



Local initiatives for deployment of green infrastructure within Natura 2000 sites in the Carpathians

LIFE16 GIE/PL/000648

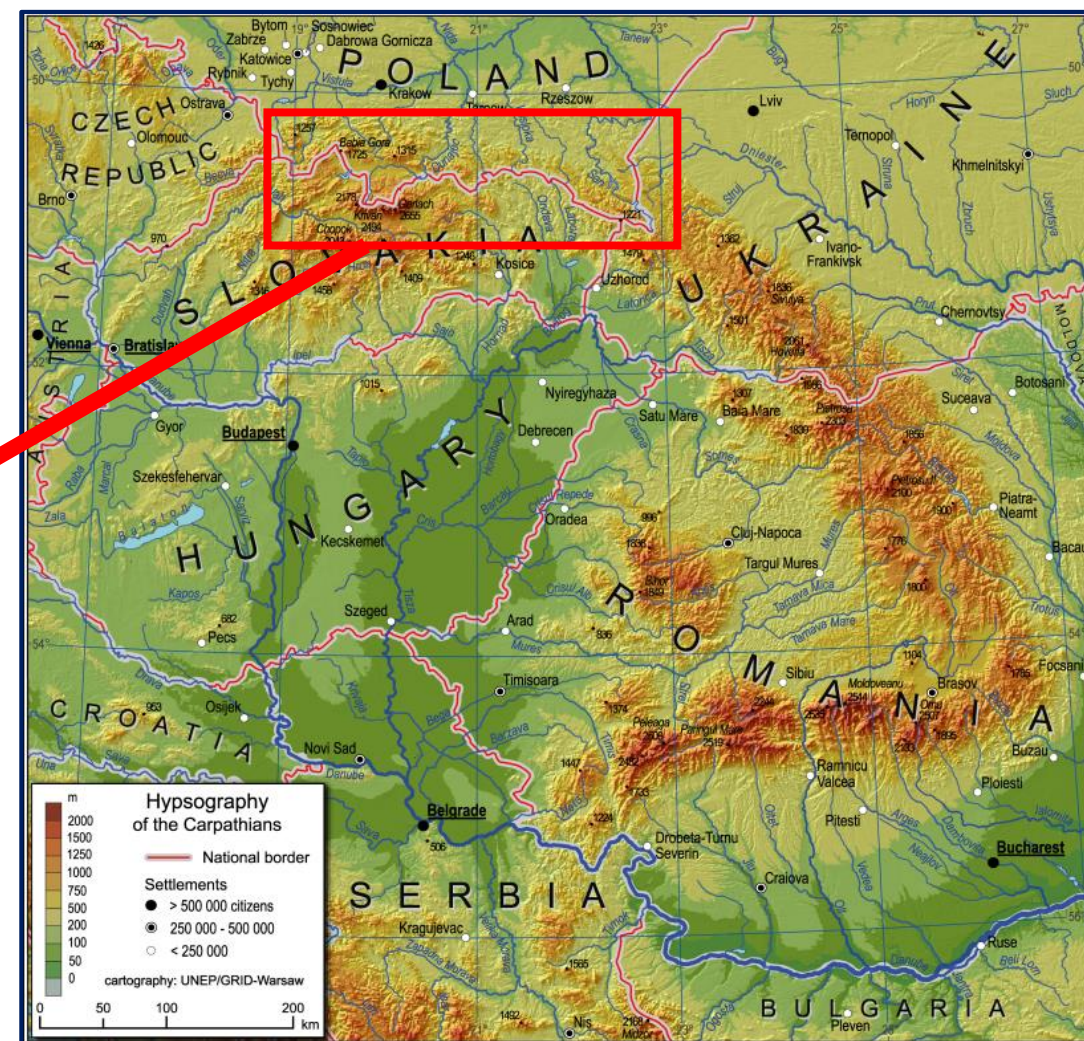
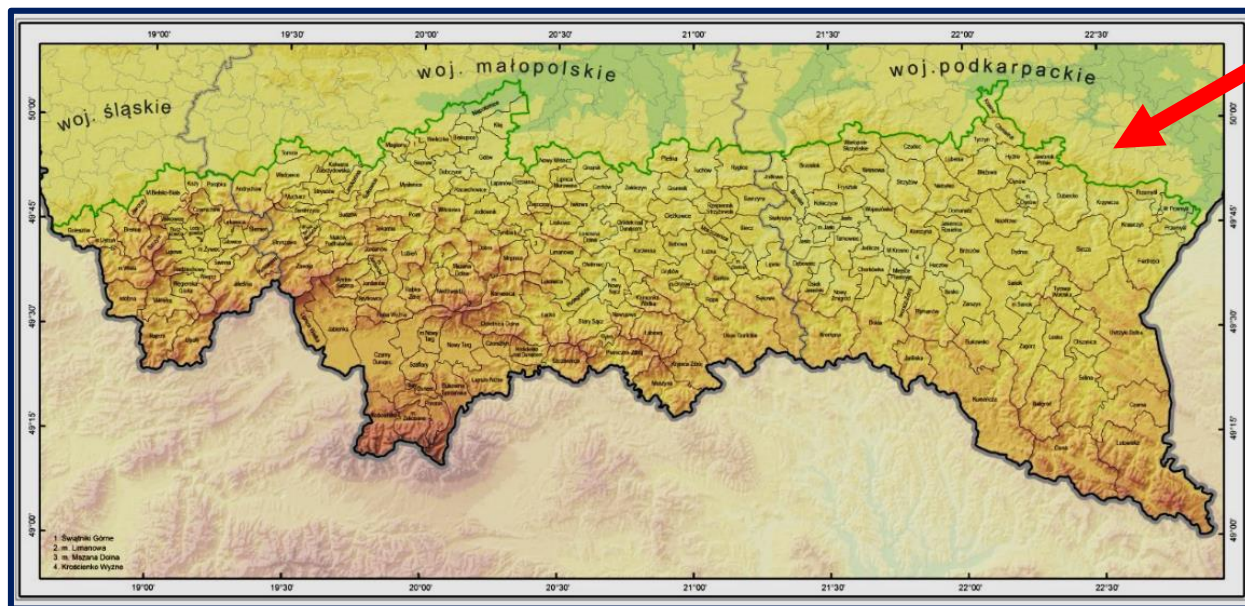
<http://en.zielonainfrastruktura.karpatylacza.pl>

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UNEP/GRID-Warsaw Centre
E-mail: piotr@gridw.pl

LIFE Green-Go!
CARPATHIANS

GRID | In partnership with
WARSAWA | UN Environment
Programme

Since 1991





Implementation period: Sep. 2017 – Dec. 2021 (COVID-extended)

Primary target groups:

- local self-gov. authorities
- local communities

from the 200 Carpathian communes in PL

Other partners / stakeholders:

- regional nature protection authorities in charge of Natura 2000
- landscape and national parks
- regional (province) self-governments
- other: selected NGOs, regional forestry authorities, agricultural institutions...

... that is, stakeholders with most impact on land use/management.



Objectives

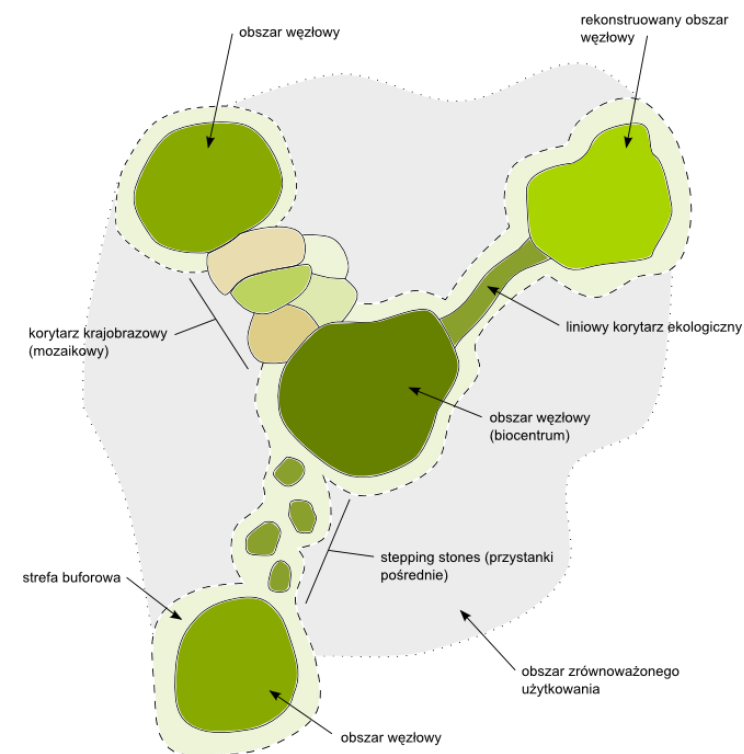
- supporting **liaison and cooperation of local stakeholders** towards maintenance, restoration and enhancement of GI in Polish Carpathians
- **disseminating knowledge** on the role and importance of GI for ecological connectivity and **biodiversity conservation**, but also access to **ecosystem services** and **sustainable local development**
- promoting the use of **spatial data resources** and **geoinformation tools** in spatial planning and management of nature-sensitive areas
- **dissemination of good practices** of participatory spatial management among the **Carpathian region countries**.

