The Habitats in Caithness

by

Ken Butler

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This is a catalogue of the ecological habitats in Caithness based upon the European catalogue system EUNIS. It is intended to cover all the habitats that might be encountered in the county.

Cover photograph: *A dubhloch on a peat moor. Habitat C1*

The Habitats in Caithness

Introduction

Biodiversity is about the species to be found in particular habitats. The linkage between species and habitats is vital to the sensible study of biodiversity. This document provides a classification of habitats in the county of Caithness.

There are four recognised systems of habitat classification in the UK.

The first was the UK Broad Habitats classification which defined 21 habitats applicable to biodiversity. There are several acknowledged shortcomings in the system, the main one for Caithness being the lack of refinement of upland habitats and peatlands.

Next there is the Phase 1 habitat classification which has 10 broad categories into which 155 specific habitats can be fitted. It would be quite suitable for application to Caithness.

A much more sophisticated system is the National Vegetation Classification. It is based on recognising combinations of plant species and there are 286 combinations to sift through to arrive at a diagnosis. It requires a high level of botanical skill and does not work faultlessly in the far north where key species may not be present because the location is beyond the natural range of that species.

The European Nature Information System EUNIS is a pan-European system intended to cover all types of natural and man-made habitats. It is multi-level and capable of sub-division to adapt to local features. Recognition of a habitat is by local features so it is easy to apply without the need for botanical or ecological skills.

Walker, K.J. et al. (2010) have discussed in detail the best modern approach to habitat classification and have recommended to the JNCC that the European classification EUNIS be adopted for habitat surveying in the UK. Although it is not certain (in June 2013) that this recommendation will be accepted, the EUNIS classification has been adopted in this study. The relevant parts of the classification, taken 2 levels down, is shown in Table 1 and the interpretation of each habitat is given in the relevant section of the text. The interpretation is based on the guidance document by Davies et.al. 2004.

The habitats can be sub-divided by bringing in the next layer of classification using the guidance in Davies et al. (2004).

The author will be grateful for feedback from users to help make improvements or clarifications.

Table 1 European Habitat Classification Applied to Caithness land surface	Notes
A – Marine habitats	
A1 - Littoral rock & other hard substrata	
A2 – Littoral sediment	
A3 – Infra-littoral rock	
B – Coastal habitats	
B1 – Coastal dunes & sandy shores	
B2 – Coastal shingle	
B3 – Rock cliffs, ledges and shores	
C – Inland Surface Waters	
C1 – Surface standing waters	
C2 – Surface running waters	
C3 – Littoral zone of inland surface waters	
D – Mires, Bogs & Fens	
D1 – Raised and Blanket bogs	
D2 – Valley mires, poor fens & transition mires	
D4 – Base-rich fens & calcareous spring mires	
D5 – Sedge & reedbeds (no free water)	
D6 – Inland brackish marshes	
E – Grasslands and others	
E1 – Dry grasslands	
E2 – Mesic grasslands	
E3 – Wet grasslands (not waterlogged)	
E4 – Alpine & subalpine grassland	
E5 – Woodland fringes & clearings	
F – Heathland and scrub	
F3 – Temperate scrub (not ericoid)[incl. gorse]	
F4 – Temperate scrub (ericoid)	
F9 – Riverine & fen scrub	
FA – Hedgerows	
FB – Shrub plantation	
G – Woodland and others	
G1 – Broadleaved deciduous woodland	
G3 – Coniferous woodland	
G4 – Mixed Broadleaved & Coniferous woods	
G5 – Lines of trees etc.	
H – Inland unvegetated habitats	
H2 – Screes	
H3 – Inland cliffs, outcrops & rock pavement	
H5 – Miscellaneous inland bare habitats	

I Regularly or recently cultivated habitats	
I1 – Arable land	
I2 – Cultivated areas of parks & gardens	
J Constructed, industrial & other land	
J1 – Buildings of town & village	
J2 – Low density buildings	
J3 – Extractive industrial sites	
J4 – Transport networks & hard surface areas	
J5 – Artificial waters & associated structures	
J6 – Waste deposits	

Marine Littoral Rock Habitat A1

Interpretation of the habitat: The seashore usually consisting of wave-washed Old Red Sandstone pavement which is usually cracked and stepped. Also includes large rock pieces lying on the shore. Small rock pieces are Coastal Shingle Habitat B2.

