

Durham Biodiversity Action Plan

Priority habitat definitions

WOODLAND HABITATS

Native Hedgerows

Identification & Mapping

A hedgerow is defined as a line of trees or shrubs over 20m long and less than 5m wide, provided that at one time the trees or shrubs were more or less continuous. (from UK Steering Group on Hedgerows, published in English Nature's Hedgerow Survey Handbook).*

A native hedgerow is defined here as one in which over 80% of the woody plants are native species.

A hedgerow tree is an isolated tree, of whatever species, age or origin, which has been deliberately or incidentally allowed to grow within a native hedgerow.

Condition Assessment

Follow DEFRA's Hedgerow Survey Handbook (Appendix 9) which combines measures of height, width, integrity, nutrient enrichment and other factors.*

*** DEFRA (2007) Hedgerow Survey Handbook** – A standard procedure for local surveys in the UK. Prepared on behalf of the Steering Group for the UK. DEFRA, London.

Ancient Semi-Natural Woodland (including PAWS)

Identification & Mapping

Ancient woodland includes all woodland sites with evidence of continuous wooded cover since 1600 AD. The definition includes Planted Ancient Woodland Sites (PAWS).

Planted Ancient Woodland Sites (PAWS) are woodland sites which contain evidence of former ancient woodland, or for which there is recorded evidence of former ancient woodland, and which have subsequently been planted with coniferous or broadleaved trees.

There is a current inventory of ancient woodlands (and PAWS) over 2ha in extent. There are known to be inaccuracies in this inventory and further work is planned to revisit these sites and update the inventory.

In addition to these definitions, rare native woodland stands types of relevance to the Durham BAP will be further defined at a later stage, but will broadly follow the National Vegetation Classification (Rodwell). These stand types are subject to current and ongoing inventory work.

Condition Assessment

There is a standard condition assessment for Ancient Woodlands (JNCC 2004*)

There will be a baseline for condition for all sites surveyed, but it will be difficult to repeat this work regularly. For sites recorded in unfavourable condition, records of current positive interventions will give the site 'recovering' status.

***JNCC, (2004)** *Common Standards Monitoring Guidance for Woodland*, Version February 2004, ISSN 1743-8160

Other Broadleaf Woodland

Identification & Mapping

This priority habitat encompasses all woodland which is not ancient (established since 1600), and which contains predominantly broadleaf species. This includes plantation as well as semi-natural or secondary woodland.

Mature broadleaf woodland dominated by non-native broadleaf species such as sycamore and beech are important in the context of the Durham BAP area and are included in this definition, however all new plantation relating to targets for this priority habitat should be of native species.

It should be noted that native but non-broadleaf species such as yew and juniper can be important components of this priority habitat.

An important exclusion to this definition, however, is of broadleaf plantation woodland which has been planted, inappropriately, on another DBAP priority habitat, or on land which would have met the definition of another DBAP priority habitat in the previous 30 years.

Condition Assessment

Because of the large extent of this resource and the difficulty of measuring its condition overall, the extent of this habitat which is in active management (as measured by statistics from Forestry Commission grant schemes) will be taken to indicate the extent in good condition.

Wet Woodland

Wet woodland occurs on poorly drained or seasonally wet soils, usually with alder, birch and willows as the predominant tree species. It is found on floodplains, as successional habitat on fens and bogs, along streams and hill-side flushes, and in peaty hollows. In terms of the National Vegetation Classification it includes a wide range of communities from W1 to W8.

Identification & Mapping

For the purposes of mapping, parcels meeting the above description should be mapped as Wet Woodland in addition to either Other Broadleaf Woodland or Ancient Semi-Natural Woodland.

Condition Assessment

No condition assessment has been defined for this habitat

Scrub

There is no overall target set for the extent or condition of Scrub, and as a large scale transitional community it is difficult to map. However, for the purposes of this plan a coastal strip has been defined as a 500m buffer from the coast (mean high water), within which the cover of scrub will be monitored. A target has been set for the extent of scrub within this coastal strip.

Identification & Mapping

Scrub is comprised of scattered or dense stands of naturally regenerated locally native tree and shrub species, generally under 5m tall.

Condition Assessment

No condition assessment has been defined for this habitat

NOTE: Scrub which meets one of the following definitions is recognised by Natural England as being of high environmental value.

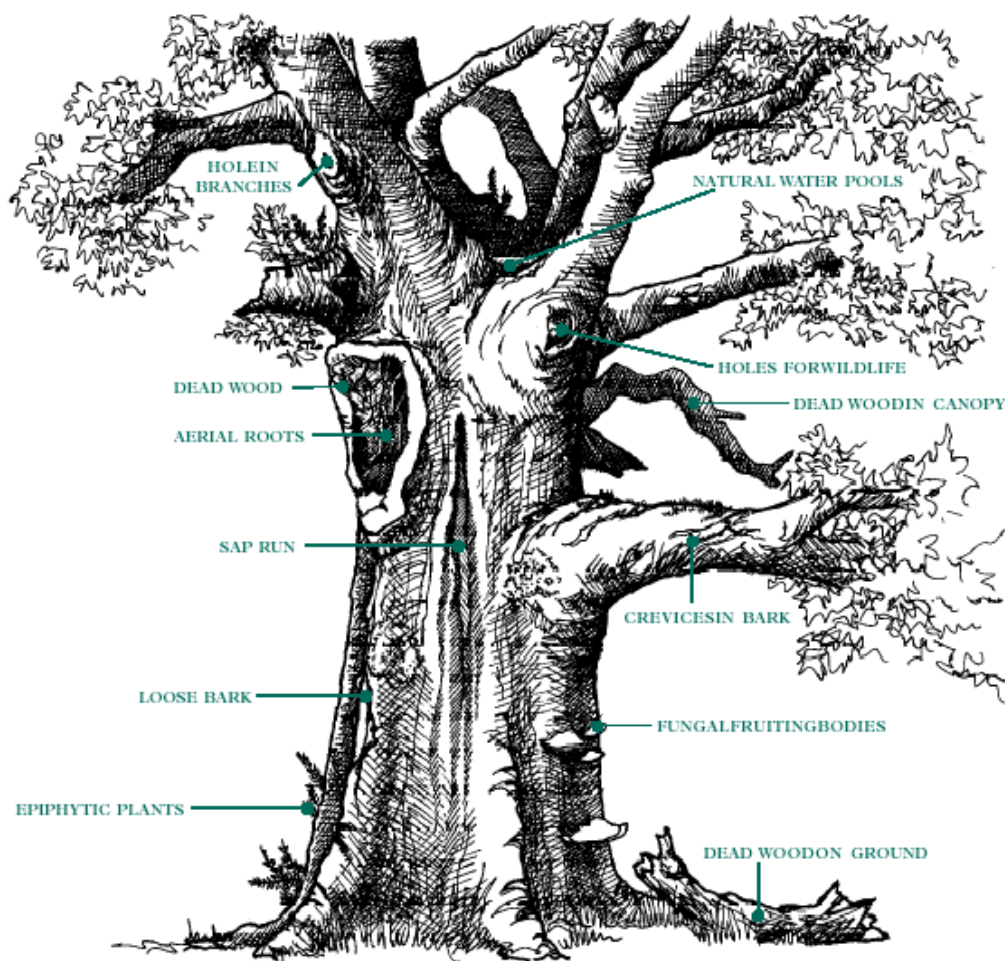
Scrub on calcareous soils with three or more of the following species: way-faring tree, wild privet, dogwood, spurge laurel, black bryony, hawthorn or spindle.