Pragmatic approach, tangible incentives, comprehensible scale

Merging biodiversity (ecol. connectivity) AND sustainable local development



Source: pixabay.com

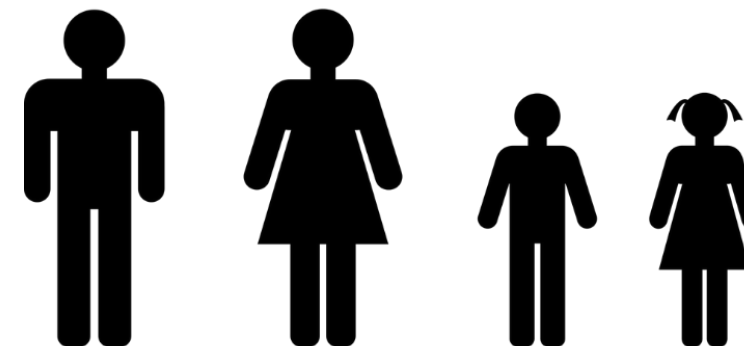
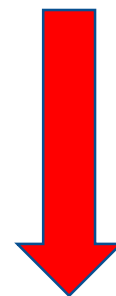




Ecosystem services



X OR



✓ BECAUSE



Actions

- **GIS analysis** of green infrastructure and ecological connectivity
- **3 consultation seminars** for nature protection institutions
- **15 trainings** for local stakeholders
- **e-learning course** with GI-related multimedia materials
- **geo-portal** and **mobile application** for field inventory, mapping, and assessment of green infrastructure
- **local case studies** on GI development (competition – 5 laureates)
- **local informational-promotional campaigns**
- **manual** on the protection and proper management of GI **in/between** Natura 2000 sites in the Carpathians (in prep. in EN version)



Ecosystem types in PL Carpathians

Surface waters



Wetlands



Grasslands, tall herbs



Heathland, dwarf shrubs



Forests / woodlands



Orchards



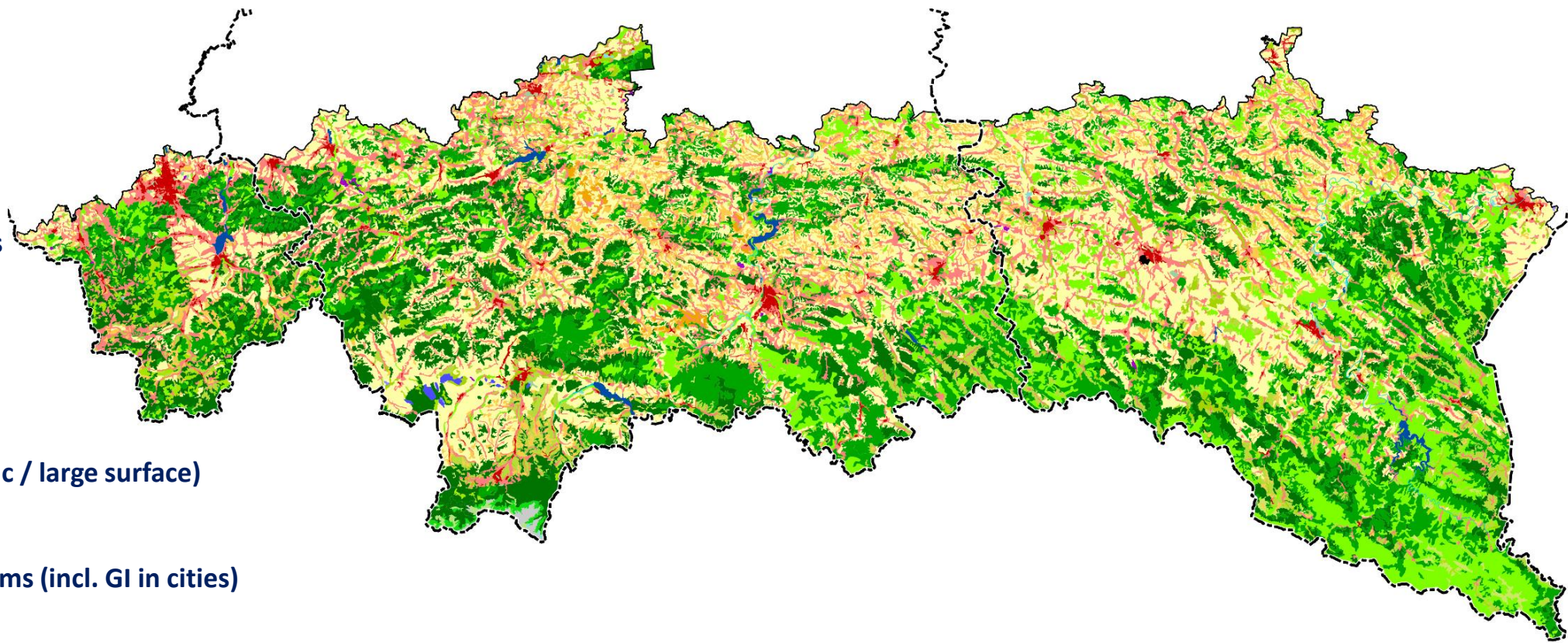
Rocks, screes



Agro-ecosystems (mosaic / large surface)



Anthropogenic ecosystems (incl. GI in cities)





Landscape diversity – aggregated land cover classification

Class code	Description
LZ	Forests, woodlands
RK	Shrubs
UT	Permanent crops (orchards, plantations, allotment gardens, plant nurseries etc.)
UZ	Agricultural lands – meadows and pastures
GO	Agricultural lands – arable (ploughed) fields
WP	Surface waters – standing and running
ZAB	Built-up areas
TA	Other anthropogenic areas (non-built-up, transport infrastructure, squares, Surface excavation areas, landfills)
P	Screes and rocks

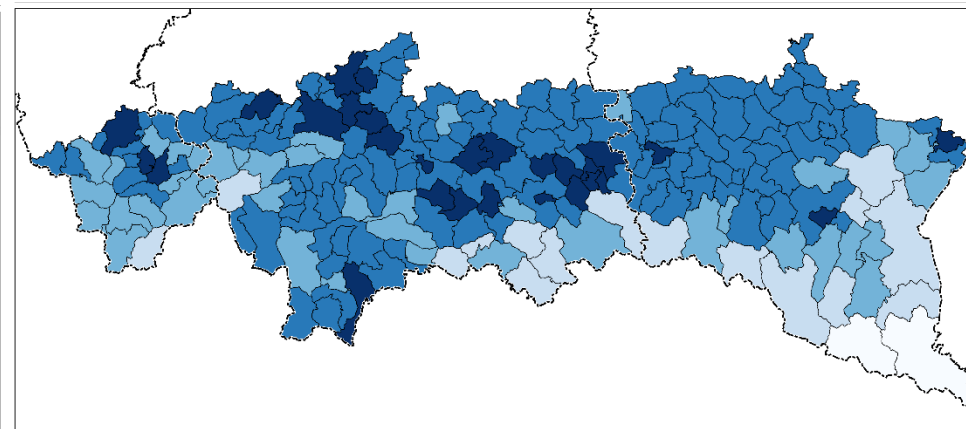
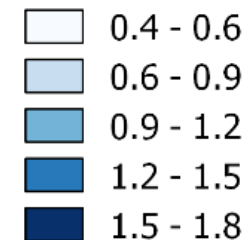
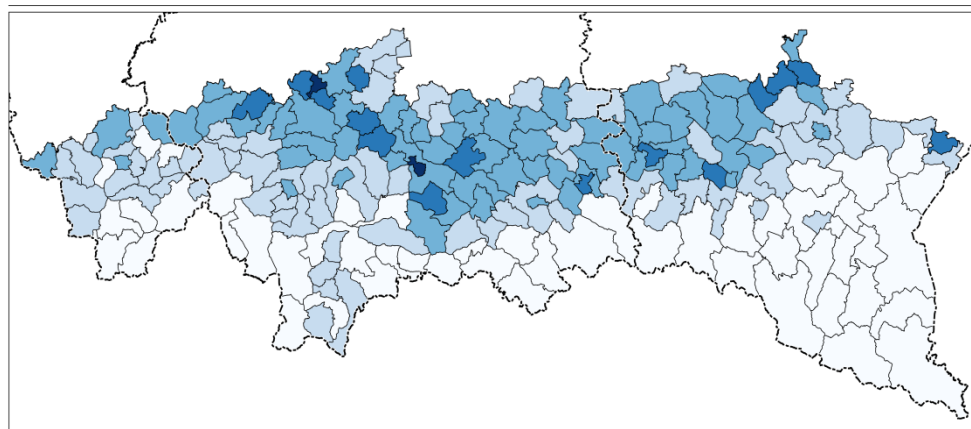
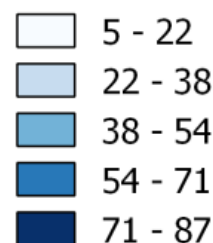
Aggregation of land cover classes from the Topographic Object Database, scale: 10k



