Centre for
Ecology & Hydrology
NATURAL ENVIRONMENT RESEARCH COUNCIL

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Land Cover Map
Product Version – Level 2 and 3 – Vector

File format : ESRI ArcView shapefile.

Parcel information: Each parcel carries a string of Attributes, as follows:
Attributes :

			Present in Level 2	***Present in Level 3***
	SegID	Unique identifier code for each segment showing OS 100km square and sequential segment number. e.g. TQ005232 (alphanumeric string).	☐	☐
	BHSub	Dominant land cover type for each segment as a hierarchical code. (WidespreadBH.LCMSubclass) e.g. 17.2 (float).	☐	☐
	BHSubVar	Dominant land cover type for each segment as a hierarchical code (WidespreadBH.LCMSubclass.Variant).e.g. 17.2.1 (numeric delimited string)	X	☐
	PerPixList	Per pixel list by percentage area, of the top five spectral subclasses within the segment e.g.Ab_a,65:Ab_b,20:Aw_c,10:Gi_b,4:Us_c,1 (alphanumeric delimited string) *A code list is provided with the dataset.*	X	☐
	OpHistory	Descriptor detailing the processing history of each segment including image date(s) and numbers of KBC rules applied. e.g.11:4:0:0:0:0 (alphanumeric delimited string) *See next page for an explanation of these descriptors.*	☐	☐
	TotPixels	Total number of pixels within the segment. (Integer)	☐	☐
	CorePixels	Total number of pixels within the core area of the segment used to perform the maximum likelihood classification. (Integer)	☐	☐

OpHistory Attribute

The process history descriptor (PHD) is found on each segment. The PHD is made up of five fields containing information about the input data and the various stages of classification, knowledge-based correction (KBC) and final data set compilation. The sixth field covers other information.

Field   1 : 2 : 3 : 4 : 5 : 6

Example   4 : 70 : 0 : 1 : 1 : E

Field number key:

1. **Scene number.** An integer number defining the area, section of the UK, within which the segment was originally classified and had phase 1 KBC applied. This number will identify the input image data (see chart following) and any scene dependent processing such as KBC and per-pixel attaching. A value of 0 will indicate a segment that has been created and / or labelled outside the standard LCM2000 production flowline, for instance, voids in the data set within lakes that are filled manually, and missing data replaced by LCMGB 1990 data.

2. **Spectral probability.** An integer number derived from the probability of the top choice spectral subclass (or the sum of the probabilities within the top Broad Habitat if a probability aggregation rule has been applied [see field 3]) multiplied by 100. It gives a summary of how close the spectral information from the segment was to that of a widespread Broad Habitat, but does **not** indicate accuracy.

3. **Probability aggregation flag.** An integer number to show whether the probability aggregation rule has been applied in phase 1 KBC. A value of 0 signifies that no probability aggregation was applied; a 1 signifies that probability rules were applied.

4. **Phase 1 KBC rules.** An integer number to show the number of phase 1 (scene dependent) KBC rules applied, excluding those related only to re-coding and probability aggregation.

5. **Phase 2 KBC rules.** An integer number of phase 2 (UK wide) KBC rules applied.

6. **A single character flag** identifying other situations:
   - E : Eroded during data set merging into 100km squares;
   - G : Grown during data set merging into 100km squares;
   - I : Intertidal data derived from per-pixel classification;
   - H : A void filled manually;
   - K : A segment used to train the classifier;
   - L : Data from LCMGB 1990;
   - Q : A land parcel with questionable quality due to haze in original data;
   - R : Training information 'rolled over' from an adjoining area.

Subclasses and their code numbers, Level 2 dataset.

LCM Subclasses	Class Number, LEVEL 2
Sea / Estuary	22.1
Water (inland)	13.1
Littoral rock	20.1
Littoral sediment	21.1
Saltmarsh	21.2
Supra-littoral rock	18.1
Supra-littoral sediment	19.1
Bog	12.1
Dwarf shrub heath	10.1
Open dwarf shrub heath	10.2
Montane habitats	15.1
Broad-leaved woodland	1.1
Coniferous woodland	2.1
Arable cereals	4.1
Arable horticulture	4.2
Non-rotational horticulture	4.3
Improved grassland	5.1
Setaside grass	5.2
Neutral grass	6.1
Calcareous grass	7.1
Acid grass	8.1
Bracken	9.1
Fen, marsh, swamp	11.1
Suburban/rural developed	17.1
Continuous Urban	17.2
Inland Bare Ground	16.1

Total - 26 Target/Subclasses

Broad Habitats (BHs)

