

EUROGEO WORKSHOP 2023



Interfaces between Geodiversity, Ecosystems and Biodiversity

Kampinos National Park

Edyta Woźniak

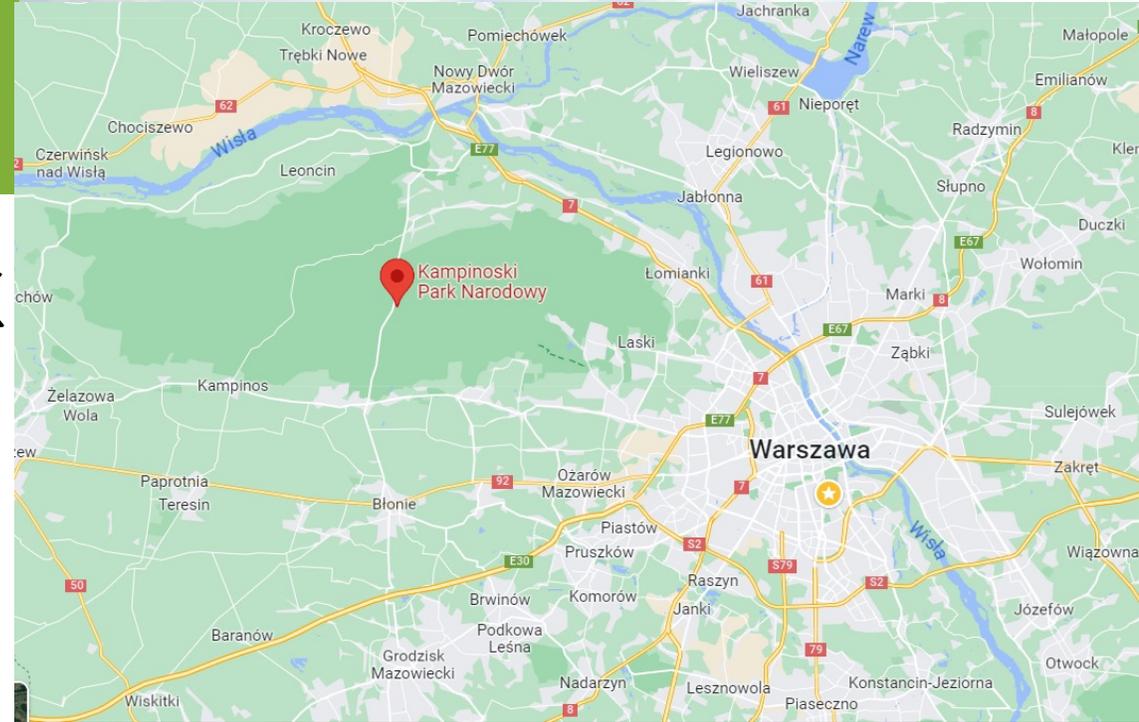
Space Research Centre
of the Polish Academy of Sciences

BOLZANO 2-4 OCTOBER 2023



Kampinos National Park

- geodiversity: sand dunes and deflation basins
- biodiversity: around 1,400 species of vascular plants and around 16,500 different species of animals
- on the north-western outskirts of Warsaw
- creation:
 - 1st attempt in the 30's of the 20th century
 - established in 1959
 - in January 2000 the area was added to UNESCO's list of biosphere reserves
- covers a total area of 407 km²





Geodiversity

Geomorphodiversity

Lithological diversity

Hydrodiversity

Hydrogeological diversity

Pedodiversity

Topographic Diversity



Biodiversity

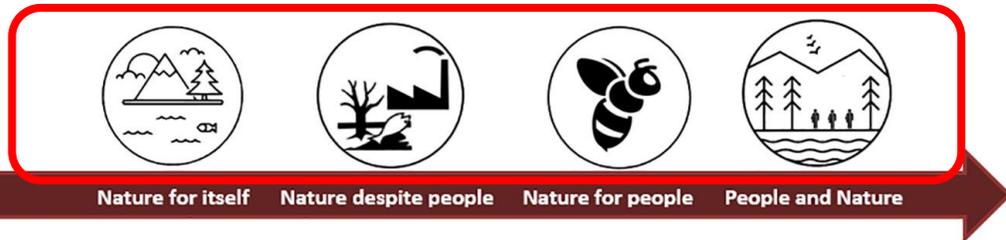
Ecosystem diversity

Community & Species diversity

Intraspecific diversity

Genetic diversity

Functional diversity



Conservation philosophy



Rough Timeline	1960-1970	1980-1990	2000-2005	Since 2010
Key Ideas	Species Wilderness Protected Areas	Extinction Threat & threatened species Habitat loss Pollution Overexploitation	Ecosystems Ecosystem approach Ecosystem Services Economic values	Environmental change Resilience Adaptability Socioecological systems
Scientific focus	Species Habitats Wildlife ecology	Population biology Natural resource management	Ecosystem functions Environmental economics	Interdisciplinary Social and ecological sciences

(Sarborn & Jung, 2021)



Main challenges – Human pressure / Climate change

Observability

Do we have means for observation of a phenomenon

- at adequate spatial resolution?
- at required temporal resolution?

