Integrated Habitat System (IHS) classification codes used in the Kent Habitat Survey 2012

WOODLANDS

Broadleaved woodland

WB1 Mixed woodland (SC)

Description: 20-80% of either broadleaved or conifer in the canopy. The canopy is not necessarily intimately intermixed

WB2 Scrub woodland (SC)

Description: Includes patches of broadleaved and juniper (*Juniperus* spp.) scrub with a continuous closed canopy (>90% cover) of >0.25ha. Scrub woodland includes locally native shrubs, usually less than 5m tall, (occasionally with a few scattered trees), including: gorse (*Ulex europaeus*), broom (*Cytisus scoparius*) and juniper (*Juniperus* spp.) scrub; bramble (*Rubus fruticosus*) and dog rose (*Rosa canina*) scrub; and hawthorn (*Crataegus monogyna*), blackthorn (*Prunus spinosa*) or grey willow (*Salix cinerea*) stands even if more than 5m tall (but see below for exceptions).

Not included: Patches of dwarf-gorse scrub (*Ulex minor*, *U. gallii*) should be included in a HE~ Dwarf-shrub heath category. Grey willow (*Salix cinerea*) carr or stands of bog-myrtle (*Myrica gale*) more than 1.5m tall should be included under a WB34~ category. Montane willow scrub should be included in MH~ Montane Category, and scrub on sand dunes and shingle is included in SS~ Supralittoral sediment (Jackson D. L., 2000). Low or patchy Bog myrtle should be included under an EO~ or EM~ category. Young trees or stump regrowth less than 5m high should be included under the appropriate WB~ category for their species mix and habitat type. See WB0.

Correlates with: NVC (W21-W25) amongst others

WB21 Scrub woodland on dunes (TT)

Description: Includes patches of broadleaved scrub with a continuous closed canopy (>90% cover) of >0.25ha. Scrub woodland includes locally native shrubs, usually less than 5m tall, (occasionally with a few scattered trees), including: gorse (*Ulex europaeus*), broom (*Cytisus scoparius*) scrub; bramble (*Rubus fruticosus*) and dog rose (*Rosa canina*) scrub; and hawthorn (*Crataegus monogyna*), blackthorn (*Prunus spinosa*) or grey willow (*Salix cinerea*) stands even if more than 5m tall (but see below for exceptions).

Not included: Patches of dwarf-gorse scrub (*Ulex minor*, *U. gallii*) should be included in a HE~ Dwarf-shrub heath category. Grey willow (*Salix cinerea*) carr or stands of bog-myrtle (*Myrica gale*) more than 1.5m tall should be included under a WB34~ category. Montane willow scrub should be included in MH~ Montane Category. Low or patchy bog-myrtle (*Myrica gale*) should be included under an EO~ or EM~ category. Juniperus spp. should be included in SS18, coastal dunes with juniper (*Juniperus*) spp. Sea buckthorn (*Hippophae rhamnoides*) should be included in SS16. Creeping willow (*Salix repens*) should be included in SS15. Young trees or stump regrowth less than 5m high should be included under the appropriate WB~ category for their species mix and habitat type.

Correlates with: NVC (W21-W25) amongst others.

WB22 Scrub woodland on calcareous soils (NE, NVC)

Description: Scrub formations of >90% cover and >0.25ha on calcareous soils. This habitat is generally replaced by woodland, unless it occurs in extreme climatic conditions where it becomes the climax community, or there is some management in place that interrupts natural succession. Species composition varies depending on soil type and locality, but it is generally very diverse and supports a wide range of invertebrates and birds. On deep, fertile soils the community is mainly composed by hawthorn (*Crataegus monogyna*), blackthorn (*Prunus spinosa*) and bramble (*Rubus fruticosus agg.*), whereas on shallow, less fertile soils a more diverse mix of shrub species occur, including dogwood (*Cornus sanguinea*), wild privet (*Ligustrum vulgare*), wayfaring-tree (*Viburnum lantana*), rose spp. (*Rosa spp.*), traveller's-joy (*Clematis vitalba*), hazel (*Corylus avellana*), whitebeam (*Sorbus aria*), yew (*Taxus baccata*), juniper (*Juniperus communis*) and box (*Buxus sempervirens*) (the two latter are rare calcicolous species). However, scrub control is required to avoid invasion on calcareous grassland.

Not included: Continuous juniper (*Juniperus communis*) scrub of >90% cover and >0.25ha on calcareous grassland should be included under WB25.

Correlates with: NVC W13, W21-22

WB23 Scrub woodland on heathland (JNCC, NVC)

Description: Continuous stands of scrub of >90% cover and >0.25ha occurring on lowland or upland heathland, typically on acid, free-draining brown soils. In lowland situations, this is a successional habitat, maintained by grazing and burning practices (otherwise succeeded by woodland), and is mainly composed by gorse (*Ulex europaeus*), broom (*Cytisus scoparius*), and bramble (*Rubus fruticosus*), with an under story of acid grassland or heath. It is generally rather species poor. In the uplands, scrub can form continuous stands away from high grazing pressure.

Not included: Continuous stands of juniper (*Juniperus communis*) should be included under WB25. Stands of *Salix* spp. in the low or sub alpine zone should be included under WB24

Correlates with: W23

WB3 Broadleaved woodland (SC)

Description: 'Dry' woods predominantly composed of broadleaf and yew species (i.e. with >80% broadleaves and yew (*Taxus baccata*) in the canopy). Yew woodland is included here since it has affinities with broadleaved woodland especially beech.

WB33 Beech and yew woodlands (SC)

Description: Beech (*Fagus sylvatica*)-dominated often high-forest woodlands found on acid to calcareous soils. Usually only formations within the native range of beech are considered a Priority Habitat. See WB331.

WB331 Lowland beech and yew woodland (PHT)

Description: Beech (*Fagus sylvatica*)-dominated often high-forest woodlands found on acid to calcareous soils in the lowlands. Yew (*Taxus baccata*) is found in its most abundant association with beech on calcareous soils. Usually only formations within the native range of beech are considered a Priority Habitat. (UK Biodiversity Group, 1998a).

Not included: Lowland wood pasture and parkland is dealt with under WP1. Yew stands on the Carboniferous and Magnesian limestones of central and northern Britain are considered under WB32.

Correlates with: NVC - W12, W13, W14, W15.

WB3312 Asperulo-Fagetum beech forests (AN1)

Description: Beech (*Fagus sylvatica*) woodland on neutral or near neutral soils with a mull humus layer, and a richer and more abundant herb layer than WB3311. Also found on chalk and southern limestones. (Brown *et. al.*, 1997).

Correlates with: NVC - W12a, W12b, (W12c), (W14). CORINE 41.13.

WB3313 Taxus baccata woods of the British Isles (AN1)

Description: Woods dominated by yew (*Taxus baccata*), with common whitebeam (*Sorbus aria*) or dog's mercury (*Mercurialis perennis*) of dry calcareous valleys and scarps. (Yew stands on the Carboniferous and Magnesian limestones of central and northern Britain should be included with upland mixed-ash woodlands.) (Brown *et. al.*, 1997).

Correlates with: NVC - W13. CORINE 42.A71 to 42.A73.

WB331Z Other lowland beech and yew woodland (IC)

Description: Other beech and yew woodlands in the lowlands. Includes, amongst others, woods where beech is not considered native; and woods on acid soils where beech is native but the wood is not rich in epiphytes, or does not contain other 'old growth' characteristics.

WB33Z Other beech and yew woodlands (IC)

Description: Other beech and yew woodlands in the uplands.

WB34 Wet woodland (PHT)

Description: Occurs on poorly drained or seasonally wet soils. It is found on floodplains, as successional habitat on fens, mires and bogs, along streams and hill-side flushes, and in peaty hollows. These woodlands occur on a range of soil types including nutrient-rich mineral and acid, nutrient-poor organic ones. Dominated in the canopy by alder (*Alnus glutinosa*), willow *Salix* spp., and downy birch (*Betula pubescens*). Includes alder, willow, and alder buckthorn carr, swampy bog-myrtle (*Myrica gale*) scrub, birch mire woodland, riparian willow woodland and scrub, and riverine ash-alder woodlands where either they are associated with drier woodlands, or they are associated with fen, marsh or swamp and are >0.25ha. (UK Biodiversity Group, 1998a).

Not included: Carr woodlands associated with fen, marsh or swamp which are <0.25ha.

Correlates with: NVC - W1 - W7.