1. Broad-leaved, mixed and yew woodland	Broad-leaved, in stands > 5 m high with tree-cover > 20%; or scrub < 5 m and yew woodland with cover >30%. Mixed woodland is included if broadleaved trees in conifers cover > 20%. Stands ≥ 0.5 ha are mapped as separate blocks.
2. Coniferous woodland	Coniferous woodland, semi-natural and plantations, with cover > 20%, and recently felled forestry. Once felled areas are colonised by rough grass, heath or scrub, they take that class.
3. Boundaries and linear features	Larger linear features such as shelter belts or motorways; smaller linear features (hedges, walls, smaller roads) are only recorded by the field survey.
4. Arable and horticulture	Annual crops, recent leys, freshly ploughed land, rotational setaside, and perennial horticulture crops such as berries and orchards. Once setaside is substantially vegetated with weeds or rough grass, it is included in the Improved grassland Habitat.
5. Improved grassland	Improved grasslands in swards dominated by agriculturally 'preferred' species, generally 'improved' by reseeding and/or fertilizer treatment. May be used for agriculture or amenity. Fertile pastures with *Juncus effusus* are included. Setaside grass is included but, where possible, distinguished at the subclass level; abandoned or little-managed Improved grasslands may be confused with semi-natural swards.
6.Neutral grassland 7.Calcareous grassland 8. Acid grassland	Acid, neutral and calcareous semi-natural swards are generally not reseeded or fertilizer treated; they are dominated by lower productivity grasses, perhaps with many herbs. Grassland management may obscure distinctions from Improved grassland. Neutral, calcareous and acid components are distinguished at subclass level using a soil 'acid sensitivity' map. Pastures with *Juncus effusus* and with semi-natural spectral-characteristics are included with acid swards.
9. Bracken	The bracken Habitat is, at the height of the growing season, dominated by *Pteridium aquilinum.* Where images pre-date the late growing season, or where stands are dissected, bracken may be missed.
10. Dwarf shrub heath	Ericaceous species and gorse forming > 25% of plant cover; open and dense heaths are divided at subclass level. The Habitat includes wet and dry categories but ericaceous vegetation on peat ≥ 0.5 m deep is recorded as 'bog'. In contrast, LCMGB 1990 used a definition based on presence of seasonal standing water.
11. Fen, marsh and swamp	Vegetation which is permanently, seasonally or periodically waterlogged. Swamps, fens and flushes are seldom extensive enough to map from satellite images. Rush pastures are more extensive. The category does not include fertile pastures with *Juncus effusus.*
12. Bog	Bogs include ericaceous, herbaceous and mossy vegetation in areas with peat >0.5 m deep; ericaceous bogs are distinguished at subclass level. Inclusion of Ericaceous bogs contrasts with LCMGB 1990 where bogs were herbaceous or mossy in seasonal standing water.
13. Standing open water and canals 14. Rivers, streams	Water bodies ≥ 0.5 ha are mapped, but only the wider canals and rivers (>50 m) are shown. LCM2000 does not distinguish standing from flowing water.
15. Montane Habitats	Prostrate dwarf heath, sedge and rush, moss heaths and snow bed communities. Limited access during field reconnaissance may limit the accuracy of distinctions.
16. Inland rock	Natural and man-made bare ground, including waste tips and quarries
17. Built-up areas and gardens	Urban land, rural development, roads, railways, waste and derelict ground, including vegetated wasteland, gardens and urban trees. In LCM200, all larger areas of vegetation (≥ 0.5 ha) are identified as the appropriate cover class. Continuous urban and discontinuous suburban cover are distinguished at subclass level.
18. Supra-littoral rock 19. Supra-littoral sediment	Supra-littoral Habitats, created by coastal processes of erosion and/or accretion, lie above mean high water spring tides; distinction used a maritime mask. Separation of sediment rock and sediment was at subclass level, through spectral and interactive processing
20. Littoral rock 21. Littoral sediment	Littoral Habitats lie below mean high water spring tides in a zone defined by a maritime mask. Rocks and sediments were separated at subclass level by semi-interactive processing. Littoral rocks are generally limited in extent; sediments may be extensive. Saltmarsh is included with Littoral sediments, but as a separate subclass.
22. Inshore sublittoral sediment.	Areas of sea and estuary are assumed to be inshore and with sublittoral sediment. Thus 23. Inshore sublittoral rock, 24. Offshore shelf sediment, 25. Offshore shelf rock, 26. Continental shelf slope, and 27. Oceanic seas are not distinguished in LCM2000.