply the expression of an opinion whatsoever on the part of ECNC and Vereniging Natuurmonumenten, the project partners or the funders concerning legal status of countries involved, territory or areas, or of its authorities, or concerning the delimination of its frontiers or boundaries.

The map is a first indicative cartographic expression of the cross-border ecological network of the Bialowieza Forest region. While realizing this network in practice, further discussions and consultations with relevant stakeholders should take place about the exact delimination of core areas and other parts of the network.



KRAJOWA SIEĆ EKOLOGICZNA

NATIONAL ECOLOGICAL NETWORK

0 100 km

- obszary węzłowe o znaczeniu międzynarodowym — international core areas
- biocentra i strefy buforowe — biocentres and buffer zones
- obszary węzłowe o znaczeniu krajowym — national core areas
- biocentra i strefy buforowe — biocentres and buffer zones
- korytarze ekologiczne o znaczeniu międzynarodowym — international ecological corridors
- korytarze ekologiczne o znaczeniu krajowym — national ecological corridors
- kierunki powiązań ekologicznych — directions of ecological connections
- rzeki i jeziora — rivers and lakes
- granice państw — state borders

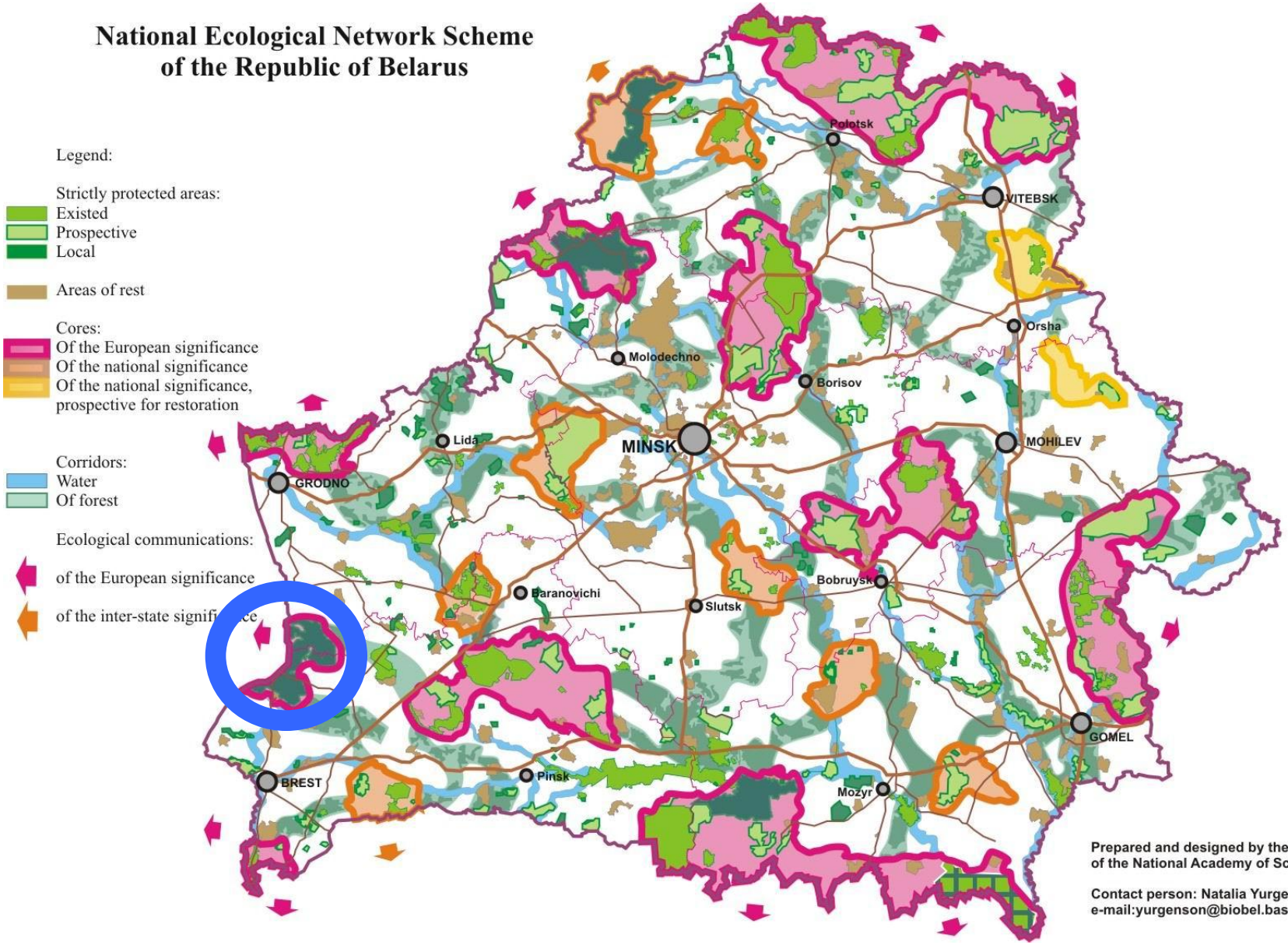
Opracował zespół w składzie:

Anna Liro (kierownik)
Irmina Głowacka, Wojciech Jakubowski
Jacek Kaftan, Aniela J. Matuszkiewicz
Jakub Szacki

IUCN
The World Conservation Union
Foundation IUCN Poland

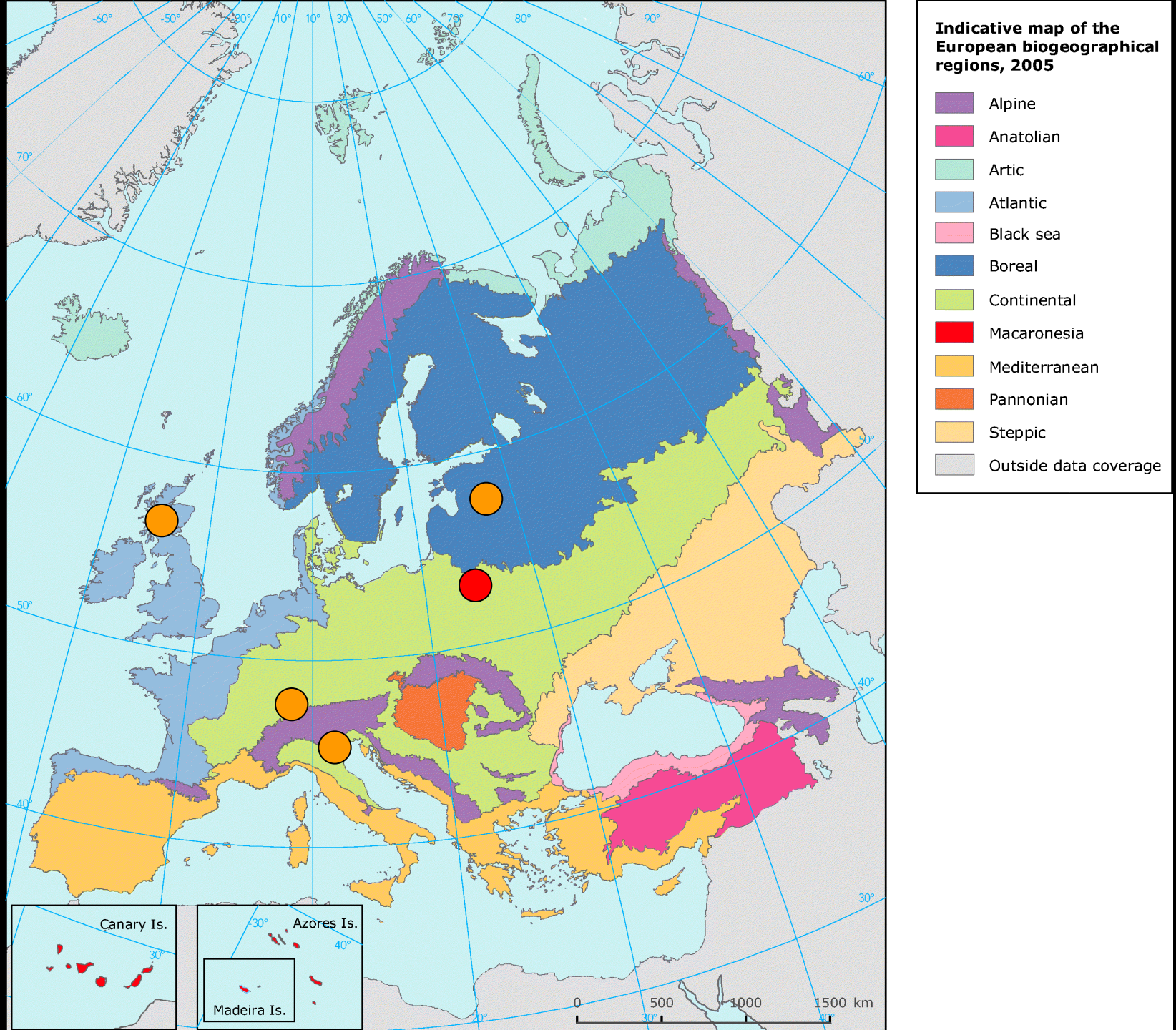
WARSZAWA
1995

National Ecological Network Scheme of the Republic of Belarus

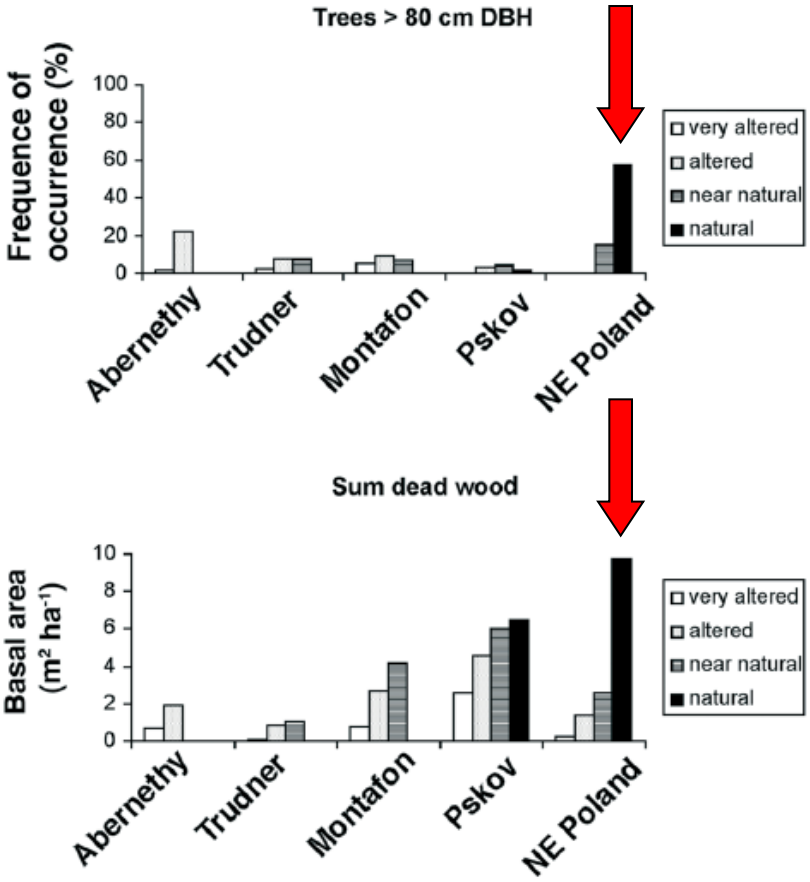


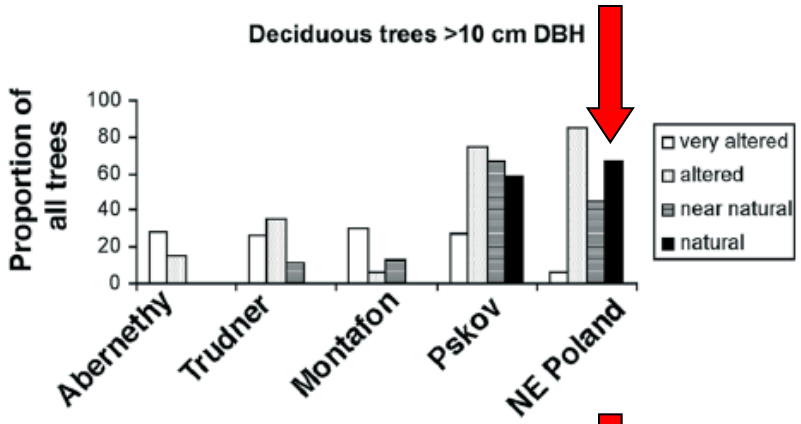
Prepared and designed by the Institute of Zoology of the National Academy of Science of Belarus