WB341 Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) (AN1)

Description: A riverside woodland of alder (*Alnus glutinosa*) on alluvial floodplains in various situations including on braided channels of fast flowing rivers, on islands in river channels, on low-lying wetlands or fringes alongside the channel, and in estuaries. Usually developed on moist to wet meso-eutrophic to eutrophic mineral soils generally rich in alluvial deposits which are periodically inundated by the rise of the river, but at least patchily dry at the surface in summer, but also occurring as stands on organic soils, base-rich and moderately eutrophic, such as on former peat cuttings along fenland rivers. This habitat type occurs in small fragments with diffuse boundaries, often in transition to dry woodland. Alder is constant and often dominant in the canopy, but with willows (*Salix*) spp. especially crack willow (*Salix fragilis*), ash (*Fraxinus excelsior*), and downy birch (*Betula pubescens*) often common. On the drier margins Ash and Elm (*Ulmus* spp.), may become abundant. (Brown *et. al.*, 1997).

Not included: See WB34.

Correlates with: NVC - W5a, (W5b), (W5c), (W6a), W6b, (W6d), (W6e), W7a, W7b, W7c. CORINE 44.3.

WB343 Willow carr (NVC)

Description: Wet woodland dominated by willow (*Salix*) growing on water logged soils on flood-plain mires and valleys and by the margins of open bodies and water courses.

Not included: See WB34. Stands of grey willow (*Salix cinerea*) in slack dunes should be included under an SS~ class.

Correlates with: NVC W1-2

WB3431 Willow carr of lakes and water courses (NVC)

Description: Wet woodland dominated by grey willow (*Salix cinerea*) by the margins of lowland open waters and ditches. It grows in waterlogged soils and can survive periods of temporary rising water levels. Other species associated to this habitat include an under story of marsh bedstraw (*Galium palustre*), soft-rush (*Juncus effuses*) and water mint (*Mentha aquatica*).

Not included: See WB343.

Correlates with: NVC W1

WB3432 Willow carr of mires (NVC)

Description: Primary or secondary wet woodland dominated by grey willow (*Salix cinerea*) occurring in valley and flood-plain mires, where the accumulation of litter raises the peat above the level of winter flooding. Species composition and distribution varies from one site to another due to environmental factors such as soil moisture and light, as well as human activities (drainage, exploitation, etc.). Other species associated to this community include downy birch (*Betula pubescens*), grey willow (*Salix cinerea*), alder buckthorn (*Frangula alnus*), pedunculate oak (*Quercus robur*) and eared willow (*Salix aurita*).

Not included: See WB34 and W343.

Correlates with: NVC W2

WB34Z Other wet woodland (IC)

Description: Alder carr and swamp woodland (i.e. not found on eutrophic alluvium in or along river channels), alder-buckthorn and willow carr, lowland swampy Bog-myrtle *Myrica gale* scrub, and riverine willow woodland (especially osier (*Salix viminalis*) or almond willow (*S. triandra*)).

Not included: See WB34.

Correlates with: NVC - W1, W2a, W2b, (W3), W5a, W5b, (W6a), W6c.

WB361 Old acidophilous oak woods with Quercus robur on sandy plains (AN1)

Description: Acidophilous forests of the Baltic-North Sea plain, composed of pedunculate oak (*Quercus robur*), silver birch (*Betula pendula*) and downy birch (*B. pubescens*), often mixed with rowan (*Sorbus aucuparia*) and aspen (*Populus tremula*), on very oligotrophic, often sandy and podzolised or hydromorphic soils. The poorly developed bush layer includes alder buckthorn (*Frangula alnus*), and the herb layer always includes wavy hair grass (*Deschampsia flexuosa*) and purple moor grass (*Molinia caerulea*), and is often invaded by bracken (*Pteridium aquilinum*). (Brown *et. al.*, 1997).

Correlates with: NVC - W10, W16, CORINE - 41.51.

WB362 Sub-Atlantic and medio-European oak or oak-hornbeam forests of the Carpinion betuli (AN1)

Description: Woodlands with hornbeam (*Carpinus betulus*) coppice occurring interspersed with pedunculate oak (*Quercus robur*) stands and introduced sweet chestnut (*Castanea sativa*). Great wood-rush (*Luzula sylvatica*) is locally dominant in the woodland, and the characteristic greater stitchwort (*Stellaria holostea*) is found in more open patches. (Brown *et. al.*, 1997).

Correlates with: NVC W10, CORINE 41.24

WB36Z Other lowland mixed deciduous woodland (IC)

Description: Lowland mixed-deciduous woods not as described in the annex 1 types above.

WB3Z Other broadleaved woodland (IC)

Description: Other broadleaved woodland types not currently discriminated for evaluation. Includes suckering elm woodland; and lowland oak and mixed deciduous woodland types not described in other categories.

Not included: See WB34.

Correlates with: NVC - W16, (many overlaps with other communities).

Conifer woodland

WCZ Other coniferous woodland (IC)

Description: Includes all coniferous plantation and other forest with >20% cover of introduced coniferous species.

ORCHARDS

Orchards also represent a land-use. Intensively managed orchards are included under the arable and horticulture class as CR31. These are distinguished by the intensity of the ground vegetation management. Where the grassland associated with a traditional orchard is unimproved and takes priority over the orchard class, a habitat section category code for the ground vegetation should be cross-referenced with the arable land-use / description section category CL3. E.g. an orchard on unimproved neutral pasture would be GN3.CL3 (i.e. Other neutral grassland (IC). Unintensively managed orchards (LU)).

Orchards

FT1 Traditional Orchard (PHW) (PHT)

Description: Groups of fruit trees (type of fruit tree unspecified) usually on permanent grassland. Unintensively managed.

FT11 Traditional pear orchard (PHW)

Description: Groups of pear trees usually on permanent grassland. Unintensively managed.

Not included: Intensively managed or 'commercial' orchards (FT2 and FT21).

FT12 Traditional cherry orchard (PHW)

Description: Groups of cherry trees usually on permanent grassland. Unintensively managed.

Not included: Intensively managed or 'commercial' orchards (FT2 and FT21).

FT13 Traditional apple orchard (PHW)

Description: Groups of apple trees usually on permanent grassland. Unintensively managed.

Not included: Intensively managed or 'commercial' orchards (FT2 and FT21).

FT14 Traditional plum orchard (PHW)

Description: Groups of plum trees usually on permanent grassland. Unintensively managed.

Not included: Intensively managed or 'commercial' orchards (FT2 and FT21).

FT15 Traditional mixed orchard (PHW)

Description: Groups of mixed fruit trees usually on permanent grassland. Unintensively managed. Specify fruit tree types in the target notes.

Not included: Intensively managed or 'commercial' orchards (FT2 and FT21).

FT16 – Traditional cobnut platt.

Description: Groups of cobnut trees usually on permanent grassland. Unintensively managed. Specify fruit tree types in the target notes.

Not included: Intensively managed or 'commercial' orchards (FT2 and FT21).

FT1Z Other traditional orchard (PHW)

Description: Groups of fruit trees usually on permanent grassland. Unintensively managed. Specify fruit tree type in target notes.

Not included: Intensively managed or 'commercial' orchards (FT2 and FT21).

GRASSLANDS

Acid grassland

GA1 Lowland dry acid grassland (PHT)

Description: Occurs on nutrient-poor, acid, generally free-draining, dry (to moist) soils with pH 4- to 5.5, overlying acid rocks or superficial deposits such as sands and gravels. Characterised by abundant or frequent wavy hair grass (*Deschampsia flexuosa*), mat grass (*Nardus stricta*), heath bedstraw (*Galium saxatile*), sheep's fescue (*Festuca ovina*), common bent (*Agrostis capillaris*), sheep's sorrel (*Rumex acetosella*), sand sedge (*Carex arenaria*), and tormentil (*Potentilla erecta*). Dwarf shrubs (heaths) and bilberry (*Vaccinium myrtillus*) occur at low abundance (<25% cover). It also includes pioneer annual rich calcifuge communities on parched/dry sandy soils. (UK Biodiversity Group, 1998a & 1999).

Correlates with: NVC U1, (U2-U4 lowland examples) and inland SD10b and SD11b.

GA12 Oligotrophic lowland dry acid grassland (NVC)

Description: Open, calcifugous grassland vegetation of oligotrophic, well drained acid soils developed in the warm, dry lowlands of Britain. Constant species associated to this habitat include sheep's fescue (*Festuca ovina*), common bent (*Agrostis capillaris*) and sheep's sorrel (*Rumex acetosella*), dicotyledons and lichens can be very abundant. Grazing and disturbance are important measures for the maintenance this habitat.