Landscape diversity – indicator values' distribution in communes

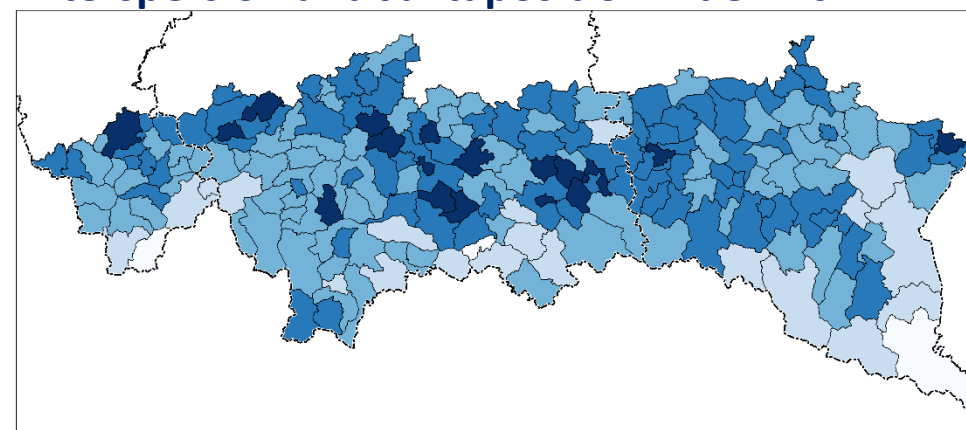
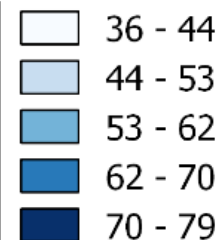
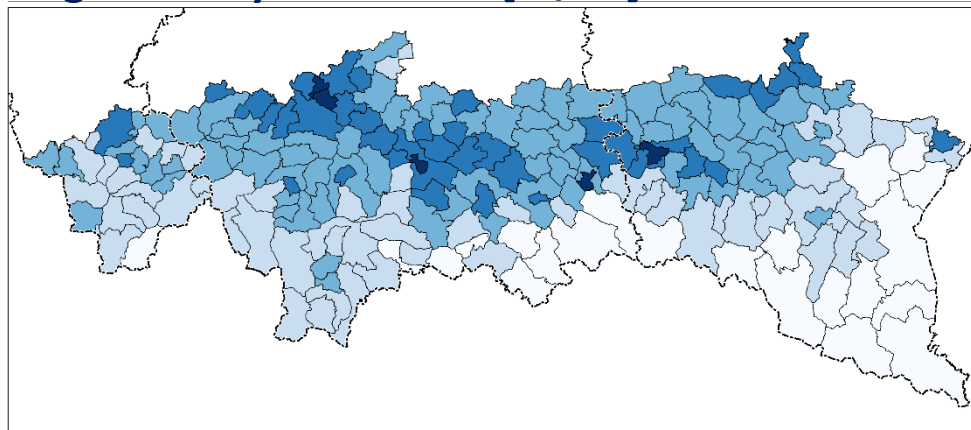
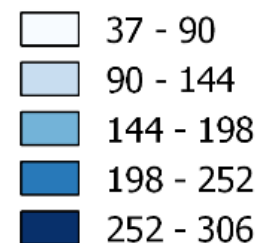
Patch Density Index - PD [number/ha]

Shannon's Diversity Index - SHDI



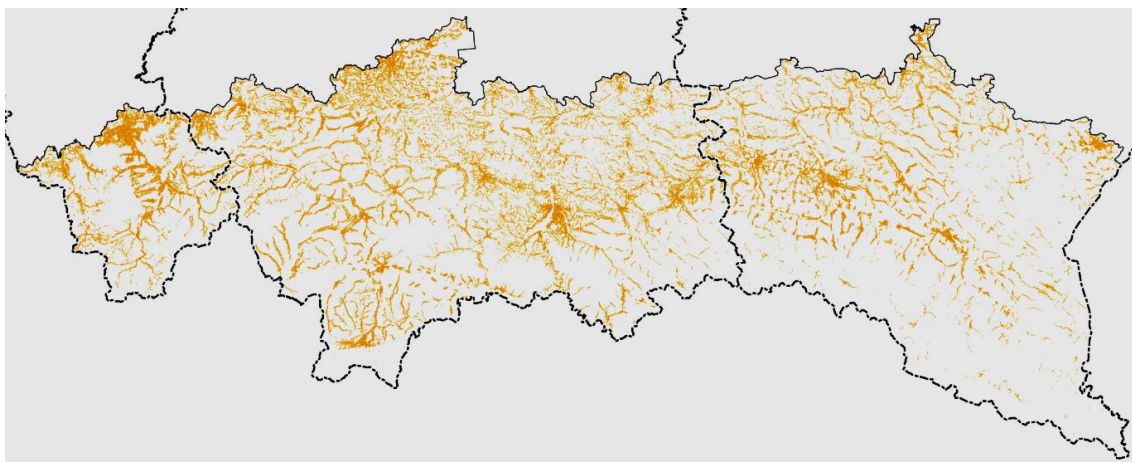
Edge Density Index – ED [m/ha]