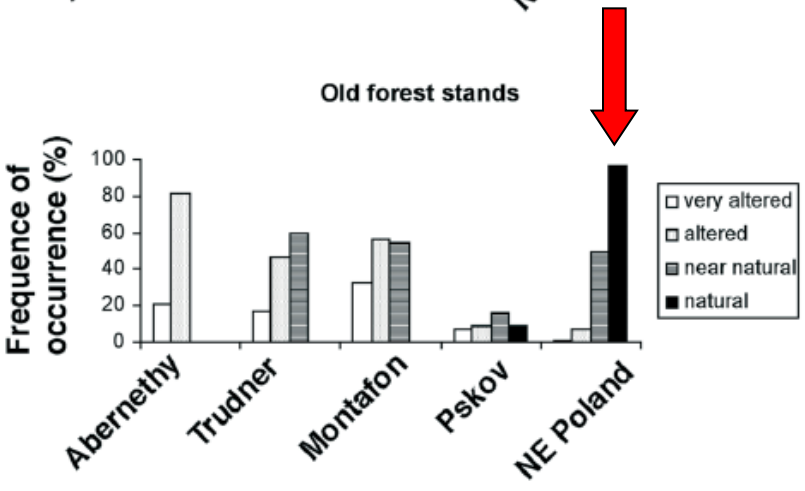
Contact person: Natalia Yurgenson,
e-mail:yurgenson@biobel.bas-net.by


Indicative map of the European biogeographical regions, 2005
Alpine
Anatolian
Artic
Atlantic
Black sea
Boreal
Continental
Macaronesia
Mediterranean
Pannonian
Steppic
Outside data coverage
Canary Is.
Azores Is.
Madeira Is.
0
500
1000
1500 km

Forest qualities

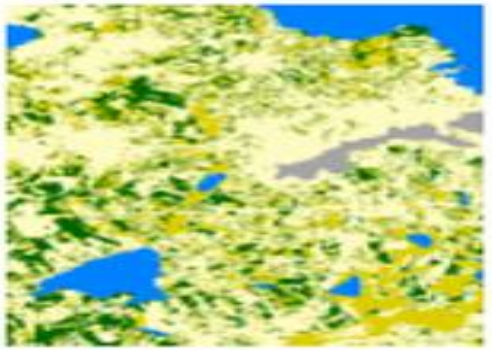




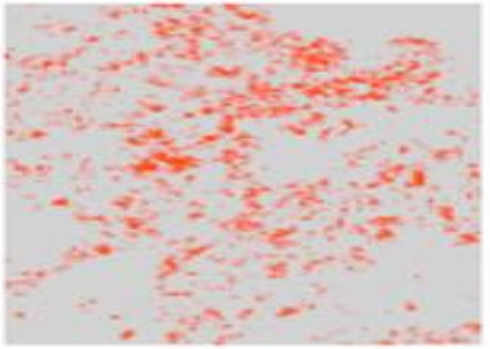


CONNECTIVITY

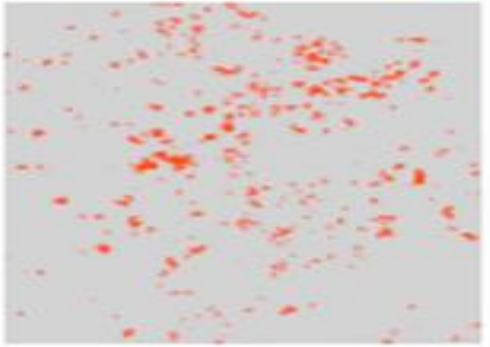
- Land cover data base



- The land cover providing resources (=all)



- Sufficiently large (=stands)



- Sufficiently close together (=tracts)

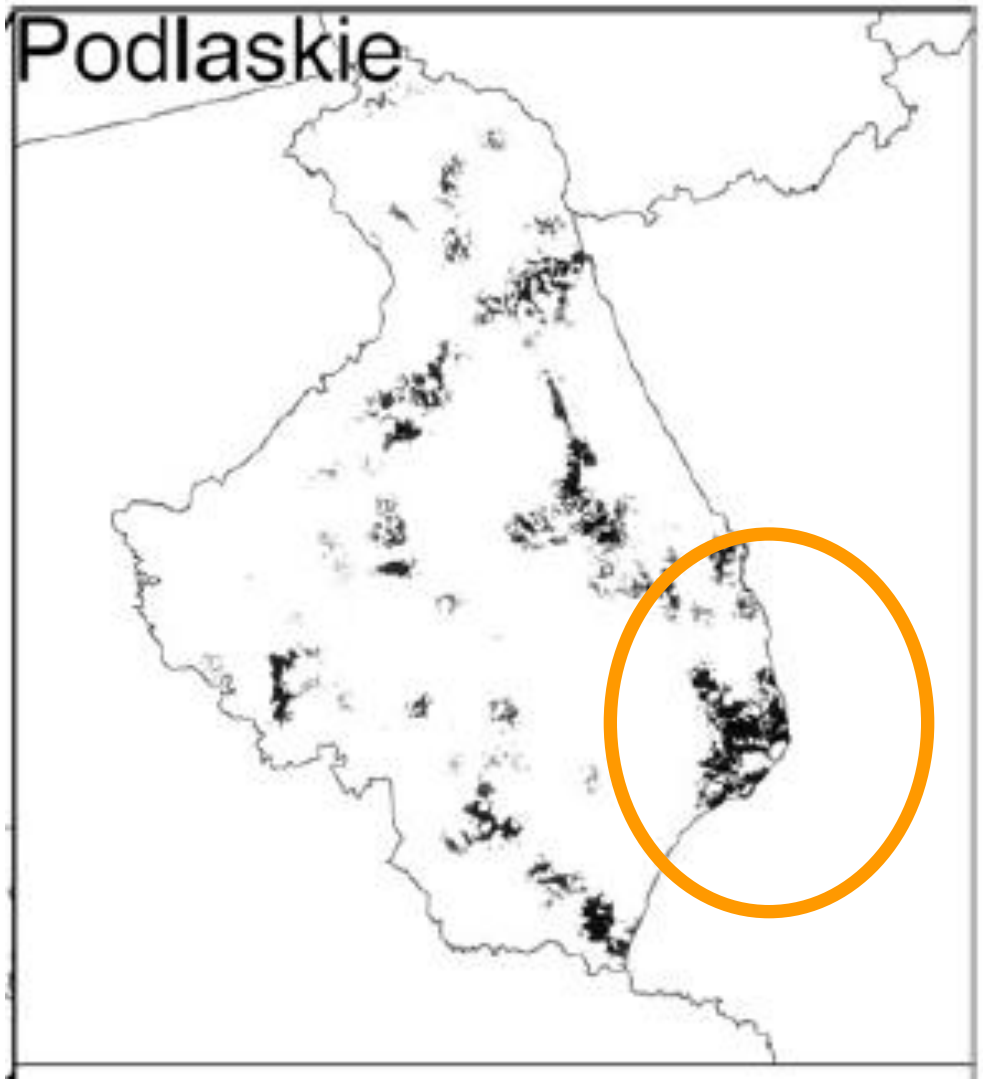
Land covers - Bialowieza

- Forest
  - Broad-leaved deciduous
  - Coniferous
- Wetlands
- Agricultural land
- Settlements

Podlaskie 20,180 km^2

(Edman et al. 2011)

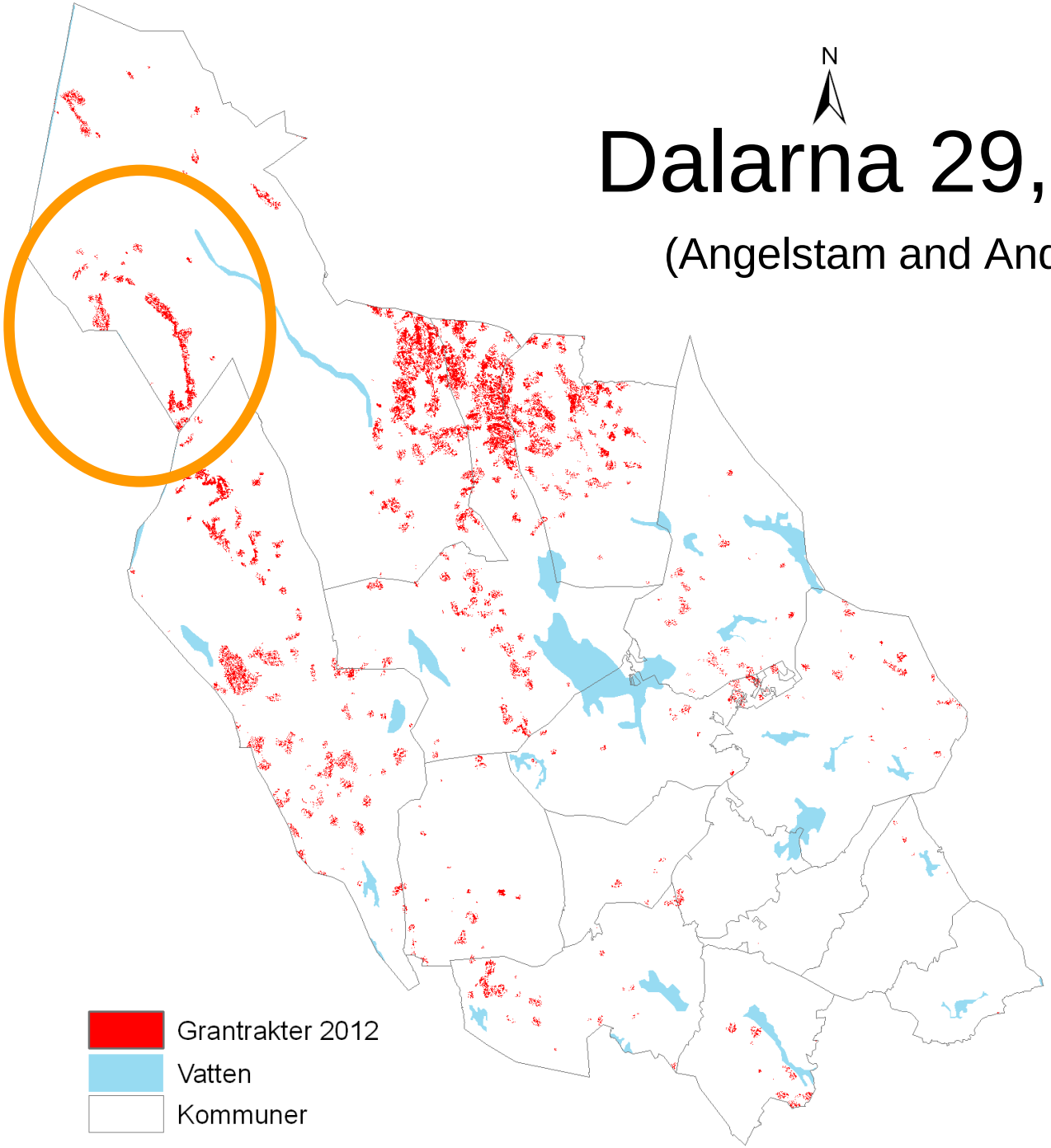
- Deciduous forest
- White-backed woodpecker
- Connectivity
- Validation with Polish bird atlas data