Correlates with: NVC U1

GA13 Lowland dry acid grassland (NVC)

Description: Sward dominated by wavy hair grass (*Deschampsia flexuosa*) on free-draining but sometimes moist acidic soils in the moderately humid British lowlands (up to 200m). Sheep's fescue (*Festuca ovina*) and common bent (*Agrostis capillaris*) are abundant amongst the vegetation, and heather (*Calluna vulgaris*) is present occasionally.

Not included: U2 acid grassland types occurring in upland situations should be included under GA21.

Correlates with: NVC U2a

GA14 Lowland humid acid grassland [Agrostis curtisii] [South and South West] (NVC)

Description: Grassland dominated by bristle bent (*Agrostis curtisii*) occurring in the moderately humid and mild lowlands. It grows on wet or waterlogged, base-poor, oligotrophic soils, and is maintained by grazing and/or burning pressures. Due to the intermediate humidity of the soil, a mixture of both dry and wet calcifugous plant species occur. Associates of this community include common bent (*Agrostis capillaris*), sheep's fescue (*Festuca ovina*), heath grass (*Danthonia decumbens*), tormentil (*Potentilla erecta*), heath bedstraw (*Galium saxatile*), and a small contribution of heather (*Calluna vulgaris*).

Required multiplex codes: In upland situations, this habitat should be included under GA22.

Correlates with: NVC U3

GA15 Lowland acid grassland [Festuca ovina - Agrostis capillaris - Galium saxatile] (NVC)

Description: Closed, short grassland vegetation dominated by sheep's fescue (*Festuca ovina*), common bent (*Agrostis capillaris*) and heath bedstraw (*Galium saxatile*), together with some sparse lichens and small ephemerals. It is found on well-drained, base-poor soils developed under a cool, moderately wet climate. Grazing plays a very important role for the maintenance of this habitat.

Not included: The upland range of U4 should be included under GA23.

Correlates with: NVC U4b-c

GA1Z Other lowland dry acid grassland (IC)

Description: All lowland dry acid grassland not included in the communities described above.

Calcareous grassland

GC1 Lowland calcareous grassland (PHT)

Description: Usually enclosed grasslands managed, not intensively, as pasture, on shallow lime-rich soils in the lowlands, often on escarpments or dry valley slopes. They often support a very rich flora, including some nationally scarce and rare plants, as well as invertebrates and birds. This habitat is frequently associated with scrub which contributes to biodiversity, especially when it contains a range of shrub species, with different age and structure (UK Biodiversity Group, 1998a).

Correlates with: NVC CG1-5, (CG6), CG7, (CG8 and lowland CG9 sub-communities).

GC111 Open calcareous grassland of slopes and ledges (NVC)

Description: Open, short, calcicolous vegetation of steep slopes on well-drained soils, developed under a warm and dry climate. Associated species to this habitat include carline thistle (*Carlina vulgaris*) and sheep's fescue (*Festuca ovina*), as well as cock's foot (*Dactylis glomerata*), mouse ear hawkweed (*Hieracium pilosella*), common bird's foot trefoil (*Lotus corniculatus*), ribwort plantain (*Plantago lanceolata*) and salad burnet (*Sanguisorba minor*).

Correlates with: NVC CG1

GC112 Unimproved species rich calcareous grassland (NVC)

Description: Closed, species rich vegetation developed on free-draining calcareous soils under warm, dry climatic conditions. This habitat is generally maintained by grazing. Species forming the sward include sheep's fescue (*Festuca ovina*), meadow oat grass (*Helictotrichon pretense*) and upright brome (*Bromus erectus*).

Correlates with: NVC CG2-3+CG8-9a

GC113 Rank calcareous grassland (NVC)

Description: Open or closed vegetation, sometimes grass dominated, developed on mesotrophic calcareous soils with some degree of moisture and generally ungrazed or with low grazing pressure. Species associated to this habitat include meadow oat grass (*Helictotrichon pratense*), downy oat grass (*Helictotrichon pubescens*), red fescue (*Festuca rubra*), upright brome (*Bromus erectus*) and tor grass (*Brachypodium pinnatum*).

Correlates with: NVC CG4-6

GC114 Oligotrophic calcareous grassland (NVC)

Description: Generally open vegetation of thin, well-drained and nutrient poor calcareous soils. Frequent species forming the sward include sheep's fescue (*Festuca ovina*), mouse ear hawkweed (*Hieracium pilosella*), rough hawkbit (*Leontodon hispidus*) and wild thyme (*Thymus polytrichus*). The grass cover is low, and herbs can be abundant. It generally occurs by overgrazing or where there has been disturbance in the past.

Correlates with: NVC CG7

GC12 Semi-natural dry grasslands and scrubland facies: on calcareous substrates (Festuco-Brometalia) (important orchid sites) (AN1) (JNCC)

Description: This priority habitat type comprises *Festuco-Brometalia* calcareous grasslands containing important orchid assemblages and/or rare orchids. 'Important orchid sites' are defined in the Interpretation Manual of European Union Habitats as localities which meet one or more of the following criteria: the site hosts a rich suite of orchid species; the site hosts an important population of at least one orchid species considered not very common on the national territory; the site hosts one or several orchid species considered to be rare, very rare or exceptional on the national territory. This applies to sites hosting populations of the following rare or scarce species: musk orchid (*Herminium monorchis*), burnt orchid (*Orchis ustulata*), lady orchid (*Orchis purpurea*), military orchid (*Orchis militaris*), monkey orchid (*Orchis simian*), man orchid (*Aceras anthropophorum*), lizard orchid (*Himantoglossum hircinum*), early spider orchid (*Ophrys sphegodes*), late spider orchid (*Ophrys fuciflora*) (JNCC 2007).

Correlates with: CORINE 34.31 to 34.34, NVC CG2 - CG5.

GC1Z Other lowland calcareous grassland (IC)

Description: All lowland calcicolous grassland vegetation not included in the calcareous grassland communities described above.

Neutral grassland

GN1 Lowland meadows (PHT)

Description: Unimproved or good semi-improved grassland below 300m managed for hay or pasture. Characteristic species include fritillary (*Fritillaria meleagris*), dyer's greenweed (*Genista tinctoria*), green-winged orchid (*Orchis morio*), greater butterfly orchid (*Plantanthera chlorantha*), pepper saxifrage (*Silaum silaus*) and wood bitter vetch (*Vicia orobus*). This habitat is also important for Skylark and other farmland birds, notably the corncrake. (UK Biodiversity Group, 1998a & 1999).

Not included: *Anthoxanthum odoratum - Geranium sylvaticum* grasslands which are covered in GN2 'Upland hay meadow'.

Correlates with: NVC MG5 hay meadow, MG4 flood meadow, and MG8 flood-pasture.

GN11 Lowland hay meadows [Alopecurus pratensis, Sanguisorba officinalis] (AN1)

Description: Species-rich hay meadows on little to moderately fertilised soils in the lowlands. These meadows occur on alluvial soils and are usually periodically flooded. (Brown *et. al.*, 1997).

Correlates with: NVC MG4 *Alopecurus pratensis - Sanguisorba officinalis* grassland. CORINE 38.2

GN12 Lowland meadows and pastures [Cynosurus cristatus, Centaurea nigra] (WHS)

Description: Lowland hay meadows and pastures on circum-neutral brown soils.

Correlates with: NVC MG5

GN1Z Other lowland meadows of importance (IC)

Description: Other lowland meadows not included in the above plant communities

GN3 Coarse neutral grassland (NVC MG1+MG9+MG10) (TT)

Description: Coarse grassland dominated by either false oat grass *(Arrhenatherum elatius*) or tall fescue (*Festuca arundinacea*) or by a mixture of yorkshire fog (*Holcus lanatus*), tufted hair grass (*Deschampsia cespitosa*) and soft-rush (*Juncus effusus*). These grasslands are often ungrazed and rank, sometimes poorly drained with frequent *Juncus effusus*.

Not included: Grazing marsh pasture, inundation grassland subject to periodic flooding.

Correlates with: NVC MG1 *Arrhenatherum elatius* grassland, MG9 *Holcus lanatus - Deschampsia cepitosa* grassland, MG10 *Holcus lanatus - Juncus effusus* rush-pasture.

GN31 Rank neutral grassland (NVC MG1) (TT)

Description: Coarse grassland usually dominated by either false oat grass (*Arrhenatherum elatius*) or tall fescue (*Festuca arundinacea*). These grasslands are characteristic of disturbed or poorly managed sites and frequently contain numerous ruderals.

Correlates with: NVC MG1 *Arrhenatherum elatius* grassland

GN32 Tussocky neutral grassland (NVC MG9+MG10) (TT)

Description: Coarse grassland of poorly drained soils in the grazing marsh usually dominated by a mixture of yorkshire fog (*Holcus lanatus*), tufted hair grass (*Deschampsia cespitosa*) and soft rush (*Juncus effuses*). In some instances particularly in wet grasslands the sward may be relatively species rich notably with tall herb communities where these occur the species rich tick box should be used.

