

Accuracy assessment of supervised classification employing the MLC and RF algorithms on Sentinel2 image for the preparation of a vegetation map in the eastern part of the Republic of North Macedonia



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Department of land and water

Soil erosion

Torrent control

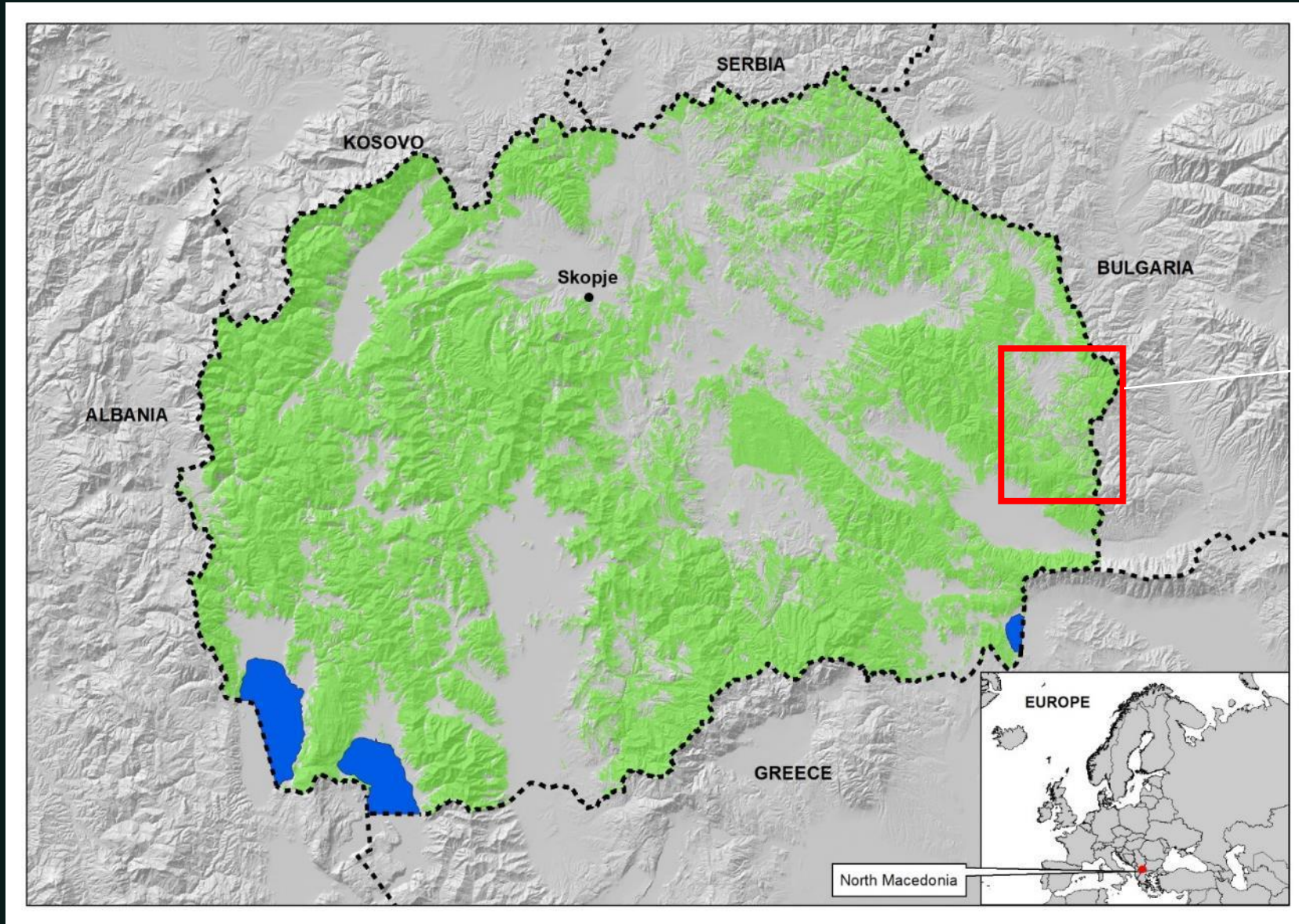
Hydrology

GIS/RS

Land Reclamation



Study area – Berovo region (scale 1:50.000)



