

Processing start date: 2018/08/21

Processing end date: 2018/08/23

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Purpose: documentation of soils data (ESDAC) processing

Temporary file location:

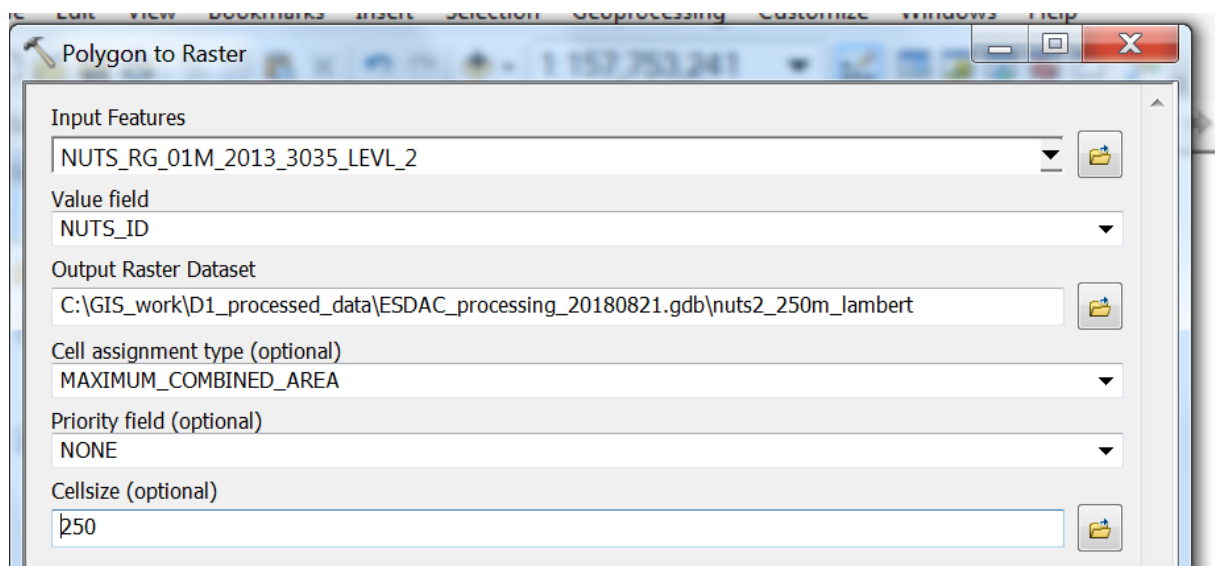
[\\uwpcluster01.uw.lu.se\mu5106sc\\$\Documents\STAGS\GIS_Data\Raw_Data_Downloads\ESDAC\](\\uwpcluster01.uw.lu.se\mu5106sc$\Documents\STAGS\GIS_Data\Raw_Data_Downloads\ESDAC\)

Data requested and obtained from JRC on 2018/08/21:

- European Soil Database Derived data
 - https://esdac.jrc.ec.europa.eu/tmp_dataset_access_req_20391
- Cover Management factor (C-factor) for the EU
 - https://esdac.jrc.ec.europa.eu/tmp_dataset_access_req_20392
- Potential threats to soil biodiversity in Europe
 - https://esdac.jrc.ec.europa.eu/tmp_dataset_access_req_20394
- Pan-European SOC stock of agricultural soils
 - https://esdac.jrc.ec.europa.eu/tmp_dataset_access_req_20413

NUTS and Ag extent processing

1. Added 'NUTS_RG_01M_2013_3035_LEVL_2.shp' to ArcMap (EPSG:3035 corresponds to ETRS 1989 in Lambert Azimutal projection with centre in E52N10, coordinates in meters – necessary to avoid datum conflict with soils data)
2. Converted to 250m raster in new file geodatabase 'ESDAC_processing_20180821.gdb'



3. Added 250m ag extent raster from processed CORINE data and calculate ag extent in NUTS2 regions

Con("nuts2_250m_lambert" > 0, 1) * "ag_extent_250m"

