

INSPIRE Pure Land Cover Components

inspire_dataspecification_lc_v3.0.pdf

(<http://inspire.ec.europa.eu/id/document/tg/lc>, accessed 22.01.2021 – including corrigendum)

001_Artificial constructions:

All types of artificial man-made constructions with a sealed surface. It includes

- roof covered buildings (residential, commercial, industrial, transportation (train stations and airport terminals) etc.)
- other artificial constructions (e.g. dams, water sewage plants, power plants, dump sites)
- linear constructions (e.g. railway network, road networks).

It would exclude surfaces formed by bare surfaces (rock, sand, soil) under anthropogenous influence (e.g. quarries) or other man-made artificial vegetation covers (parks/gardens).

002_Consolidated bare surface:

Any type bare surface, formed by natural material and with a solid surface. It also may have been modified through man-made processes like on extraction sites.

It includes

- solid rock surface or hard pan without any further coverage of loose material
- quarries, extraction sites of rock formations.

It would exclude artificial solid surfaces like concrete or asphalt areas as part of any man-made infrastructures, which ought to be placed under *001_Artificial constructions*. Consolidated surface neither does contain salt surface due to water evaporation, which instead is placed under *013_Chemical deposits* (see below).

003_Unconsolidated bare surface:

Any type of bare unvegetated surface, formed by natural loose materials resulting from physical sedimentary processes (fluvial, littoral, glacial/periglacial, aeolian, gravitative slope processes etc.)

It includes

- boulders, scree, pebbles, sand, silt, clay
- any kind of mixture of the above mentioned compartments (e.g. glacial moraines)
- also semi-natural areas, with a character of fallow land apparently out of use and lacking vegetation cover.

It may also contain very sparse vegetation spots; however, sparse vegetation cover should generally be modeled as a combination of one or more vegetated components (PLCC *006 - 012*) and bare surfaces (PLCC *002, 003 or 013*).

It would exclude Bare soil in agricultural areas, which would be part of *004_Arable Land* (see below).

004_Arable land:

Land Cover Component strongly characterized by the aspect of land use. Agriculture has always been a category difficult to describe only from a pure land cover point of view as it is characterized by regular alternation of bare soil and crop cover.

It includes

- herbaceous crops (e.g. gramineae, different types of cereals, corn, wheat, barley, etc.)
- forbs (e.g. potatoes, tomatoes, strawberries, hop etc.)
- also bare soil in arable land, which is only temporarily uncovered with crop plants.

005_Permanent woody and shrubby crops:

Any type of multi-annual or permanent crop with woody or shrubby character. Usually a kind of planting pattern can be recognised.

It includes

- any type of fruit trees plantation (apple, cherry, nuts, oranges etc.)
- mixed fruit tree growing in an orchard pattern
- olive trees
- vineyards
- berry plantations and shrubs
- tree nurseries

It would exclude hop plantation, because only the structure of the planting is permanent, but not the crop itself, which belongs to 004_Arable Land.

006_Coniferous forest trees:

It includes coniferous trees, both deciduous (e.g. the larch) and evergreen species. Dwarf trees along the tree line (where habitat climate conditions have restricting influence on the growth form of trees) in mountainous or polar regions are considered here also as trees, not as shrub.

007_Broadleaved forest trees:

Any type of broadleaved trees. It may include also palm trees or other non-coniferous tree species. Dwarf trees along the tree line (where habitat climate conditions have restricting influence on the growth form of trees) in mountainous or polar regions are considered here also as trees, not as shrub.

008_Shrubs:

Any type of vegetation with woody character (ligneous stem) and with a growth form and height between herbaceous and trees. This class also includes dwarf shrubs (e.g. Erica spp.) making up heath vegetation.

009_Herbaceous plants:

All types of gramineous and forb vegetation.

It would exclude annual gramineous vegetation as crop type (cereals, corn, grains, etc.), which is placed under 004_Arable Land.

010_Lichens and mosses:

All types of Lichens and Mosses. Mainly they would appear in habitats with restricted growing conditions for other plant species like low temperature, lacking of sunlight, very high soil moisture, or very dry conditions etc.

