EU COPERNICUS proizvodi i CROLIS projekt

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Radionica (Tip 1) - 5. rujna 2023. godine - hotel Lav, Vukovar

1. HRL proizvodi

- LC za 5 klasa:
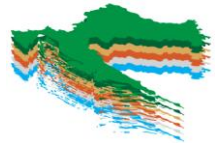1. Imperviousness (Izgrađenost)
2. Forest
3. Grassland
4. Wetness and Water
5. Small Woody Features

- Prostorna rezolucija satelitskih snimaka = 20 m; 10 m (2018.)
- Komplementarni LC/LU kartiranju (CLC prostornim podacima)
- Kompatibilni s LULUCF izvještavanjem
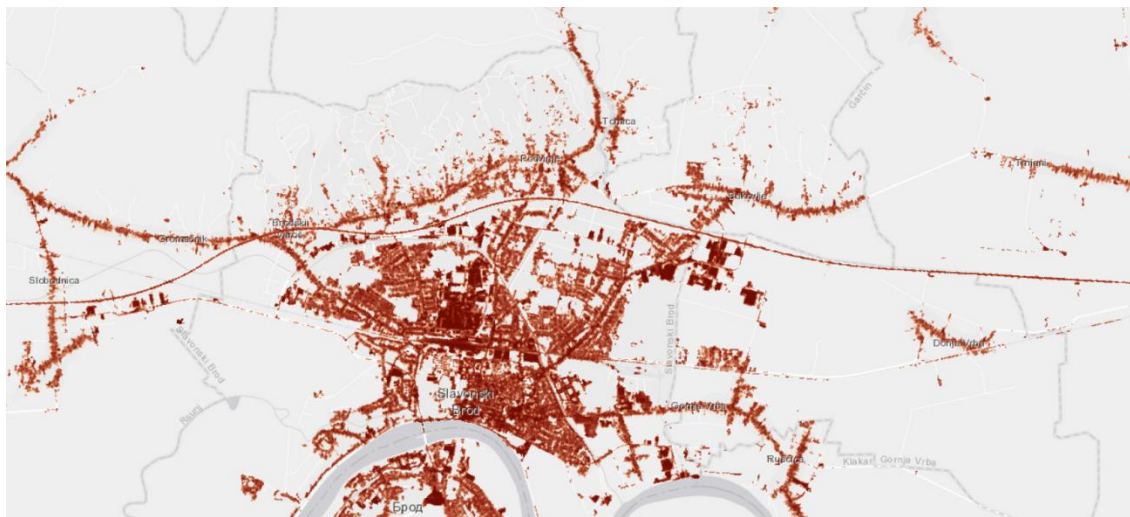- Vremenska rezolucija: 3 godine
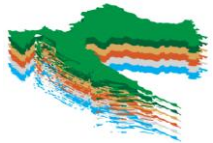
HRL proizvodi

HRL IMPERVIOUSNESS

- Imperviousness density
- Imperviousness built-up
- Imperviousness change layers
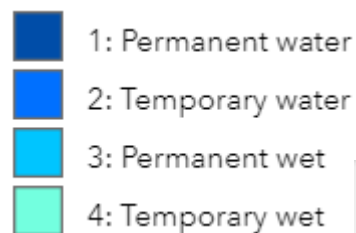
HRL FOREST

- Tree cover density (0-100%)
- Dominant leaf type
- Forest type product – najbliži FAO definiciji šume
- Tree Cover Change Mask
- Dominant Leaf Type Change

LIFE CROLIS

HRL GRASSLAND

- Binarno: travnjak/ne-travnjak
- Grassland Vegetation Probability Index (1-100 class probability)
- Indikator oranja – 1-6 godina od zadnjeg oranja
- Grassland promjena

HRL Water & Wetness

- Water and Wetness – permanent and temporary water, permanent and temporary wetness
- Dodatni proizvodi: Water & Wetness indeks vjerojatnosti