Marine Littoral Sediment Habitat A2

Interpretation of the habitat: Sandy and muddy tidal shores including lower part of beaches (up to the driftline) and the seaward shoreline part river estuaries. It does not include the driftline or above the driftline, both of which belong to habitat B1

Marine Infra-littoral Rock Habitat A3

Interpretation of the habitat: rocky shore above the tidal strand-line and below any agricultural fencing or roadside structures. Thus it is a zone of dry or wet rock exposed to strong influences of sea spray and wind from the sea. It is also influenced by emerging groundwater from the rock face.

Coastal Dunes and Sandy Shores Habitat B1

Interpretation of the habitat: Generally at the head of a bay where tide and wave action is quiet so that a supply of beach sand is available to be wind-blown into dunes and dune links or other sandy grassland. The habitat is often close to machair (habitat B1.9 which is defined as windblown sand over peat) or alternatively close to stable coastal dune grassland (habitat B1.4) where the substrate is not peat. This is a major habitat in Caithness and worthy of subdivision into three parts –beaches above the driftline - sand dunes – machair/dune links.

Coastal Dunes and Sandy Shores (Sandy beaches at and above the driftline) Habitats B1.1 and 1.2

Interpretation of habitat: Sandy beach at and above the driftline up to the point of dense grassy cover or agricultural fence (or other change such as a rock outcrop). B1.1 is the diftline and B1.2 is above the driftline.

Coastal Dunes and Sandy Shores (Shifting Coastal Dunes) Habitat B1.3

Interpretation of habitat: dunes with sparse grass cover except marram, with unstable steep slopes and bare sand areas.

Coastal Dunes and Sandy Shores (Machair / Coastal stable dune grassland) Habitats B1.4 and 1.9.

Interpretation of habitat: Level ground behind dunes or behind lower beach features which has a vegetation of low herbs and a soil dominated by wind-blown sand . It may or may not have a substrate of peat. B1.4 is a sandy turf on a rock base and B1.9 is a sandy turf on a peat base.

Coastal Shingle Habitat B2

Interpretation of habitat: Shingle involves stones small enough to be moved by waves of typical scale not just by unusual storms. In shingle they are the dominant substrate of the shore. A shore dominated by larger stones which move rarely is a Littoral Rock habitat A1.

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Rock Cliffs, Ledges and Shores Habitat B3

Interpretation of habitat: The area above the driftline up to the point where it is no longer strongly influenced by sea spray . The shore can be a rock cliff largely bare of vegetation, a clay till cliff usually well vegetated, a tall herb grassland or a low herb grassy vegetation.

Surface Standing Waters Habitat C1

Interpretation of habitat: Lochs, ponds, pools and dubh lochs. The water is permanent or only dries out for a short period. The surface is still or wind-blown into waves but it is not running water in which the flow is a significant factor in the habitat. Typically a loch or large pond can have small burns feeding in and a spillway feeding out without disturbing the overall stillness of the habitat. It does not include the marginal plants area which is part of Habitat C3.

Surface Running Waters Habitat C2

Interpretation of habitat: Rivers, burns, springs with perceptible flow.

Littoral Zone of Inland Water Bodies Habitat C3

Interpretation of habitat: Shore lines of lochs, river banks, margins of ponds, beds of seasonally dry pools. Note that extensive (more than 10m wide) reed beds or fens or marshes are best consigned to habitat D5, while shallow pools less than 10m wide qualify for this habitat, C3.

Raised and Blanket Bogs Habitat D1

Interpretation of the habitat: Bogs for which the source of water is predominantly rainwater directly and the rainwater is retained in the bog due to poor drainage, a hollow in the impermeable rock substrate or similar reason. It excludes bogs caused by springs or run-off from other ground. Pools and dubhlochs greater than 10m across the narrowest part count as open water C1.