Interspersion and Juxtaposition Index - IJI

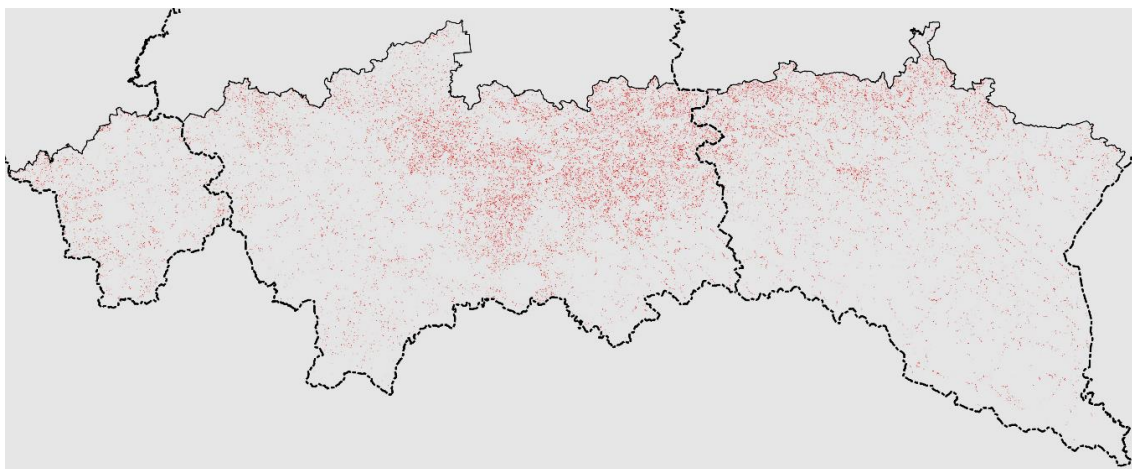




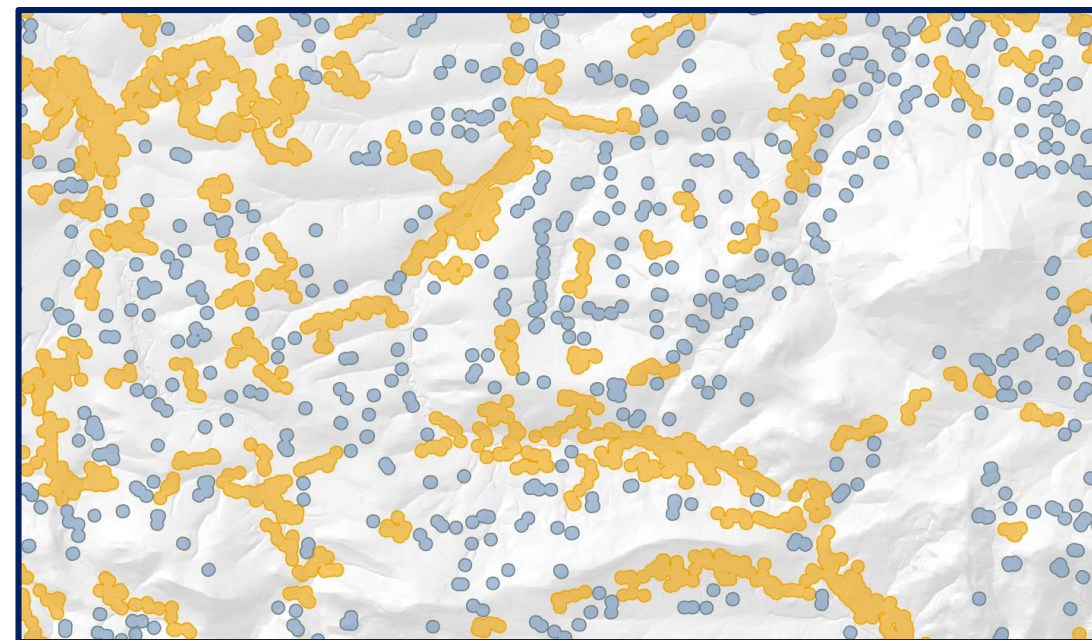
Housing dispersion



Con

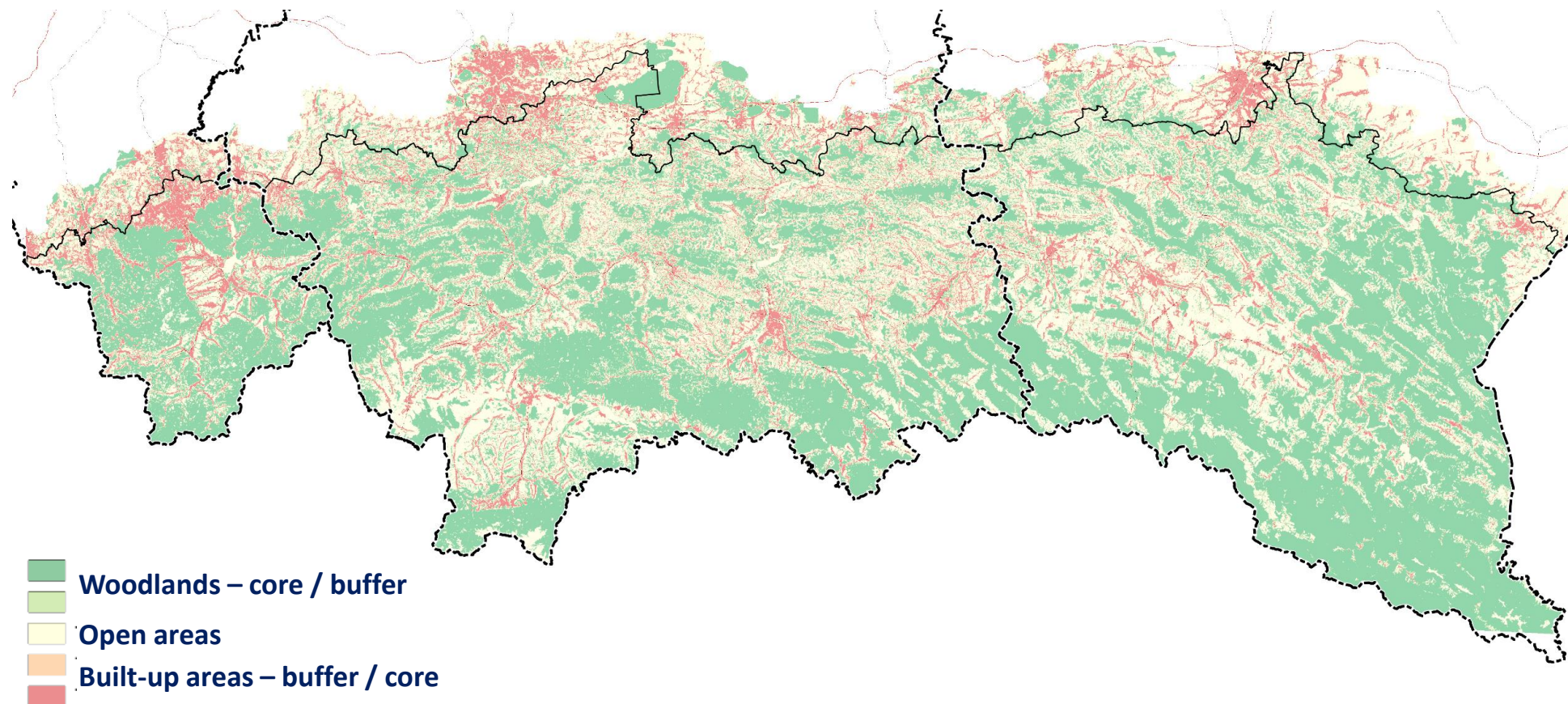


Disp





Analysis of fragmentation



- Woodlands – core / buffer
- Open areas
- Built-up areas – buffer / core



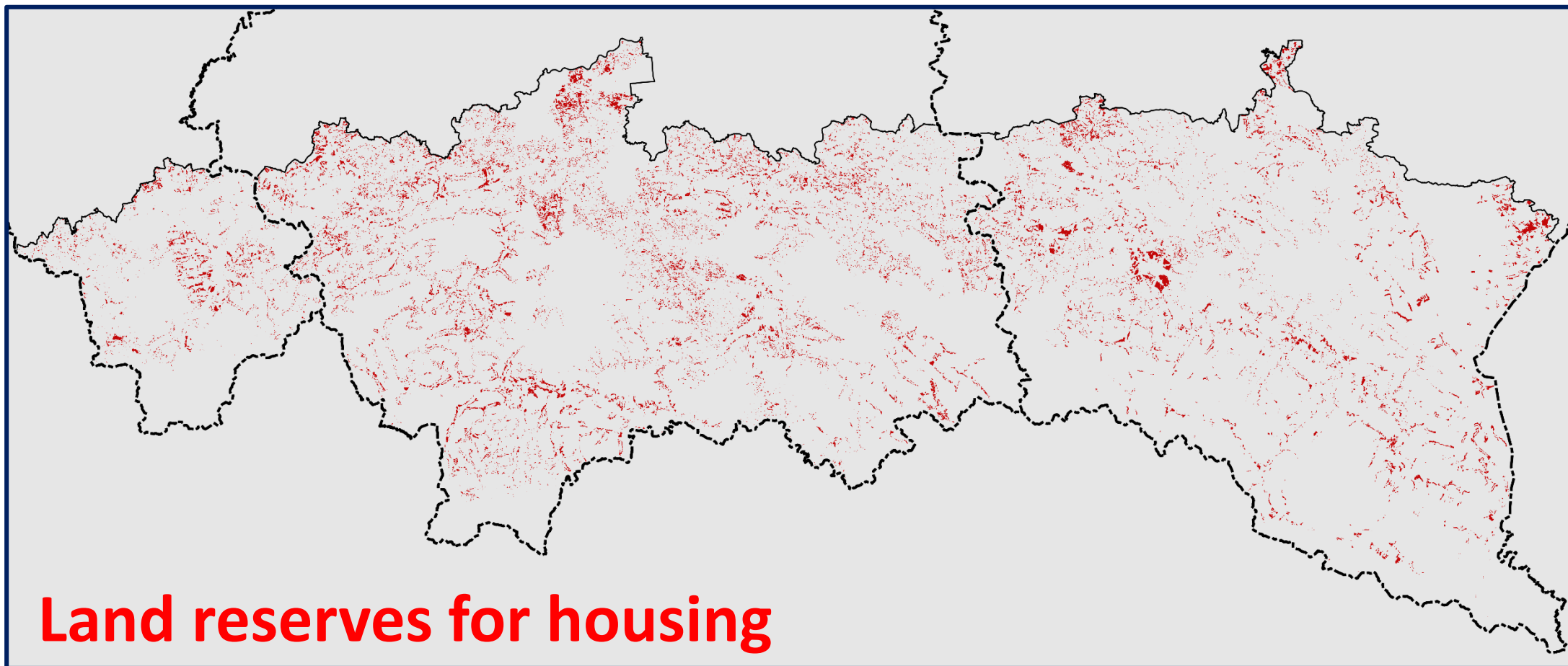


Analysis of communes' spatial planning documents

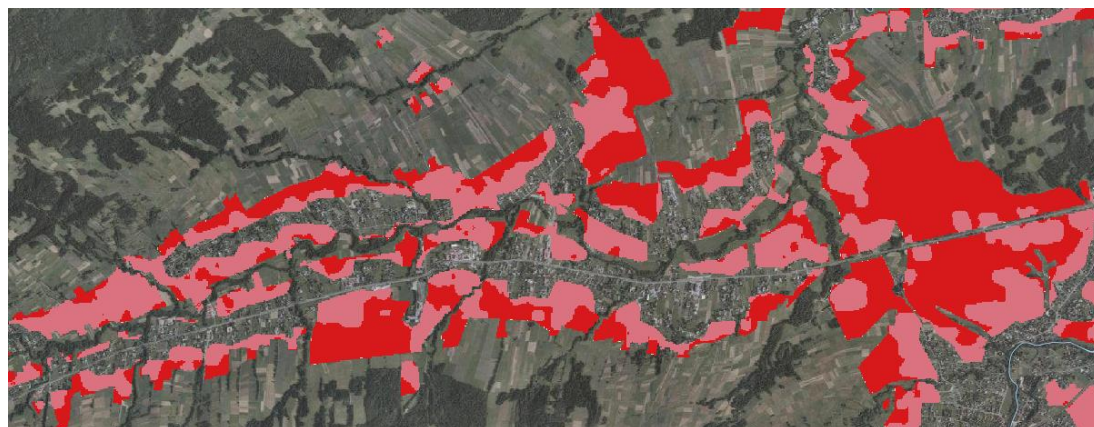
Class	Description
M	Residential housing (single-family, multi-family, tourism facilities, summer houses, etc.)
M, U	Mixed: residential and services, multi-functional zones
M, P	Mixed: residential and industrial buildings for commercial activities
U	Service areas / facilities
P	Industrial / commercial areas / facilities
P, U	Mixed: industrial / commercial / services
UT	Tourism and sports areas
KD	Areas allocated for projected (major) highways and expressways