Scrub on peat soils with two or more of the following species: tea-leaved willow, eared willow, goat willow, grey willow, bay willow, purple willow, osier.

Wood Pasture, Parkland and Veteran Trees

Wood pasture or parkland are vegetation structures rather than particular plant communities. They are matrices of grassland, heathland and/or woodland habitats which contains large open-grown or high forest trees (often pollards) at various densities (following the UK BAP definition and Defra's T03 definition for parkland and wood pasture)*.

Veteran trees are in-field, boundary or woodland trees which are over mature and with evidence of decay, often having been kept alive through management such as pollarding. It is not possible to use size precisely as a guide to maturity for individual species, because diameter or circumference depends on a number of other factors, including soil type and past and present competition. However a rule of thumb has been developed and is presented in the table below. Veteran trees also contain some or all of the following features:



From the Veteran Trees Initiative / Woodland Trust

In-field trees of this nature often indicate the presence of former wood pasture or parkland

Veteran Tree Rule Of Thumb Trunk Diameters

These 'rules of thumb' collate the maximum trunk sizes recorded by Mitchell (1974) for each species and adapting categories of 'potentially interesting', 'valuable' and 'truly ancient' described by Read (2000) to relate to these maximum trunk sizes

Species	Diameter at Breast Height (1.3m) in meters			
	Max diameter	Potentially interesting	Valuable	Truly ancient
<i>Acer campestre</i>	0.96	0.31	0.45	0.60
<i>Acer platanoides</i>	1.27	0.41	0.60	0.80
<i>Acer pseudoplatanus</i>	2.23	0.71	1.05	1.39
<i>Aesculus hippocastanum</i>	2.04	0.65	0.96	1.27
<i>Alnus glutinosa</i>	1.18	0.38	0.55	0.74
<i>Alnus incarna</i>	0.64	0.20	0.30	0.40
<i>Arbutus unedo</i>	0.38	0.12	0.18	0.24
<i>Betula pendula</i>	0.96	0.31	0.45	0.60
<i>Betula pubescens</i>	0.96	0.31	0.45	0.60
<i>Buxus sempervirens</i>	0.25	0.08	0.12	0.16
<i>Carpinus betulus</i>	1.27	0.41	0.60	0.80
<i>Castanea sativa</i>	3.18	1.02	1.50	1.99
<i>Crataegus monogyna</i>	0.96	0.31	0.45	0.60
<i>Fagus sylvatica</i>	1.97	0.63	0.93	1.23
<i>Fraxinus excelsior</i>	1.91	0.61	0.90	1.19
<i>Ilex aquifolium</i>	0.57	0.18	0.27	0.36
<i>Juglans regia</i>	1.91	0.61	0.90	1.19
<i>Malus sylvestris</i>	0.96	0.31	0.45	0.60
<i>Mespilus germanica</i>	0.48	0.15	0.22	0.30
<i>P. x canadensis var serotina</i>	1.91	0.61	0.90	1.19
<i>P. x canescens</i>	1.59	0.51	0.75	0.99
<i>Pinus sylvestris</i>	1.59	0.51	0.75	0.99
<i>Populus alba</i>	0.64	0.20	0.30	0.40
<i>Populus nigra</i>	1.59	0.51	0.75	0.99
<i>Prunus avium</i>	1.43	0.46	0.67	0.90
<i>Pyrus pyraeaster</i>	0.64	0.20	0.30	0.40
<i>Quercus cerris</i>	2.55	0.82	1.20	1.59
<i>Quercus ilex</i>	1.37	0.44	0.64	0.86
<i>Quercus petraea</i>	2.83	0.91	1.33	1.77
<i>Quercus robur</i>	3.18	1.02	1.50	1.99
<i>Robinia pseudoaccacia</i>	1.59	0.51	0.75	0.99
<i>S. x thuringiaca</i>	0.48	0.15	0.22	0.30
<i>Salix caprea</i>	1.27	0.41	0.60	0.80
<i>Salix fragilis</i>	1.11	0.36	0.52	0.70
<i>Sorbus aria agg</i>	0.60	0.19	0.28	0.38
<i>Sorbus aucuparia</i>	0.80	0.25	0.37	0.50
<i>Sorbus intermedia agg</i>	0.64	0.20	0.30	0.40
<i>Sorbus latifolia agg</i>	0.86	0.28	0.40	0.54
<i>Sorbus torminalis</i>	0.89	0.29	0.42	0.56
<i>Tilia x europea</i>	2.23	0.71	1.05	1.39
<i>Taxus baccata</i>	3.18	1.02	1.50	1.99
<i>Tilia cordata</i>	1.91	0.61	0.90	1.19
<i>Tilia platyphyllos</i>	1.85	0.59	0.87	1.15
<i>U. x hollandica</i>	1.59	0.51	0.75	0.99
<i>U. x vegeta</i>	1.75	0.56	0.82	1.09
<i>Ulmus glabra</i>	2.23	0.71	1.05	1.39
<i>Ulmus minor</i>	1.94	0.62	0.91	1.21
<i>Ulmus procera</i>	2.23	0.71	1.05	1.39

From Hedgerow Survey handbook 2nd edition**

Identification & Mapping

*For the purposes of monitoring, a **Veteran Tree** will be defined as any tree in the 'valuable' or 'truly ancient' columns in the table above.*

It is obviously important for recruitment to also monitor trees in age classes below. Whichever monitoring methodology is adopted for this target, data on species and diameter at breast height should be recorded for all trees in the sample which fall into the 'potentially interesting' column or above.