Correlates with: NVC MG9 *Holcus lanatus - Deschampsia cepitosa* grassland, MG10 *Holcus lanatus - Juncus effusus* rush-pasture

GN33 Coarse transitional neutral grassland (NVC MG12) (SWHP)

Description: Coarse grassland of poorly drained soils in the grazing marsh and transitional between upper saltmarsh, frequently the sea couch (*Elytrigia atherica*) type, and coarse neutral grasslands. Usually unmanaged or poorly managed rank grasses that may include red fescue (*Festuca rubra*), tall fescue (*Festuca arundinacea*), creeping bent (*Agrostis stolonifera*), yorkshire fog (*Holcus lanatus*) with some distinctive saltmarsh species that may include, sea milkwort (*Glaux maritime*) and saltmarsh rush (*Juncus gerardii*).

Correlates with: NVC MG12

GN34 Brownfield grassland (KHM)

Description: Coarse grassland typically comprised of a variety of textures but often includes significant areas of very short grass/bare ground that are often rich in ephemeral/ruderal herbs. Characteristic species include hemlock (*Conium maculatum*), tall yellow *Brassica* spp., alkanet (*Anchusa officinalis*), viper's bugloss (*Echium vulgare*), fodder vetch (*Vicia villosa*), *Vulpia* spp., wild teasel (*Dipsacus fullonum*), common centaury (*Centaurium erythraea*) or goat's rue (*Galega officinalis*).

GN3Z Other coarse neutral grassland (IC)

Description: Other rank grassland grazing marsh vegetation not included in the above plant communities.

GN4 Grazing marsh pasture (NVC MG6) (TT)

Description: Permanent pasture characteristic of grazing marsh, dominated by a mixture of grasses including smaller cat's tail (*Phleum* bertolonii), crested dog's tail (*Cynosurus cristatus*), perennial rye grass (*Lolium perenne*) and includes herbs such as common bird's foot trefoil (*Lotus corniculatus*) and clover (*Trifolium*) spp.

Not included: Lowland hay meadows, coarse or ungrazed grasslands or inundation grassland.

Correlates with: NVC MG6 *Lolium perenne - Cynosurus cristatus* grassland.

GN41 Grazing marsh pasture [Lotus spp./Carex divisa sub-community] (TT)

Description: A herb rich permanent pasture grazing marsh often retaining old rill structures. Frequent herbs include strawberry clover (*Trifolium fragiferum*), hairy buttercup (*Ranunculus sardous*) and narrow leaf bird's foot trefoil (*Lotus glaber*).

GN4Z Grazing marsh pasture [Other sub-communities] (TT)

Description: A herb poor permanent pasture grazing marsh rarely retaining old rill structures.

GN5 Inundation grassland (TT)

Description: Grassland subject to periodic flooding, dominated by creeping bent (*Agrositis stolonifera*), red fescue (*Festuca rubra*) and marsh foxtail (*Alopecurus geniculatus*).

Not included: Grasslands not subject to periodic flooding.

Correlates with: NVC MG11 *Festuca rubra - Agrostis stolonifera - Potentilla anserina* grassland, MG13 *Agrostis stolonifera - Alopecurus geniculatus* grassland.

GN51 Inundation grassland [brackish] (TT)

Description: Grassland subject to periodic flooding (by brackish water) or with a seasonally high water table, dominated by creeping bent (*Agrositis stolonifera*), red fescue (*Festuca rubra*) and silverweed (*Potentilla anserina*) and occassional species tolerant of brackish soil.

Not included: Grasslands not subject to periodic flooding.

Correlates with: NVC MG11 *Festuca rubra - Agrostis stolonifera - Potentilla anserina* grassland.

GN52 Inundation grassland [fresh] (TT)

Description: Grassland subject to periodic flooding (by fresh water), dominated by creeping bent (*Agrositis stolonifera*) and marsh foxtail (*Alopecurus geniculatus*).

Not included: Grasslands not subject to periodic flooding.

Correlates with: NVC MG13 *Agrostis stolonifera - Alopecurus geniculatus* grassland.

GN6 Sea wall grassland (TT)

Description: Grassland on embankments which forms narrow strips bordering the sea and estuaries. The feature is often grazed or mown and does not occur inland. This plant community contains a mixture of species associated to neutral soils as well as some related to coastal environments, including a number of nationally scarce and rare species (i.e. slender hair's ear (*Bupleurum tenuissimum*), sea barley (*Hordeum marinum*),dittander (*Lepidium latifolium*), sea clover (*Trifolium squamosum*), golden samphire (*Inula crithmoides*) and least lettuce (*Lactuca saligna*)).

Not included: Sea wall made of unbroken concrete, gabions or other manmade materials should be included under UR0 with management class UA5 though these features may include scarce plants and where field surveyed may have associated species data. Defences made from unconsolidated rock armour are recorded as supralittoral SR2 or littoral rock and boulders LR4.

GNZ Other neutral grassland (IC)

Description: All unimproved and semi-improved neutral grasslands in the uplands, and unimproved and semi-improved neutral grasslands in the lowlands outside the indicative floodplain and/or not included in the plant communities described above.

Maritime grassland

GM1 Festuca rubra maritime grassland (PHT)

Description: Beyond the most spray splashed zones Red fescue (*Festuca rubra*) is a constant in most maritime grasslands with increasing dominance where the influence of salt dies away. The associates with *Festuca* vary as the maritime influence diminishes, the soils deepen, through variations in the degree of summer parching or where there is significant grazing impact. The sub communities are defined below

Correlates with: NVC MC8-12

GM14 Festuca rubra – Daucus carota spp. sub-community (PHT)

Description: On gentler slopes with less spray deposition with soils developing on calcareous substrates. Red fescue (*Festuca rubra*) and cock's foot (*Dactylis glomerata*) are usually the most abundant with the latter usually replacing yorkshire fog (*Holcus lanatus*). Stands of sea carrot (*Daucus carota* ssp *gummifer*) can be a striking feature when in flower. The maritime element is frequently small and variation will depend on soils depth and the degree of summer parching.

Correlates with: NVC MC11

GM1Z Other Festuca rubra maritime grassland (PHT)

Description: Other red fescue (*Festuca rubra*) maritime grasslands not defined above.

Correlates with: Inverse class

GMZ Other maritime grasslands (PHT)

Description: Other maritime grasslands in which red fescue (*Festuca rubra*) is absent or insignificant.

Correlates with: inverse class

Improved grassland

GI0 Improved grassland (BHT)

Description: This habitat type is characterised by vegetation dominated by a few fast-growing grasses on fertile, neutral soils. It is frequently characterised by an abundance of rye-grass (*Lolium*) spp. and white clover (*Trifolium repens*). Improved grasslands are typically either managed as pasture or mown regularly for silage production or in non-agricultural contexts for recreation and amenity purposes; they are often periodically resown and are maintained by fertiliser treatment and weed control. They may also be temporary and sown as part of the rotation or arable crops but they are only included in this category if they are more than one year old. (Jackson D.L., 2000).

Not included: Sown grasslands which are less than one year old are included in the CR~ Arable and horticultural category.

Required multiplex codes: Qualify GI0 with a management code from the Land-use/Description Section (a GM~ Grassland management category, and a GL~ Grassland use category).

Correlates with: NVC MG7 and MG6 - especially MG6a.

BRACKEN

Bracken

BRZ Other continuous bracken (IC)

Description: Areas dominated by dense bracken (*Pteridium aquilinum*), and not NVC U20a, or if so then without a diverse spring-flush.

HEATHLAND

Heathland

HE11 Calluna vulgaris dry heath

Description: Heather (*Calluna vulgaris*) dominated or co-dominated dry heath vegetation.

Not included: See HE1.

Required multiplex codes: See HE1.

Correlates with: NVC H1, H2, H7c, H8, H9, H10, H11, H12, H16.

HE111 Calluna vulgaris - Festuca ovina heath (NVC)

Description: Heather (*Calluna vulgaris*) dominated vegetation, generally rather species poor but with sometimes bryophyte and lichen species diversity. Grass coverage is always low, and where it occurs (generally <30%), the most conspicuous species is sheep's fescue (*Festuca ovina*) (common bent (*Agrostis capillaris*) and wavy hair grass (*Deschampsia flexuosa*) can appear amongst the sward but only occasionally). Bell heather (*Erica cinerea*), cross leaved heath (*E. tetralix*), dwarf gorse (*Ulex minor*), western gorse (*U. gallii*) and gorse (*U. europaeus*) are absent or scarce. This community occurs on base-poor, oligotrophic sandy soils of dry regions. Grazing and burning play an important role in species diversity and structure.