Output raster
C:\GIS_work\D1_processed_data\ESDAC_processing_20180821.gdb\ag_extent_250m_lambert

Output Coordinate System
Same as Layer "nuts2_250m_lambert"
ETRS89_LAEA_Europe

Geographic Transformations

Geographic Transformations Names

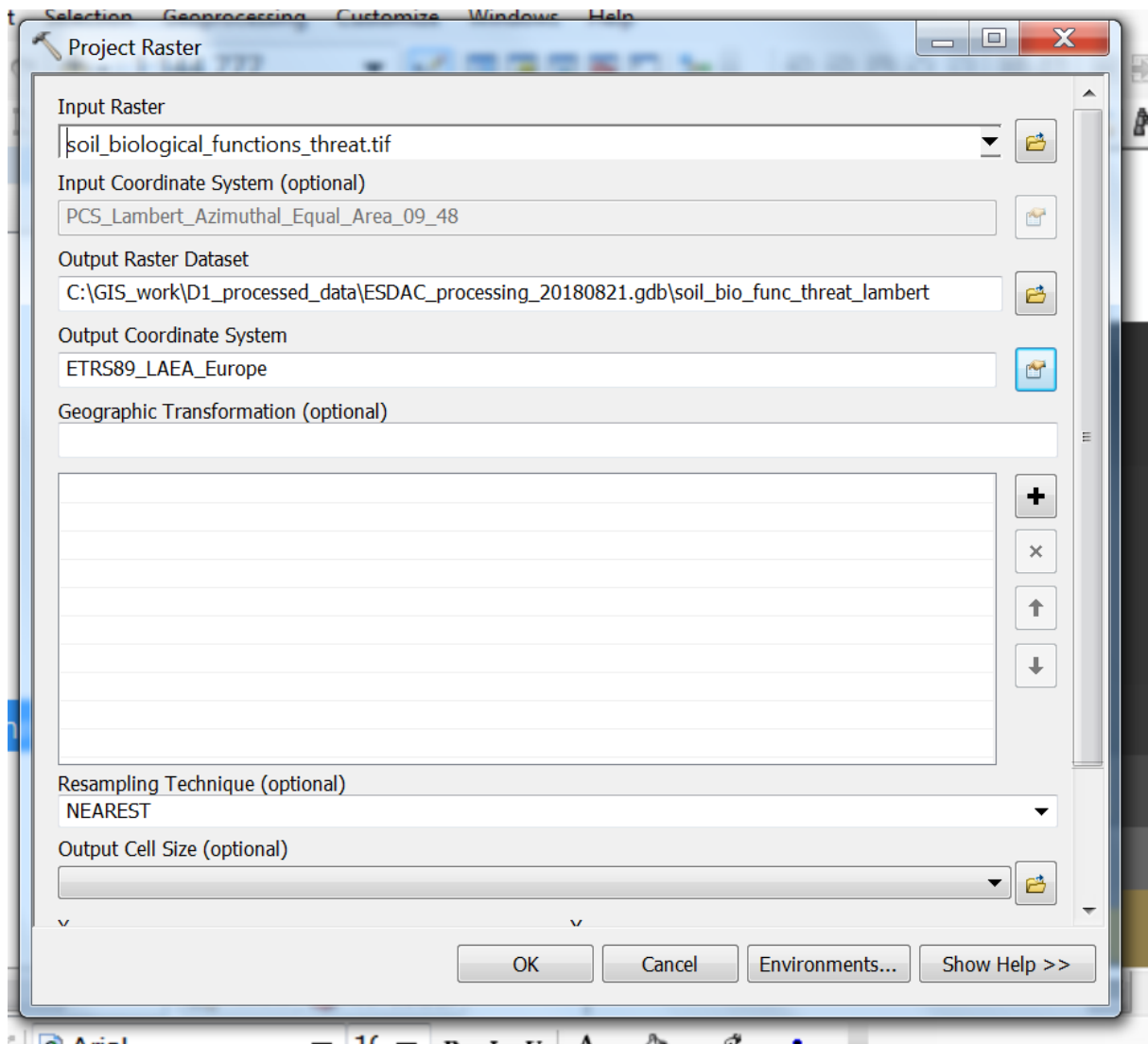
Processing Extent
Extent
Same as layer nuts2_250m_lambert