Land covers - Fulufjä/ellet

- Mountain
- Mires
- Forest
  - mountain birch
  - **mountain spruce**
  - managed age class mosaic
- Infrastructure
  - roads
  - for residents and tourists

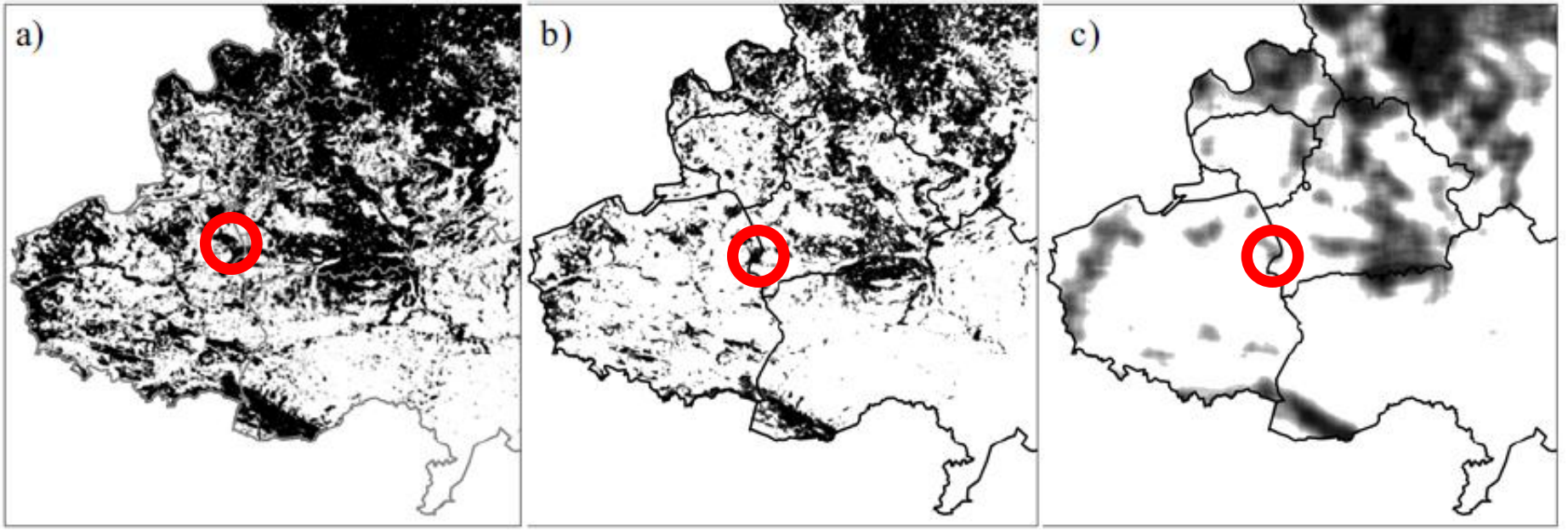
Fulufjället land covers



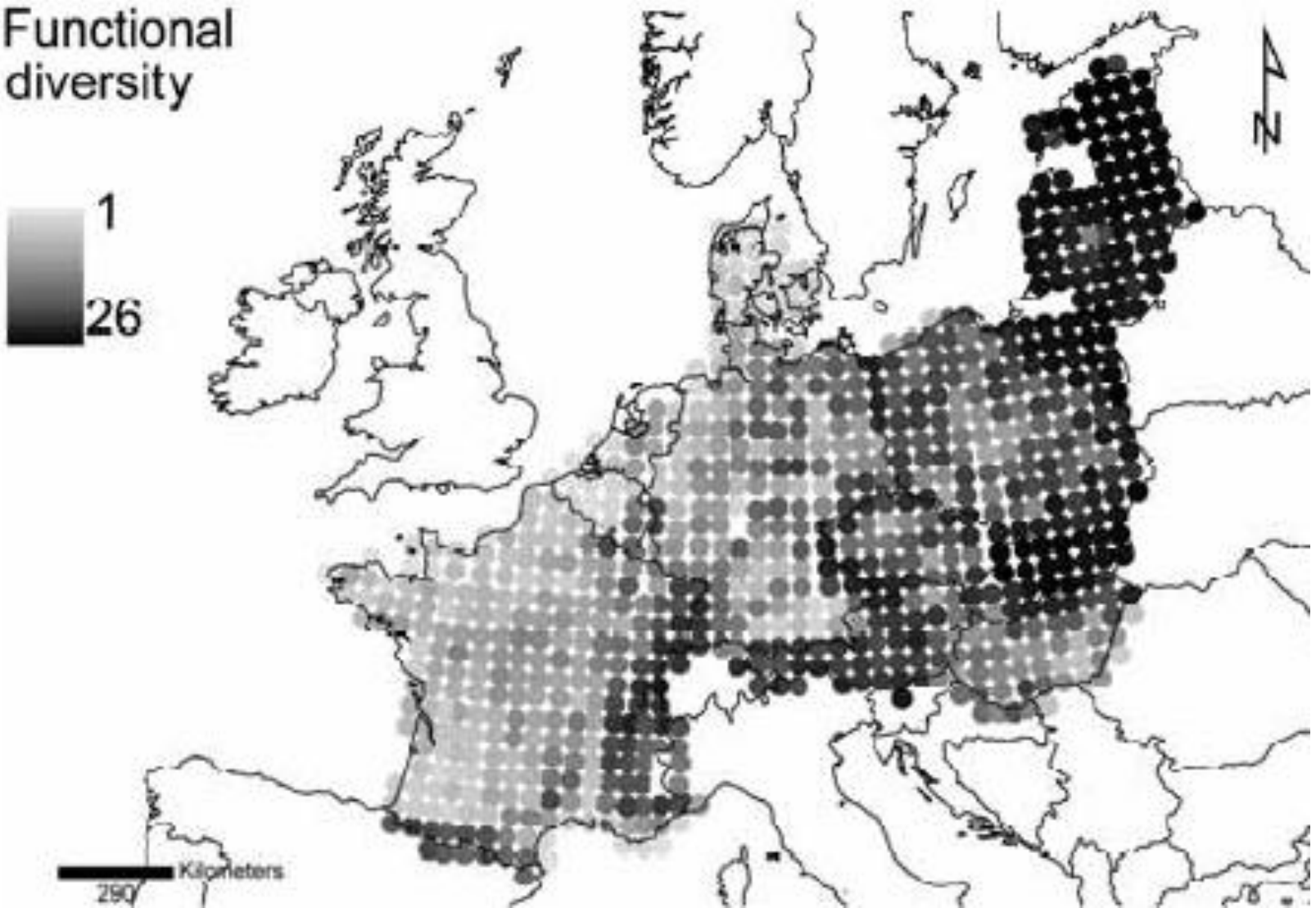
Dalarna 29,086 km^2

(Angelstam and Andersson 2013)

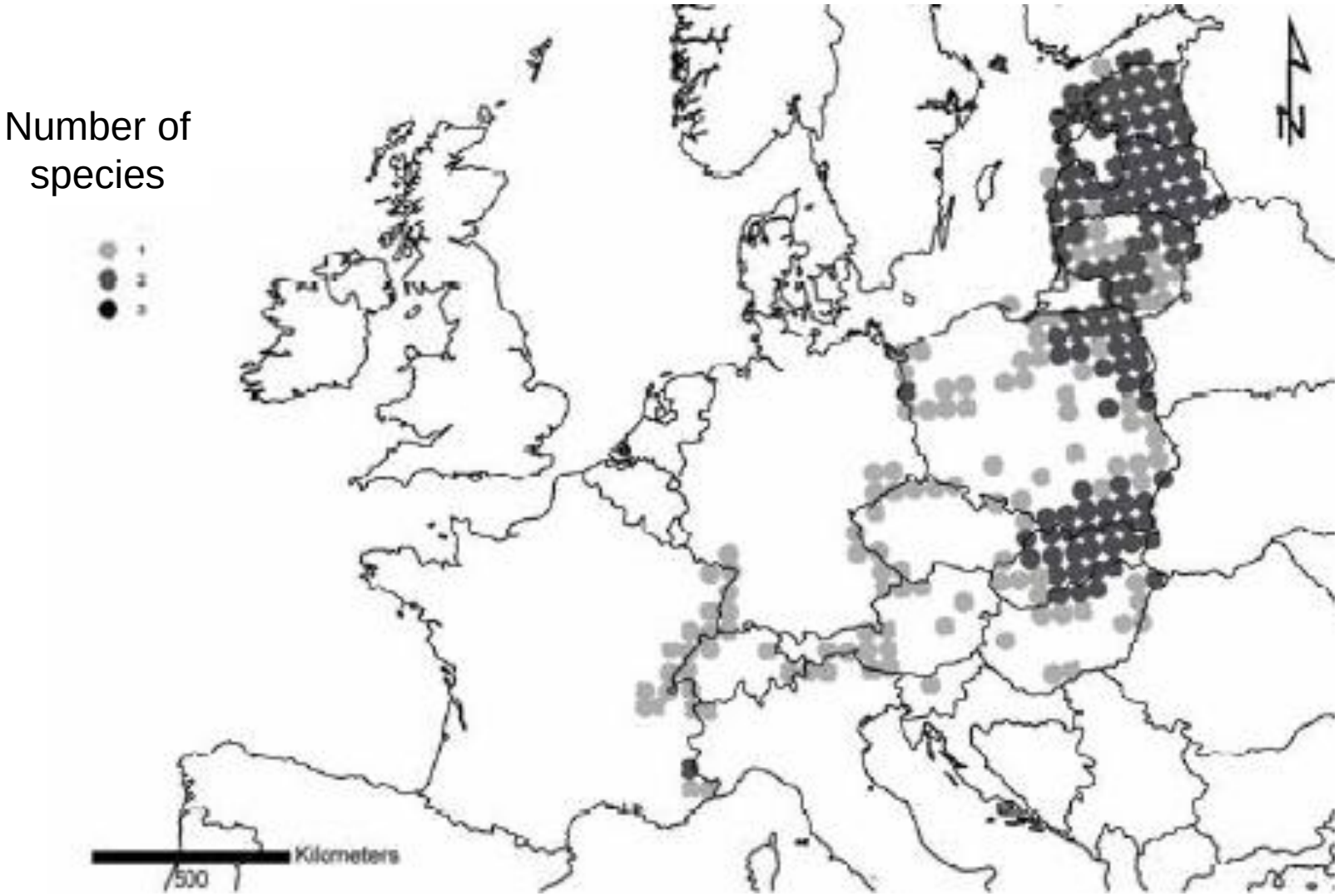
All forest - Stands - Connectivity



Mammals and birds



Large carnivores



Multiple scales (+area)!