Not included: *Calluna vulgaris - Festuca ovina* heath on sand dune formations (NVC H1d) should be included under SS1411 Atlantic decalcified fixed dunes.

Correlates with: NVC H1

HE112 Calluna vulgaris - Ulex minor heath (NVC)

Description: Heather (*Calluna vulgaris*) dominated heath vegetation, with generally frequent bell heather (*Erica cinerea*) and dwarf gorse (*Ulex minor*), and occasional western gorse (*U. gallii*) and gorse (*U. europaeus*). This community is characteristic of impoverished and most free-draining acid soils, mainly localized in South and South East England where the climate is dry and mild. Burning and grazing practices maintain this habitat.

Correlates with: NVC H2

HE114 Calluna vulgaris – Ulex gallii heath (NVC)

Description: It occurs on free-draining, generally acid to circumneutral impoverished soils in the warm oceanic regions of lowland Britain. Its floristic composition varies depending on edaphic and climatic conditions, and is maintained by grazing, burning and/or exposure to wind. It can grow on a wide range of soil types, from arenaceous sedimentaries to leached limestones by rainfall. Species associated to this habitat include western gorse (*Ulex gallii*), heather (*Calluna vulgaris*) and bell heather (*Erica cinerea*).

Not included: Spring squill (*Scilla verna*) subcomunity should be included under Maritime heath cliff-top vegetation.

Correlates with: NVC H8

HE116 Calluna vulgaris – Erica cinerea heath (NVC)

Description: Characteristic of acid to circumneutral and generally free-draining soils in the cool oceanic lowlands and upland fringes of northern and western Britain. Grazing, burning and/or exposure to wind maintain its composition and structure. Constant

species amongst the sward include heather (*Calluna vulgaris*), bell heather (*Erica cinerea*) and upright brome (*Potentilla erecta*).

Correlates with: NVC H10

HE118 Calluna vulgaris – Vaccinium myrtillus heath (NVC)

Description: Typical sub-shrub community of acidic to circumneutral, free-draining but moist mineral soils in the cold, wet, less oceanic sub-montane zone (between 200-600m). It is generally dominated by heather (*Calluna vulgaris*). Burning and grazing practices maintain this habitat. Associated species to include heather (*Calluna vulgaris*), bilberry (*Vaccinium myrtillus*), heath plait-moss (*Hypnum jutlandicum*), broom moss (*Dicranum scoparium*), red stemmed feather moss (*Pleurozium schreberi*) and wavy hair grass (*Deschampsia flexuosa*).

Correlates with: NVC H12

HE1Z Other European dry heaths (IC)

Description: All dry heaths not included under any of the above communities.

Correlates with: NVC M14, M15, M16, M21 & H5.

HE21 Northern Atlantic wet heaths with Erica tetralix (AN1)

Description: Wet heaths lacking the locally prominent Dorset Heath (*Erica ciliaris*) and where purple moor grass (*Molinia caerulea*) although abundant is not dominant. Within NVC M16 communities a nutrient-poor and more consistently waterlogged soil will give cross leaved heath (*Erica tetralix*) a competitive advantage against purple moor grass (*Molinia caerulea*). In drier soils within M15 communities, impoverishment favours heather (*Calluna vulgaris*) against purple moor grass (*Molinia caerulea*). (Brown *et. al.*, 1997).

Correlates with: NVC - M14, M15, M16, H5. CORINE 31.11

HE211 Schoenus nigricans - Narthecium ossifragum mire (NVC)

Description: Vegetation dominated by black bog-rush (*Schoenus nigricans*) growing on peats and mineral soils irrigated by relatively base rich calcareous ground waters. It is typically found amongst wet heath and moorland vegetation, but it can also occur on soligenous zones within mires. Other species forming the vegetation include bog asphodel (*Narthecium ossifragum*) (moderately frequent), purple moor grass (*Molinia caerulea*) (abundant) and cross leaved heath (*Erica tetralix*).

Correlates with: NVC M14

HE2Z Other wet heaths (IC)

Description: Wet heaths not classified as in the plant communities described above as wet heaths.

HE3 Lichen/Bryophyte heath (PH1)

Description: Bryophyte and lichen dominated heaths of lowland situations such as the Breckland. Lichens and bryophytes must be dominant with less than 30% vascular plant cover. (NCC, 1990)

Not included: For montane situations, should use MH22.

HEZ Other dwarf shrub heath (IC)

Description: Any heath not classified in any of the above categories.

WETLANDS

Fen, marsh and swamp

EM1 Swamp (PH1)

Description: Contains tall vegetation >5m wide which is emergent from water or is frequently inundated by water and which occurs over mineral or peaty soils. The water table is distinctly above the level of the substrate for most of the year. It generally occurs in transition between open water and land. Vegetation includes mixed and single-species stands of bulrush (*Typha*) species, reed canary grass (*Phalaris arundinacea*), reed sweet grass (*Glyceria maxima*), greater tussock sedge (*Carex paniculata*), lesser pond sedge (*C. acutiformis*), bottle sedge (*C. rostrata*) or other tall sedge, and common reed (*Phragmites australis*). (NCC, 1990).

Not included: Swamp vegetation <5m wide should be included under EM21 Marginal vegetation (PH1).

Correlates with: S1-S6, (S7-S9), S10, (S11), S12-14, (S15), S16-17, (S18), S19-S26, (S27), S28.

EM11 Reedbeds (PHT)

Description: Here taken exclusively to refer to swamp dominated by common reed (*Phragmites australis*) (>60% reed component), wherein the water table is at or above ground level for most of the year. (UK Biodiversity Group, 1998a). May also appear as a matrix code in standing water codes AS0,AS6, AS61, AS62 and AS63

Not included: Tall-herb fens (which are drier, only occasionally flooding) with abundant *Phragmites* should be included under EM33 Alkaline fens. Other swamp dominants usually included in 'reedbeds' such as reed canary grass (*Phalaris arundinacea*), reed sweet grass (*Glyceria maxima*), bulrush (*Typha*) spp., club-rush (*Schoenoplectus*) spp., sea club rush (*Bolboschoenus*) spp., bur-reed (*Sparganium*) spp., etc. should be included under another EM1~ category. See EM1.

Correlates with: NVC S4 S26

EM13 Bolboscheoenus maritimus dominant community (NVC S21) (TT)

Description: Swamp vegetation dominated by sea club rush (*Bolboscheoenus maritimus*) often as the sole species, occurring in extremely brackish conditions. May also appear as a matrix code in standing water classes AS6 and AS63

Not included: Ditches with open water containing fennel pondweed (*Potamogeton pectinatus*).

Correlates with: NVC S21.

EM17 Carex spp. swamp (NVC)

Description: Open or closed swamp vegetation dominated by sedges (*Carex*) spp. and generally rather species poor, growing on a variety of substrates around lakes, pools, ponds and reservoirs, in saline, brackish or fresh water conditions.

Not included: Stands dominated by sedges (*Carex*) spp. of <5m wide or growing in permanent standing or running water should be included under EM211or as a water matrix code respectively.

Required multiplex codes: TD1 complex code should be used when the habitat is found in the intertidal zone.

Correlates with: NVC S1+S3+S6-7+S9+S11+S17

EM173 *Carex riparia* swamp (NVC)

Description: Dense, tall vegetation dominated by greater pond-sedge (*Carex riparia*), usually species poor. It is generally found on mesotrophic to eutrophic waterlogged soils by rivers and streams.

Not included: Stands dominated by greater pond sedge (*Carex riparia*) of <5m wide or growing in permanent standing or running water should be included under EM211 or as a water matrix code respectively.

Required multiplex codes: TD1 complex code should be used when the habitat is found in the inter tidal zone.

Correlates with: NVC S6

EM174 Carex acutiformis swamp (NVC)

Description: Open or closed vegetation dominated by lesser pond sedge (*Carex acutiformis*), sometimes accompanied by greater tussock sedge (*Carex paniculata*), branched bur-reed (*Sparganium erectum*), bulrush (*Typha latifolia*) and soft-rush (*Juncus effuses*). It is found in a wide range of situations, from open water transitions to flood pastures and meadows.

Not included: Stands dominated by lesser pond sedge (*Carex acutiformis*) of <5m wide or growing in permanent standing or running water should be included under EM211 or as a water matrix code respectively.

Required multiplex codes: TD1 complex code should be used when the habitat is found in the intertidal zone.