Mostly they would grow in association with other vegetation types. Applying this code list, it is therefore most likely to combine them with other PLCC, other than in polar or alpine regions where it can make up homogenous land cover.

011_Wetlands and marshes:

All types of wetland, which is under the influence of very high soil moisture due to high ground water level, high precipitation rates, due to frequent flooding and/or presence of surface water, which is shallow enough to allow vegetation cover over ground. This LC component makes no difference regarding the geographic location of the marshland.

It includes

- inland marshes (fresh or salt water)
- coastal salt marshes

Marshland is wet by definition and can stand alone. However, it does not give precise information by itself about the kind of present vegetation cover but describes instead the growing condition. Therefore it should be combined with some other LC components, e.g. Herbaceous. Also it is possible to add explicitly water as a contributing layer, which indicates that the marsh contains not only water-saturated soil but is also most of the time or regularly covered with surface water (either salty, brackish, or fresh). Most marshes are covered with herbaceous plants, but it is also possible to include shrubs or trees as part of the vegetation cover by using the referring PLCC 006 - 010.

It would exclude occasionally flooded land, which by its character belongs to other landscape types and besides the temporal presence of surface water it cannot be classified as marshland.

012_Organic deposits (peatland):

Peat is a type of organic soil composed of incomplete decayed organic material because of lack of oxygen due to water saturated ground, which leads to stepwise accumulation of biomass. The frequency of peatland is greatest in regions with very humid climate, where the precipitation is much higher than the evaporation. Mire vegetation is adapted to the harsh conditions, for example with low content of oxygen in water and often rather acid soil.

Peatland is likely to be covered on its surface with vegetation,. In most cases the peat surface itself is not visible on the imagery, but instead the typical vegetation cover which is adapted to the habitat conditions of peatland. Similar to Marshes it describes the growing conditions of vegetation on the

spot. Therefore it is considered to be a separate PLCC, which is best to be used in combination with other vegetation PLCCs.

It includes

- bogs (ombrotrophic) and fens (minerotrophic),
- bare peat with no vegetation cover on surface.

This PLC component can also be combined with *011_Wetland and marshes* (to express the water saturation) or with other vegetations PLC components *006 - 010*.

013_Chemical deposits:

Complementary to the organic deposit this is the category that contains all kinds of deposits/sediments, which result from chemical processes like evaporation of salt water with residuals due to mineral crystallization processes. No differentiation is made between natural and man-made chemical deposits.

It includes

- naturally occurring salt surface
- salines (for oceanic salt extraction)
- other crystalline loose chemical residuals (e.g. lime, gypsum, soda etc.) not yet having the character of solid geological stone formation.

014_Intertidal flats:

Typical transitional zone between the average high tide and low tide sea water line. It is under tidal influence and mostly covered with sand or fine alluvial mud/sea ooze on the ground, being twice a day covered and uncovered with water.

It includes

- coastal intertidal mud flats (salt water)
- intertidal zone along river estuaries.

It would exclude areas with occasionally exposed sea bottoms, caused by other conditions than tide (air pressure or water level variation due to heavy winds, e.g. in the Baltic Sea). They belong to the area of open sea water.

015_Fresh water course:

Any type of inland fresh water courses with linear character and/or principally flowing water. It includes

- Rivers and Streams; under different water regimes: perennial, periodic/seasonal, episodic/irregular; under low or high seasonal variation of water level; with various water course shapes like natural/braided river, controlled/regulated/channeled rivers
- Channels (purely artificial) for navigation or irrigation purpose.

016_Fresh water bodies:

Any type of inland water bodies, which have a still character. It includes

- natural lakes and ponds,
- water reservoirs (e.g. for drinking water supply, energy production, irrigation, fire extinction etc.)

No distinction is made between natural lakes and man-made retaining water bodies.

017_Salt or brackish water:

Any kind of salty or brackish water surface, regardless of geographical location or distribution.

It includes

- open sea water,
- coastal lagoons (salt or brackish),
- salty or brackish estuary zones of river mouths,
- inland salt or brackish water (e.g. in areas of geothermal activities or salty steppe lakes where evaporation is higher than water inflow.)

018_Permanent snow and ice:

It includes

- glaciers
- snow fields, which do not melt during warm summer period in between two winter seasons.