***Parkland** will be defined and mapped through the Durham County Council's Historic Landscape Character Assessment.*

*There is insufficient understanding of **Wood Pasture** in the Durham context at present to allow a definition.*

Condition Assessment

For Veteran trees

Any **Parkland** which is covered by funding from Environmental Stewardship or a Woodland Grant Scheme will be assumed to be in favourable condition, until such time as further work is undertaken to determine a more appropriate condition assessment. See Defra's condition assessment in the T03 definition of wood pasture & parkland for further guidance.*

Any Wood Pasture (once defined) which is covered by funding from Environmental Stewardship or a Woodland Grant Scheme will be assumed to be in favourable condition, until such time as further work is undertaken to determine a more appropriate condition assessment. See Defra's condition assessment in the T03 definition of wood pasture & parkland for further guidance.**

*DEFRA (2005) *Higher Level Stewardship: Farm Environment Plan – Guidance handbook*.
www.defra.gov.uk

** DEFRA (2007) *Hedgerow Survey Handbook – A standard procedure for local surveys in the UK*. Prepared on behalf of the Steering Group for the UK. DEFRA, London.

WETLAND HABITATS

Phragmites australis Reedbed

Reedbeds are wetlands dominated by stands of common reed (*Phragmites australis*), where the water table is at or above ground for most of the year (swamps). *Phragmites australis* must cover more than 60% of the swamp community for the habitat to meet this definition. *Phragmites australis* Reedbed is a type of Fen community that is of particular value to many birds.

Condition Assessment

1. Cover of scrub within the reedbed must be less than 10%.
2. Surface water is present over at least part of the reedbed for most of the year.
3. Cover of undesirable species (docks, thistles, ragworts, Indian (Himalayan) balsam) must be less than 5%.

Adapted from the Defra's W08 reedbeds definition.*

*DEFRA (2005) Higher Level Stewardship: Farm Environment Plan – Guidance handbook.
www.defra.gov.uk

Lowland Fen habitats

The definition of lowland for the Durham BAP is all land outside the North Pennines Natural Area. There is a lot of confusion surrounding fen classifications and terminology. Many classifications use highly technical terminology that combine topographical features, hydrology and vegetation types, which can make the subject inaccessible for the non-specialist. In this classification we define the fen types according to the vegetation alone as this is most easily observed at a site. There is also little agreement on where fen starts and other wetland habitats stop. The narrowest views of what is meant by fen, might include only small sedge rich fen and species-rich tall herb fen vegetation types while other views of fen can be much broader.

For the purposes of the Durham BAP, we are taking a broad view of fen to include all wetland habitats apart from the following that are covered under other HAPs:

- aquatic (wholly or predominantly submerged) vegetation
- blanket bog (including bog pools) & wet heath
- fen carr (wet woodland)
- wet grassland (lowland meadows & pastures)
- fen meadow (purple moor-grass and rush pasture)

The dividing line between some of these habitats and fen is not always clear. Wetlands can have complex patterns of vegetation and the different types of fen described below often merge into each other. This is especially apparent in wet depressions and around the margins of ponds where there is a gradual transition between very wet conditions and much drier conditions higher up. Further information on how to differentiate between these habitats is/will be available on the DBAP website.

Types of fen in lowland Durham:

Pioneer vegetation on exposed mud

This type of usually short-lived vegetation colonises areas left exposed after water levels subside, e.g. on the margins of ponds or other water bodies with fluctuating water levels. There is usually a high proportion of annual species and often a high cover of bare mud. Sometimes there is a high cover of bryophytes. It is a dynamic type of vegetation that can undergo rapid changes in a relatively short time. The early open stages provide an important habitat for highly specialised and scarce species of invertebrates and bryophytes. In lowland Durham this includes the NVC communities OV31 and the more open examples of OV32

Species-poor swamps

Swamp is vegetation that grows out of water so that water is visible at the surface between the emergent plants. Most swamps are species-poor with the individual plants often densely packed together. Some swamp types are uncommon or of relatively high conservation interest. Other types are common and of less interest and if not controlled, invade more valuable vegetation. Example of these 'invasive' types in Durham include S12 - bulrush swamp, S4 & S26 - reedbed and to a lesser extent S14 - branched bur-reed swamp. In lowland Durham swamps are most frequently dominated by the following species (NVC community in brackets) bulrush (S12), branched bur-reed (S14), common spike-rush (S19), common reed (S4 & S26), lesser pond-sedge (S7), water horsetail (S10), and soft rush (not in NVC). Less common swamp types in lowland Durham include reed sweet-grass (S5), greater pond-sedge (S6), common club-rush (S8), bottle sedge (S9), bladder-sedge (S11), lesser bulrush (S13), false fox-sedge (S18), grey club-rush (S20), sea club-rush (S21) and hard rush (not in NVC).

Reedbed

Reedbed is a separate UKBAP habitat but has already been mentioned above as it is a type of species-poor swamp. Large stands of reeds can provide valuable habitat for specialist birds such as bittern, bearded tit, reed warbler and sedge warbler. Smaller stands are not used by these birds and are usually of less conservation interest compared to the types of vegetation they often replace when the reeds spread. If *Phragmites* cover is greater than 60%, then the habitat is both *Phragmites australis* reedbed and fen.

Tall herb fen

This type of fen includes various mixtures of tall wetland herbs such as meadowsweet, great willowherb, wild angelica, hemp agrimony, marsh cinquefoil and many more. These herbs are sometimes mixed with grasses, sedges or rushes. Many examples of this type of habitat in lowland Durham are now unmanaged, rank and species-poor. These include the NVC types OV26, S28 and the more species-poor examples of M27. The most species-rich types of tall herb fen in lowland Durham include S27 and the more species-rich examples of M27.