Temperate forest ecoregion (~0.1% protected)

- Poland-Belarus (west-east gradient in forest protection; 3-xx%)
  - Bialowieza forest massif in Poland and Belarus
    - Polish part (31%)
      - Bialowieza National Park (10500 ha)
        - » Strict protection (4700 ha)
        - » Protection (5800 ha)
      - State forest (53000 ha)
        - » Zone 1 - buffer (14000 ha)
        - » Zone 2 - multifunctional (33000 ha)
        - » Zone 3 - regular management (4000 ha)
      - Private forest (2000 ha)
    - Belarusian part (69%)
      - Bialowieza National Park (xx ha)
        - » Wilderness protection zone (xx16000 ha)
        - » Regulated nature zone (xx65000 ha)
        - » Regulated recreation zone (xx11000 ha)
        - » Economic activity zone (xx5000 ha)
      - State forest support/Buffer zone (xx90000 ha)

Social sustainability of NP

- Within the park or Bialowieza forest massif
  - Different ideologies and jobs
    - winners
    - loosers
  - Environmental education
- From outside the park or Bialowieza forest massif
  - Different idelogies
  - Recreation and tourism
  - Environmental education
  - Existence valuey

Understanding the social system

- Policy implementation - ”bottom-up”
  - Understanding
  - Ability to act
  - Willingness
- Max Weber’s theory on social action
  - Rationality - reach preferred ends
  - Value-based - ethics, religion
  - Emotional - affects and feelings
  - Traditional - customs and practice

Blicharska & Angelstam 2010

- Two camps
  - Scientists and environmentalists
  - State forest and local people
- Persistent tension fostered through
  - mutual lack of trust
  - incompatible appreciation of factual data
  - local vested interests
  - economic insecurity of local stakeholders

Niedziałkowski et al. 2012

- Participation
  - Normative (power-sharing democratic ideal)
  - Substantive (deliberative/improved understanding)
  - Instrumental (a pragmatic tool)
- In practice
  - Limited factual participation
  - Power
  - Limited democratic tradition

Blicharska et al. (2011a,b)

- Planning in Podlaskie region
  - Limited understanding and ability to act
    - Biodiversity
    - Participation
- Promotional Forest Complexes (PFC)
  - Bialowieza was the first in Poland
  - PFC aimed at education about multifunctionality at stand level

Methodology - preconditions

- Background description
  - The National Park - in situ
    - Ecological system in situ
    - Social system in situ (jobs, stakeholder perspectives (recreation vs. forestry, environmental education)
  - National Park - context at larger spatial extents
    - As contributor to conservation of biodiversity in a functional habitat network (=larger spatial extent linked to focal species)
    - As contributor to human well-being (as tourist, existence value)
- Proposed actions
  - In situ
    - Improve ecological sustainability
    - Learning to resolve/soften conflicts
  - Context at larger spatial extents
    - Improve functionality of green infrastructure
    - Learning at national and international level

Methodology - questionnaire

- Local level respondents
  - Fulufjä/ellet
  - Bialowieza
- National level respondents
  - Norway and Sweden about Fulufjä/ellet
  - Poland and Belarus about Bialowieza
- International level respondents
  - Norway about Sweden's Fulufjä/ellet, and vice versa
  - Poland about Belarus's Bialowieza, and vice versa

Bialowieza papers

Angelstam, P., Anufriev, V., Balciauskas, L., Blagovidov, A., Borgegård, S-O., Hodge, S., Majewski, P., Ponomarenko, S., Shvarts, E., Tishkov, A., Tomialojc, L., Wesolowski, T. 1997. Biodiversity and sustainable forestry in European forests - how west and east can learn from each other. Wildlife Society Bulletin 25(1): 38-48.

Angelstam, P. and Dönz-Breuss, M. 2004. Measuring forest biodiversity at the stand scale – an evaluation of indicators in European forest history gradients. Ecological Bulletins 51: 305-332.

Roberge, J.-M., Angelstam, P. 2006. Indicator species among resident forest birds – a cross-regional evaluation in northern Europe. Biological Conservation 130: 134-147.

Roberge, J.-M., Angelstam, P., Villard, M.-A. 2008. Specialised woodpeckers and naturalness in hemiboreal forests - deriving quantitative targets for conservation planning. Biological Conservation 141: 997-1012.

Blicharska, M. & Angelstam, P. 2010. Conservation at risk: conflict analysis in the Bialowieza Forest, a European biodiversity hotspot. International Journal of Biodiversity Science, Ecosystems Services & Management 6(1): 68-74.

Edman, T., Angelstam, P., Mikusinski, G., Roberge, J.-M., Sikora, A. 2011. Spatial planning for biodiversity conservation: Assessment of forest landscapes' conservation value using umbrella species requirements in Poland. Landscape and Urban Planning 102: 16-23.

Blicharska, M., Angelstam, P., Antonson, H., Elbakidze, M., Axelsson, R. 2011. Road, forestry and regional planners' work for biodiversity conservation and public participation: a case study in Poland's hotspots regions. Journal of Environmental Planning and Management 54(10): 1373-1395.

Blicharska, M., Angelstam, P., Axelsson, R., Elbakidze, M., Skorupski, M., Węgiel, A. 2012. The Polish Promotional Forest Complexes: objectives, implementation and outcomes towards sustainable forest management? Forest Policy and Economics 23: 28-39.

Landscape approach for learning

- Diagnose the landscape as integrated system
  - Ecological system
    - Does the green infrastructure function - are the desired ecosystem services delívered?
  - Social system
    - Do stakeholders and actors who plan and manage lands and waters understand what green infrastructures are, area able to act, and do they want to?
- Platforms for learning and collaboration based on shared knowledge

Green Infrastructures (2012-2016)

- Diagnosis...
  - ...of ecological system
  - ...of social system
- Treatment
  - feedback to actors and stakeholders
  - learning to enhance...
  - ... integrated planning, management and multi-level governance

www.bergslagen.org

Sustainable Bergslagen

Landscape Collaboration Sustainability LTSER Model Forest Publications Projects About

Sustainable Bergslagen for regional development

The informal region Bergslagen in south-central Sweden has a more than 2000-year long history of integrated use of ore, forests and water.

The legacies of the past landscape use involve several challenges that require cross-sectoral planning for sustainable rural development and ecosystem restoration.

Landscape is about coupled human and nature systems.

Collaboration, participation,and learning among stakeholders from civil, private and public sectors, academia and schools, are needed for sustainable use and management of natural resources and landscape values.

To understand ***sustainability*** requires data, analyses and visualisation. There is thus a need for continuous

News

Belarussian delegation came learn from Sustainable Bergslagen
13 August 2013
A Belarussian delegation with 1 persons visited Bergslagen to learn about conservation, protected areas tourism and related business. Read more

Sustainable Bergslagen now designated as Model Forest
13 August 2013

”Baltic Landscape”

- EU InteReg
- 2012-2014
- Model Forest ”recipe” for landscape approach
- Bergslagen (SE) and Ilomantsi (FI) two new approved initiatives

Finally, some ideas!

- Cross-border areas with different ”complexity”
  - West Polesia (EU vs. non-democratic (BY) and in transition UA)
  - Bialowieza (EU vs non-democratic)
  - Roztochya (EU vs democratic transition)
  - Fulufjä/ellet (EU vs democratic)
  - Bergslagen (counties inside one EU Member State)
- Focus on protected area or green infrastructure, and ecology vs. participation
  - Zoning history
  - Review and proposal based on the case studies
  - Marek’s studies of human habitat selection + HSI models

Roztochya Biosphere Reserve

Environmental Conservation: page 1 of 10 © Foundation for Environmental Conservation 2013. doi:10.1017/S0376892912000434

Biosphere Reserves for conservation and development in Ukraine? Legal recognition and establishment of the Roztochya initiative

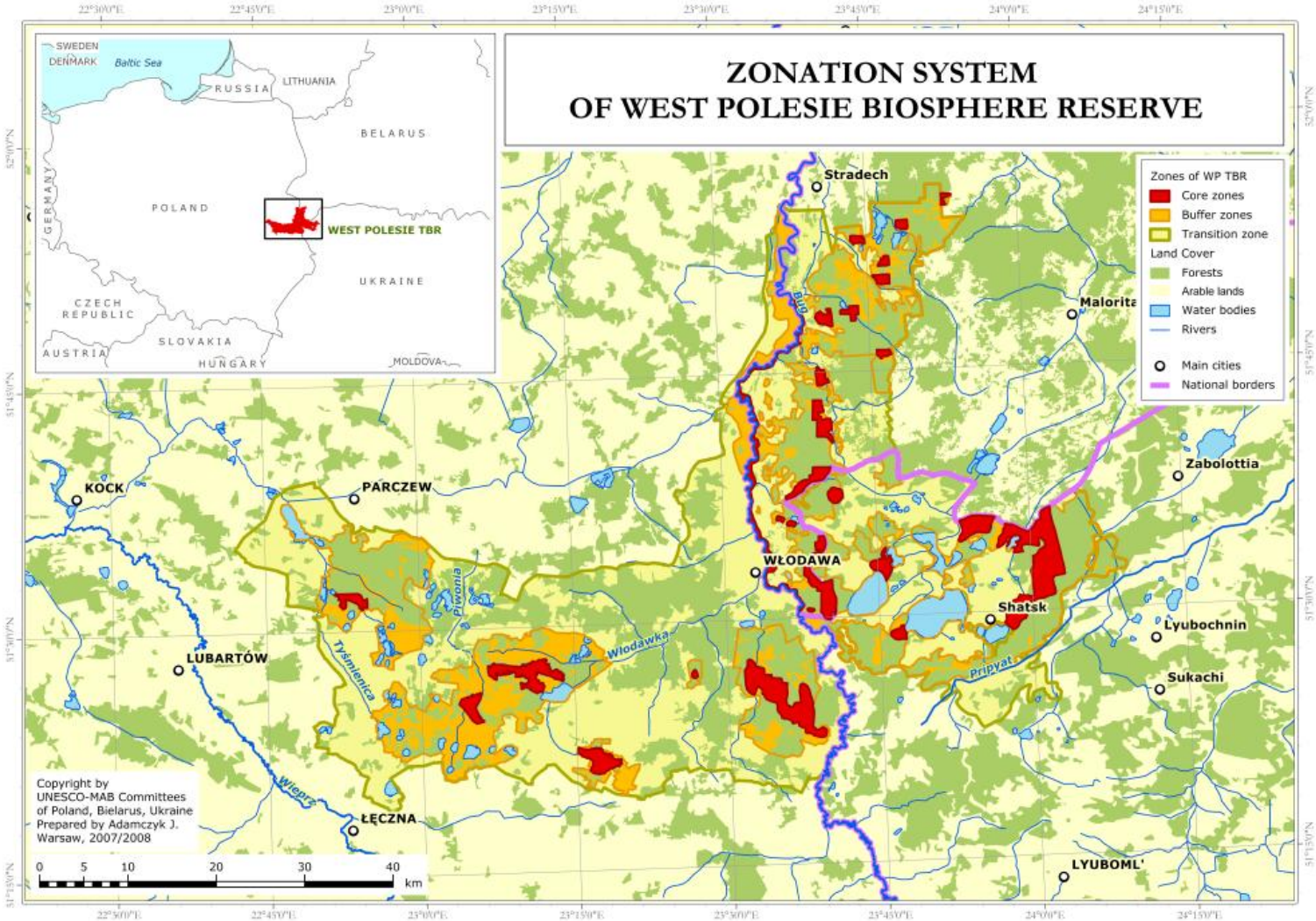
MARINE ELBAKIDZE[1]*, PER ANGELSTAM[1], CAMILLA SANDSTRÖM[2], NATALIE STRYAMETS[1], SARAH CROW[3], ROBERT AXELSSON[1], GALYNA STRYAMETS[4] AND TARAS YAMELYNETS[5]