1: Permanent water	
2: Temporary water	
3: Permanent wet	
4: Temporary wet	
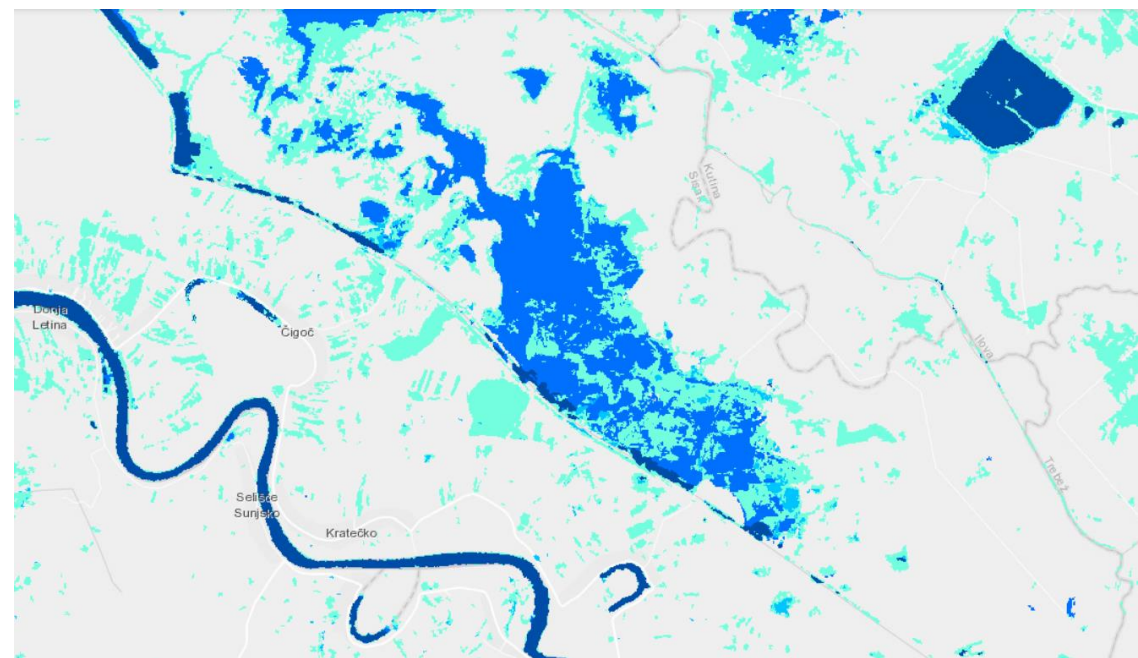
Quality Control HRL slojeva:

1. Dominant Leaf Type 2018
2. Imperviousness Density 2018
3. Water & Wetness 2018
4. Grassland 2018
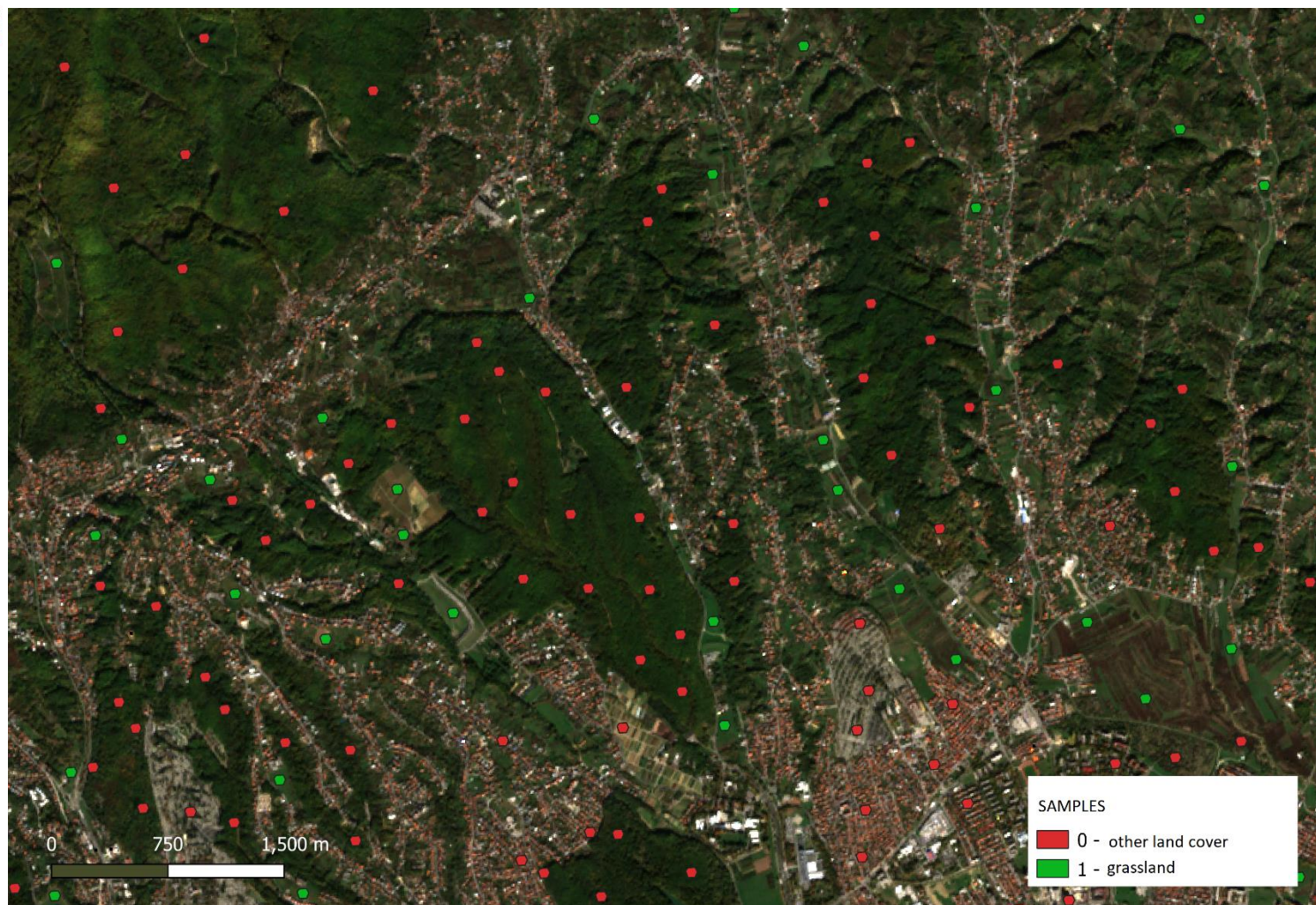
Primjer uzorkovanja za klase 0 (ostali zemljišni pokrov) i 1 (Travnjak)