Small sedge poor fen

This vegetation is usually much shorter than tall herb fen and consists of open mixtures of small sedges such as common sedge, glaucous sedge and sometimes star sedge with grasses, rushes and wetland herbs suited to acidic conditions. There is usually a high cover of bryophytes. Some examples in lowland Durham are similar to forms of M6 but there is usually no *Sphagnum* present.

Small sedge rich fen

Most of the more species-rich examples of fen vegetation in lowland Durham are of this type. It is similar to small sedge poor fen but is usually more species-rich and includes species that prefer calcareous conditions including yellow, carnation and tawny sedges. There is usually a wide mixture of sedges, herbs and bryophytes with no one species dominating. It sometimes includes uncommon or very specialist calcareous flush species like common butterwort, grass of Parnassus and round-leaved wintergreen. This vegetation mostly conforms to M10 (sub-community b). It is a rare habitat in lowland Durham and is always of high conservation interest. It is confined to flushes and pond margins where the water is influenced by the magnesian limestone.

Mixed rush and bryophyte fen

This type of vegetation is not uncommon in lowland Durham and does not conform to any of the NVC types. It is a species-rich type of vegetation that usually has a continuous carpet of bryophytes with a relatively open canopy comprised of a mixture of rushes and wetland herbs. It is usually found on fen peat near the margins of water bodies. Other types of vegetation also fit in here but further analysis of recent survey data is needed to define this type of fen more precisely and work out its relationship to the other fen types.

Other marginal vegetation

Other species-poor or moderately species-rich types of marginal vegetation include the more closed examples of OV32 – mixtures of marginal herbs including water forget-me-not and celery-leaved buttercup, S23 – similar mixtures of marginal herbs such as fool's water-cress, water

cress, water forget-me-not and brooklime and S22 – a species-poor type of vegetation dominated by floating sweet-grass.

Note on the topographical situations where fens occur in lowland Durham:

The topographical situation largely determines the hydrology of the habitat which influences the type of fen vegetation that can develop. Other fen classifications use topographical terms so some of these are explained below. More information on the types of topographical situations that each of the fen types described below occur in lowland Durham is/will be available on the DBAP website.

Springs and flushes – areas where water comes to the surface and seeps over the ground.

Valley fen – wetland adjacent to a stream or river and sometimes on the wettest parts of the valley sides.

Flood plain fen – flat river valleys that flood regularly.

Basin fen – wet depressions without water flowing through and out.

Open water transition fen – wetland that develops on the margins of water bodies.

Ponds

The distinction between a small temporary inundated hollow and a pond on one hand, and between a pond and a lake on the other, is an arbitrary decision in terms of size. For the purposes of the Durham BAP a pond is defined as a temporary or permanent water body between 5 square meters and 2ha (5 – 20,000 m²) in surface area, which holds areas of open water for at least part of the year. The definition excludes garden ponds.

In terms of the protection given to water bodies meeting this definition, the surrounding habitat must be taken into account. Semi-natural habitat surrounding or linked to a pond is vital foraging or overwintering habitat for many species which require water for breeding. Habitat which links ponds with other ponds or wet areas, or which buffers ponds from potentially damaging agricultural operations is doubly important.

Rivers & Streams

Rivers and streams are naturally dynamic habitats with a constant or seasonal flow of water. In their unmodified state rivers are dynamic features, which interact with their floodplains enabling a range of wetland habitats to develop such as grazing marsh, wet woodland and fen habitats including reedbed. This habitat definition covers any flowing water, including rivers, streams, ditches and their associated riparian habitat. Both shingle beds and eroding river banks support a range of specialised invertebrates, including very rare beetles. Small streams and ditches are important, particularly as corridors for mobile species such as the otter and kingfisher. Rivers and their banks are both important.

Note: Further work by specialists is required to develop guidelines for the identification of river reaches which will be priorities for UK BAP

Floodplain grazing marsh

Floodplain grazing marsh is an area of lowland grassland within a floodplain, which is seasonally inundated with water. The grassland may or may not be species rich. Species-poor versions are, none-the-less, important as habitat for wading birds. Species rich versions of this type of grassland should be additionally recorded under **lowland meadows and pasture** (see definition).

Exposed Riverine Sediments

Exposed riverine sediments (ERS) are mineral deposits (normally sand, gravel, pebble with cobble in this context) in river channels that are exposed during low flows, particularly in the spring and summer. The scouring action of winter floods plays a vital role in producing suitable habitat (namely exposed insolated substrate), by removing vegetation and also finely divided organic matter that would promote the growth of lush material.

UPLAND HABITATS

Blanket Bog and Upland Wet Heath

Blanket Bog and Upland Wet Heath share many floristic characteristics which make them difficult to differentiate, but which separate them both from Upland Dry Heath. In broad terms all three habitats contain dwarf shrubs such as heather and cross-leaved heath, but Sphagnum mosses are sparse or absent on dry heath.

A standard definition differentiates these two habitats on the basis of the depth of peat (blanket bog on more than 50cm of peat, and wet heath on less than 50cm of peat), however this is often difficult to ascertain in the field, and we treat the two habitats as one broad habitat for the purposes of this plan.

Identification & Mapping

The definition of upland for the Durham BAP is all land within the North Pennines Natural Area.

The definition of this habitat is upland wetland vegetation characterised by Sphagnum mosses, cotton grasses and dwarf shrubs (especially heather and cross-leaved heath).

*This definition aligns with the definitions M06 and M04 (wet component) by Defra.**

*The definition also encompasses NVC communities as follows: Bog pools M2, M3, Blanket Bog M17, M18, M19, M20, M25, wet heath M16, H21a. (Rodwell 1991)***

Condition Assessment

Not yet agreed.

*DEFRA (2005) Higher Level Stewardship: Farm Environment Plan – Guidance handbook.
www.defra.gov.uk

**Rodwell, JS (ed.) (1991) *British plant communities. Volume 2. Mires and heaths*. Cambridge University Press, Cambridge

Calaminarian Grassland

A particular community type matching the NVC community OV37 (Rodwell)*, and only found within the North Pennines Natural area for the purposes of this plan.

Identification & Mapping

Generally short open vegetation of fine-leaved grasses, flowers, mosses and lichens on spoil and gravel from mineral extraction, or associated with metal-rich ultrabasic exposures. A very rare habitat type found only in the North Pennines, Yorkshire Dales, Derbyshire and the Mendips.