Valley Mires, Poor Fens and Transition Mires Habitats D2

Interpretation of the habitat: These are habitats where peat is formed at the water surface and spreads out across the water. Valley mires are contained by the local rock formation and fed by the water in transit through the valley plus local ground water. Poor fens are acid flushes on slopes fed by local springs and flushes with a vegetation of sphagnum and small sedges. Transition mires are rafts of floating peat which are more extensive than just at a loch margin.

Base-rich Fens and Calcareous Spring Mires Habitat D4

Interpretation of the habitat: Base-rich fens are usually on a shallow basin in the Old Red sandstone fed by the base-rich groundwater passing through that rock, giving rise to a tall herb vegetation. We shall call this D4.1a. Calcareous spring mires arise as small areas where the base-rich groundwater emerges as a spring in a deep peat locality creating a green herb rich circle in a peat moor. We shall call this D4.1b.

Sedge and Reed Beds Habitat D5

Interpretation of the habitat: Marshes with very wet ground but not with pools of open water. They can be sub-divided into:

Habitat D5.1 Dominated by Common Reed *(Phragmites australis)*

Habitat D5.2 Dominated by large sedges such as *Carex paniculata*

Habitat D5.3 Dominated by rushes such as *Juncus effusus*

Inland Brackish Marshes Habitat D6

Interpretation of the habitat: Marshes which have both a freshwater supply and (usually periodic) a saline water supply such that there is a permanent mildly saline content in the soil. Typically they are around the tidal limit of a river or a sea spray zone on a clifftop.

Dry Grassland Habitat E1

Interpretation of the habitat: Only small areas of dry grassland occur on very well drained soil such as atop a large rock or on soil-covered scree on steep slopes.

Mesic Grassland Habitat E2

Interpretation of the habitat: The most frequent grassland of Caithness growing on clay soil in normal levels of rainfall and sufficiently drained that it is not frequently flooded. It is usually adapted for agriculture either as grazing pasture or re-seeded after ploughing for crop production. Grassland infested with bracken belongs here.

Wet Grassland Habitat E3

Interpretation of the habitat: Seasonally or permanently wet grassland but not permanently waterlogged. On clay soil it will grow tall herbs and may be used for rough grazing to suppress the vigorous growth. Soft rush clumps is a good indicator of this type of ground. Permanently waterlogged ground is Group D habitats.

Alpine and Sub-alpine Grassland Habitat E4

Interpretation of the habitat: There are no places in Caithness with long snow lie so are all sub-alpine. The range includes acid grassy places in mountains, stony fell-field on mountain plateaux and more base-rich montane grassy places, but excludes wet flushes which are D2 or D4.

Woodland Fringes and Clearings Habitat E5

Interpretation of the habitat: In any type of natural or planted woodland this refers to clearings and fringes which are characterised by a sufficient lack of tree cover that light levels are higher and soil nutrient levels are closer to the norms of the area.

Temperate Scrub (not ericoid) Habitat F3

Interpretation of habitat: The commonly encountered form is gorse scrub in which there is sufficient invasion of the grassland that light levels are reduced and a degree of shelter from wind is provided. Note that it can be Common Gorse *Ulex europaeus* or Welsh Gorse *Ulex gallii* as both are introduced alien species frequently encountered.

Temperate Scrub (ericoid) Habitat F4

Interpretation of habitat: Much of the drier heathland, covered in dominant heather, comes under this category. The underlying peat should not be permanently saturated (a footprint should not flood immediately).

Riverine and Fen Scrub Habitat F9

Interpretation of habitat: There are two distinct habitats in the county that come under this category. The river valley can often have a scrubland of small immature trees and shrubs of a non-ericoid type such as hazel, birch, willow , alder or juniper arising because the valley banks are of steep unstable till which is mineral-rich. This is Habitat F9.1 Riverine scrub. A different habitat occurs where the inland fens (Habitat D4.1a above) carry a willow or alder carr and become Habitat F9.2 *Salix* carr and fen scrub.