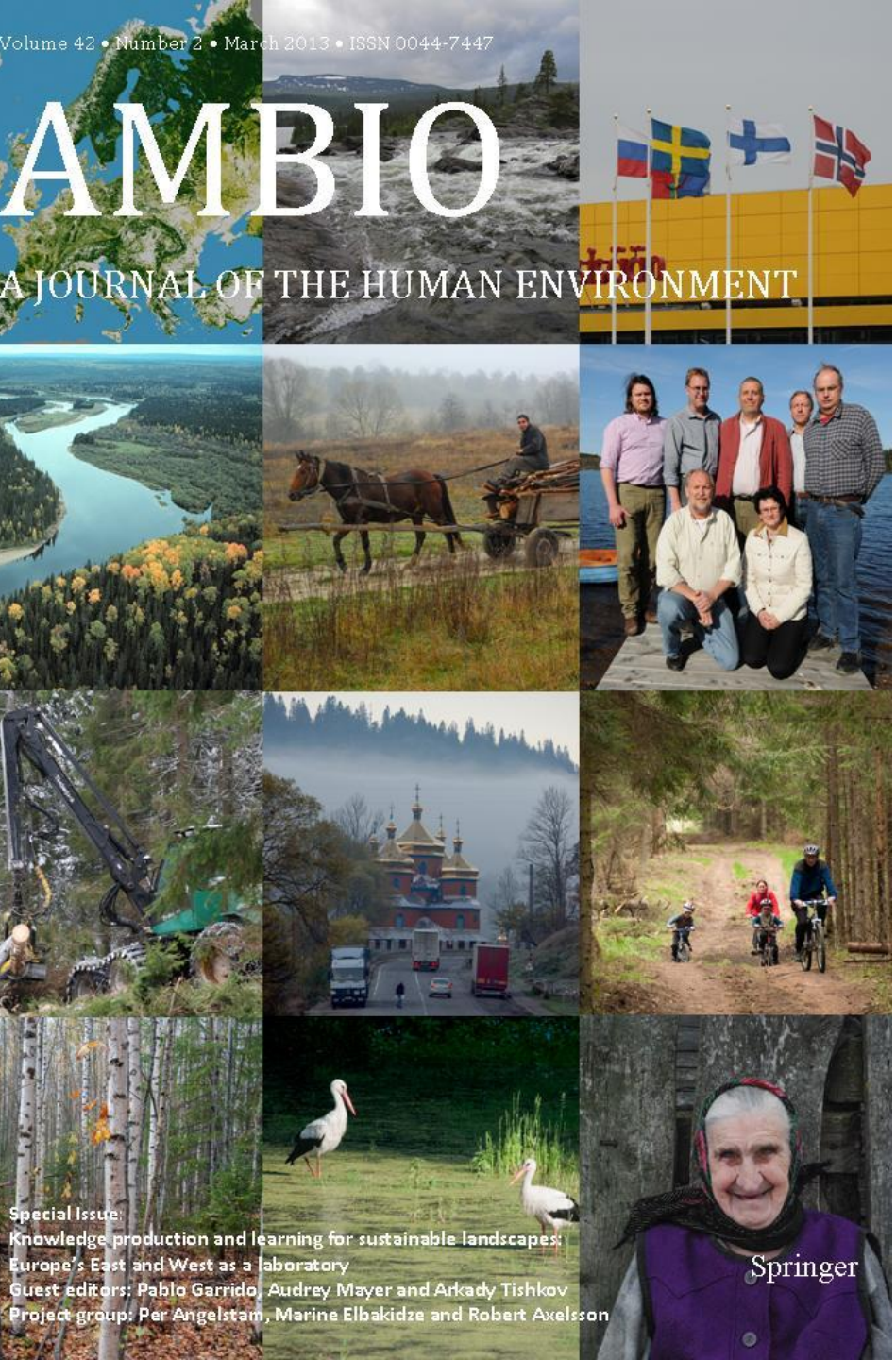
[1]*School for Forest Management, Faculty of Forest Sciences, Swedish University of Agricultural Sciences, PO Box 43, SE-73921 Skinnskatteberg, Sweden,* [2]*Department of Political Science, Umeå University, SE-90187 Umeå, Sweden,* [3]*American Forest Foundation, Washington DC 20036, USA,* [4]*Roztochya Nature Reserve, Sitchovyh Stryltsiv 7, Ivano-Frankove 81070, Ukraine, and* [5]*Faculty of Geography, Ivan Franko National University of Lviv, Doroshenko 41, Lviv 79000, Ukraine*

Date submitted: 29 January 2012; Date accepted: 15 November 2012

THEMATIC SECTION
Biodiversity Governance in Central and Eastern Europe

http://westpolesie.org



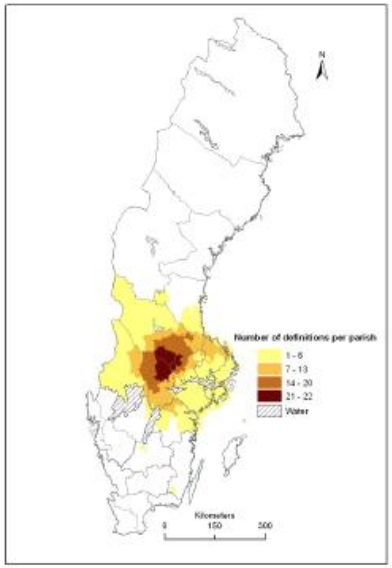


Angelstam, P., Elbakidze, M., Axelsson, R. 2013. Knowledge production and learning for sustainable landscapes: Europe's East and West as a laboratory. AMBIO Special issue 43(2): 113-265.

Input to decision-making

- Choices made by people
- Choices expressed in monetary units
- Public discussion (Zaremba)
- Jobs
  - looser and winners?!
- Rationality/Power - reach preferred ends
- Value-based - ethics, religion
- Emotional - affects and feelings
- Traditional - customs and practice

SLU | EUROSCAPES
Communication 2013:2



Bergslagen in south-central Sweden is an informal region with many spatial definitions, which are located in 9 counties.

During the 17th and 18th centuries the integrated use of ore, forests and water in Bergslagen resulted in accumulation of wealth for both businesses and the Swedish state.

Per Angelstam, Robert Axelsson, Lennart Myhrman, Egil Aas, Kjell Andersson, Lars Andersson, Jens Brorsson, Marine Elbakidze, Charlotta Englund, Ida Heurlin, Arne Hjorth, Milis Ivarsson, Thomas Kullberg, Lars Lundin, Anders Olsson, Lotta Sartz, Stefan Sädbom, Johan Törnblom

Sustainable Bergslagen

– collaboration and learning

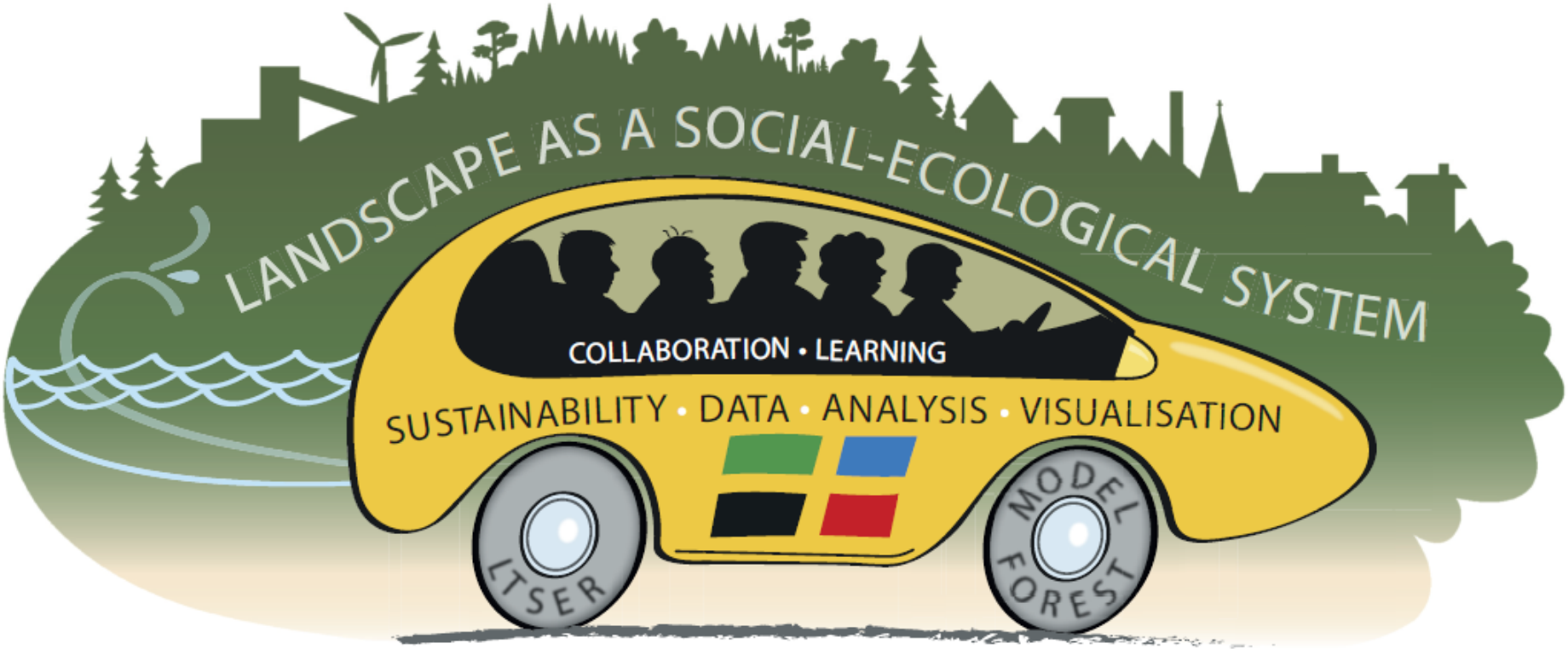
- The informal region Bergslagen in south-central Sweden has a more than 2000-year long history of integrated use of ore, forests and water.
- The legacies of the past landscape use involve several challenges that require cross-sectoral integration for sustainable rural development and ecosystem restoration.
- Landscapes need thus to be viewed as coupled human and nature systems.
- Collaboration and learning among stakeholders from civil, private and public sectors, academia and schools, are needed for sustainable use and management of natural resources and landscape values.
- Learning for sustainability requires data, analyses and visualisation. There is thus a need for continuous knowledge production about material and immaterial landscape values relevant for the management of ecological, economic, social and cultural dimensions.
- To contribute to satisfying these needs the Sustainable Bergslagen initiative emerged as a regional-level partnership for sustainable landscapes (www.bergslagen.org).
- By joining the International Model Forest Network (IMFN) and the network for Long Term Socio-Economic and Ecological Research (LTSER) stakeholders can learn from other regions' sustainable development processes, and make Bergslagen more visible internationally.