Tab. 1: Rezultati procjene točnosti za HRL

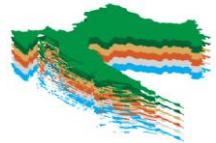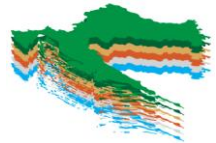| HRL	Chosen counties	Area [km^2]	No. of testing samples		Area of samples [%]	Kappa coefficiean		Manufacturer accuracy [%]		User accuracy		Overall accuracy [%]
			kl. 0	kl. 1		kl. 0	kl. 1	kl. 0	kl. 1	kl. 0	kl. 1	kl. *
DLT	Ličko-senjska županija	5353.58	4488	12038	1.47	0.85	0.98	98.6	94.58	90.41	99.23	95.95
	Grad Zagreb	641.25	821	718	1.12	0.86	0.97	98.98	91.81	93.98	98.41	95.79
Imperviousness	Bjelovarsko-bilogorska županija	2639.23	5849	778	1.038	0.75	0.71	99.34	75.77	99.46	71.89	98.83
	Grad Zagreb	641.25	984	692	1.126	0.97	0.85	96.77	97.32	99.33	88.04	96.88
Grassland	Požeško-slavonska	1821.89	4534	583	1.006	0.81	0.93	99.3	82.94	97.7	94.23	97.33
	Grad Zagreb	641.36	1357	350	1.021	0.96	0.99	99.81	97.09	99.3	99.19	99.28
W&W	Osječko-baranjska	4147.62	10329	318	1.842	0.98	0.95	99.86	98.51	99.95	95.75	99.82
	Vukovarsko-srijemska	2447.78	12613	144	3.733	0.93	0.93	99.93	92.84	99.92	93.46	99.85
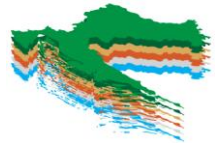
2. EU-DEM

- DSM za EEA39 država
- hibridni proizvod baziran na SRTM i ASTER GDEM podacima
- Rezolucija piksela 25 m
- Vertikalna točnost +/- 7 m
- proizvodi: Nagib, Aspect, Hillshade
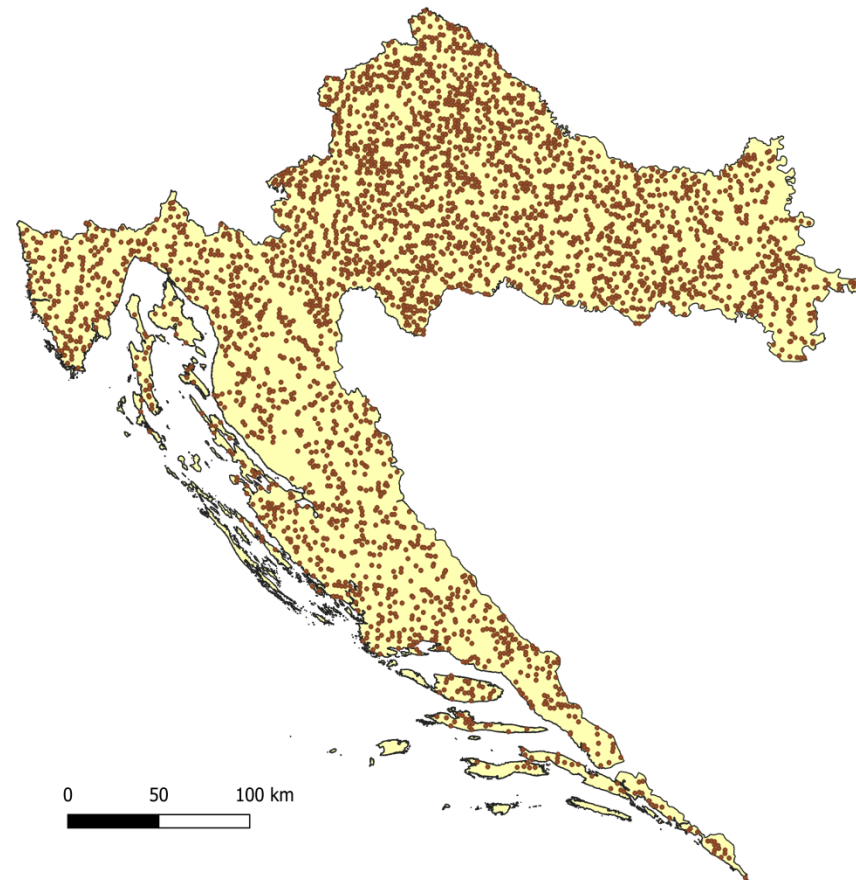- EU-Hydro (riječna mreža)