	Top	
	5416010.000000	
Left		Right
-2824432.000000		10026068.000000
	Bottom	
	-3076240.000000	

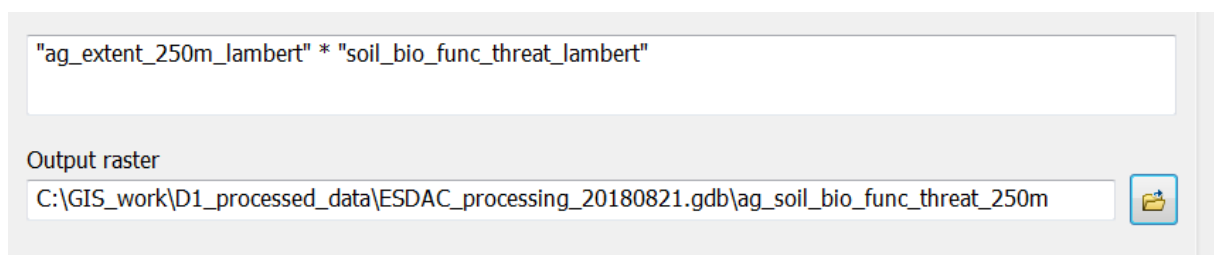
Span Raster

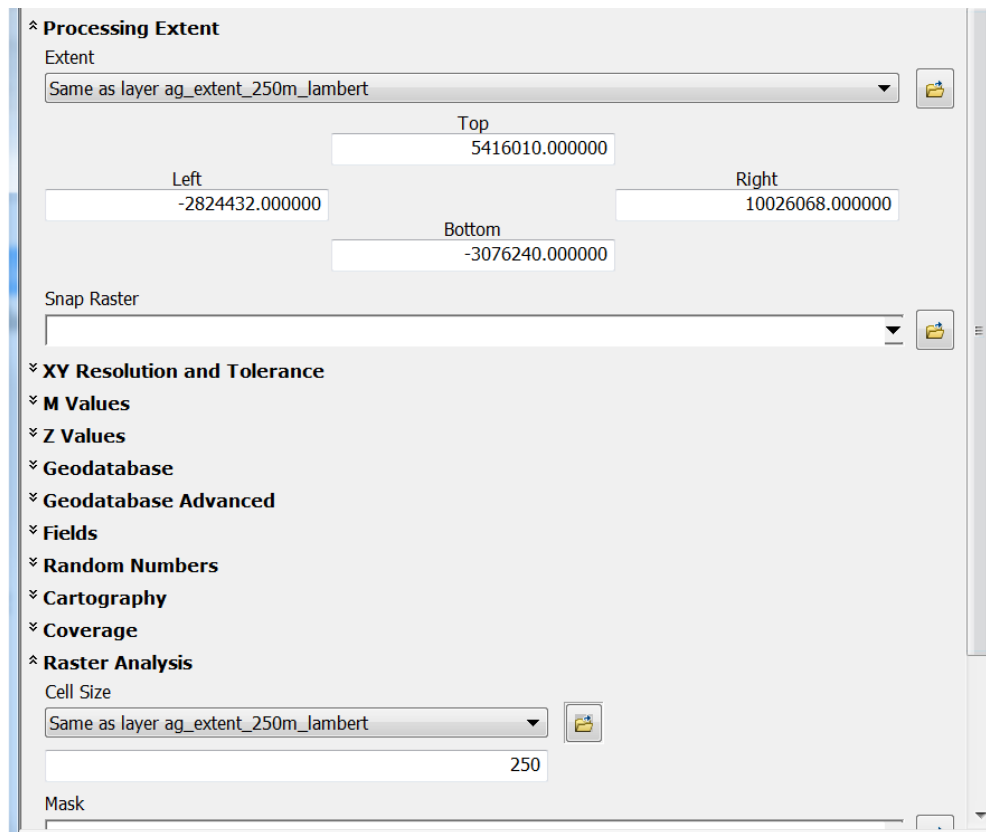
Soil biological threats data

1. Extracted data from downloaded zip
2. Added 'soil_biological_functions_threat.tif' and projected to match NUTS grid in new file geodatabase 'ESDAC_processing_20180821.gdb'



3. Calculated index for each 250m cell in ag extent raster



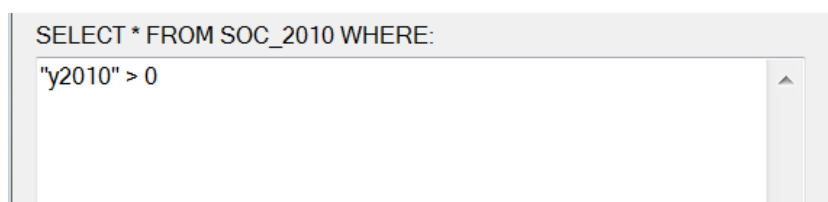


Soil Cover Factor (C-Factor)

1. Extracted Arable_NUTS2 from downloaded zip, which contains NUTS2 statistics on C-Factor and the effect of tillage, plant residues, and cover crops on C-Factor. We will use the combined tillage, plant residues, and cover crops index as a proxy for tillage and soil cover.
2. The soils data is in an old NUTS version, so will be converted to 2013 NUTS in R – see “soil_cfactor_nuts_conversion_20180822.Rmd” for code

Soil Organic Carbon stocks

1. Extracted SOC_2010.shp from downloaded zip, which contains a) [y2010] = Soil organic stock (t C ha⁻¹) in the layer 0-30 cm at 2010, b) [agr_ha] = hectares under agricultural land use. Zeros in [y2010] are not simulated (i.e., no data).
2. Exported those features with SOC > 0 (i.e., all simulated values) to the geodatabase