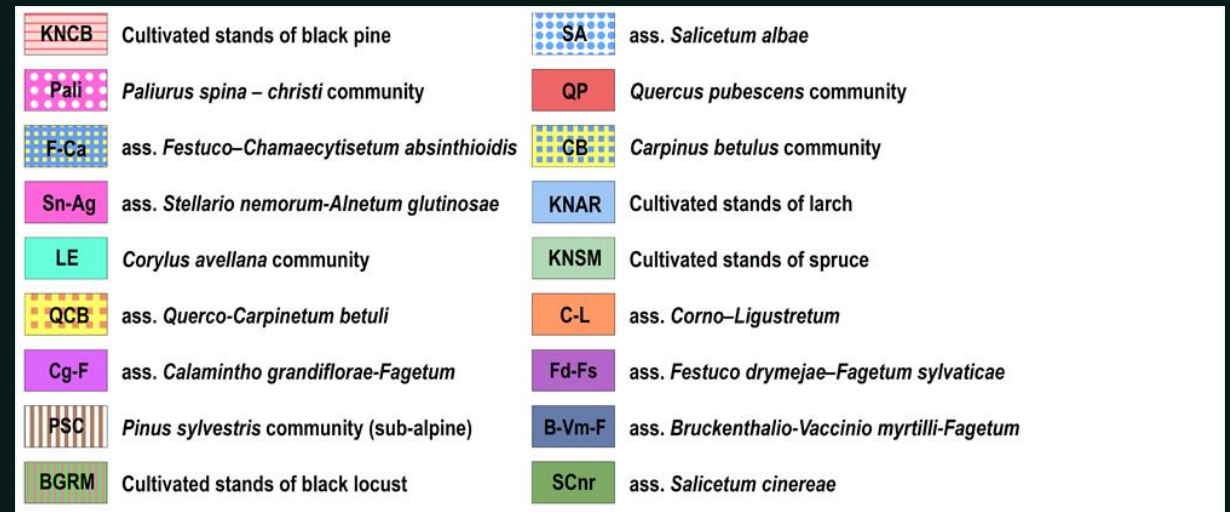
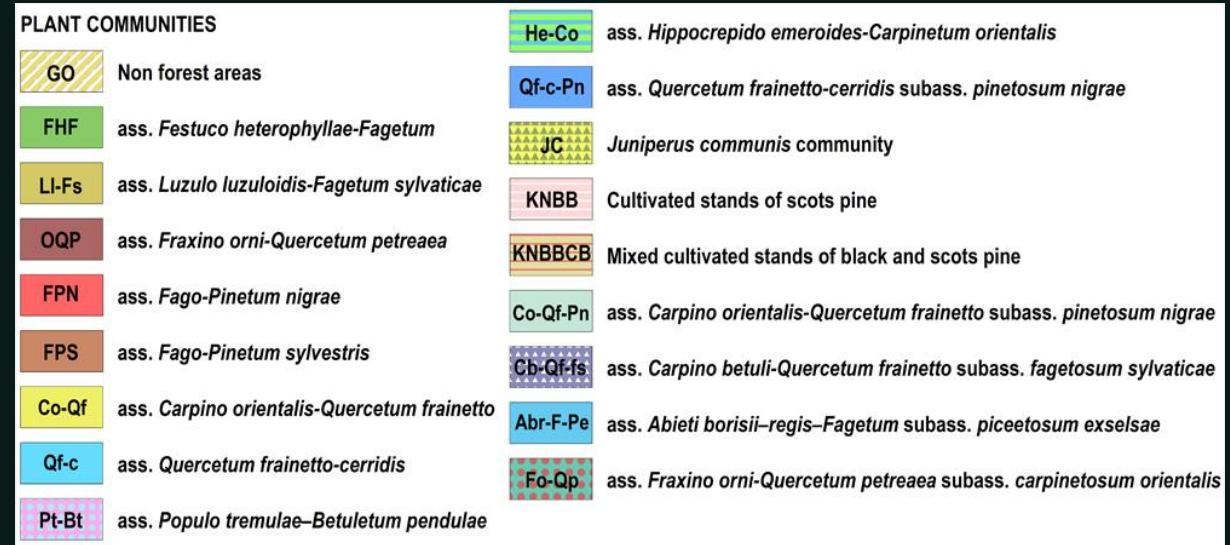