DSM
0   1800

0   75   150 km
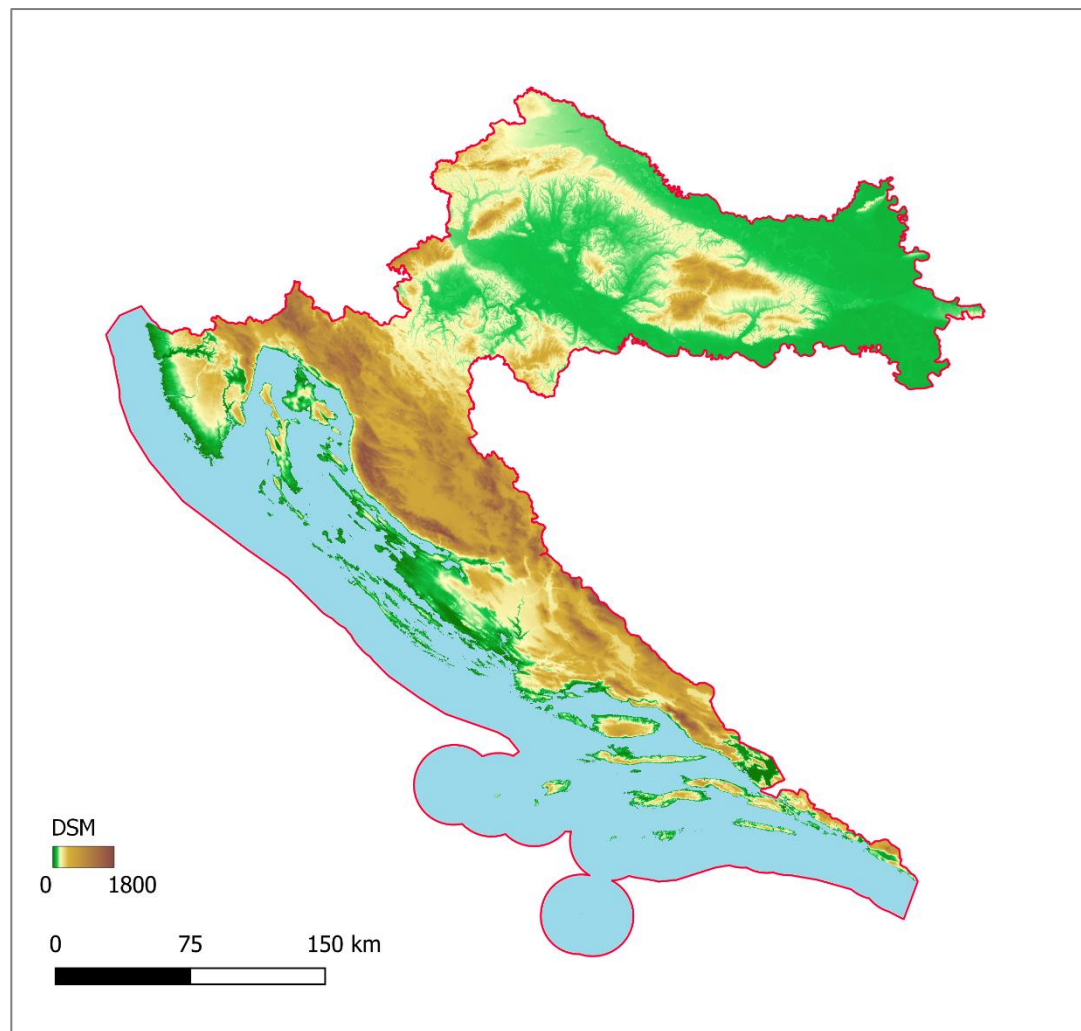
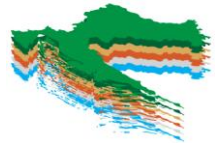Copernicus DSM proizvod

3. LUCAS (Land Use/Cover Area frame Survey)

- Produciran od strane EUROSTAT-a

- Na bazi 3 godine od 2006.