3. Converted new feature class to raster with cell values = y2010 and the same cell size and processing extent as the NUTS2 raster

Polygon to Raster

Input Features
SOC_2010

Value field
y2010

Output Raster Dataset
C:\GIS_work\D1_processed_data\ESDAC_processing_20180821.gdb\SOC_2010_lambert

Cell assignment type (optional)
MAXIMUM_COMBINED_AREA

Priority field (optional)
NONE

Cellsize (optional)
C:\GIS_work\D1_processed_data\ESDAC_processing_20180821.gdb\nuts2_250m_lambert

Processing Extent

Extent
Same as layer nuts2_250m_lambert

Top
5416010.000000

Left
-2824432.000000

Right
10026068.000000

Bottom
-3076240.000000

Snap Raster

XY Resolution and Tolerance

4. Extracted only values within ag extent raster

"ag_extent_250m_lambert" * "SOC_2010_lambert"

Output raster
C:\GIS_work\D1_processed_data\ESDAC_processing_20180821.gdb\ag_SOC_2010_250m

NUTS2 Summaries

1. Calculated average values of SOC stocks and soil biological threats index for each NUTS2 region

	Input raster or feature zo	Zone field	Input value raster	Output table	Ignore	Statistic
1	nuts2_250m_lambert	NUTS_ID	ag_SOC_2010_250m	C:\GIS_work\D1_processed_data\ESDAC_final_20180823.gdb\nuts2_SOC_2010_stats	true	ALL
2	nuts2_250m_lambert	NUTS_ID	ag_soil_bio_func_threat_250m	C:\GIS_work\D1_processed_data\ESDAC_final_20180823.gdb\nuts2_soil_bio_func_threat_stats	true	ALL