Typical grasses include: common bent, red fescue, sheep's fescue, sweet vernal-grass.

- If one or more of the following wild flower indicator species are occasional in the sward then the grassland meets the definition.

Alpine penny-cress
Mountain pansy

Pyrenean scurvygrass
Sea campion

Spring sandwort
Thrift

Condition Assessment

1. Cover of bare ground, including cobbles, gravel and encrusting lichens must be between 20% and 90%.

2. Cover of undesirable species (creeping thistle, spear thistle, curled dock, broad-leaved dock, common ragwort, common nettle, cow parsley, hogweed, coarse grasses) less than 10%.

3. Cover of trees and scrub less than 5%.

Adapted from Defra's G10 calaminarian grassland definition*.

DEFRA (2005) Higher Level Stewardship: Farm Environment Plan – Guidance handbook.
www.defra.gov.uk

**** Rodwell J (ed.) 1998.** British Plant Communities, Volume 3 Grasslands and montane communities. Cambridge University Press.

Species-rich Upland Acid Grassland

The definition of upland for the Durham BAP is all land within the North Pennines Natural Area.

Most upland acid grassland is relatively species-poor but occasionally very species-rich examples are found which are closely related to the NVC community U4c (Rodwell 1998)*. This is a poorly understood type of grassland. The description in British Plant Communities is based only on a small number of samples from the Peak District. In 2006 and 2007 similar vegetation was found several times in the North Pennines, in mostly small patches on unmown banks within upland hay meadows, but it may also occur in other situations in the uplands.

This type of grassland may be very important for the following rare or uncommon plants:

adder's-tongue	eyebright (<i>Euphrasia rostkoviana</i>)	shady horsetail
alpine bistort	fragrant orchid (subspecies <i>borealis</i> & <i>conopsea</i>)	small white-orchid
bird's-eye primrose	greater butterfly-orchid	twayblade

Identification & Mapping

Typical grasses and rushes include: common bent, red fescue, crested dog's-tail, sweet vernal-grass, and field wood-rush.

The typical acid grassland herbs tormentil and heath bedstraw are normally present. Sometimes other species normally associated with acid grassland are also present including heath rush, purple moor-grass, sheep's fescue, heather, bracken, wavy hair-grass, mat grass, hard fern and bilberry.

This vegetation is highly species rich, normally with more than 20 species per square metre.

To meet the definition at least three of the following indicator species should be present and usually at least one of these is frequent:

betony	devil's-bit scabious	zig-zag clover
bitter-vetch	heath grass	

In addition the vegetation will usually contain at least five of the following:

bluebell	eyebright (<i>Euphrasia arctica</i>)	pignut
bugle	germander speedwell	primrose
bush vetch	harebell	quaking-grass
cat's-ear	heath spotted-orchid	ribwort plantain
common bird's-foot-trefoil	lady's bedstraw	rough hawkbit
common dog-violet	meadow oat-grass	selfheal

common milkwort	meadow vetchling	wood anemone
common spotted-orchid	mountain pansy	wood horsetail
downy oat-grass	northern marsh-orchid	yarrow

Condition Assessment

1. Cover of wild flowers and sedges throughout the sward (excluding undesirable species) more than 30%.
2. At least 20 species present per square metre.
3. Cover of litter/thatch less than 30%.
4. Cover of bare ground (including localised areas e.g. rabbit warrens) less than 10%.
5. Cover of undesirable species (creeping thistle, spear thistle, curled dock, broad-leaved dock, common ragwort, common nettle, false oat-grass, tufted hair-grass, bracken) less than 10%.

Averis A, Averis B, Birks J, Horsfield D, Thompson D & Yeo M. (2004). *An illustrated guide to British upland vegetation*. Joint Nature Conservation Committee.

***Rodwell J (ed.) 1998.** *British Plant Communities, Volume 3 Grasslands and montane communities*. Cambridge University Press, Cambridge.

Upland Scree & Rock Habitat

The definition of upland for the Durham BAP is all land within the North Pennines Natural Area.

Upland Scree and Rock habitats are part of the Annex 1 habitat Inland Rock, and includes Acid Scree, Calcareous Scree, Calcareous Rocky Slopes with Chasmophytic vegetation, Acid Rocky Slopes with Chasmophytic vegetation, Upland tall herbs, and also recently exposed rock (e.g. worked quarries with potential for recolonisation).

Identification & Mapping

This habitat is broadly defined as vegetated areas of rocky substrates or exposed rock with potential for vegetation, within moorland grazing units of upland areas. This includes vegetation growing out of crevices, cracks and ledges on exposed rocks, including cliffs, scree, rubble and rocky slopes.

Condition Assessment

1. Cover of bracken, scrub and trees less than 25%.
2. Cover of weeds (e.g. creeping and spear thistles, docks, brambles, common ragwort, common nettle) or non-native species less than 1%.
3. Less than 50% of live leaves (broad-leaved plants), fronds (ferns) or shoots (dwarf shrubs) showing signs of grazing or browsing.
4. Cover of disturbed bare ground less than 10%.

Adapted from Defra's M07 upland cliffs & scree definition*

***DEFRA (2005)** *Higher Level Stewardship: Farm Environment Plan – Guidance handbook*.
www.defra.gov.uk

Upland Calcareous Grassland

The definition of upland for the Durham BAP is all land within the North Pennines Natural Area.

The best upland calcareous grassland matches CG9 or CG10 (Rodwell 1998)**.

Identification & Mapping

Species-rich, semi-natural grassland generally dominated by fine-leaved grasses, on calcareous soils over carboniferous limestone in upland areas. Managed primarily by grazing. Often occurs in parts of large scale enclosures with other less species-rich grassland types.

Typical grasses include: common bent, crested hair-grass, meadow oat-grass, red fescue, sheep's fescue, sweet vernal-grass, quaking-grass.