- In-situ podaci

- Stanje i dinamika promjene:

1. **land use:**
   način korištenja zemljišta (npr. poljoprivreda, šumarstvo, rekreacija)

2. **land cover:**
   (npr. usjevi, travnjaci, bjelogorična šuma)

0   50   100 km

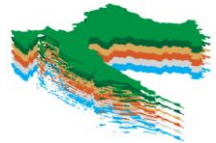LUCAS točke za terensku provjeru

Primjer fotografiranja LUCAS točke

Fotografija LUCAS točke (46202440P)

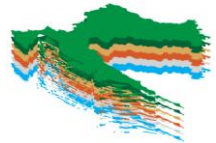Fotografija sjeverno od LUCAS točke (46202440P)

LUCAS nomenklatura

LUCAS LC nomenklatura

Land cover				
A00	ARTIFICIAL LAND	A10	Roofed built-up areas	
		A20	Artificial non-built up areas	
		A30	Other artificial areas	
B00	CROPLAND	B10	Cereals	
		B20	Root crops	
		B30	Non-permanent industrial crops	
		B40	Dry pulses, vegetables and flowers	
		B50	Fodder crops	
		B70	Permanent crops: fruit trees	
		B80	Other permanent crops	
C00	WOODLAND	C10	Broadleaved woodland	
		C20	Coniferous woodland	
		C30	Mixed woodland	
D00	SHRUBLAND	D10	Shrubland with sparse tree cover	
		D20	Shrubland without tree cover	
E00	GRASSLAND	E10	Grassland with sparse tree/shrub cover	
		E20	Grassland without tree/shrub cover	
		E30	Spontaneously re-vegetated surfaces	
F00	BARE LAND AND LICHENS/MOSS	F10	Rocks and stones	
		F20	Sand	
		F30	Lichens and moss	
		F40	Other bare soil	
G00	WATER AREAS	G10	Inland water bodies	
		G20	Inland running water	
		G30	Transitional water bodies	
		G40	Sea and ocean	
		G50	Glaciers, permanent snow	
H00	WETLANDS	H10	Inland wetlands	
		H20	Coastal wetlands	

LUCAS LU nomenklatura

| Land use			
U100	PRIMARY SECTOR	U110	Agriculture
		U120	Forestry
		U130	Aquaculture and fishing
		U140	Mining and quarrying
		U150	Other primary production
U 200	SECONDARY SECTOR	U210	Energy production
		U220	Industry and manufacturing
U300	TERTIARY SECTOR, TRANSPORT, UTILITIES & RESIDENTIAL	U310	Transport, communication networks, storage, protection works
		U320	Water and waste treatment
		U330	Construction
		U340	Commerce, financial, professional and information services
		U350	Community services
		U360	Recreation, leisure, sport
		U361	Residential
U400	UNUSED AND ABANDONED AREAS	U410	Abandoned areas
		U420	Semi-natural and natural areas not in use

LUCAS grid (mreža točaka)

- grid (2x2 km)