Correlates with: NVC S7

EM18 Tussocky swamp vegetation (NVC)

Description: Swamp vegetation >5m wide dominated by sweet grass (*Glyceria*) spp., bulrush (*Typha*) spp., branched bur-reed (*Sparganium erectum*), common spike-rush (*Eleocharis palustris*), club-rush (*Schoenoplectus*) spp. and reed canary grass (*Phalaris arundinacea*) growing in either saline, brackish or fresh water conditions where the water table is at or above ground level for most of the year (usually around lakes, ponds and reservoirs).

Not included: Stands dominated by sweet grass (*Glyceria*) spp., bulrush (*Typha*) spp., branched bur-reed (*Sparganium erectum*),common spike-rush (*Eleocharis palustris*), club rush (*Schoenoplectus*) spp. or reed canary grass (*Phalaris arundinacea*) of <5m wide or growing in permanent standing or running water should be included under EM211 or as a water matrix code respectively.

Required multiplex codes: See TD1 complex code should be used when the habitat is found in the intertidal zone.

Correlates with: NVC S5+S8+10+S12-15+S19-20+S22-23+S28

EM181 Glyceria spp. swamp (NVC)

Description: Vegetation dominated by sweet grass (*Glyceria*) spp. (reed sweet grass (*Glyceria maxima*) or floating sweet grass (*Glyceria fluitans*)) in fresh water conditions where the water table is permanently above or close to the surface.

Not included: See EM1 and EM18.

Required multiplex codes: See EM18.

Correlates with: NVC S5+S22

EM1811 Glyceria maxima swamp (NVC)

Description: Dense, tall vegetation dominated by reed sweet grass (*Glyceria maxima*), generally species poor and typically found in lowland eutrophic water margins.

Not included: See EM1 and EM18.

Required multiplex codes: See EM18.

Correlates with: NVC S5

EM183 Typha spp. swamp (NVC)

Description: Stands dominated by bulrush (*Typha*) spp. (common bulrush (*Typha latifolia*) or lesser bulrush (*Typha angustifolia*)), often species poor and forming tall, open or closed vegetation around lowland lakes, ponds and reservoirs. Common bulrush (*Typha latifolia*) and lesser bulrush (*T. angustifolia*) have the same habitat requirements but rarely occur together.

Not included: See EM1 and EM18.

Required multiplex codes: See EM18.

Correlates with: NVC S12-13

EM1831 Typha latifolia swamp (NVC)

Description: Tall, open or closed swamp vegetation dominated by common bulrush (*Typha latifolia*) usually found around lowland lakes, ponds and reservoirs.

Not included: See EM1 and EM18.

Required multiplex codes: See EM18.

Correlates with: NVC S12

EM1832 Typha angustifolia swamp (NVC)

Description: Tall, open or closed vegetation dominated by lesser bulrush (*Typha angustifolia*) found on water logged soils around lowland lakes, ponds and reservoirs.

Not included: See EM1 and EM18.

Required multiplex codes: See EM183.

Correlates with: NVC S13

EM184 Sparganium erectum swamp (NVC)

Description: Tall, open or closed species poor vegetation dominated by branched bur-reed (*Sparganium erectum*), growing in fresh water ponds and pools. Other species sometimes associated to this habitat include common water-plantain (*Alisma-plantago aquatic*), water mint (*Mentha aquatic*) and reed canary grass (*Phalaris arundinacea*).

Not included: See EM1 and EM18.

Required multiplex codes: See EM18.

Correlates with: NVC S14

EM185 Eleocharis palustris swamp (NVC)

Description: Open or closed short vegetation dominated by common spike-rush (*Eleocharis palustris*), generally species poor. It is typically found in the lowlands of Britain around lakes, ponds and water courses, growing on a wide range of substrates (from silty to sandy or stony).

Not included: See EM1 and EM18.

Required multiplex codes: See EM18.

Correlates with: NVC S19

EM187 Phalaris arundinacea swamp (NVC)

Description: Dense, tall swamp vegetation dominated by reed canary grass (*Phalaris arundinacea*), generally species poor but sometimes associated with other species with local prominence. Typically found in fresh water situations (rarely seen in brackish), it can grow on a variety of substrates (from clays to gravels).

Not included: See EM1 and EM18.

Required multiplex codes: See EM18.

Correlates with: NVC S28

EM1Z Other swamp vegetation (IC)

Description: All other swamp vegetation types, which if in strips is >5m wide (otherwise see EM21 Marginal vegetation). In general terms, it includes stands of fool's water cress (*Apium nodiflorum*), water cress (*Rorippa nasturtium-aquaticum*) and brooklime (*Veronica beccabunga*), as well as stands of sweet flag (*Acorus calamus*) (introduced species) when is >5m wide, which occurs around ponds, lakes and canals.

Not included: See EM1.

Correlates with: NVC S15+S23

EM2 Marginal and inundation vegetation (PH1)

Description: Vegetation of the margins of lowland watercourses, and ruderal and other vegetation subject to periodic flooding and not occurring within grasslands, pasture or meadow. (NCC, 1990).

EM21 Marginal vegetation (PH1)

Description: All narrow strips (<5m wide) of vegetation on the often steep margins of lowland watercourses where the water table is permanently high. Includes typically open, patchy vegetation containing plants such as sweet grass (*Glyceria*) spp., yellow cress (*Rorippa*) spp., fool's water cress (*Apium nodiflorum*), lesser water parsnip (*Berula erecta*), water dropwort (*Oenanthe*) spp., marsh-bedstraw (*Galium palustre*), water-cress (*Nasturtium officinale*), forget-me-not (*Myosotis*) spp., speedwell (*Veronica*) spp., water-plantain (*Alisma*) spp., branched bur-reed (*Sparganium erectum*), greater pond sedge (*Carex riparia*), soft rush (*Juncus effuses*), and

hard rush (*J. inflexus*), and small stands of taller plants such as common reed (*Phragmites australis*), bulrush (*Typha*) spp., and reed canary-grass (*Phalaris arundinacea*). (NCC, 1990).

Required multiplex codes: Emergent fringe vegetation along rivers or streams or canals and ditches (where <5m wide) should be included here and qualified by cross-referencing with the appropriate LT2 River-side (HLU) or LT1 Canal- and ditch-side (HLU) category.

Correlates with: NVC S1, S3, S5-6, (S7-S9), S10, (S11), S12-14, (S15), S16-17, (S18), S19-S23.

EM211 Marginal vegetation of non tidal watercources (TT)

Description: All narrow strips (<5m wide) of vegetation on the often steep margins of lowland watercourses where the water table is permanently high. Includes typically open, patchy vegetation containing plants such as sweet grass (*Glyceria*) spp., yellow cress (*Rorippa*) spp., fool's water cress (*Apium nodiflorum*), lesser water parsnip (*Berula erecta*), water dropwort (*Oenanthe*) spp., marsh-bedstraw (*Galium palustre*), water-cress (*Nasturtium officinale*), forget-me-not (*Myosotis*) spp., speedwell (*Veronica*) spp., water-plantain (*Alisma*) spp., branched bur-reed (*Sparganium erectum*), greater pond sedge (*Carex riparia*), soft rush (*Juncus effuses*), and hard rush (*J. inflexus*), and small stands of taller plants such as common reed (*Phragmites australis*), bulrush (*Typha*) spp., and reed canary-grass (*Phalaris arundinacea*). (NCC, 1990).

EM212 Marginal vegetation of tidal granite block structures (TT)

Description: All narrow strips (<5m wide) of vegetation on the often steep margins of lowland watercourses structures made of granite blocks or cracked concrete where the water table is permanently high. Includes typically open, patchy vegetation containing plants common michaelmas daisy (*Aster x salignus*), marsh ragwort (*Senecio aquaticus*) and purple loosestrife (*Lythrum salicaria*).

EM213 Marginal vegetation of tidal watercourses dominated by grey clubrush (TT)

Description: All narrow strips (<5m wide) of vegetation on the often steep margins of lowland watercourses where the water table is permanently high. Includes typically open, patchy vegetation containing grey clubrush (*Schoenoplectus tabernaemontani*).

Not included: Stands of grey clubrush (*Schoenoplectus tabernaemontani*) >5m wide should be included under EM1862.

EM214 Marginal vegetation of brackish tidal watercourses (TT)

Description: All narrow strips (<5m wide) of vegetation on the often steep margins of lowland watercourses where the water table is permanently high. Includes typically open, patchy vegetation containing plants such as sea club rush (*Bolboschoenus maritimus*), sea aster (*Aster tripolium*),common reed (*Phragmites australis*) and spear leaved orache (*Atriplex prostrate*).