- *If at least two of the following wildflower indicator species are frequent and another two at least occasional in the sward then the grassland meets this definition.*
- *If three indicator species are occasional or four are present (but not limited to field corners or edges) then the grassland meets this definition but must be recorded as being in poor condition*

Alpine bistort	Fairy flax	Mountain everlasting
Bird's-eye primrose	Gentians	Mouse-ear hawkweed
Carline thistle	Grass-of-parnassus	Rough hawkbit
Common bird's-foot-trefoil	Harebell	Salad burnet
Common butterwort	Hoary rock-rose	Small scabious
Common rock-rose	Hoary whitlowgrass	Squinancywort
Dropwort	Horseshoe vetch	Wild thyme
Devil's-bit scabious	Lesser clubmoss	Yellow saxifrage
Eyebrights	Mossy saxifrage	Small sedges

Condition Assessment

1. *Cover of bare ground (including localised areas e.g. rabbit warrens) less than 10%.*
2. *Cover of undesirable species (creeping thistle, spear thistle, curled dock, broad-leaved dock, common ragwort, common nettle, false oat-grass) less than 10%.*
3. *Cover of wild flowers and sedges throughout the sward (excluding undesirable species) more than 20%.*
4. *Cover of herbs indicative of nutrient enrichment (daisy, creeping buttercup) less than 25%.*

Adapted from Defra's G08 upland calcareous grassland definition.*

*DEFRA (2005) *Higher Level Stewardship: Farm Environment Plan – Guidance handbook*.
www.defra.gov.uk

**Rodwell J (ed.) 1998. *British Plant Communities, Volume 3 Grasslands and montane communities*. Cambridge University Press, Cambridge.

Upland Dry Heath

Identification & Mapping

The definition of upland for the Durham BAP is all land within the North Pennines Natural Area.

Heath vegetation with at least 25% cover of dwarf shrubs (heathers, bilberry, crowberry and western gorse).

Heath characterised by frequent cross-leaved heath and wetland species such as bog-mosses (Sphagnum) and/or purple moor-grass, heath rush and deergrass should be recorded as upland wet heath / blanket bog.

Heathland mosaics with more than 75% acid grassland or other habitats do not meet the definition and should be mapped as alternate habitats (e.g. acid grassland) or divided into appropriate parcels for mapping separately.

Condition Assessment

- 1. Cover of dwarf shrubs must be at least 75%, with at least two dwarf shrub species frequent.*
- 2. At least 10% of the area of dwarf-shrub heath remains unburnt throughout the burning rotation.*
- 3. There must be a range of age classes of heather present, with cover of young (pioneer stage) heather between 25% and 50% and cover of old (mature/degenerate stages) between 10% and 30%.*
- 4. No more than 33% of heather shoots grazed (when assessed between February and April), or flowering heather plants are at least frequent in autumn.*

Adapted from Defra's M04 upland heath definition.*

*DEFRA (2005) Higher Level Stewardship: Farm Environment Plan – Guidance handbook.
www.defra.gov.uk

Upland Hay meadows

The definition of upland for the Durham BAP is all land within the North Pennines Natural Area.

The best upland hay meadows match the MG3 community (Rodwell) with some gradation into MG5 in more low lying areas.

As well as the main MG3 community, upland hay meadows often contain other areas of species rich grassland within the field boundary. In the wetter meadows the main community is more like a species-rich, upland version of MG8 than MG3. The meadows often contain smaller areas of other types of species-rich grassland on steep uncut banks, among rock outcrops or lead mining waste or on different soil types.

Identification & Mapping

The following definition is an amalgam of the structure of DEFRA's G09 definition for upland haymeadow (which includes damper MG8-type communities) and the positive indicator list from EN's non-statutory site condition assessments for MG3.

Upland Haymeadows conform to the following:

- *Species-rich neutral grassland on moist, free-draining soils in the North Pennines Natural Area.*
- *At least three indicators occasional or four indicators present (but not limited to field corners or edges) from the following list:*

*Lady's mantles
Wood anemone
Common Knapweed
Melancholy thistle
Pignut
Eyebrights*

*Meadowsweet
Wood cranesbill
Water avens
Meadow vetchling
Hawkbites
Bird's foot trefoil*

*Common bistort
Yellow rattle
Great burnet
Devil's bit scabious
Globe flower*

Condition Assessment

Follow the non-statutory site condition assessment for MG3.

Both this condition assessment and the G09 condition statement* set the bar relatively low for good condition, and so an additional higher tier of condition may be added at a later date.

Enhancement of DBAP habitat in poor condition to met the above condition assessment contributes to the '**increase extent of habitat in good condition**' target

Restoration of non-BAP habitat to habitat meeting the above definition (even in poor condition), would contribute to an '**increase extent of habitat**' target.

***DEFRA (2005) Higher Level Stewardship: Farm Environment Plan – Guidance handbook.**
www.defra.gov.uk

LOWLAND HABITATS

Early Successional Brownfield Land (syn: Open Mosaic Habitats on Post Industrial Land)

The conservation importance of brownfield sites lies, to a large extent, in their value to invertebrates. It is in their open ground or early successional stage, that brownfield sites often contain the necessary mosaic of open ground, varied topography and variety of flowering plants, which make varied invertebrate assemblages possible.

Early successional brownfield sites which are likely to retain their conservation importance over a significant period of time will contain significant areas of bare ground and plants indicative of stressed soils.

Identification & Mapping

Early successional brownfield land has at least 30% open ground, less than 30% shrub or tree cover, at least two of the plants (or species groups) from the following list frequent to locally abundant, and one other at least occasional:

<i>Blue fleabane</i>	<i>Mignonette</i>	<i>Squirrel tail fescue</i>
<i>Common bird's foot trefoil</i>	<i>Mouse-ear hawkweeds</i>	<i>Toadflaxes (purple & common)</i>
<i>Common Centaury</i>	<i>(Pilosella sp.)</i>	<i>Yellow-wort</i>
<i>Early hair grass</i>	<i>Mullein</i>	<i>Cup lichens and Dog lichens</i>
<i>Fairy Flax</i>	<i>Orchids</i>	<i>(Cladonia & Peltigera sp.)</i>
<i>Hawkweeds (Hieracium sp.)</i>	<i>Rat's tail fescue</i>	
<i>Kidney Vetch</i>	<i>Silver hair grass</i>	

When **mapping** the habitat, areas of scrub, wet flush or more lush vegetation should be included as part of the habitat's structural diversity, unless these elements take the habitat outside of the definition.

Notes

Later successional stages on brownfield land may become important as semi-natural habitats such as lowland heath and neutral or calcareous grassland in their own right, and conform to those definitions. We are not concerned with these stages within this definition.