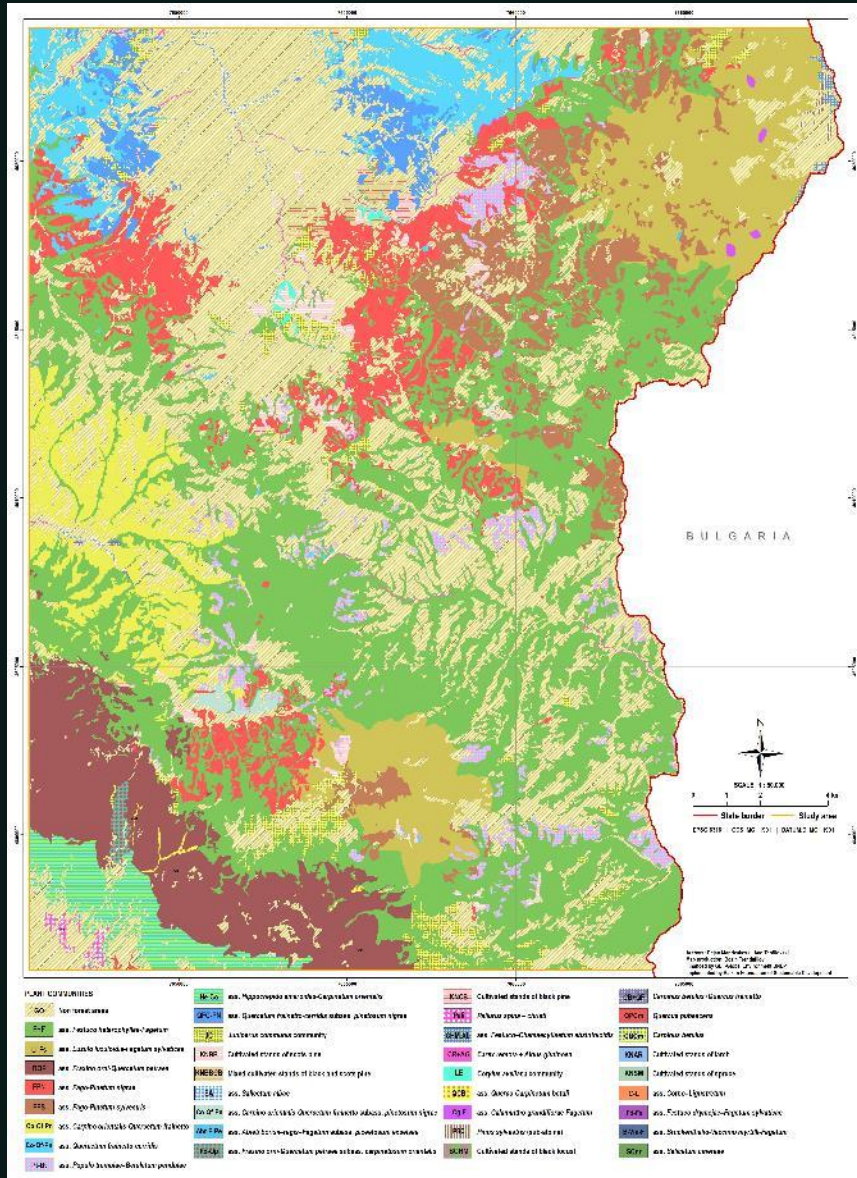
55.700 ha