- klasificirano u LC kategorije bazirano na fotointerpretaciji DOF-a ili satelitskih snimaka
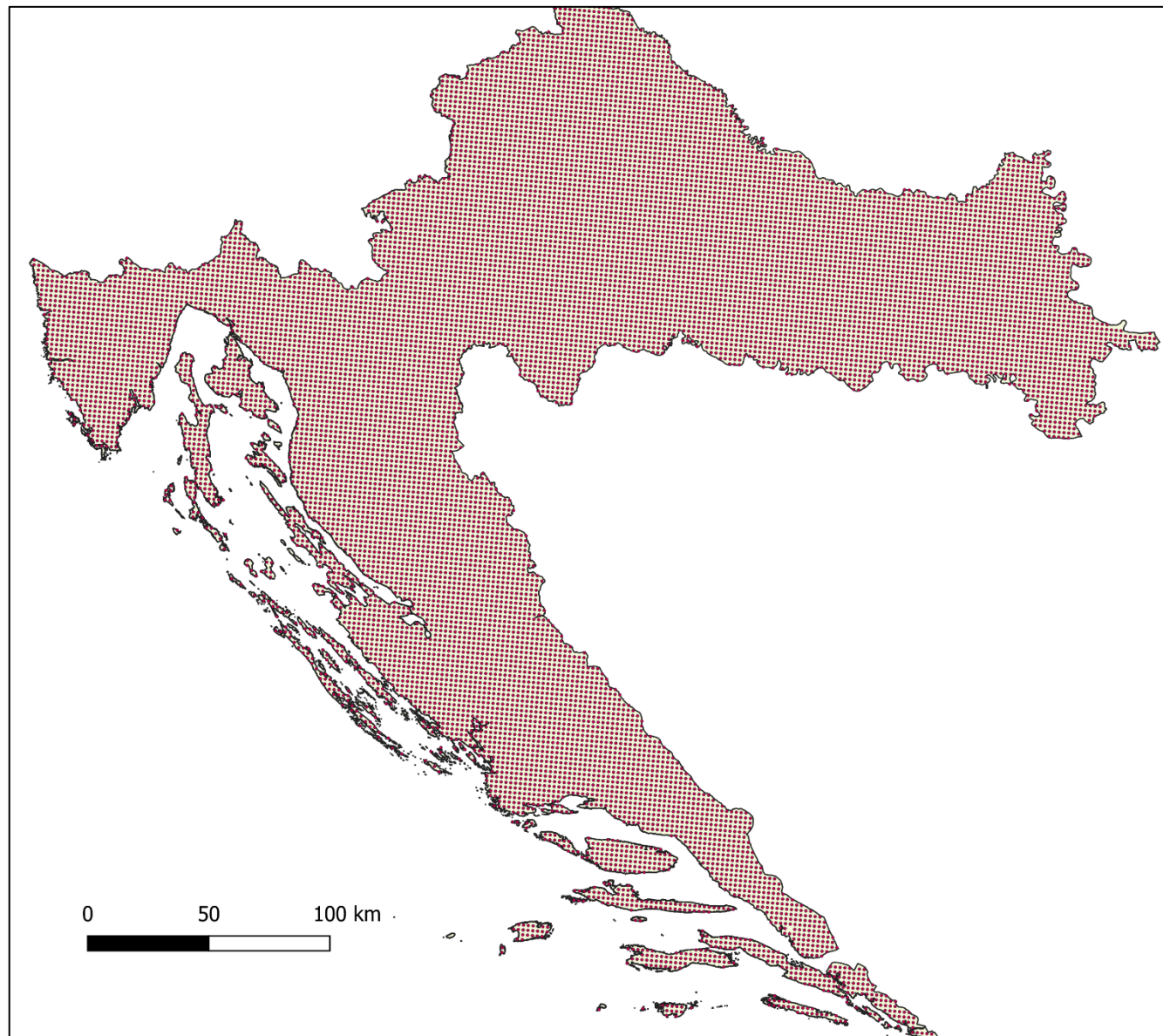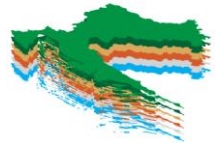

LUCAS grid (2x2 km)
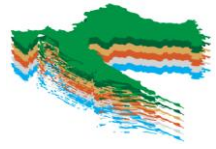
4. CORINE Land Cover

- Digitalna baza prostornih podataka o stanju i promjenama u zemljišnom pokrovu (Land cover) po standardiziranoj CORINE nomenklaturi

- MMU - 25 ha, MMU za promjene (LCC) – 5 ha

- Vremenska rezolucija: 1990, 2000, 2006, 2012, 2018

Corine land cover classes

1. Artificial surfaces
1.1 Urban fabric
- 1.1.1. Continuous urban fabric
- 1.1.2. Discontinuous urban fabric

1.2 Industrial, commercial and transport units
- 1.2.1. Industrial or commercial units
- 1.2.2. Road and rail networks and associated land
- 1.2.3. Port areas
- 1.2.4. Airports

1.3 Mine, dump and construction sites
- 1.3.1. Mineral extraction sites
- 1.3.2. Dump sites
- 1.3.3. Construction sites

1.4 Artificial, non-agricultural vegetated areas
- 1.4.1. Green urban areas
- 1.4.2. Sport and leisure facilities

2. Agricultural areas
2.1 Arable land
- 2.1.1. Non-irrigated arable land
- 2.1.2. Permanently irrigated land
- 2.1.3. Rice fields

2.2 Permanent crops
- 2.2.1. Vineyards
- 2.2.2. Fruit trees and berry plantations
- 2.2.3. Olive groves

2.3 Pastures
- 2.3.1. Pastures

2.4 Heterogeneous agricultural areas
- 2.4.1. Annual crops associated with permanent crops
- 2.4.2. Complex cultivation patterns
- 2.4.3. Land principally occupied by agriculture
- 2.4.4. Agro-forestry areas

3. Forest and seminatural areas
3.1 Forests
- 3.1.1. Broad-leaved forest
- 3.1.2. Coniferous forest
- 3.1.3. Mixed forest

3.2 Shrub and/or herbaceous vegetation associations
- 3.2.1. Natural grassland
- 3.2.2. Moors and heathland
- 3.2.3. Sclerophyllous vegetation
- 3.2.4. Transitional woodland shrub