Sites with communities intermediate between this open ground stage and later successional stages such as heath or grassland may in fact be excluded from either definition. It is our intention that these communities should also be classified as DBAP habitats and further work will be done to establish a working definition for these communities. Indicators for these communities may include heathers, heath grass (*Danthonia decumbens*) and field woodrush (*Luzula campestris*)

Condition Assessment

There is currently no condition assessment designed for this habitat.

Maritime Grassland

Identification & Mapping

The definition of maritime is all land within 500m of the coast (mean high water mark)

Maritime grassland is defined as any grassland meeting the definition for **lowland meadows and pasture**, or **magnesian limestone grassland** which lies within the maritime zone.

Condition Assessment

Follow the condition assessment for lowland meadow and pasture or magnesian limestone grassland as appropriate.

Coastal Soft Cliffs and Slopes

Identification & Mapping

To be defined following a habitat audit.

Condition Assessment

To be defined following a habitat audit.

Strandline

Strandline is an easily identifiable line of seaweed and other debris which is left stranded along the high water mark on beaches.

Identification & Mapping

For the purpose of monitoring to be measured as a linear feature on all beaches.

Condition Assessment

No condition assessment defined

Lowland Acid Grassland

Identification & Mapping

The definition of lowland for the Durham BAP is all land outside the North Pennines Natural Area.

Semi-natural grassland generally dominated by fine-leaved grasses on nutrient-poor, free-draining soils in the lowlands. Mosses and/or lichens are sometimes frequent. Managed primarily by grazing. Some sites may be species-poor (dominated, for example, by wavy hair-grass). However lowland acid grassland is a scarce resource and any site is likely to be considered of high value.

Typical grasses include: common bent, early hair-grass, heath-grass, sheep's fescue, sweet vernal-grass, wavy hair-grass.

- If at least one of the following wild flower indicator species are frequent and another three at least occasional in the sward then the grassland meets the definition for this habitat.*

- If three indicator species are occasional, or four are present at lower frequency (but not limited to field corners or edges) then the habitat meets this definition but must be recorded as being in poor condition.*

*Autumn Hawkbit
Betony*

*Bitter-vetch
Common Catsear*

*Devil's-bit scabious
Harebell*

Hawkweeds
Heath bedstraw
Heath milkwort
Heath Speedwell
Heath spotted orchid

Lousewort
Mouse-eared Hawkweed
Sheep's sorrel
Tormentil
Wood sage

Cup lichens and Dog
lichens (Cladonia &
Peltigera sp.)

Where lowland acid grassland occurs as part of a lowland heath mosaic it should additionally be recorded as lowland heath, unless the cover of heather is insufficient for it to meet this definition.

Condition Assessment

1. *Cover of undesirable species (creeping thistle, spear thistle, curled dock, broad-leaved dock, common ragwort, common nettle, rosebay willowherb, marsh thistle, musk thistle, greater plantain) less than 5%.*
2. *Cover of bare ground (including localised areas e.g. rabbit warrens) less than 10%.*
3. *Cover of scrub and bramble less than 5%.*
4. *Cover of coarse grass species, such as yorkshire-fog and cock's-foot, must be less than 20%.*

Adapted from Defra's G05 lowland dry acid grassland definition.*

*DEFRA (2005) *Higher Level Stewardship: Farm Environment Plan – Guidance handbook*.
www.defra.gov.uk

Lowland Heath

Identification & Mapping

The definition of lowland for the Durham BAP is all land outside the North Pennines Natural Area.

Dry heath, wet heath and valley mire communities in the lowlands on acidic soils and shallow peat, typically comprising heathers, gorses, fine grasses, wild flowers and lichens in a complex mosaic, usually with at least 25% cover of heathers and other dwarf shrubs.

Condition Assessment

- 1. Cover of dwarf shrubs must be between 25% and 95%, with at least two species frequent.*
- 2. There must be a range of age classes of heather present, with cover of young (pioneer stage) heather between 10% and 15% and cover of old (mature/degenerate stages) between 10% and 30%.*
- 3. Cover of undesirable species (bracken, injurious weeds, invasive non-native plants) must be less than 10%.*
- 4. Cover of trees/scrub must be less than 15%.*

Adapted from Defra's M03 lowland heath definition.*

***DEFRA (2005)** Higher Level Stewardship: Farm Environment Plan – Guidance handbook.
www.defra.gov.uk

Lowland Meadows & Pasture

Identification & Mapping

The definition of lowland for the Durham BAP is all land outside the North Pennines Natural Area.

Species-rich, semi-natural grassland (meadows or pastures) on free-draining, neutral soils in the lowlands and upland fringes, including species-rich flood plain grassland. Managed by cutting and/or grazing.

Typical grasses include: cock's-foot, common bent, crested dog's-tail, red fescue, meadow fescue, sweet vernal-grass, yellow oat-grass, yorkshire-fog.

- If at least two of the following wildflower indicator species are frequent and another two at least occasional in the sward then the grassland meets the definition for this habitat.*
- If three indicator species are occasional or four are present at lower frequencies (but not limited to field edges or corners) then the grassland meets the definition but it must be recorded as being in poor condition.*

Adder's Tongue Fern

Agrimony

Autumn hawkbit

Betony

Bitter vetch

Common knapweed

Bugle

Common bird's-foot-trefoil

Cowslip

Devil's-bit scabious

Dyer's greenweed

Field Scabious

Field Woodrush

Goat's-beard

Great burnet

Greater bird's-foot trefoil

Lady's-mantles

Marsh/Fen bedstraw

Marsh-marigold

Meadow Cranesbill

Meadow vetchling

Meadowsweet

Oxeye daisy

Pepper-saxifrage

Pignut

Ragged-robin

Sneezewort

Tormentil

Tufted Vetch

Water avens

Water mint

Yellow rattle

Zig Zag Clover

Eyebrights

Rough hawkbit
Orchids

Small blue-green sedges

Species rich grasslands which conform to this definition and are seasonally inundated by floodwater should be recorded as lowland meadows and pastures, and also as **Floodplain Grazing Marsh**.

Condition Assessment

1. Cover of undesirable species (creeping thistle, spear thistle, curled dock, broad-leaved dock, common ragwort, common nettle, marsh ragwort, cow parsley, bracken) less than 5%.
2. Cover of wild flowers and sedges throughout the sward (excluding undesirable species) more than 20%.
3. Cover of bare ground (including localised areas e.g. rabbit warrens) less than 10%.
4. Cover of invasive trees and shrubs must be less than 5%.

