

Landform taxonomic hierarchy **versus** spatial scales of geodiversity

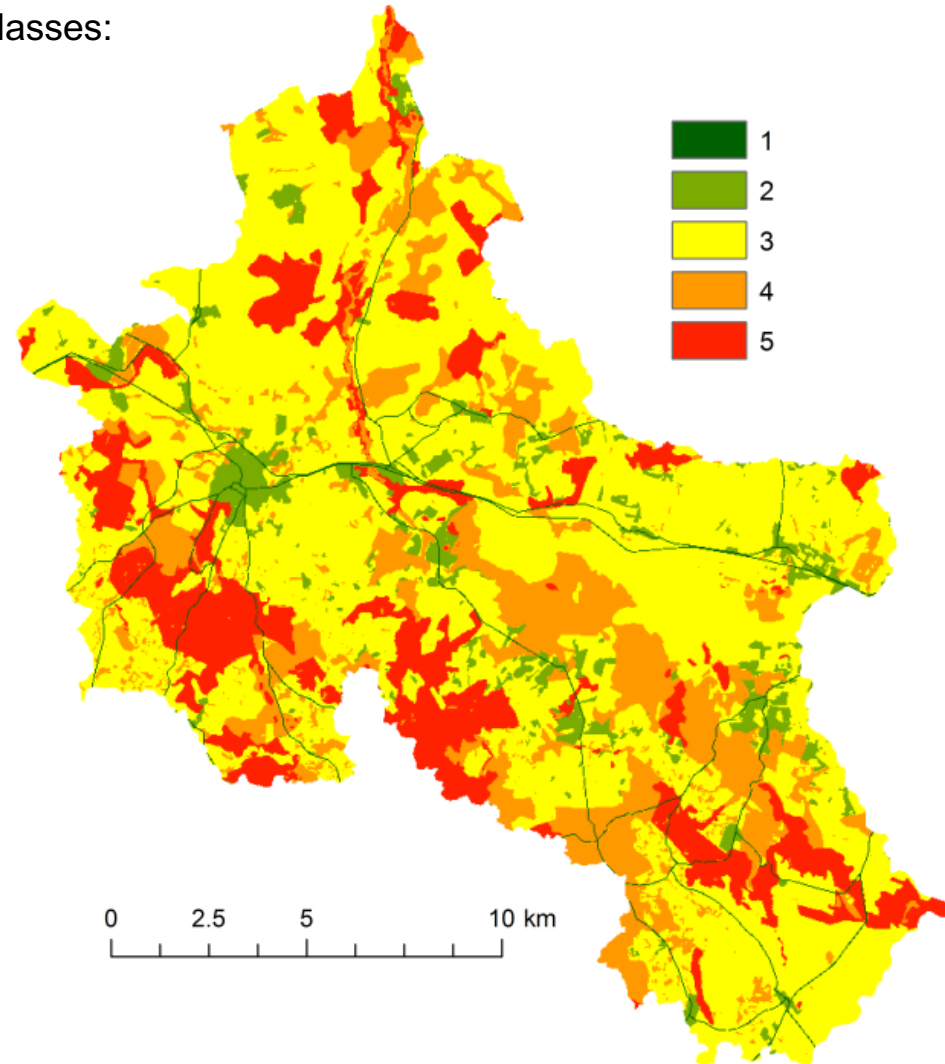
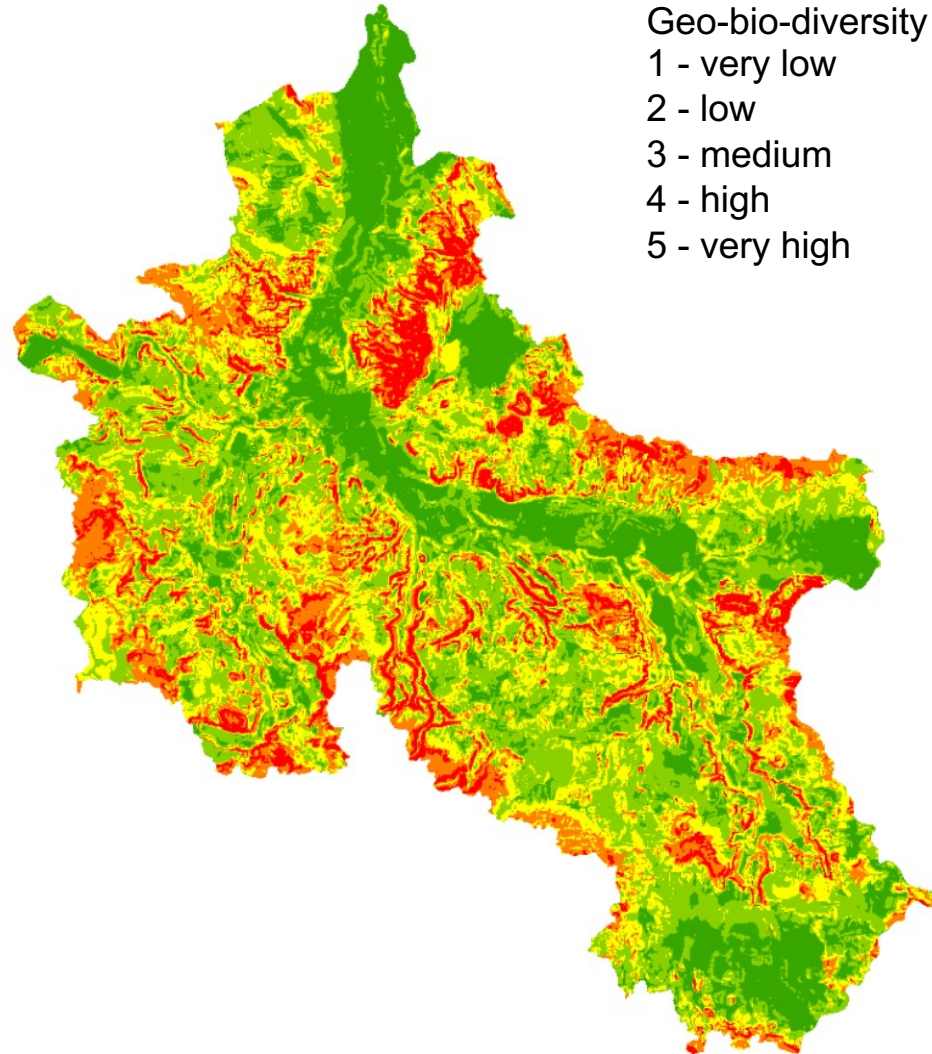
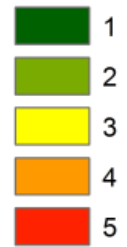
Rank	Taxonomy	Hierarchy of domains	Rank of forms*	Examples	Spatial resolution	Area	Map scale	Cell size **	Sources of geodata
1	Microform	detail of a single landform	Micro-scale units of geomorphic processes	glacial striations, fluvial and aeolian ripple marks, kamenice	0 - 1 [m]	0 - 1 [m ²]	> 1:10	0.1- 0.5 -2.5 [cm]	Laser DEM TLS; field measurements
2	Landform	a single landform	Medium-scale units of geomorphic processes	fluted moraine, riffle (rapids) and pools, alluvial bars, solution pans	1 - 10 [m]	1 - 100 [m ²]	1:10 - 1:100	1- 5 -25 [cm]	Laser DEM TLS; field measurements
3	Set of landform	a set of landforms with the same characteristics	Large-scale units of geomorphic processes	degradational or aggradational landforms, e.g. roches moutonnées, terminal moraine, kame, esker, slopes, river channels	10 - 100 [m]	100 - 10,000 [m ²]	1:100 - 1:1,000	0.1- 0.5 -2.5 [m]	Laser DEM ALS; field measurements
4	Type of landform	sequential pattern of landforms, resulting from the course of morphogenesis	Small-scale erosional/depositional units or landforms	terminal basin with ground moraine, terminal moraine and outwash plain with proglacial river ending in the fjord, niche, channel and tongues of rock glacier ending with a alluvial fan, river terraces, dunes	100 - 1000 [m]	0,01 - 1 [km ²]	1:1,000 - 1:10,000	1- 5 -25 [m]	Laser DEM ALS; ISOK; 1m DEM - USGS National Map; TanDEM-X DEM; WorldDEM; ALOS; NED
5	Morphological landscape	the holistic complexity of the morphological landscape as a reflection of various sequential patterns of sets of landforms	Medium-scale erosional/depositional units or landforms	marginal zone of the glacier, proglacial zone, floodplains, alluvial fans, moraines, smaller river valleys, canyons	1 - 10 [km]	1 - 100 [km ²]	1:10,000 - 1:100,000	10- 50 -250 [m]	TanDEM-X IDEM; DTED; SRTM; ASTER-GDEM; WorldDEM; EarthEnv-DEM90; AW3D30
