Field descriptors for Historic Carpathian Land Use

This document describes the dataset that contains historic land use for the Carpathians. The data file contains a total of 91935 data points, arranged in a regular 2x2 km grid. The point grid matched that of the 2007 INSPIRE directive (Infrastructure for Spatial Information in the European Community) and LUCAS (Land Use and Cover Area frame Survey. The data uses the European Terrestrial Reference System 1989 (ETRS89) Lambert Azimuthal Equal Area (LAEA) projection.

For each point, information on land cover/ land use was digitized based on military survey maps, topographic maps and Landsat image composites. The land use/land cover information is assigned to the point based on the exact cover information at the point location, not the dominant land cover within a larger area surrounding the point. For points located in Slovakia and Poland and Czech Republic, a back-dating approach in which the location of the digitized point was verified in for subsequent dates relative to nearby landmarks was used to ensure consistency in point location across map data sets. Historic data is available for three points in time: 1860s, 1930s and 1960s. In addition, data on contemporary land covers, geo-politics, environment, accessibility and population is provided at each point location from external data sources (see field descriptors).

The following description refers to the attribute table of the file **carp_historic_land_use.shp.**

Field name	**Description**
POINT_X	X Coordinate of point, in ETRS LAEA projection system
POINT_Y	Y Coordinate of point, in ETRS LAEA projection system
id_nasa	Individual code for each point, based on XY coordinate information
NUTS0	Country code, according to Nomenclature of Territorial Units for Statistics in Europe.Level 0.
NUTS1	Macroregion code, according to Nomenclature of Territorial Units for Statistics in Europe.Level 1.
NUTS2	Region code, according to Nomenclature of Territorial Units for Statistics in Europe.Level 2.
NUTS3	County code, according to Nomenclature of Territorial Units for Statistics in Europe.Level 3.
NUTS0_name	Country name, according to Nomenclature of Territorial Units for Statistics in Europe.Level 0.
NUTS3_name	County name, according to Nomenclature of Territorial Units for

	Statistics in Europe.Level 1.
NUTS2_name	Region name, according to Nomenclature of Territorial Units for Statistics in Europe.Level 2.
NUTS1_name	Country name, according to Nomenclature of Territorial Units for Statistics in Europe.Level 3.
2MM	Level 4 land use code (See land use classes legend in table below) for the period around 1860s. The digitization of this time layer is based on Second Austrian Military Survey (1819-1873) in scale 1:28.800 and on the Szathmari' Map of Romania (1864) in scale 57.600.
LC2MM	Level 1 land use code (See land use classes legend in table below) for the period around 1860s. The digitization of this time layer is based on Second Austrian Military Survey (1819-1873) in scale 1:28.800 and on the Szathmari' Map of Romania (1864) in scale 57.600.
aprox1930	Level 4 land use code (See land use classes legend in table below) for the period around 1930s. The digitization of this time layer is based on four distinct map sets: Maps of Wojskowy Instytut Geograficzny (WIG) , 1:100.000 covering the years 1919-1939, Preliminary Beneš maps and definitive Křovák maps, 1:20.000 covering years 1923-1938, the Revised Third Military Survey, German topographic maps, 1:25.000 covering the years 1923-1945 and the Topographic maps of Hungary, 1:50:000 covering the years 1940-1944.
LC1930	Level 1 land use code (See land use classes legend in table below) for the period around 1930s. The digitization of this time layer is based on four distinct map sets: Maps of Wojskowy Instytut Geograficzny (WIG) , 1:100.000 covering the years 1919-1939, Preliminary Beneš maps and definitive Křovák maps, 1:20.000 covering years 1923-1938, the Revised Third Military Survey, German topographic maps, 1:25.000 covering the years 1923-1945 and the Topographic maps of Hungary, 1:50:000 covering the years 1940-1944.
aprox1960	Level 4 land use code (See land use classes legend in table below) for the period around 1960s. The digitization of this time layer is based on Soviet and National Military Maps from the Cold War period at scales 1:25.000 and 1:50.000 and covering the years 1949-1983.
LC1960	Level 1 land use code (See land use classes legend in table below) for the period around 1960s. The digitization of this time layer is based on Soviet and National Military Maps from the Cold War period at scales