Field mapping methodology

- Detailed field mapping of the section
- Phytosociological surveys (Braun-Blanquet)
- Evaluated features : quantitative characteristic (number, coverage, association), qualitative characteristic (periodicity, vitality) and synthetic properties (presence, bonding)
- 36 plant communities depicted

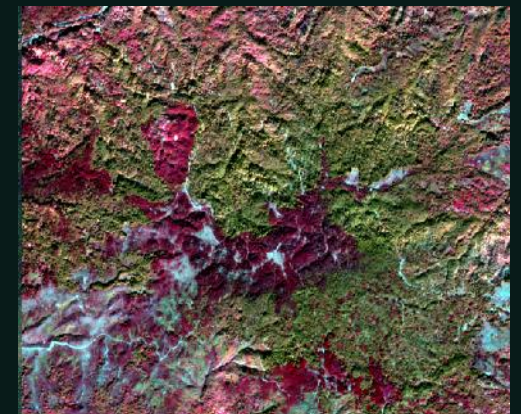
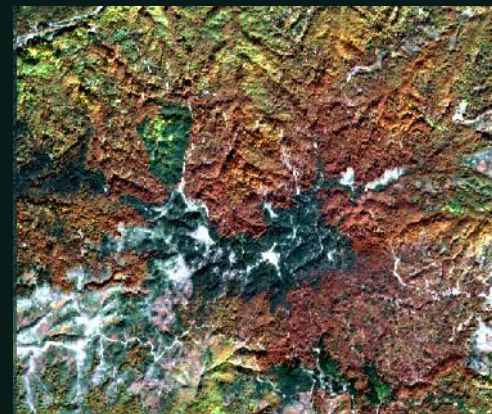


Field-mapping output (scale 1:50.000)

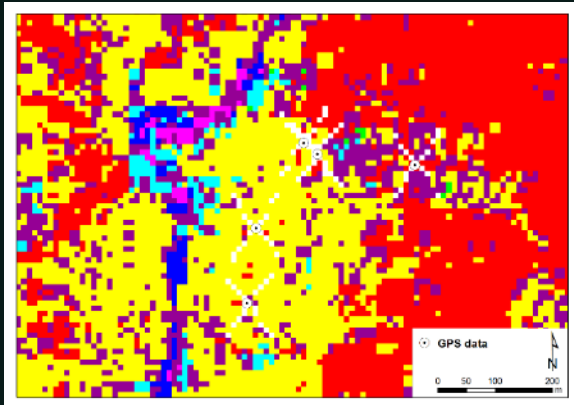


Remote Sensing methodology

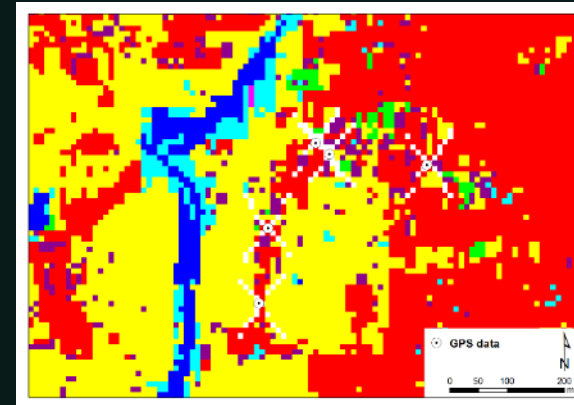
- L2A Sentinel2 image from 26th of October
- Areas of Interest based on field mapping
- Resampling, subset, reprojection (EPSG:6316)
- Random Forest (RF)
- Maximum Likelihood (MLC)
- Re-running without small communities



Supervised classification (extract)