6	Geomorphological region	compilation of various morphological landscapes (morphopoligenesis), usually overlapping spatially and temporally	Large-scale erosional/depositional units	former, post-glacial valley overlaid with contemporary weathered and periglacial landforms on the slopes, outwash plains with loess cover, deltas, main river valleys, foothills	10 - 50 [km]	100 - 2,500 [km ²]	1:100,000 - 1:500,000	50- 250 -1250 [m]	TanDEM-X IDEM; DTED; SRTM; ASTER-GDEM; GMTED2010; EarthEnv-DEM90; MDEM250
7	Morphogenetic province	the earth's surface forming by morphopoligenetic, synchronous landscapes with significant conditioning of the lithology or substrate geology	Small-scale tectonic units	young postglacial landform, tectonic-volcanic-glacial landforms, volcanoes, faulting blocks (horst), graben, sedimentary basins, low mountains	50 - 100 [km]	2,500 - 10,000 [km ²]	1:500,000 - 1:1,000,000	0.1- 0.5 -2.5 [km]	TanDEM-X IDEM; DTED; SRTM; ASTER-GDEM; GMTED2010; MDEM250
8	Morphogenetic zone	the earth's surface forming by a set of morphopoligenetic, asynchronous/polychronic landscapes, dependent mainly on large-scale geological conditions, and primarily from morphoclimatic zone	Medium-scale tectonic units	lowland postglacial landform, alpine postglacial landform, sedimentary basins, plateaus, medium mountains	100 - 500 [km]	10,000 - 250,000 [km ²]	1:1,000,000 - 1:5,000,000	0.5- 2.5 -12.5 [km]	ETOPO1; Globe 1 km; HYDRO1K; GTOPO30
9	Geomorphic realm	endogenous and tectonic areas, cratons	Large-scale tectonic units	continents, ocean basins, shield, platform, accumulation plains, high mountains	500 - 1000 [km]	250,000 - 1,000,000 [km ²]	< 1:5,000,000	1- 5 -25 [km]	ETOPO1; ETOPO2; ETOPO3; Globe 1 km; HYDRO1K; GTOPO30