Analysis of communes' spatial planning documents



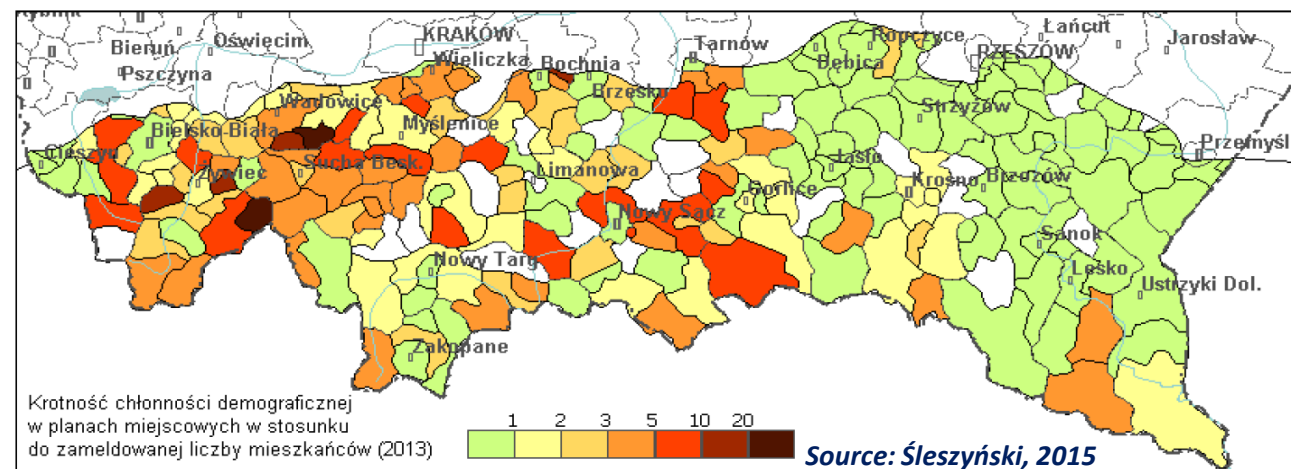
Analysis of communes' spatial planning documents



Land reserves for building up in spatial planning documents

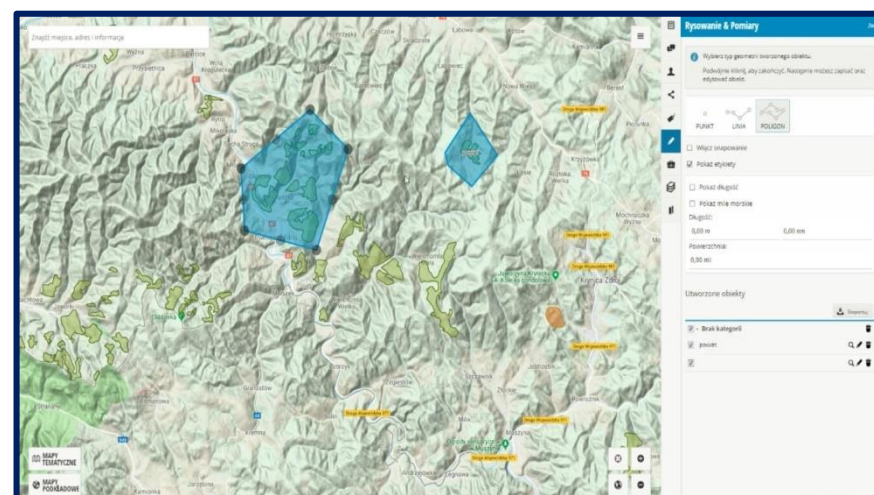
- High investment pressure
- Fast rate of land allocation – oversupply of „investment lands”
- Lack of consideration for sound demographic and economic analyses

*New building permits (red)
against existing housing
(yellow)*

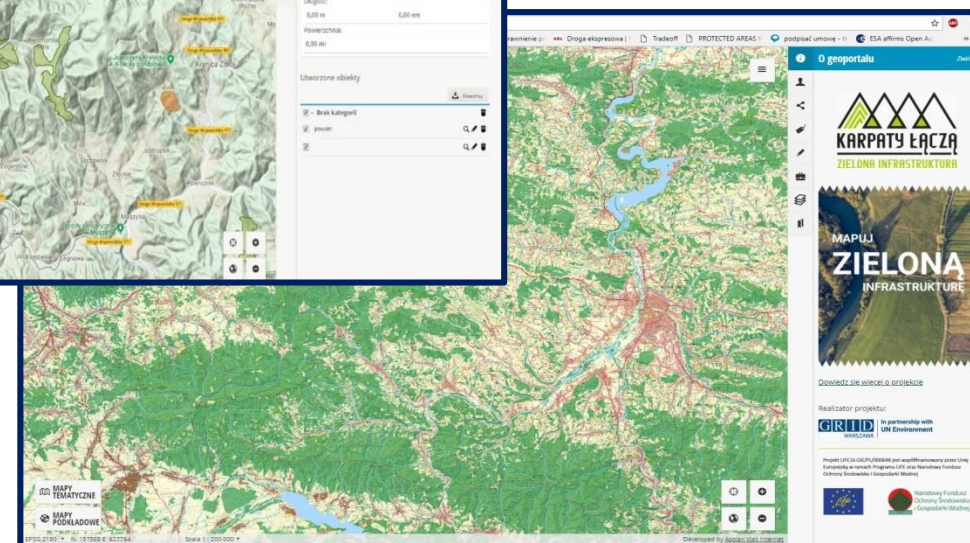


Multiplier of demographic absorption (projected population)

The geoportal and mobile application for green infrastructure inventory and mapping



Supported by Adaptive
by AVINET.no

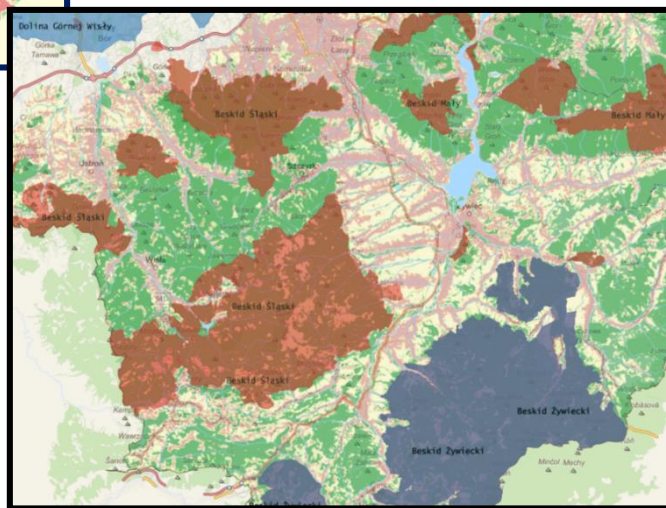
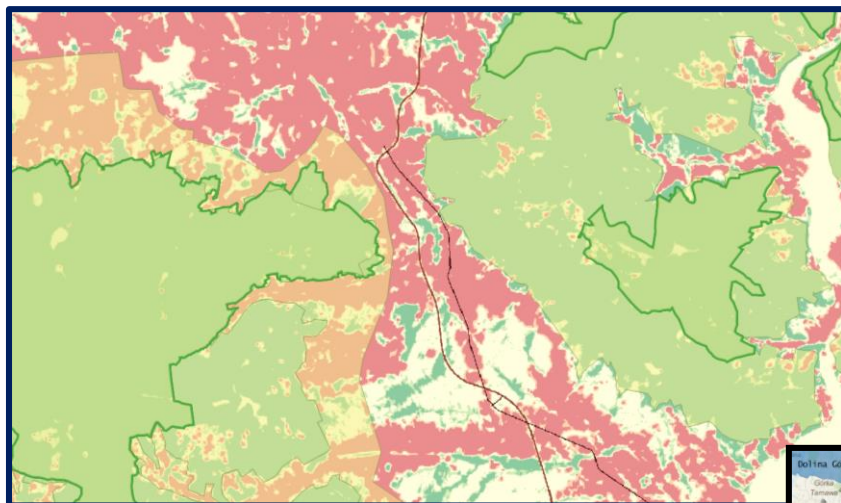


[Hide >](#)

-



Scrutinizing hotspots



- isolating Natura 2000 sites
 - severing ecological corridors – **not adequately protected by law**
 - degrading open areas
- Importance of GI-friendly spatial planning**



← Add new object

Herbaceous plants

Field margins, balks

Strips of unploughed (unused) terrain at boundaries between arable (ploughed) fields, with herbaceous vegetation and also possibly with single shrubs or trees.

← Add new object

Herbaceous plants

Meadows and pastures

Areas covered by herbaceous vegetation: meadows and pastures, or fallow land: areas on which agricultural activity ceased more than 2 years ago. In cities: grassy expanses as urban commons.

← Add new object








Trees and shrubs

Forests and parks

Small-area forests and groves, parks around manors or palaces; in cities: parks, green squares, greenery at cemeteries.