3.3 Open spaces with little or no vegetation
- 3.3.1. Beaches, dunes, and sand plains
- 3.3.2. Bare rock
- 3.3.3. Sparsely vegetated areas
- 3.3.4. Burnt areas
- 3.3.5. Glaciers and perpetual snow

4. Wetlands
4.1 Inland wetlands
- 4.1.1. Inland marshes
- 4.1.2. Peat bogs

4.2 Coastal wetlands
- 4.2.1. Salt marshes
- 4.2.2. Salines
- 4.2.3. Intertidal flats

5. Water bodies
5.1 Inland waters
- 5.1.1. Water courses
- 5.1.2. Water bodies

5.2 Marine waters
- 5.2.1. Coastal lagoons
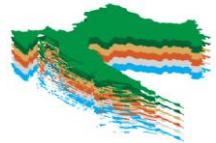- 5.2.2. Estuaries
- 5.2.3. Sea and ocean

5. Lokalna komponenta

- Nadopunjuju podatke Pan-europske komponente te pružaju detaljnije informacije o zemljišnom pokrovu

- Područja koja su podložnija specifičnim okolišnim pritiscima i problemima

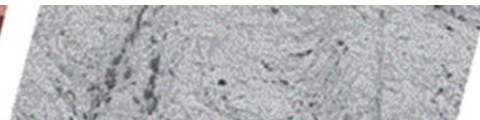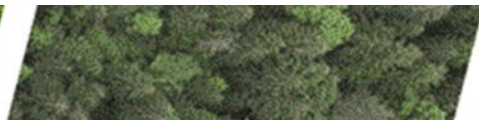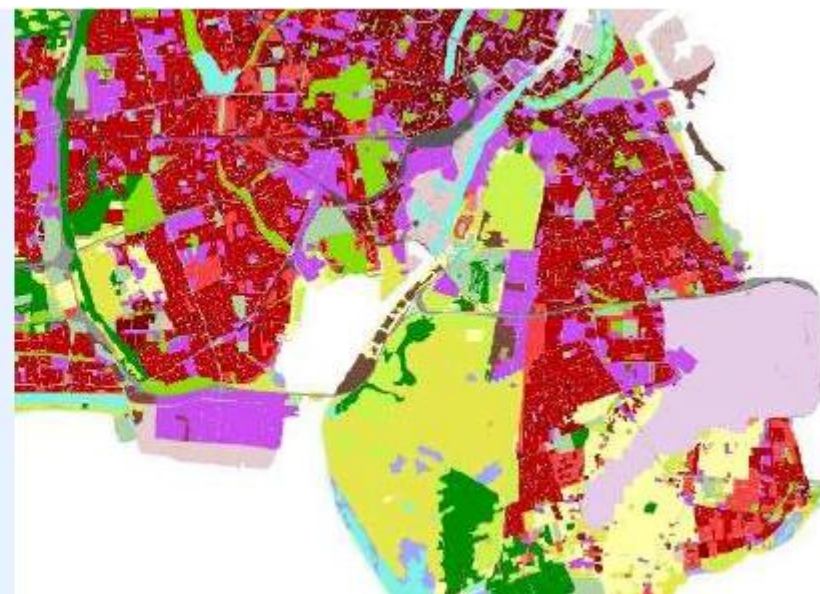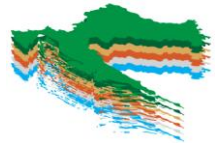- Temelj: satelitske snimke vrlo visoke razlučivosti (2,5 x 2,5m piksela)