*acc. to Tricart (1965) and Chorley et al. (1984), modified; **acc. to Hengl (2006): Cell size: Finest – Best – Coarsest

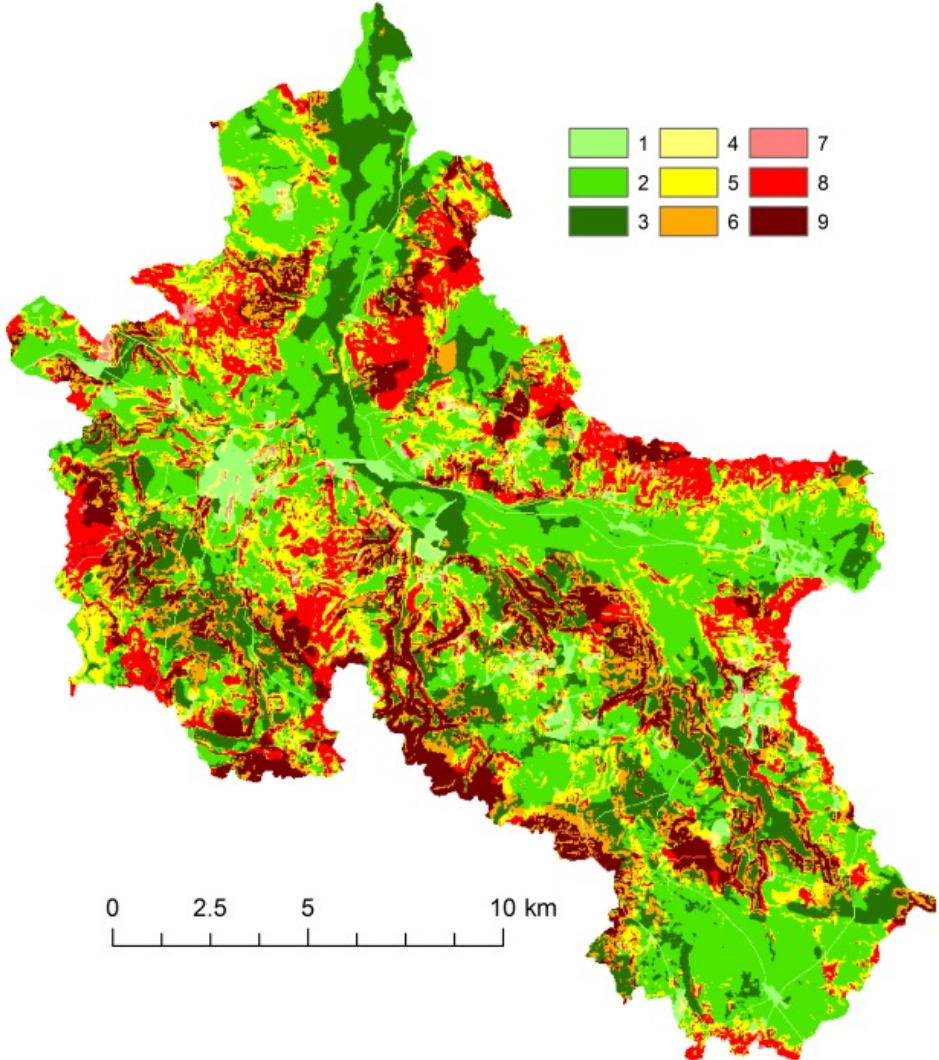
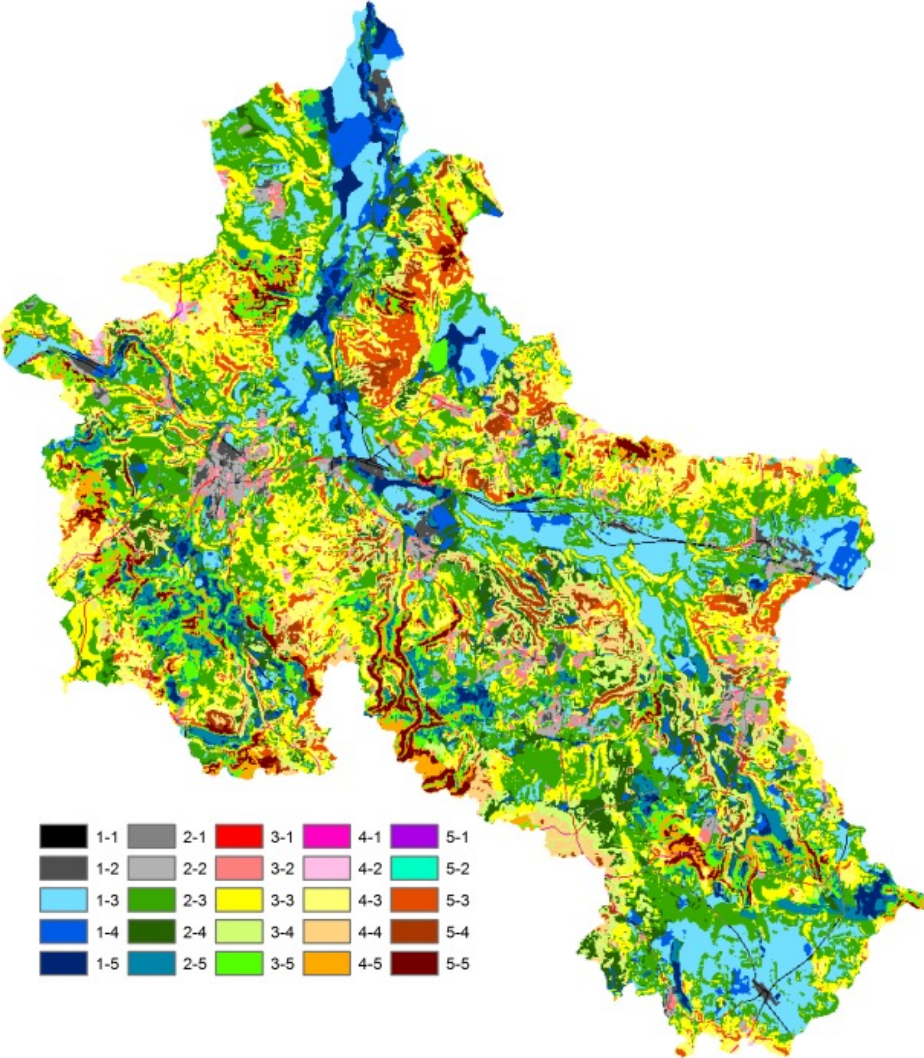
Geodiversity map & Biodiversity map

Geo-bio-diversity classes:

- 1 - very low
- 2 - low
- 3 - medium
- 4 - high
- 5 - very high



Geo-bio-diversity map



International Geodiversity Day

October 6

*Thank you very much
for your kind attention*

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www.geodiversityday.org