What can we observe with our sensors?

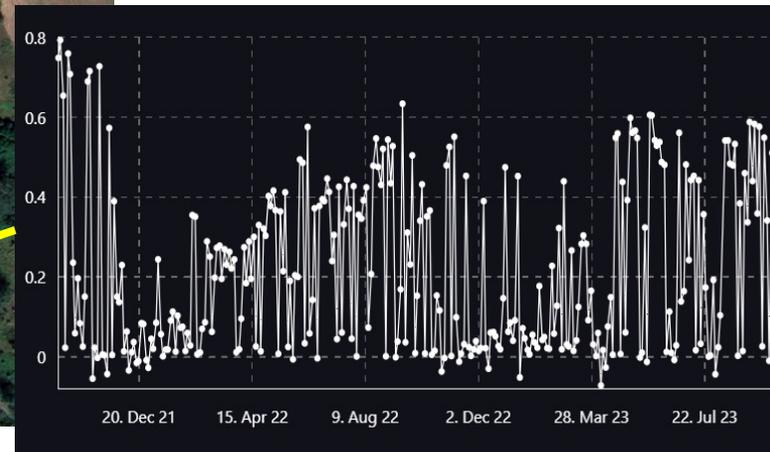
Operationality

Technical capacities
Understanding of the product
Cost

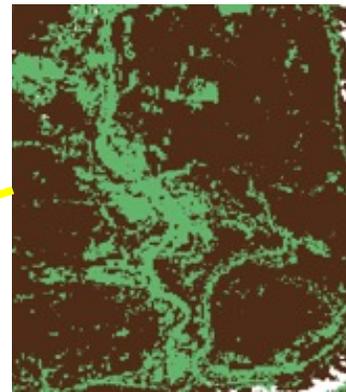


Main challenges – Human pressure / Climate change

- urbanization in buffer zone - isolation, disappearance of ecological corridors
- invasive species



S-2



Automatic detection tools

What about monitoring under tree canopy?



Main challenges – Human pressure / Climate change

- regime of surface water
- soil moisture

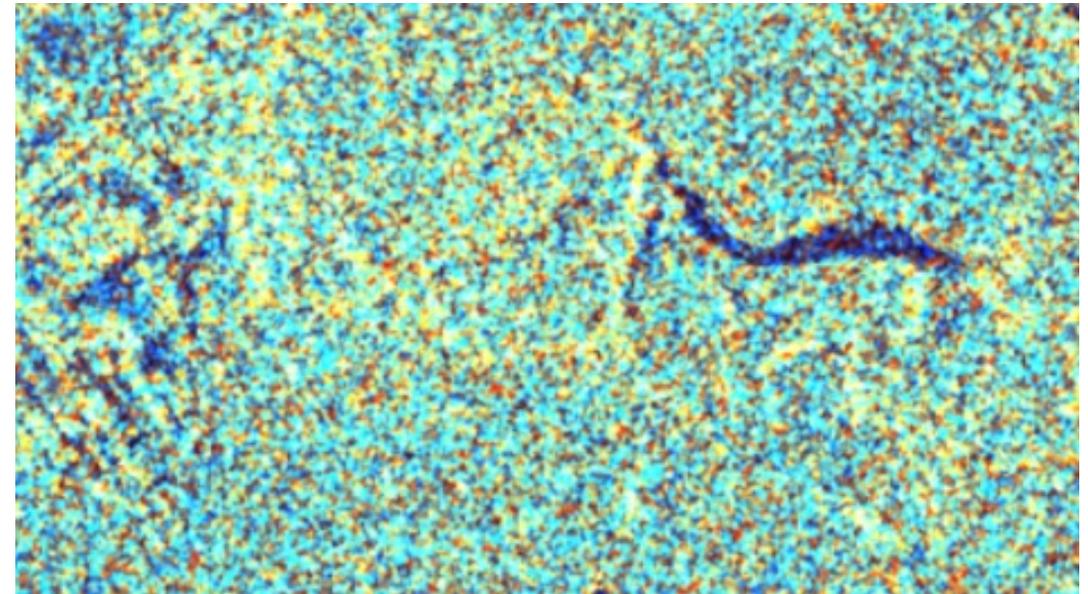
Herbaceous ecosystems

Surface water extent

Soil moisture (under limited conditions)

What about monitoring under tree canopy?

S-1



ROSE-L

(Radar Observing System for Europe in L-band)



How to answer stakeholders needs in the context of observability and operability?