Not included: See LS313

EM21Z Other marginal vegetation of tidal watercourses (TT)

Description: All narrow strips (<5m wide) of vegetation on the often steep margins of lowland watercourses where the water table is permanently high. Includes typically open, patchy vegetation containing plants such as water forget-me-not (*Myosotis scorpioides*), broad leaved dock (*Rumex obtusifolius*) and hedge bindweed (*Calystegia sepium*).

EM22 Inundation vegetation (PH1)

Description: Includes open and innately unstable communities that are subject to periodic inundation. These may be found in the draw-down zone around pools, lakes and reservoirs, and on the silts, sands, and gravels of exposed river beds and islands. Included are a wide variety of species, such as knotgrass (*Polygonum*) spp. (including common bistort (*P. bistorta*) and water-pepper (*P. hydropiper*)), celery leaved buttercup (*Ranunculus sceleratus*), red goosefoot (*Chenopodium rubrum*)/halberd-leaved orache (*Atriplex hastata*), marsh cudweed (*Gnaphalium uliginosum*), toad rush (*Juncus bufonius*), burr marigolds (*Bidens*) spp., creeping bent (*Agrostis stolonifera*), and marsh foxtail (*Alopecurus geniculatus*). (NCC, 1990).

Not included: Include creeping bent (*Agrostis stolonifera*), and marsh foxtail (*Alopecurus geniculatus*) (and silverweed (*Potentilla anserine*)) communities which are closed and associated with pasture and meadow under a GN~ neutral grassland category.

EM31 Fens [lowland] (PHT)

Description: Minerotrophic mires in the lowlands [below the limit of agricultural enclosure - English Nature, 2000] with vegetation of permanently, seasonally or periodically waterlogged soils with water and plant-nutrients derived mostly from surface flow or groundwater (or both), and with the water table at or near the surface. Soils may be peat (usually >0.5m deep), peaty, or sometimes in the case of flood-plain mire, mineral. Includes 'rich' and 'poor' fens, both topogenous and soligenous (basin, valley and floodplain mires), tall herb fens, fen-meadows, and rush pastures. (UK Biodiversity Group, 1998a).

EM312 Springs (SC)

Description: Gushing or trickling springs and especially the communities associated with them. Included are springs arising from a point source which seep at or over the surface and are not immediately channelised. Springs are point features. When the spring flow becomes channelised into a stream this linear feature should be included under headwater streams (an AR1 category cross-referenced with an AC~ category). Do not cross-reference a spring category with a stream category. Tufa streams arising form a spring source should be mapped and coded as a point EM331 feature, and once channelised as AR111 Tufa streams (HWS) cross-referenced with the appropriate channel form code (AC~). Flushes, soaks and seeps which do not arise from a point source are included under EM36 Other fens, transition mires, and flushes (HIC).

EM31Z Other lowland fens (IC)

Description: Lowland fens not covered by any of the Annex 1 Habitat Type definitions.

EM32 Fens [upland] (SC)

Description: Minerotrophic mires in the uplands [above the limit of agricultural enclosure - English Nature, 2000] with vegetation of permanently, seasonally or periodically waterlogged soils with water and plant-nutrients derived mostly from surface flow or groundwater (or both), and with the water table at or near the surface. Soils may be peat (usually >0.5m deep), peaty, or sometimes in the case of flood-plain mire, mineral. Includes 'rich' and 'poor' fens, both topogenous and soligenous (basin, valley and floodplain mires), tall herb fens, fen-meadows, and rush pastures. (UK Biodiversity Group, 1998a).

EM3Z Other fens, transition mires, springs and flushes (IC)

Description: This includes acid poor-fen, acid flushes, soaks and marshes dominated by small cyperaceae and often sphagna, lowland seepage lines and stream banks of shaded situations, tall herb fen stands in the lowlands or coastlands on moist circumneutral soils, and other minerotrophic mire communities (including montane) not included above.

Correlates with: NVC M6, (M7), M27, (M28), (M36) and other minerotophic mire communities.

EM4 Purple moor grass and rush pastures [Molinia-Juncus] (PHT)

Description: Includes vegetation of fen-meadow and rush-pasture on poorly-drained peats or peaty gleys which are moist for a substantial part of the year, and at least moderately base-rich, often acid, sometimes calcareous, with a pH usually above 4.5. Although purple moor-grass (*Molinia caerulea*) and rush (*Juncus*) spp. especially sharp-flowered rush (*J. acutiflorus*) are usually abundant it is difficult to provide a list of diagnostic species. (UK Biodiversity Group, 1998a).

Correlates with: NVC M22-25 (M26).

EM422 Juncus effusus/acutiflorus - Galium palustre rush-pasture (NVC)

Description: Vegetation dominated by soft rush (*Juncus effusus*) and/or sharp flowered rush (*J. acutiflorus*) with a more or less dense background cover of herbs typical of damp conditions. It is associated to semi-improved, ill-drained pastures with moist, acid to neutral peaty and mineral soils. This habitat is maintained by grazing, which plays an important role in species diversity and vegetation structure, and is distributed in the lowlands of Western Britain, where the climate is cool and wet. It is difficult to identify associated species as they greatly vary within this community.

Correlates with: M23

EM4Z Other purple moor grass and rush pastures [Molinia-Juncus] (IC)

Description: Other fen-meadows and rush-pastures not included in the above EM4 purple moor grass and rush pastures categories described above.

Coastal and floodplain grazing marsh (PHT)

This is a landscape with a complex of habitats existing together in flat, low altitude areas by the coast or in lowland floodplains, and which overlie ground-water gleys or peaty soils. It usually contains periodically inundated pasture or meadow; a dense network of surface drainage channels (dykes, rhynes, ditches, etc) with controlled water levels; seasonal water-filled hollows; and is traditionally summer-grazed. It often contains relic communities of mire, wet woodland and saltmarsh, aquatic, swamp, fen-meadow and tall-herb fen communities, lowland wet grassland showing varying degrees of agricultural improvement, and ruderal communities. (UK Biodiversity Group, 1998a). It is a complex which will be determined in analysis by using parameters based on flood/ inundation extent / height and user-defined habitats. (See CF1 under Habitat Complexes in Land Use/ Management/ Descriptive codes section).

OPEN WATER: STANDING

Standing open water

AS0 Standing open water and canals (BHT)

Description: Standing waters occur where the drainage is impeded, and flow is consequently still to sluggish. Includes natural systems of open water areas such as lakes, meres, pools and ponds, as well as man-made waters such as reservoirs, ponds, and gravel pits. Included also are linear features of open water such as ditches, rhynes and canals, where there is open water for at least the majority of the year. The open water zone lies beyond the limits of emergent swamp vegetation, but may contain submerged, free-floating or floating-leaved vegetation. It also includes water fringe vegetation which is constantly submerged where it is an integral part of an aquatic system. (Jackson, D.L., 2000)

Not included: Include bog pools in mires under an EO~ bog category. Include temporary pools on heath in a HE~ Dwarf-shrub heath category. Include fringing emergent swamp vegetation under a EM~ Fen, marsh, swamp category. Coastal saline lagoons are not included in this habitat type but are covered by the IS~ Inshore sublittoral sediment category (Jackson D. L., 2000)

Required multiplex codes: Qualify water-body size by applying appropriate AP~ open water size category. Qualify open area form (i.e. reservoir, gravel pit, etc), even if natural, using an AO~ category. If a standing water linear feature apply an appropriate AC~ category, even if natural.

AS3 Mesotrophic standing waters (PH1)

Description: Standing waters sometimes discoloured by planktonic algae. pH usually around or slightly below neutral.

Not included: See AS0.

Required multiplex codes: See AS0.

AS31 Mesotrophic lakes (PHT)

Description: Intermediate in trophic range between oligotrophic and eutrophic waters, with moderate alkalinity of 10-30 mg/l CaCO3, with neutral or slightly lower winter pH (c. 7.0), with water sometimes discoloured by planktonic algae. They are characterised by having a narrow range of nutrients, the main indicative ones being inorganic nitrogen (N) and total phosphorus (P). Typically, mesotrophic lakes have nutrient levels of 0.3-0.65mgNl-1 and 0.01-0.03mgPl-1. Over 1 hectare in size. They are often located on the fringes of upland areas where water running off acidic, nutrient-poor rocks is enriched by water from the lower-lying areas of the catchment. Typical species include various leaved pondweed (*Potamogeton gramineus*), blunt leaved pondweed (*P. obtusifolius*), perfoliate pondweed (*P. perfoliatus*), autumnal water starwort (*Callitriche hermaphroditica*), stonewort (*Nitella*) spp., yellow water lily (*Nuphar lutea*), and white water lily (*Nymphaea alba*). An increasingly rare water body type. (UK Biodiversity Group, 1998a).