Land use

- Nature conservation
- Hunting
- Skidoos
- Wood production
- Water regulation
- Wind power
- Tourism
  - ski resort
  - skiing
  - hiking

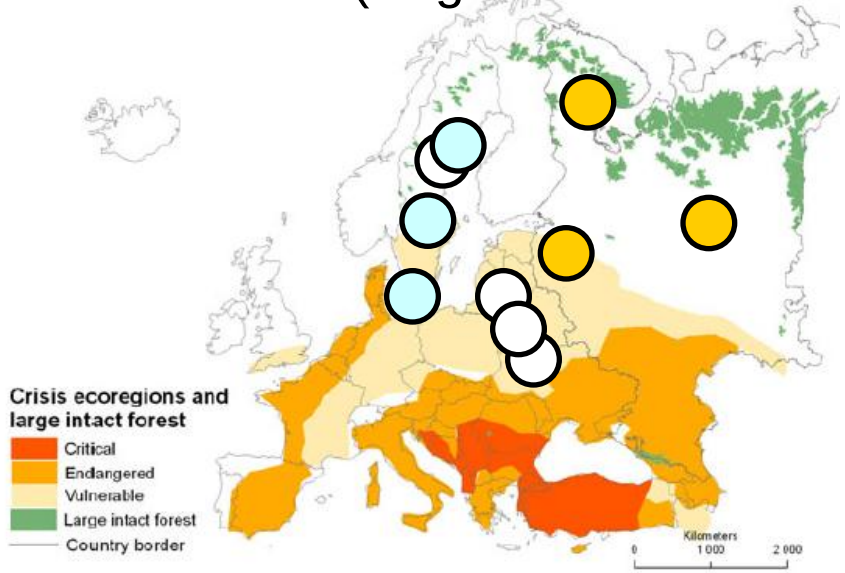
Variables affecting results

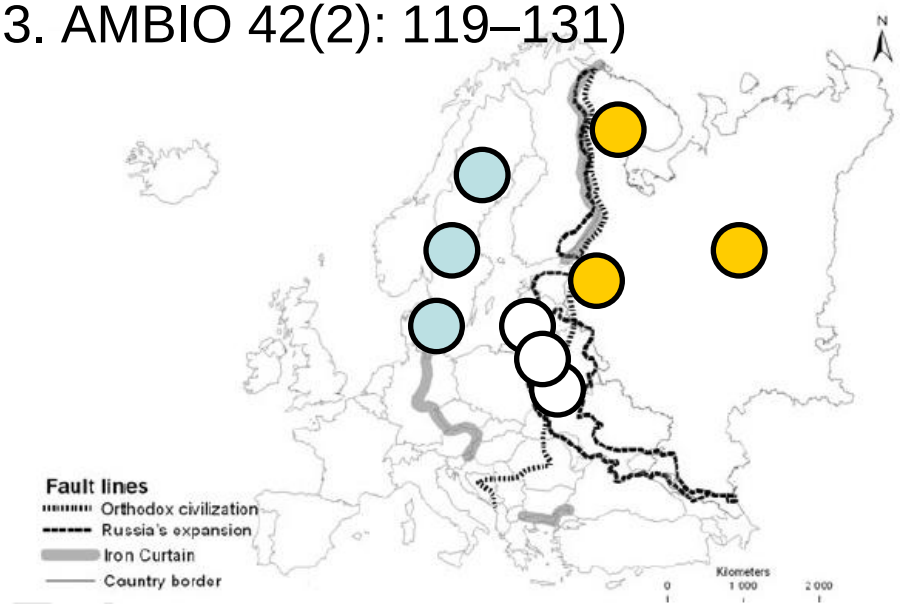
- Framing of the study
  - biocentric - ecological sustainability
  - anthropocentric
  - valuation philosophies
- How the background description is made
  - can it be made neutral?
- What do the respondents know?
- What is the problem to be solved?
  - based on what analyses?
- What solutions should be proposed?
  - based on what analyses?


LANDSCAPE AS A SOCIAL-ECOLOGICAL SYSTEM
COLLABORATION • LEARNING
SUSTAINABILITY • DATA • ANALYSIS • VISUALISATION
LTSER
MODEL FOREST

Multiple case studies of social-ecological systems

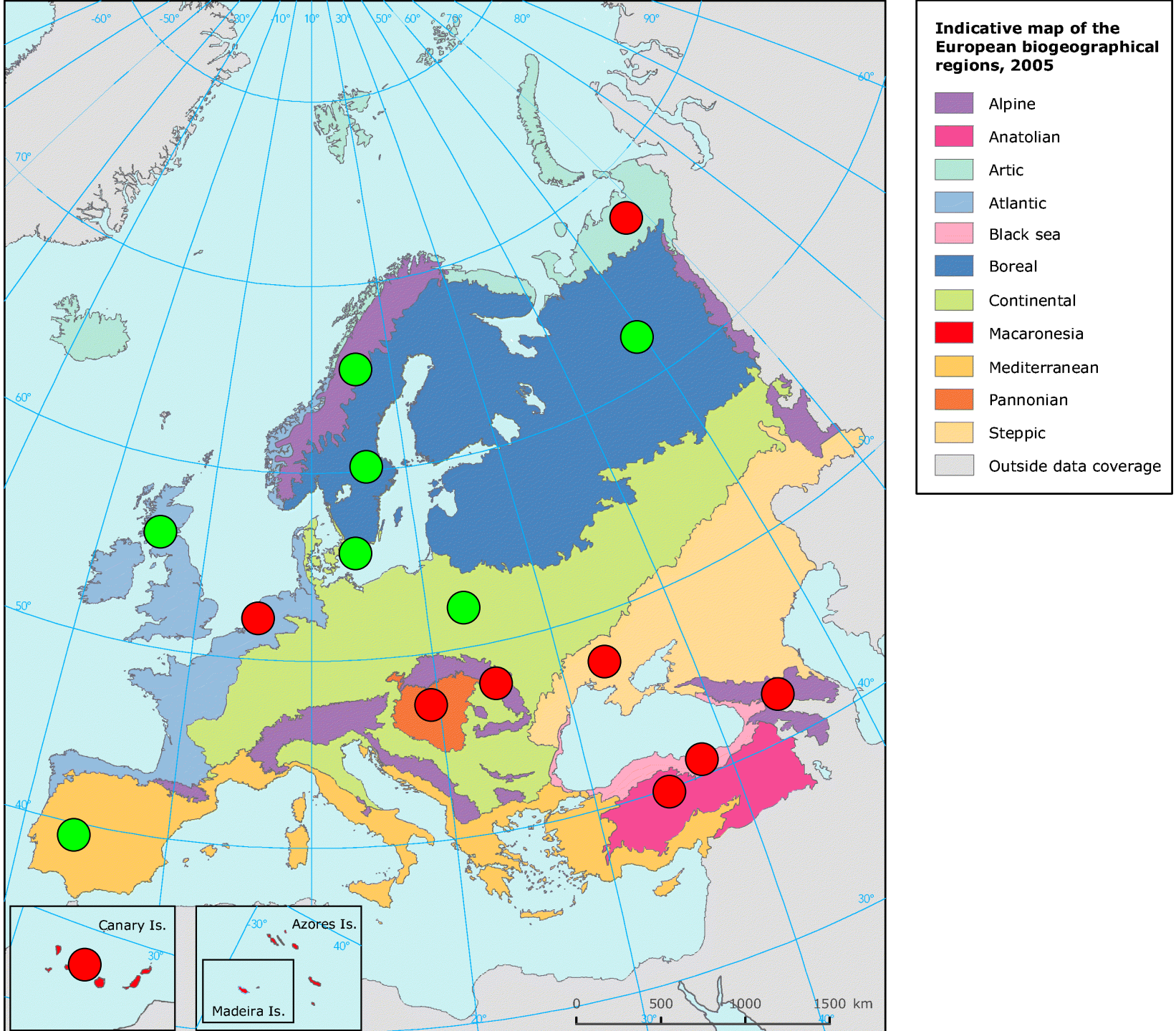
(Angelstam et al. 2013. AMBIO 42(2): 119–131)



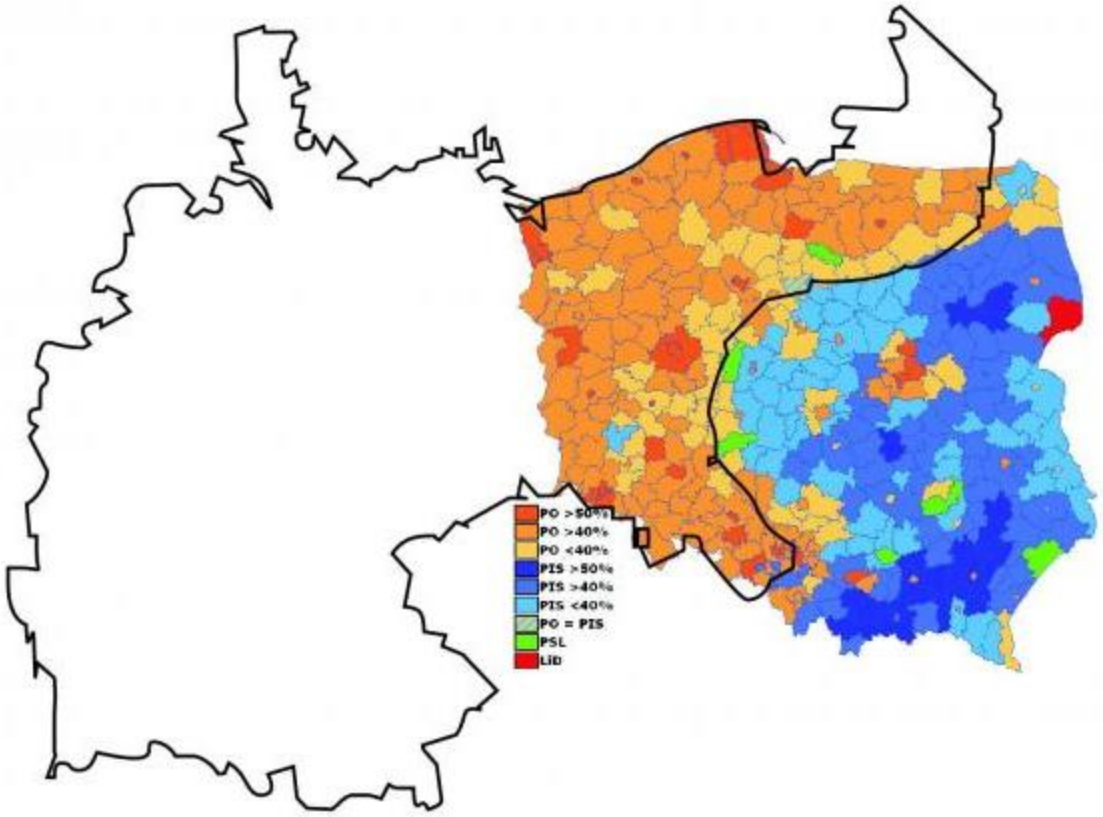


Landscape history	Governance system		
	"Western civilization", west of the former Warsaw Pact	Countries in transition	"Orthodox civilization", east of the western border of the Orthodox religion
Shorter	Ångermanälven catchment and Vilhelmina Model Forest (northwest Sweden) (64°N; 16°E)	Bialowieza forest (northeast Poland) (52°N; 24°E)	Kovdozersky Model Forest (Murmansk oblast, northwest Russia) (66°N; 32°E)
Intermediate	Bergslagen region (south-central Sweden) (60°N; 15°E)	The Carpathian Mountains in Lviv region (west Ukraine) (49°N; 23°E)	Priluzie Model Forest (Komi Republic, northwest Russia) (60°N; 49°E)
Longer	Helge å catchment and Kristianstad Vattenrike (south Sweden) (56°N; 14°E)	Roztochya Biosphere Reserve (west Ukraine) (49°N; 24°E)	Pskov Model Forest (Pskov oblast, west Russia) (57°N; 28°E)