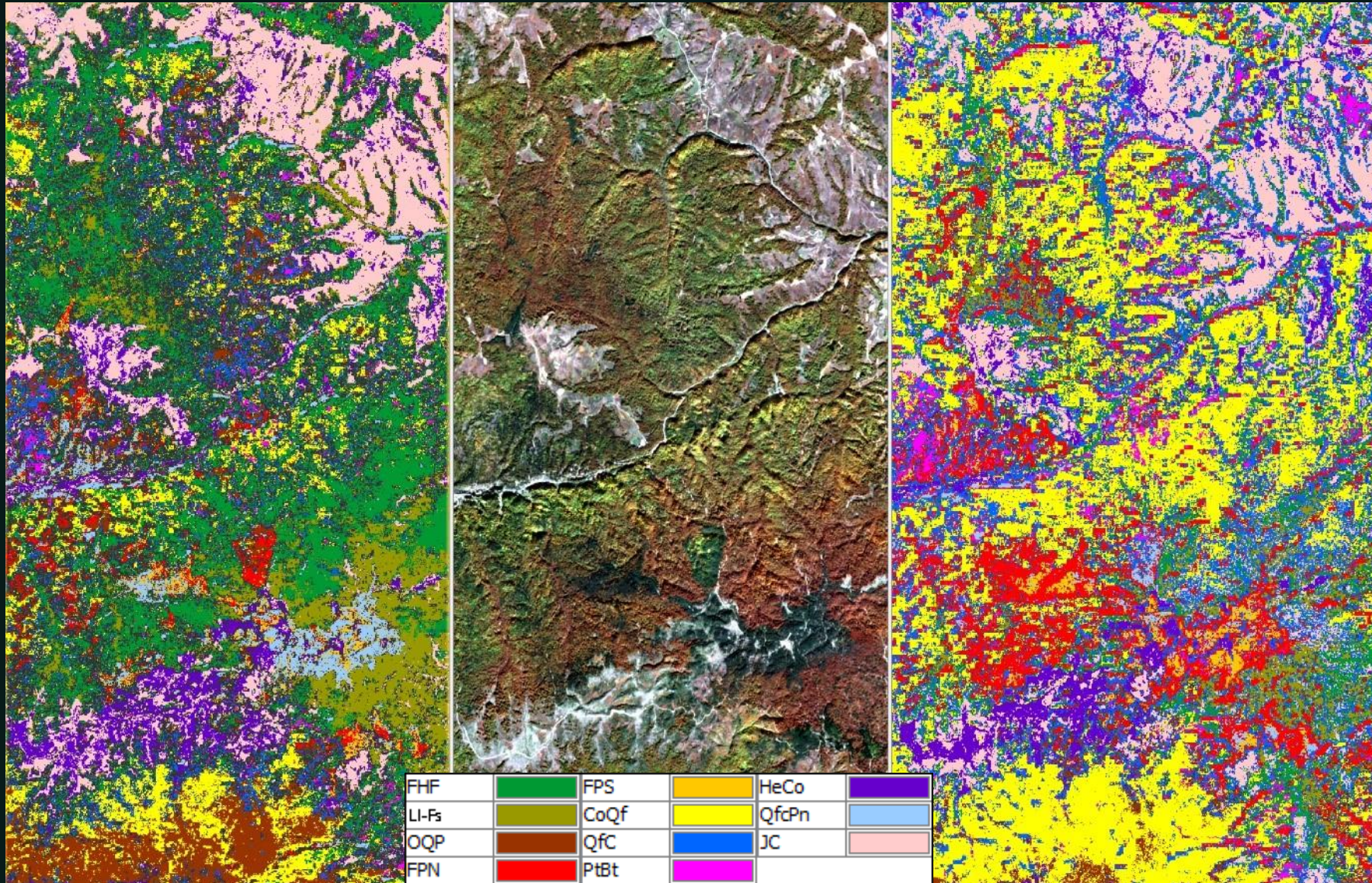


R A N D O M F O R E S T