Hedgerow Habitat FA

Interpretation of habitat: Typically a linear planting of hawthorn or beech and includes a ground layer up to 1 metre wide on either side of the planting. The hedgerow is regularly trimmed to keep it as a shrubby line. It is still a hedgerow if there are occasional trees in the line. However a hedge that has been allowed to grow into an irregular line of trees becomes a Line of Trees Habitat G5

Broadleaved Deciduous Woodland Habitat G1

Interpretation of the habitat: Woodland contains a majority of mature trees. Deciduous woodland contains few conifers except for juniper which may be a natural undershrub. The naturally frequent trees in Caithness are birch, ash, aspen, alder or hazel. The habitat includes the tree canopy layer, the undershrub layer and the ground layer.

Coniferous Woodland Habitat G3

Interpretation of habitat: There are no natural coniferous woodlands in Caithness so the category contains only the planted woodlands. The woodlands planted in the 1970's and later are too immature to be naturalised. Older woods e.g. Dunnet forest, are slowly taking on natural character.

Mixed Deciduous and Coniferous Woodlands Habitat G4

Interpretation of the habitat: There are no natural mixed woodlands in Caithness so planted woodlands are the only items in this category. Policy woodlands such as Achvarasdale belong here. Any plantings older than 50 years will have taken on some of the character of this habitat

Lines of Trees etc. Habitat G5

Interpretation of the habitat: This is a category for man-made boundaries and windbreak shelter-belt in which the thickness of the line is not sufficient to alter the character from that of the surrounding land and only a local microclimate is developed.

Screes Habitat H2

Interpretation of the habitat: Deep layers of frost-shattered rock usually at the bottom of an inland cliff or similar weathered rock feature so that the layer is deep enough to harbour a primitive rooting medium for plants. It excludes seashore fragmented rock (Habitat B2 perhaps) and mountainside high scree (Habitat E4 perhaps) and industrial scree from mining and quarrying (Habitat J3 perhaps).

Inland Cliffs, Outcrops and Rock Pavements Habitats H3

Interpretation of habitat: Sites where bare rock is exposed without thick soil overlay. There is often some soil or vegetation root-mat on the site. Cliffs are close to vertical rock faces; outcrops are steep enough that soil cover is washed away and areas of bare rock show; pavement is close to horizontal yet bare rock is exposed for some reason.

Miscellaneous Inland Bare Habitats H5

Interpretation of the habitat: Section H is about bare rock as a habitat. This category is a catch-all for any situations where rock is exposed but it does not fit in the categories above. Man-made exposures and linear boundary features involving bare natural bedrock fit here.

Arable Land Habitat I1

Interpretation of habitat: Land in use for arable farming which has been ploughed and is in current cultivation, or was in recent years, so that only annual plants and fast-spreading weeds of cultivation are present.

Cultivated Areas of Parks and Gardens Habitat I2

Interpretation of the habitat: This category covers bare soil situations in parks and private gardens in which a variety of alien plants may be growing currently or have grown in recent years. It excludes grassland areas of parks and gardens.

Buildings of Town and Village Habitat J1

Interpretation of the habitat: The actual buildings including roof slates, gutters, wall surfaces and insides.

Low Density Buildings Habitat J2

Interpretation of habitat: Areas with scattered buildings but not much hard surface between them so that waste ground is soft. Includes camp sites, industrial sites such as Scrabster fish processing area, Dounreay. Sea walls are included here but not harbours.

Extractive Industrial Sites Habitat J3

Interpretation of the habitat: This applies to slate quarries and stone crushing quarries as well as sand quarries.

Transport Networks and Hard Surface Areas Habitat J4

Interpretation of the habitat: This applies to the hard surface areas of harbour quays, railway stations and bus termini. Also roads, car parks.

Artificial Waters and Associated Structures Habitat J5

Interpretation of the habitat: Mill ponds and races, water reservoirs, boating ponds, quarry holes and similar features.

Waste Deposits Habitat J6

Interpretation of the habitat: Waste tips such as Seater, disused tips such as at Thurso golf course, filled quarry holes such as Castletown. It does not include pure quarry waste piles which are habitat J3.

References

Walker, K.J., Dines, T., Hutchinson,N. & Freeman,S. 2010. Designing a New Plant Surveillance Scheme for the UK. JNCC report no. 440. JNCC, Peterborough.

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