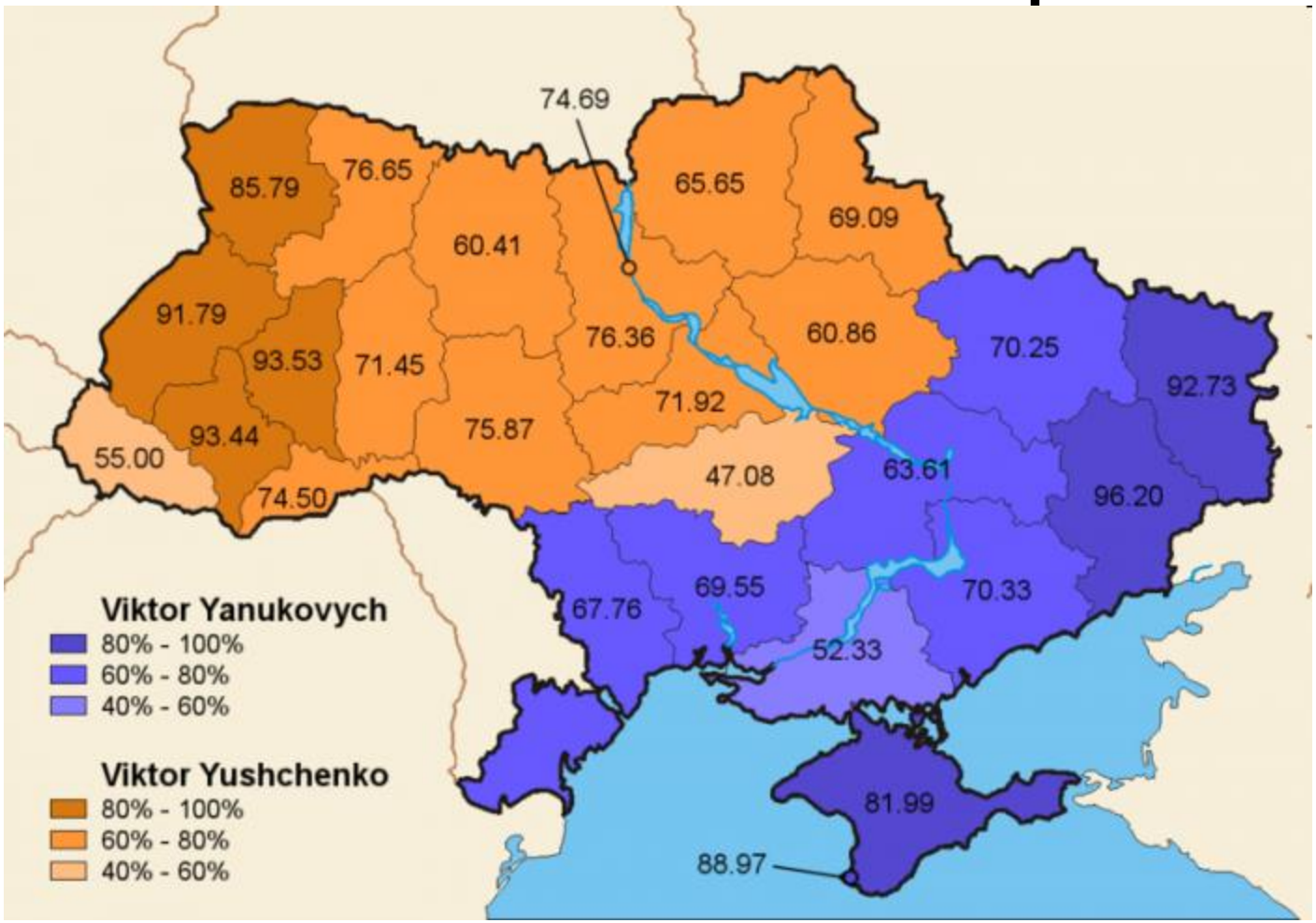

Lithuania
Vilnius
Minsk
Belarus
Warsaw
Poland
Kiev
Prague
Czech Republic
Slovakia
Image © 2006 MDA EarthSat
© 2005 Google


Indicative map of the European biogeographical regions, 2005
Alpine
Anatolian
Artic
Atlantic
Black sea
Boreal
Continental
Macaronesia
Mediterranean
Pannonian
Steppic
Outside data coverage
Canary Is.
Azores Is.
Madeira Is.
0
500
1000
1500 km

- isabel.seifert@niva.no
- mgiergiczny@wne.uw.edu.pl
- Iratxe Landa Mata (ilm@toi.no)


PO >50%
PO >40%
PO <40%
PIS >50%
PIS >40%
PIS <40%
PO = PIS
PSL
LiD

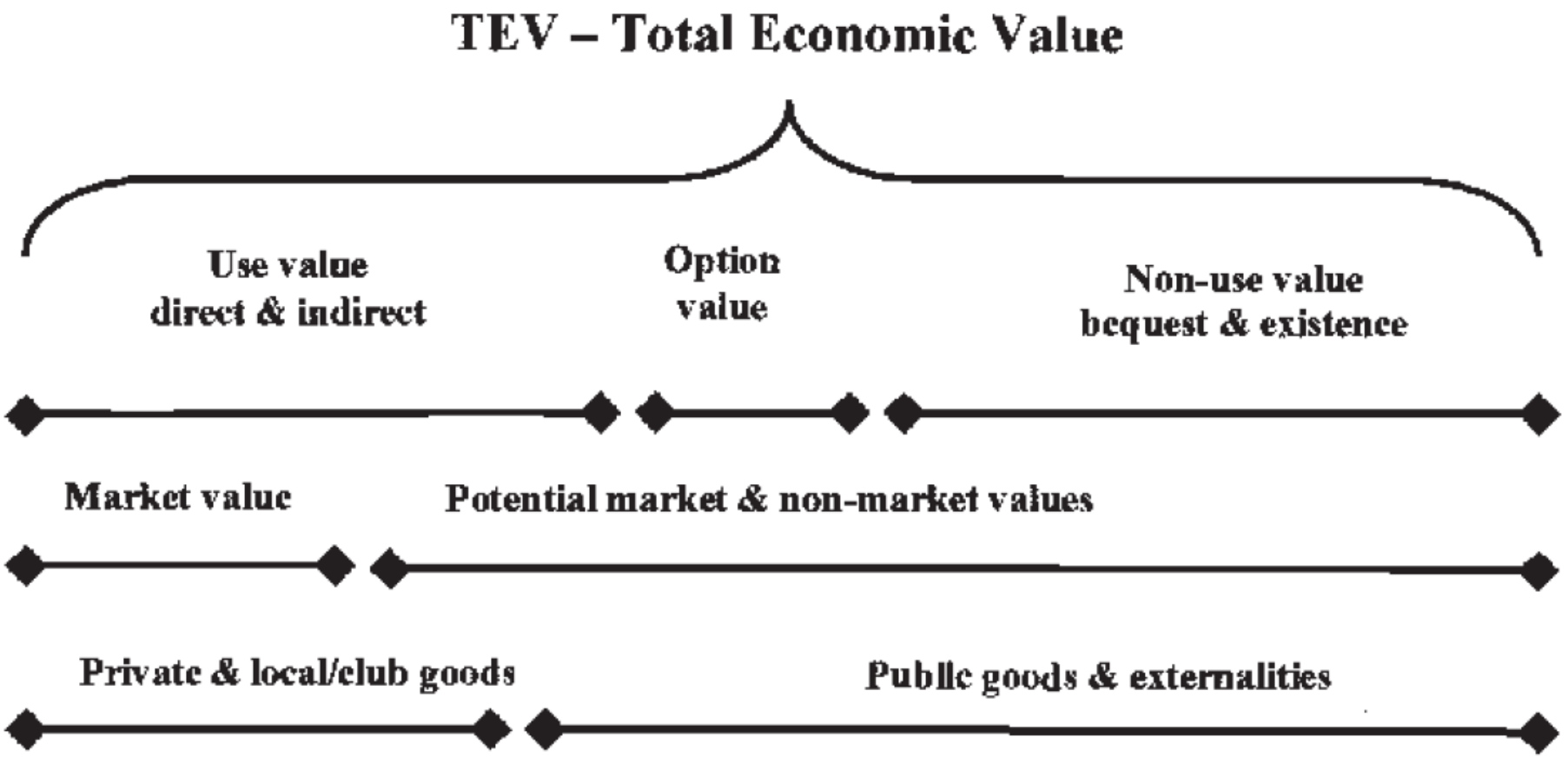
http://commons.wikimedia.org/wiki/File:Ukraine_ElectionsMap_Nov20



Just about choosing interface!

		Biodiversity		
		Species	Habitats	Processes
Ecosystem services	*Provisioning (goods)*	Species providing food, wood, fibre and energy		Water quantity
	Regulating	Pollination Human health and well-being		Climate regulation Carbon sequestration Flood regulation Disease regulation Water purification Nutrient uptake Decomposition
	*Supporting, or habitat**	Primary production	Resources for species and populations	Nutrient cycling Soil formation
	Cultural	Aesthetic, spiritual, educational, intellectual		