5. Lokalna komponenta
Urban atlas

- Obuhvaća funkcionalna urbana područja

- 17 urbanih i 10 ruralnih klasa

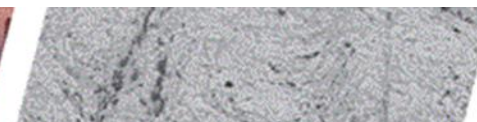- Min. područje kartiranja (MMU) je 0.25ha za urbane klase i 1ha za ruralne klase
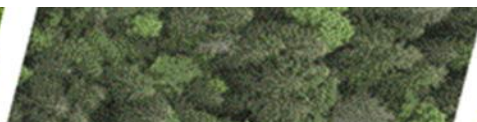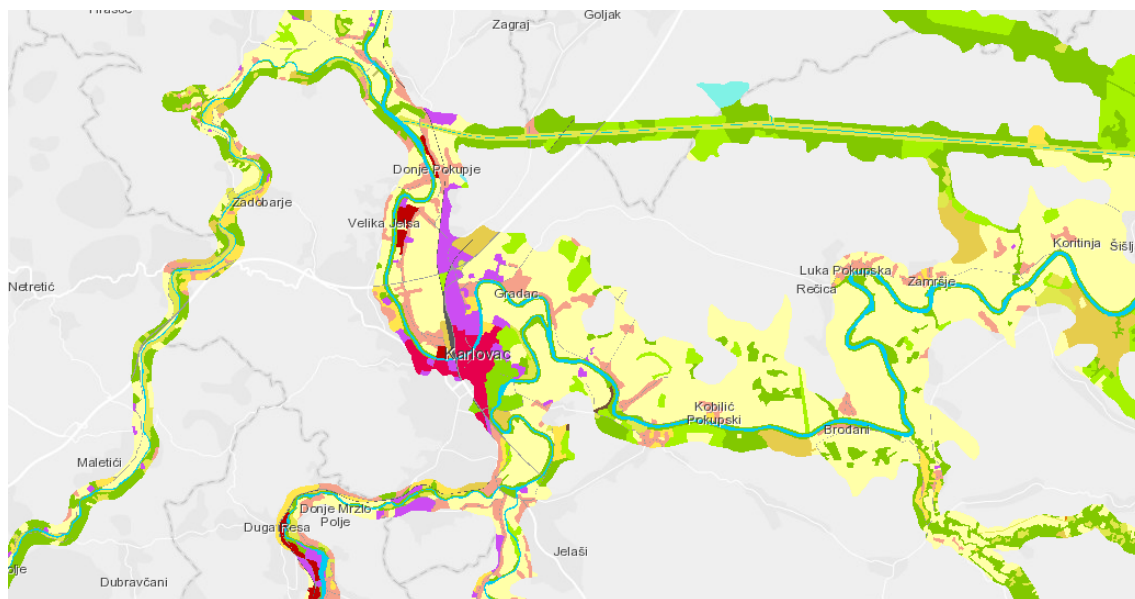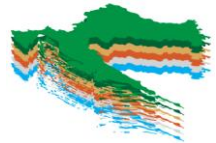
5. Lokalna komponenta
## Riparijska zona - Područja uz kopnene površinske vode

- Prijelazno područje između kopnenih i slatkovodnih ekosustava

- Osjetljiv ekosistem s nekoliko važnih funkcija

- Min. područje kartiranja je 0.5ha, a min širina kartiranja iznosi 10m
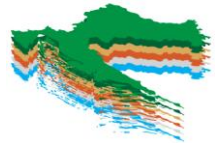
- 67 različitih klasa

5. Lokalna komponenta
Natura 2000

- Područja ekološke mreže Natura 2000 bogata travnjačkim staništima važnim za bioraznolikost

- Utvrđivanje površina travnjaka, njihovo trenutno stanje i promjene u njihovoj rasprostranjenosti tijekom vremena
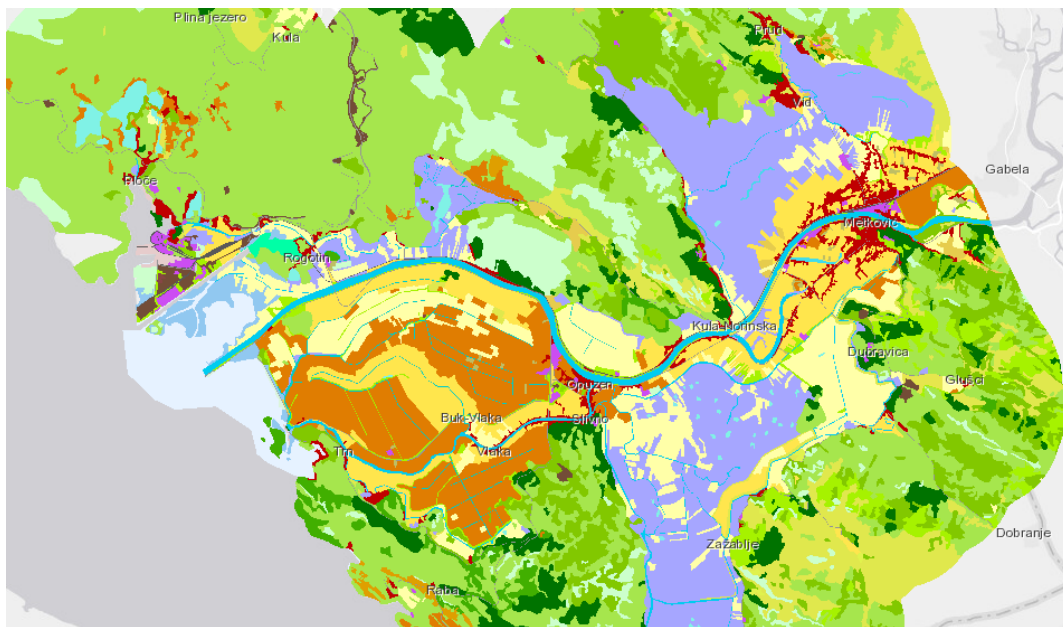
Hvala na pažnji!

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