Object edition on the geoportal

Hide >

-  ☐ Borders >
 -  ☒ GI elements - competition >
 -  ☐ In-field balks ≡+ >
 -  ☐ Meadows and pastures ≡+ >
 -  ☐ Wetlands ≡+ >
 -  ☐ Groups of trees ≡+ >
 -  ☐ Groups of shrubs ≡+ >
 - ☐ Rows of trees ≡+ >
 - ☐ Rows of shrubs ≡+ >
 - ☐ Orchards and allotments ≡+ >
 - ☒ Forests and parks ≡+ >
 - ☐ Waterbodies ≡+ >

[Hide >](#)

Show attachments (0) Export to PDF

 Clone

Lasy i parki (Green-GO! Carpathians)

Id *

60

Zrób zdjęcie (poziomo):

Area (m²)

4076840.83

Grupa konkursowa *

EGER

Notatki:

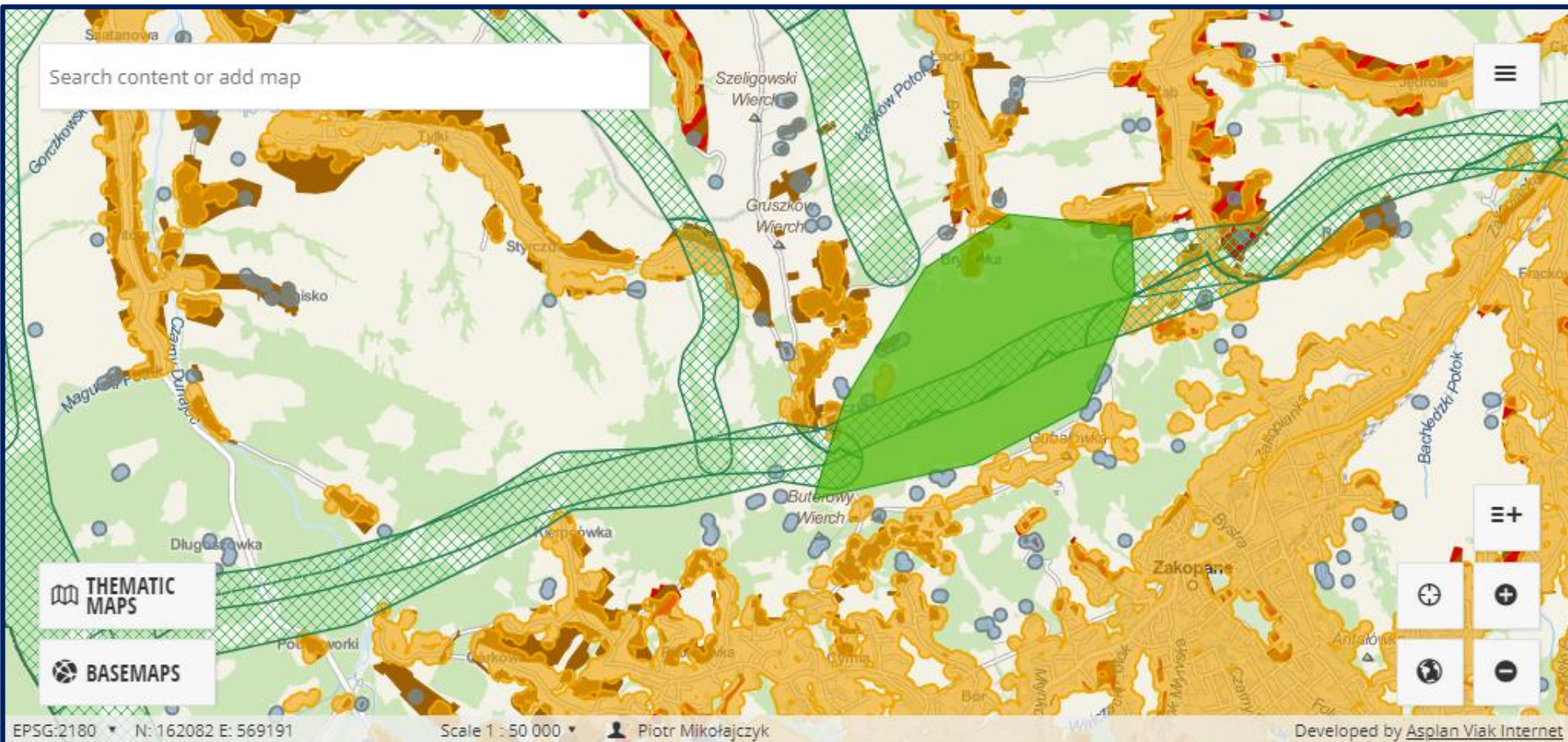
Eger Zakopane forest

Close

id	Area (m²)	Grupa konkursowa	Notatki
60	4076840.83	EGER	Eger Zakopane forest

☐ Show only features visible in map

Total: 1, Selected: 1



FORESTS AND PARKS x

Filter Export Hide

id	Area (m ²)	Grupa konkursowa	Notatki	
60	4060606.6	EGER	Eger Zakopane forest	0

☐ Show only features visible in map

Total: 1, Selected: 0

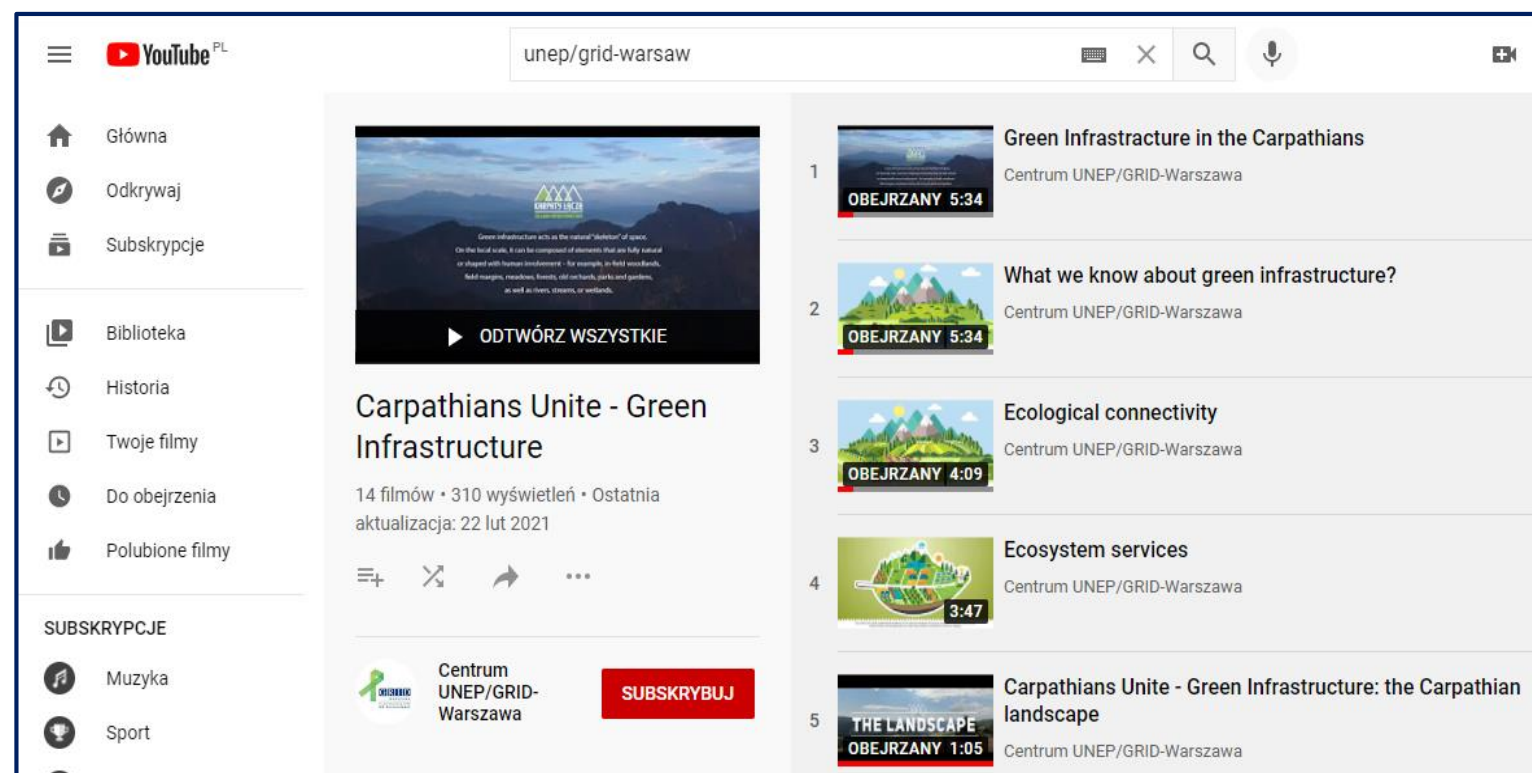
Layer Manager Pro Hide >

- ☒ Regional ecological corrid... ≡ >
- ☐ Ecological network - Lesse... ≡ >
- ☐ Regional ecological corrid... ≡ >
- ☐ Potential directions of mig... ≡ >
- ☐ Ecosystem types >
- ☐ Landscape indices >
- ☒ Existing built-up areas >
 - ☒ Scattered housing ≡ >
 - ☒ Condensed housing ≡ >
- ☒ Spatial management policy >
 - ☐ Built-up land reserves >
 - ☐ Built-up land reserves (are... ≡ >
 - ☐ Ecosystems of built-up are... ≡ >
 - ☒ Provisions in commune sp... ≡ >