Adapted from Defra's G06 lowland meadows definition.*

*DEFRA (2005) Higher Level Stewardship: Farm Environment Plan – Guidance handbook.
www.defra.gov.uk

Magnesian Limestone Grassland

Identification & Mapping

The definition of lowland for the Durham BAP is all land outside the North Pennines Natural Area.

Species-rich, semi-natural grassland on magnesian limestone in the lowlands. Managed primarily by grazing.

Typical grasses include: blue moor-grass, cock's-foot, common bent, downy oat-grass, meadow oat-grass, quaking-grass, sheep's fescue, upright brome, yellow oat-grass.

- If at least two of the following wild flower indicator species are at least frequent and another three at least occasional in the sward then the grassland meets the definition.
- If only three indicator species are occasional in the sward or four species are present at a lower frequency (but not limited to field edges or corners) then the habitat meets this definition but must be recorded as being in poor condition.

Betony
Bloody cranesbill
Burnet saxifrage
Carline thistle
Common bird's-foot-trefoil
Common rock-rose
Cowslip
Dropwort
Devil's-bit scabious
Eyebright
Fairy flax
Gentians

Greater knapweed
Hairy violet
Harebell
Hoary plantain
Kidney vetch
Lady's bedstraw
Milkworts
Mouse-ear hawkweed
Orchids
Oxeye daisy
Purple milk-vetch
Restharrow

Rough/Lesser hawkbit
Salad burnet
Saw-wort
Small scabious
Spiny restharrow
Thyme-leaved sandwort
Wild basil
Wild marjoram
Wild thyme
Yellow-wort

Condition Assessment

1. Cover of undesirable species (creeping thistle, spear thistle, curled dock, broad-leaved dock, common ragwort, common nettle) less than 5%.

2. Cover of wild flowers and sedges throughout the sward (excluding undesirable species) more than 30%.

3. Cover of bare ground (including localised areas e.g. rabbit warrens) less than 10%.

4. Cover of invasive trees and shrubs must be less than 5%.

Adapted from Defra's G04 lowland calcareous grassland definition.*

*DEFRA (2005) *Higher Level Stewardship: Farm Environment Plan – Guidance handbook*.
www.defra.gov.uk

CG8 Grassland

The particular community - Blue Moor grass / Small Scabious (*Sesleria albicans* / *Scabiosa columbaria*) grassland - is a NVC community of lowland calcareous grassland which occurs uniquely within Europe in the Durham Magnesian Limestone Natural Area. This community is included in the definition for Magnesian Limestone Grassland, but because of its rarity is defined separately as an additional monitoring target.

Identification & Mapping

The community should conform to the description of CG8 (Rodwell 1992). For rapid identification of this habitat and mapping the presence of Blue Moor grass (Sesleria albicans) is taken as the defining feature of CG8 in the Durham area.*

Condition Assessment

Condition Assessment should follow the non-statutory condition assessment for CG8 grassland.

*Rodwell J S (1992) *British Plant communities Volume 3 Grasslands and Montane Communities*. Cambridge University Press. Pages 211-217.

Road Verges of Conservation Importance

Road verges contain a variety of habitats, but in the Durham context their main value lies in the species rich grassland communities that have managed to survive in parts. These botanically species rich verges also have value for invertebrates.

Identification & Mapping

To meet the definition a road verge of conservation importance must

1: contain at least 5 species from the following list within at least one 20m linear section.

Agrimony	Dyer's	Lady's mantles	Thyme-leaved
Betony	greenweed	Marsh/Fen	sandwort
Bitter vetch	Eyebright	bedstraw	Tormentil
Bloody cranesbill	Goat's-beard	Milkworts	Water avens
Bugle	Fairy flax	Mouse-ear	Water mint
Burnett saxifrage	Great burnet	hawkweed	Wild marjoram
Carline thistle	Gentians	Orchids	Wild thyme
Common bird's-foot	Greater	Pepper saxifrage	Wood anemone
trefoil	Knapweed	Purple milk vetch	Yellow rattle
Common bistort	Hairy violet	Quaking Grass	Yellow-wort
Common Centaury	Harebell	Ragged robin	Small blue-green
Common meadow-	Hawkbits	Salad burnet	sedges
rue	Hoary plantain	Saw-wort	Ancient
Common rock-rose	Horeshoe vetch	Small Scabious	woodland
Cowslip	Kidney vetch	Sneezewort	indicators
Devil's-bit scabious	Lady's bedstraw	Sweet cicely	

(Derived from lists for lowland calcareous grassland and lowland meadow in DEFRA's HLS-FEP handbook* with some adjustment for Durham.)

or

2: contain any of the red-listed* lady's mantles *Alchemilla acutiloba*, *A. glomerulans*, *A. monticola*, *A. subcrenata*, *A. wichurae*, or Northern Hawks-beard - *Crepis mollis*.

or

3: be a recorded breeding site for any Durham BAP invertebrate species.

For the purposes of **mapping** a road verge parcel needs to be contained within a reasonable management unit (e.g between field entrances or road junctions).

Condition Assessment

There is currently no condition assessment defined for this habitat, although species lists from fixed quadrats on a sample of road verge parcels are recorded regularly to monitor species loss / gain.

*DEFRA (2005) Higher Level Stewardship: Farm Environment Plan – Guidance handbook.
www.defra.gov.uk

*JNCC (2007). Conservation Designations for UK Taxa – downloadable spreadsheet. jncc.gov.uk

Waxcap Grasslands

Identification & Mapping

To qualify as the priority habitat a grassland compartment needs to contain five or more species of *Hygrocybe*, or to contain one of the UKBAP species for waxcap grasslands listed below:

Hygrocybe calyptriformis

Hygrocybe spadicea

Microglossum olivaceum

Condition Assessment

There is currently no condition assessment for this habitat.

References

DEFRA (2005) *Higher Level Stewardship: Farm Environment Plan – Guidance handbook*.
www.defra.gov.uk

DEFRA (2007) *Hedgerow Survey Handbook – A standard procedure for local surveys in the UK. Prepared on behalf of the Steering Group for the UK*. DEFRA, London.

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