Valuation systems



Frameworks for design of study

- Conservation of nature
- Human well-being
- Land covers
- Land use
- Valuation

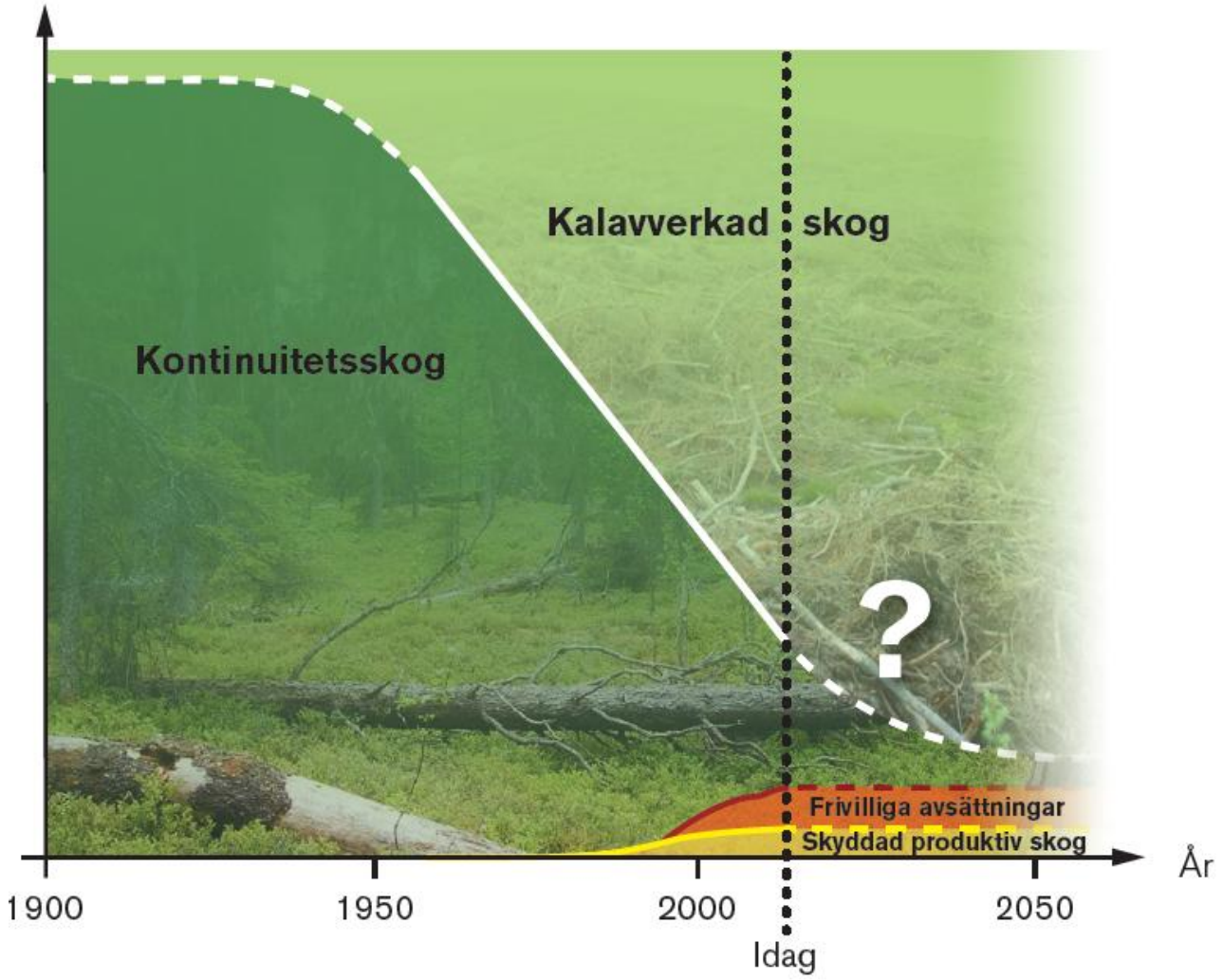
Green infrastructure

- Do administrative networks of conservation areas form habitat networks with functional connectivity?
  - stratification of conservation areas by representative ecosystems
  - spatial analyses of connectivity
- Diagnoses
  - ecological system/s
  - social system/s

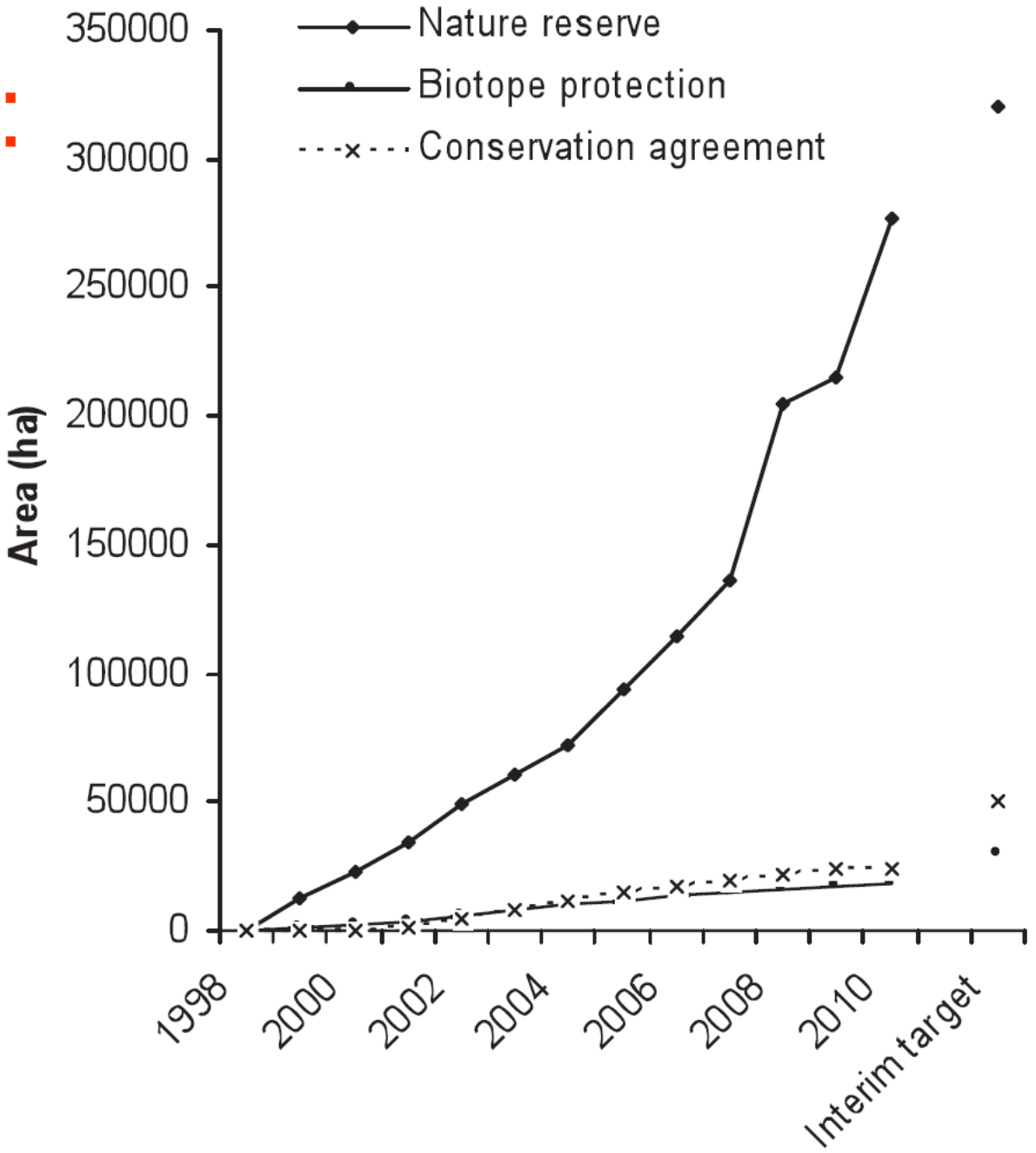
Who’s reality counts?

- Pressure
  - conservation groups complain about habitat loss
- Response
  - more protected areas
  - forestry is certified
- State
  - understanding functionality requires evidence-based knowledge and analyses

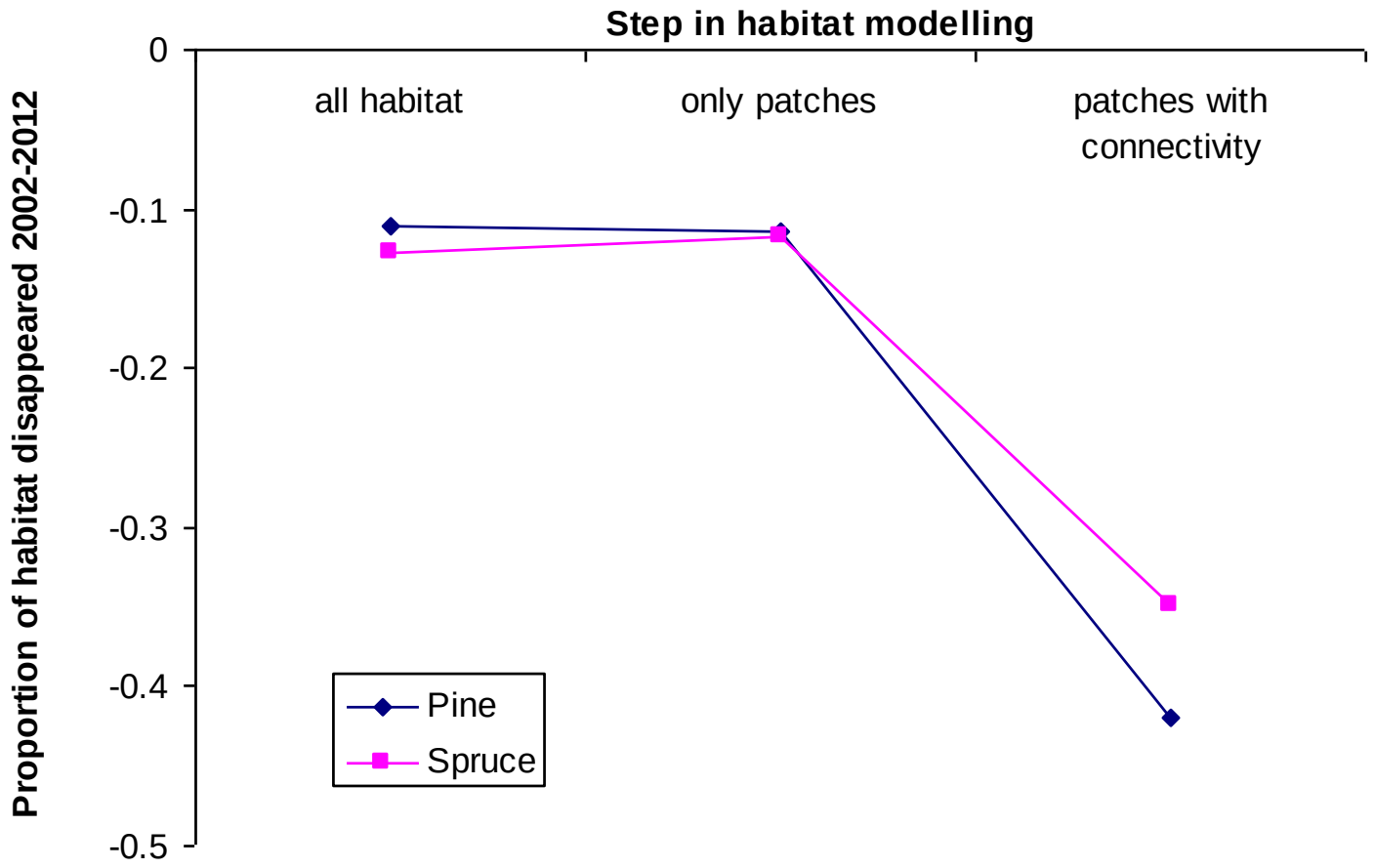
PRESSURE:
Natural forests do disappear!



RESPONSE: More protected areas!!



STATE: Fragmentation continues!!



Economic valuation

- Revealed preference methods
  - Travel distance
  - Hedonic
- Stated preference methods
  - Contingent valuation
    - Willingness to pay (open-ended)
    - Discrete choice experiments
  - Need to use credible scenarios
  - Incentive comparability
    - Cast in voting context
    - Use discrete choice question

Bialowieza economics

- Kalinka 2003, Giergiczny 2009
  - 100 PLN/visit
  - 110 000 visitors
  - 11 000 000 PLN/visit vs. 110-150 000 m3 or 3.5-5 million PLN/year
- Ecological Economics xx
- Forest Policy and Economics
- Bartczak, Czajkowski, Giergiczny