e-Learning platform

thematic animations
VR video clips
other resources on GI





Local case studies

Best practices in GI development

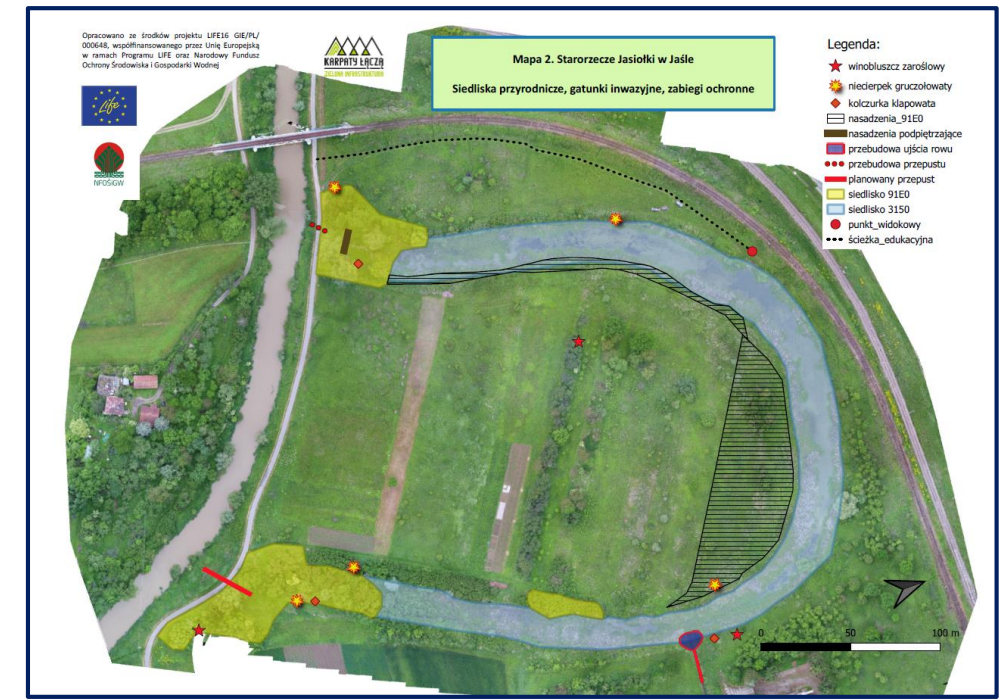
9 case studies proposed / characterized

5 best case studies supported financially by the Project

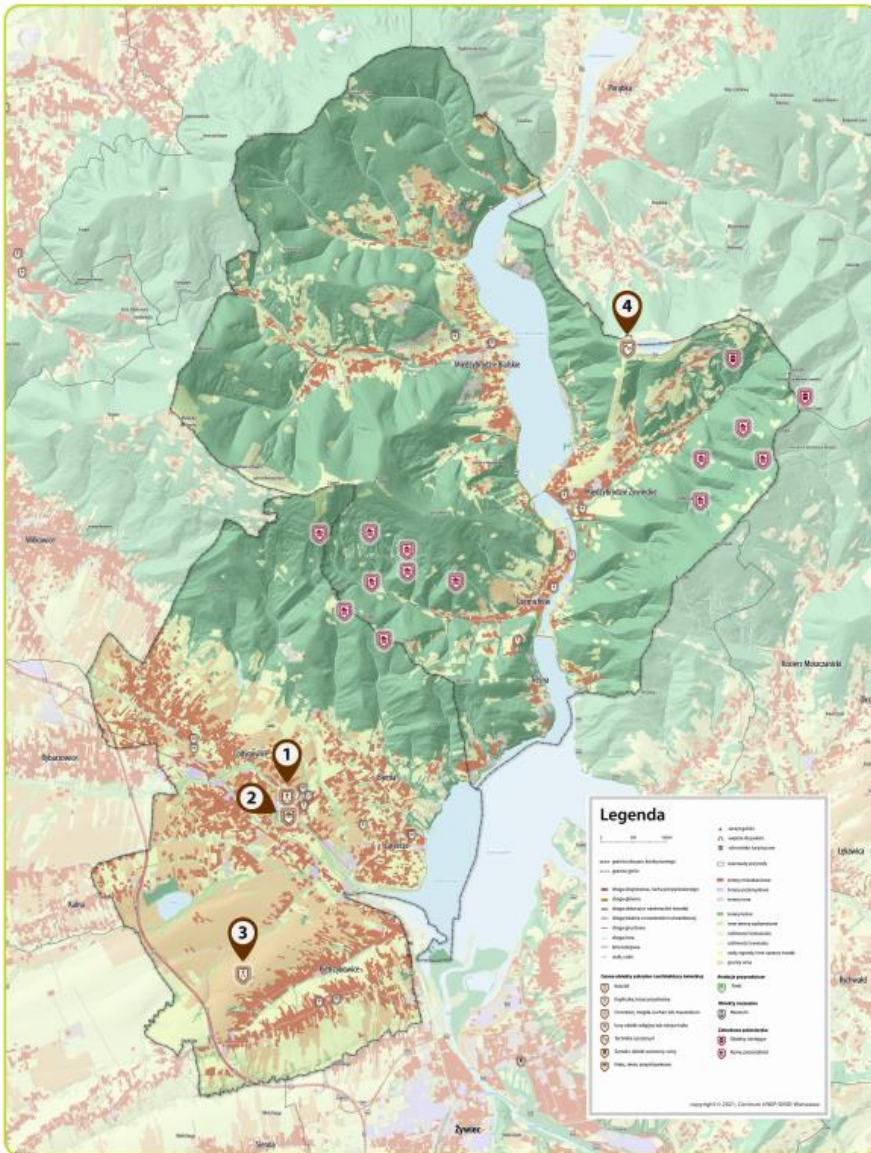
- popular monography on traditional land use and landscape
- expert nature inventory of an oxbow
- expert analysis of local GI in the context of spatial management
- 2 movies
- devices for water quality monitoring
- buffer zone creation (tree planting) around a reservoir
- photographic contest on trees and their roles as GI elements



Janusz Łach
Krajobrazy pasterskie
Beskidu Małego,
jako wyjątkowy wyróżnik
dziedzictwa przyrodniczego
i kulturowego regionu



KRAJOBRAZ PASTERSKI BESKIDU MAŁEGO



Gmina Inowrocław to niewielki miasteczko położony w południowej części województwa łódzkiego, w powiecie inowrocławskim. Miasto jest położone nad rzeką Inowrocławką, która jest jedną z wielu rzek w tym regionie. Miasto jest położone w pobliżu granicy z Niemcami. W mieście znajduje się wiele zabytków, w tym kościół, ratusz i pałac. Miasto jest położone w pobliżu granicy z Niemcami. W mieście znajduje się wiele zabytków, w tym kościół, ratusz i pałac.



Zabudowa polaniarska Beskidu Małego to zjawisko, które ma miejsce w regionie Beskidu Małego. Zabudowa polaniarska to zjawisko, które ma miejsce w regionie Beskidu Małego. Zabudowa polaniarska to zjawisko, które ma miejsce w regionie Beskidu Małego. Zabudowa polaniarska to zjawisko, które ma miejsce w regionie Beskidu Małego.

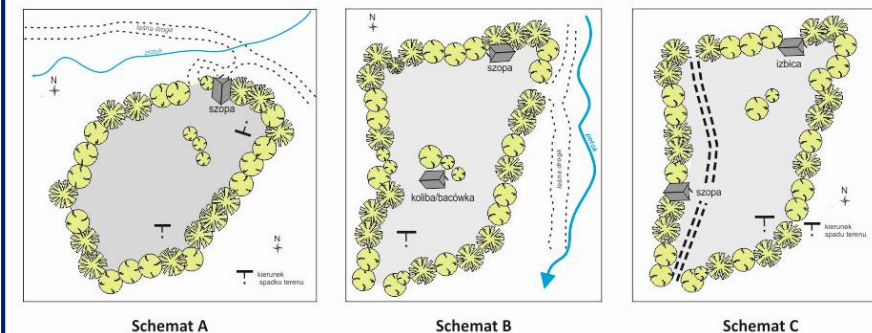


Stwierdzenie - Lokalne Grupy Obszarów „Żywiecki Raj” to zjawisko, które ma miejsce w regionie Beskidu Małego. Stwierdzenie - Lokalne Grupy Obszarów „Żywiecki Raj” to zjawisko, które ma miejsce w regionie Beskidu Małego. Stwierdzenie - Lokalne Grupy Obszarów „Żywiecki Raj” to zjawisko, które ma miejsce w regionie Beskidu Małego.