	1:25.000 and 1:50.000 and covering the years 1949-1983.
year_2MM	Exact year for the 1860s time layer, based on the date inscribed on the map sheet containing the point. Range 1819-1873
year_1930s	Exact year for the 1930s time layer, based on the date inscribed on the map sheet containing the point. Range 1919-1944.
year_1960s	Exact year for the 1960s time layer, based on the date inscribed on the map sheet containing the point. Range 1949-1983.
uncert_2MM	Uncertainty for the land use data in the 1860s time layer. Points are labeled as certain (signature = 0) or uncertain (signature = 1). The default is that all points are certain.
uncert1930	Uncertainty for the land use data in the 1930s time layer. Points are labeled as certain (signature = 0) or uncertain (signature = 1). The default is that all points are certain
uncert1960	Uncertainty for the land use data in the 1960s time layer. Points are labeled as certain (signature = 0) or uncertain (signature = 1). The default is that all points are certain
srtm_elev	Elevation of point, based on SRTM elevation model at 90m resolution. extracted from (Farr et al. 2007). Unit of measurement: m
srtm_slope	Slope of point, based on SRTM elevation model at 90m resolution. extracted from (Farr et al. 2007). Unit of measurement: degrees
temp	Annual mean temperature in C*10 at point location, based on WORLDCLIM database (Hijmans et al. 2005). Spatial resolution is aprox. 1km
precip	Annual precipitation at point location in mm, based on WORLDCLIM database (Hijmans et al. 2005). Spatial resolution is aprox. 1km
crop_si	Crop suitability index at point location based on FAO Global Agro-Ecological Zones, expressed in % at aprox 8km spatial resolution.(“Global Agro-Ecological Zones (GAEZ v. 3.0)” 2014)
grow_ss	Length of growing season at point location, based on FAO Global Agro-Ecological Zones, expressed in days, at aprox. 8km spatial resolution. (“Global Agro-Ecological Zones (GAEZ v. 3.0)” 2014)
acc_50k	Accessibility to nearest 50k inhabitants town. Travel time is given in minutes for each point location at about 1km spatial resolution (Nelson 2008).
NEAR_mcity	Euclidean distance to nearest major city, given in km.

NEAR_settl	Euclidean distance to nearest settlement, given in km.
NEAR_road	Euclidean distance to nearest road, given in km.
NEAR_borde	Euclidean distance to nearest contemporary border, given in km.
NEAR_rail	Euclidean distance to nearest major railroad, given in km.
NEAR_river	Euclidean distance to nearest river, given in km.
pop90	Population count at point location for year 1990 based on gridded population of the world data at 5km resolution. (CIESIN (Center for International Earth Science Information Network) et al. 2005)
FT1985	Forest type at point location for year 1985 based on Landsat image composites at 30m resolution (Griffiths et al. 2014). 0=no forest, 1=coniferous forest, 2=mixed forest, 3=deciduous forest, 4=unknown forest type, 256=no data.
FT2010	Forest type at point location for year 2010 based on Landsat image composites at 30m resolution (Griffiths et al. 2014). 0=no forest, 1=coniferous forest, 2=mixed forest, 3=deciduous forest, 4=unknown forest type, 256=no data.
LC1985_4cl	Major land cover type at point location for year 1985 based on Landsat image composites at 30m resolution, reconstructed from (Griffiths et al. 2013, 2014). 0=no data, 2=agriculture, 3=grassland, 4=forest, 9=other.
LC2000_4cl	Major land cover type at point location for year 2000 based on Landsat image composites at 30m resolution, reconstructed from (Griffiths et al. 2013, 2014). 0=no data, 2=agriculture, 3=grassland, 4=forest, 9=other.
LC2010_4cl	Major land cover type at point location for year 2010 based on Landsat image composites at 30m resolution, reconstructed from (Griffiths et al. 2013, 2014). 0=no data, 2=agriculture, 3=grassland, 4=forest, 9=other.

Land use classes legend and nomenclature for historic land uses (1860, 1930, 1960): The legend is hierarchical and classes are mutually exclusive. When possible to do so accurately, classes were assigned at the highest level of detail possible. Subclasses/ more detailed levels were be used only where information was certain.

Level 1	Level 2	Level 3	Level 4	Observation
1 Urban/				Continuous urban,

	Built-up						discontinuous urban, industrial sites, airports Does **not** include linear features such as roads or railroads.
2	**Agriculture**	21	Seasonal agriculture				Including irrigated crops
		22	Perennial agriculture	221	Orchards		
				222	Vineyards		
3	**Grassland and shrubs**	31	Meadows and pastures	311	Meadows	**3111**	**Wet Meadow**
						3112	**Dry Meadows**
				312	Pastures	**3121**	**Wet Pastures**
						3122	**Dry Pastures**
		32	Wooded pastures and shrubs				Wooded pastures, transitional areas and shrubs
		33	Dwarf pine				Shrub vegetation in mountainous areas above timber line
4	**Forest**	41	Deciduous forest				
		42	Mixed forest				
		43	Evergreen forest				
5	**Wetlands**	51	Reed				
		52	Peat bogs & mires				
6	**Water**	61	Standing waters				Linear features are given the class around them, only water courses
		62	Water courses				

								represented on the map as **surface** are classified as such.
7	**Bare land**	71	Natural rock	711	Solid rocks			
				712	Sand			
		72	Quarries					
8	**Unidentified**							Illegible information on the map
9	**No data**							Areas of missing data (eg.no map)
10	**Agriculture or grassland**					**9999**	**Agriculture or grassland**	For these points, no decision could be made whether they were used for ag or grass.

Please use following citations for additional information on data processing:

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Other references, used to extract data to the point grid:

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