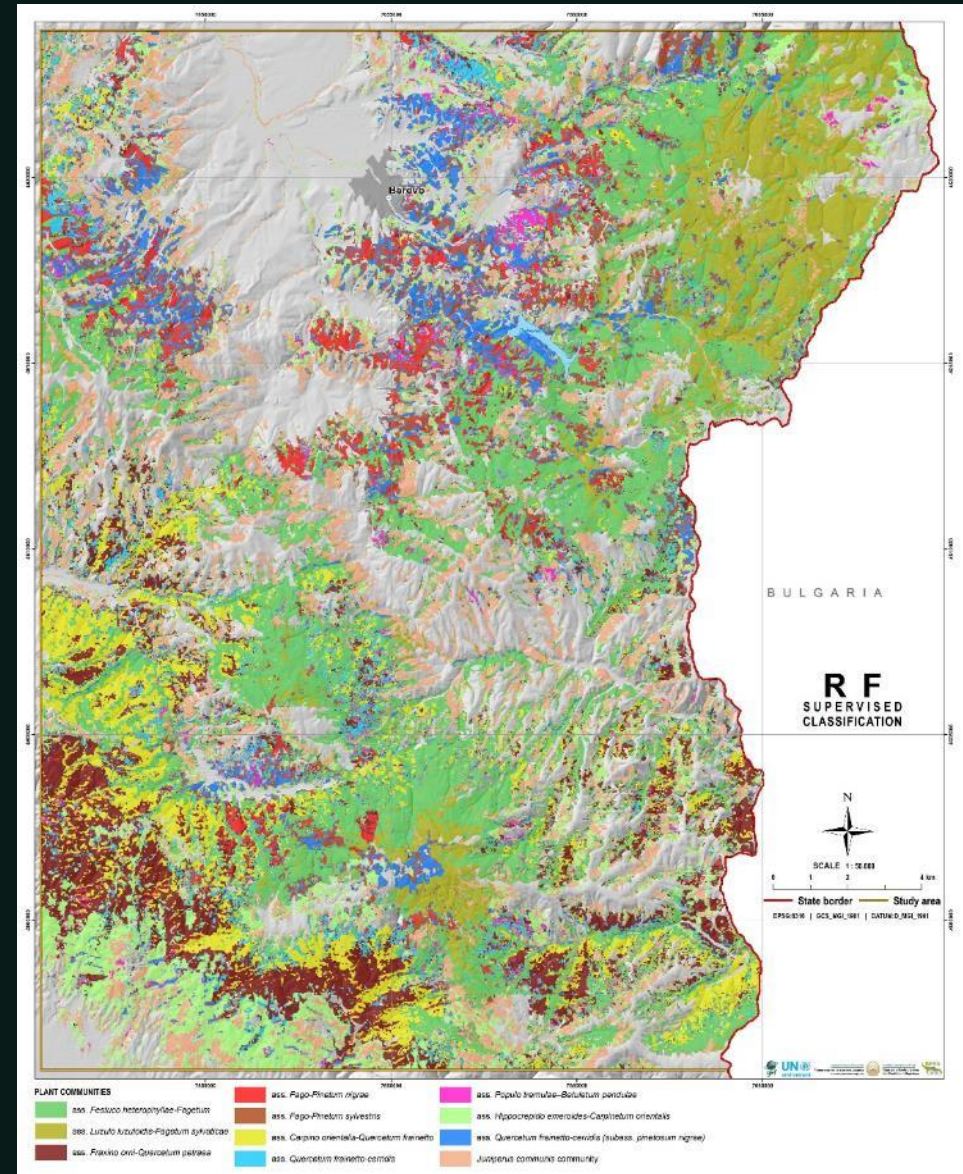
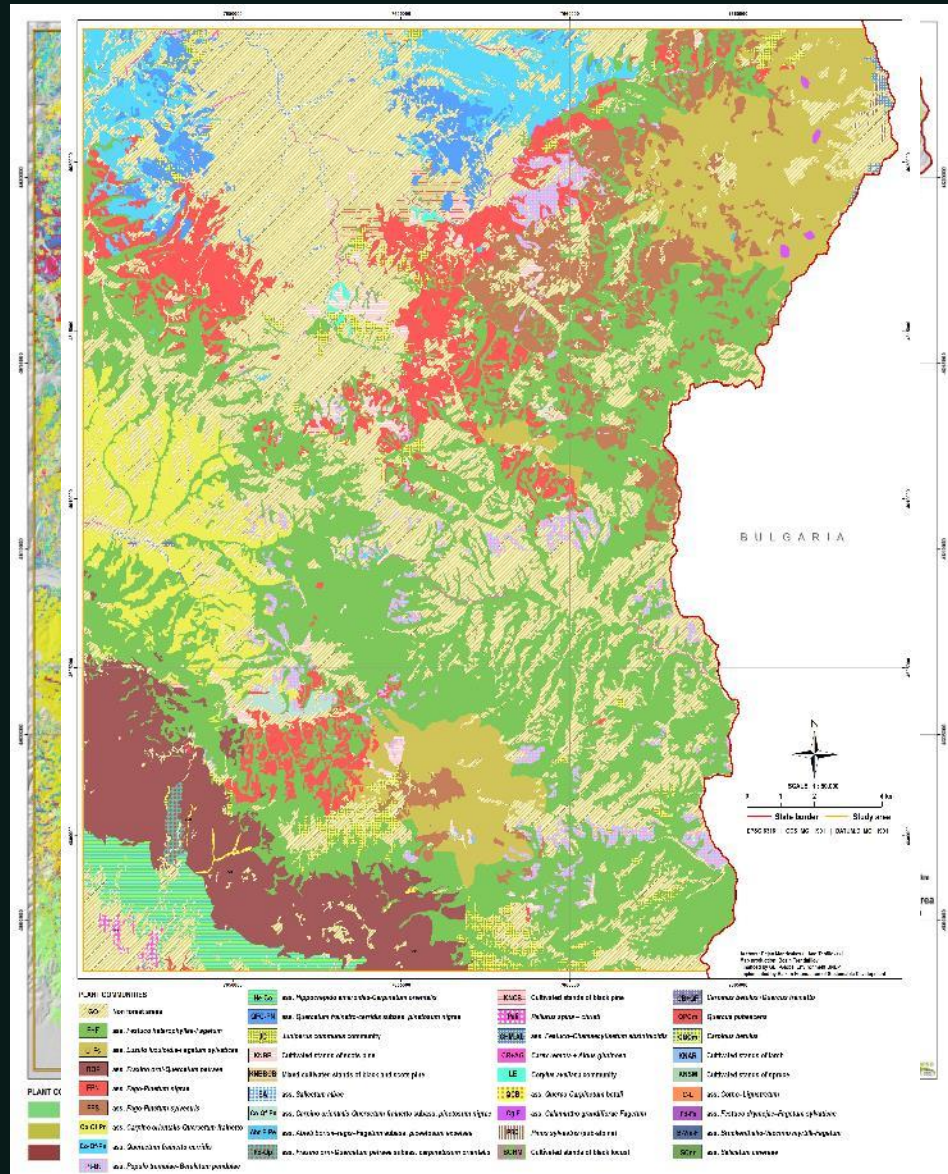