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Zabudowa polaniarska Beskidu Małego Opracowanie: Janusz Łach

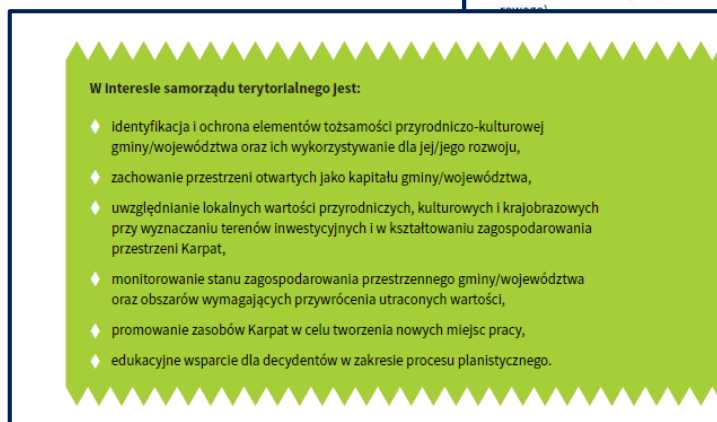
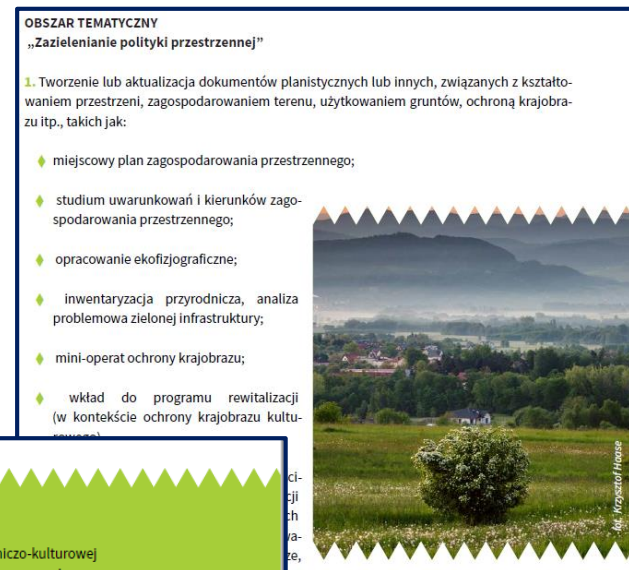
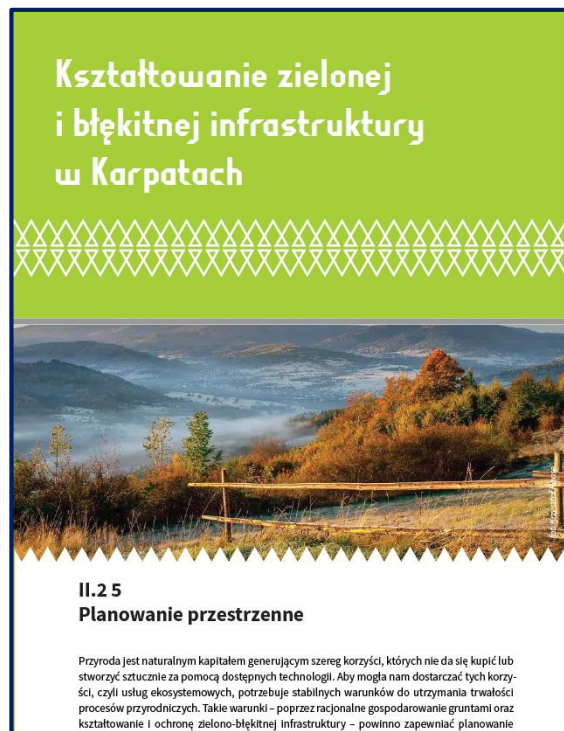


Kamienna szopa na Cinalkowej Polanie
Fot. Krzysztof Haase



Manual on GI management in the Carpathians

- **PL** – printed and digital
- **EN** – digital;





NEWS



Project extension

Due to the COVID-19 pandemic which severely disturbed and hindered important, planned Project activities and production of outputs - in particular, the local information campaigns in Carpathian communes - a Grant Amendment and Project extension have been requested

[read more](#)

GENERAL



Local initiatives for deployment of green infrastructure within Natura 2000 sites in the Carpathians (Green-Go! Carpathians / Carpathians Unite -...)

[read more](#)

GALLERY



<http://en.zielonainfrastruktura.karpatylacza.pl>



Application / putting into practice

- planners (local GI spatial databases)
- decision makers / policy makers
- crowdsourcing / citizen science / education / community engagement (NGOs, school projects);
- local entrepreneurs (e.g. tourist service providers, operators)
- nature protection institutions
- ... ???





Synergy – replication - networking

A survey of Carpathian undertakings (gov. programmes, projects and other initiatives) related to Green Infrastructure was performed in mid-2019. Identified were:

- 10 official governmental programmes w/GI component;
- 23 projects and initiatives, out of which:
 - ✓ 3 directly about GI in Carpathians (1 – in the context of connectivity between the Carpathians, the Danube Region, and the Alps)
 - ✓ 20 indirectly, but with strong GI relevance (their main themes are/were e.g. protected areas, ecological connectivity, ecosystem services, natural resources, forestry, water mgmnt, agriculture, spatial planning, etc. 5 of them have been LIFE projects (incl. 3 that also cover/ed the Alps).





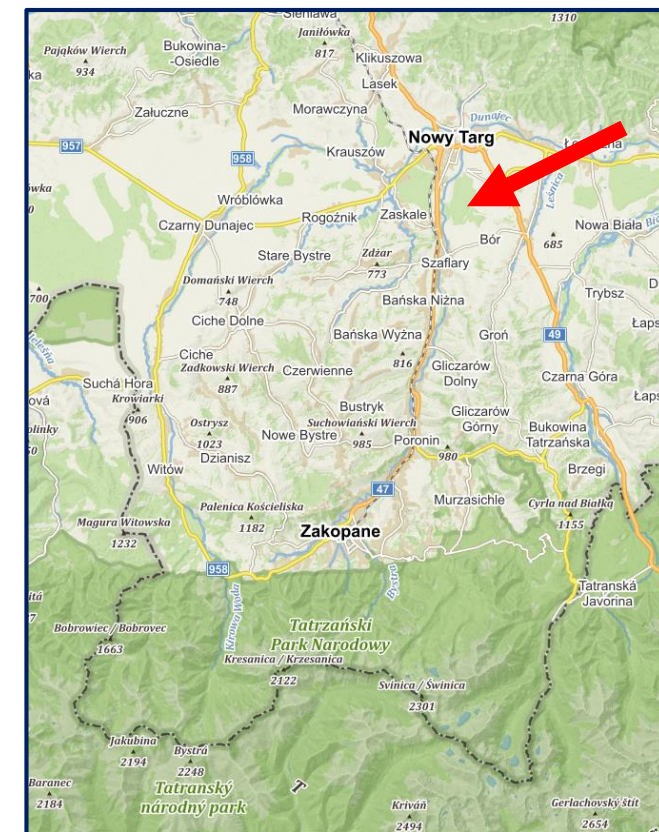
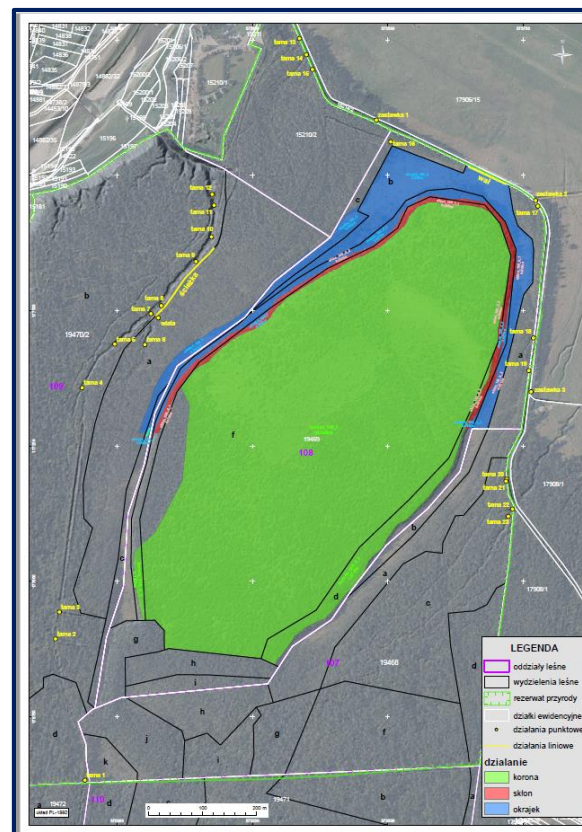
Our new Carpathian project

Carpathians Unite – Conservation of Orawsko-Nowotarskie Peatbogs



October 2021 – March 2024

- Active conservation (dams, locks, pine removal, nature monitoring) of „Czerwone” Bog Woodland (a PL Ramsar site, Natura 2000)
- Capacity enhancement in wetland conservation and management



Mapy.cz



THANK YOU !! 😊

Piotr Mikołajczyk
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Fot. P. Mikołajczyk