M A X I M U M L I K E L I H O O D

Supervised classification visual inspection (extract)



Vegetation Map (super. class. S2-L2A)



Vegetation Map (super. class. S2-L2A)

Label	Community:	Field surveying		RF classification		MLC classification	
		Area (ha)	%	Area (ha)	%	Area (ha)	%
FHF	ass. Festuco heterophyllae-Fagetum	16154,45	42,34	9972,81	25,21	4837,42	12,23
Ll-Fs	ass. Luzulo luzuloidis-Fagetum sylvaticae	4357,10	11,42	3836,43	9,70	1481,97	3,75
OQP	ass. Fraxino orni-Quercetum petreaea	3596,95	9,43	3789,33	9,58	991,35	2,51
FPN	ass. Fago-Pinetum nigrae	3587,79	9,40	1404,13	3,55	4076,74	10,30
FPS	ass. Fago-Pinetum sylvestris	2715,39	7,12	1598,67	4,04	685,47	1,73
Co-Qf	ass. Carpino orientalis-Quercetum frainetto	2067,90	5,42	3858,96	9,75	10265,24	25,95
Qf-c	ass. Quercetum frainetto-cerridis	1802,86	4,73	2168,50	5,48	7378,43	18,65
Pt-Bt	ass. Populo tremulae-Betuletum pendulae	1123,12	2,94	1083,12	2,74	1630,14	4,12
He-Co	ass. Hippocrepido emeroides-Carpinetum orientalis	968,22	2,54	4061,01	10,27	3787,68	9,57
Qf-c-Pn	ass. Quercetum frainetto-cerridis (subass. pinetosum nigrae)	900,35	2,36	2184,36	5,52	1178,90	2,98
JC	Juniperus communis community	878,66	2,30	5604,85	14,17	3248,84	8,21



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THANK YOU!