Not included: Mesotrophic waters of less than 1 hectare in size. See AS0.

Required multiplex codes: See AS0.

Correlates with: GB Standing Waters Classification Type 5 (and some in Type 9); NVC: A9, A10, A13, (A16, A19 and A20 may be mesotrophic or eutrophic).

AS6 Brackish standing water with no sea connection (PH1)

Description: Includes saline standing open waters derived artificially, such as brackish lagoons associated with industrial activity, such as salt or mine workings; rare naturally occurring inland brackish waters derived from residues of ancient marine incursions in peaty areas; and brackish ditches associated with coastal lowlands or washlands (drained areas with residual salinity or subject to sea incursion). The habitat is characterized by high salinity, and high conductivity, usually >1500 mmhos (up to 50,000 mmhos cf. <750 for all other categories). (NCC, 1990).

Not included: See AS0.

Required multiplex codes: See AS0.

AS61 Saline lagoons with no sea connection [= Coastal lagoons (AN1)] (PHT)

Description: Coastal brackish open standing water bodies, natural or artificial, wholly separated from the sea by sandy banks or rocks. Within this category are included isolated lagoons, which are completely separated from the sea by a barrier of rock or sediment. These features are often short-lived due to natural processes of infilling and coastal erosion. Salinity is variable but often low.

Not included: See AS0.

Required multiplex codes: See AS0.

Correlates with: CORINE 21.

AS611 Saline ponds (TT)

Description: Small shallow saline ponds in saltmarsh.

Not included: See AS0.

Required multiplex codes: See AS0.

AS62 Brackish (TT)

Description: Associated with EM15 soft hornwort (*Ceratophyllum submersum*), fennel pondweed (*Potamogeton pectinatus*) and common spike rush (*Eleocharis palustris*) brackish community (NVC S19 with A6).

Not included: See AS0.

Required multiplex codes: See AS0.

Correlates with: EM15.

AS63 Very brackish (TT)

Description: Associated with EM13 sea club rush (*Bolboschoenus maritimus*) dominant community (NVC S21), and EM14 sea club rush (*Bolboschoenus maritimus*) and fennel pondweed (*Potamogeton pectinatus*) extremely brackish dominant community (NVC S21 with A11+A12).

Not included: See AS0.

Required multiplex codes: See AS0.

Correlates with: EM13 and EM14.

OPEN WATER: RUNNING

Rivers and streams

AR0 Rivers and streams (BHT)

Description: Includes rivers and streams from bank top to bank top or where there are no distinctive banks, or where banks are never overtopped, it includes the extent of the mean annual flood. They may have natural, or more often than not, artificially modified channels to alleviate flooding with modifications such as impounding and channel re-routing. Also included in this category are submerged, free-floating and rooted floating-leaved plant communities in the open water zone, and water fringe vegetation which is constantly submerged and integral to the aquatic system. Exposed sediments and shingle banks are also included where these are within the mean annual flood reach. (Jackson D.L., 2000).

Not included: Emergent fringe vegetation along rivers or streams should be included under an EM~ Fen, marsh, and swamp category, and qualified by cross-referencing with LT2 River-side (HLU). Exposed areas of sediment and shingle beyond the mean annual flood should be included under RE15 Exposed river gravels and shingles (HCE).

Required multiplex codes: Qualify channel form (i.e. artificially modified channels, natural channels, etc) by cross-referencing with an AC~ category.

AR4 Tidal rivers upstream of estuary (TT) (PHT)

AR41 Tidal rivers upstream of estuary brackish water (TT)

AR42 Tidal rivers upstream of estuary fresh water (TT)

AR5 Estuarine saline water and sea (TT)

ARABLE

Arable and horticulture

CR0 Arable and horticulture (BHT)

Description: Includes arable cropland (including perennial, woody crops, and intensively managed orchards, commercial horticultural land (such as nurseries, vegetable plots and flower beds) freshly-ploughed land, and recently reseeded grassland, annual leys, rotational set-aside and fallow land. This habitat type includes cereal field margins.

Not included: Does not include domestic gardens and allotments which should be included under UR0.

Required multiplex codes: Qualify by cross-referencing with a CL~ cropped land description category.

CR1 Grass and grass-clover leys (SC)

Description: Short-rotation species-poor mixes of high-yield grasses and herbs such as perennial rye grass (*Lolium perenne*), Italian rye grass (*Lolium multiflorum*), hybrid rye grass (*L.* x *hybridum*), timothy (*Phleum pretense*) and its cultivars, white clover (*Trifolium repens*), rough meadow grass (*Poa trivialis*), meadow foxtail (*Alopecurus pratensis*), meadow fescue (*Festuca pratensis*), managed usually for silage or hay.

Not included: See CR0

Required multiplex codes: See CR0

CR2 Cereal crops (SC)

Description: Graminaceous crops - wheat, barley, oats etc. Includes all the land and associated vegetation inside the field boundary, including the cropped area and field-margins.

Not included: See CR0

Required multiplex codes: See CR0

CR3 Non-cereal crops including woody crops (SC)

Description: Non-graminaceous crops, such as root crops, fruit, vegetables, herbs and biomass crops.

Not included: See CR0

Required multiplex codes: See CR0

CR31 Intensively managed orchards (SC)

Description: Orchards with a ground cover which is intensively managed (treated with herbicide, and heavily mown), usually improved grassland, and often with young tree stock and dwarf varieties. Also includes vineyards.

Not included: See CR0

Required multiplex codes: See CR0

CR311 Hops (KHS)

Description: Hopfields with a ground cover which is intensively managed (treated with herbicide, and heavily mown), usually improved grassland.

Not included: See CR0

Required multiplex codes: See CR0

CR312 Intensively managed bush orchards (WHS)

Description: Groups of intensively managed dwarf fruit tree varieties. The ground beneath the trees is usually intensively managed by spraying and/or mowing. Specify fruit tree type in target notes.

Not included: Traditional (unintensively) managed orchards (FT1, FT11, FT12, FT13, FT14, FT15 and FT1Z).

Required multiplex codes: See CT0.

CR313 Market gardens and horticulture (WHS)

Description: Intensive cultivation, involving moderate to high chemical or organic fertilization and/or systematic use of fertilizer and pesticides.

Not included:

CR33 Vineyards (SC)

Description: Areas planted with cultivated grapevines (*Vitis vinifera*). Vineyards with a ground cover which is intensively managed (treated with herbicide, and heavily mown), usually improved grassland

Not included: See CR0

Required multiplex codes: Specifiy management via management category CL4

CR34 Game crops (SC)

Description: Blocks/strips of land, sown with crops (e.g. maize, sorghum, millet, buckwheat, mustard, kale, quinoa etc) specifically for the provision of cover and/or feed for farmland and/or game birds such as pheasants, not in arable fields (usually grassland but can include other habitats); also whole fields known to be planted as game crops .

Not included: Game crops in the edges of or in blocks in arable fields which come under the 'Arable margin and uncultivated strip' definition.

Required multiplex codes: See CR0

CR3Z Other non-cereal crops including woody crops (IC)

Description:

Not included: See CR0

Required multiplex codes: See CR0

CR5 Whole field fallow (SC)

Description: Land allowed to naturally regenerate usually on a short term basis. Fallow land is land rested up for a season (or more), sometimes to increase soil fertility, frequently in set-aside.

Not included: Headlands and uncultivated strips in fields that are otherwise cropped. Set-aside land that is planted for non-commercial crops.

Required multiplex codes: See CR0.

CR6 Arable headland or uncultivated strip (SC) (PHT)

Description: Strips of land between arable land, which may be cereal crops, or other crops including woody crops, and the field boundary, and extending for a limited distance into the crop, which are managed differently than the remainder of the field. They may or may not be deliberately managed to create conditions which benefit traditional arable weed species such as pheasant's eye (*Adonis annua*), cornflower (*Centaurea cyanus*), broad leaved spurge (*Euphorbia platyphyllos*), corn parsley (*Petroselinum segetum*), corn buttercup (*Ranunculus arvensis*), shepherd's needle (*Scandix pecten-veneris*) and narrow fruited cornsalad (*Valerianella dentate*), and other key farmland species (game birds and passerines, polyphagous and other invertebrates). These margins are usually wildlife strips, conservation headlands, and game crops, stubble or grassland fallows lying between cropped land and a field boundary. Buffer strips alongside water courses or other habitat features are included. Sterile strips are included where they occur alongside headlands or uncultivated strips.

Not included: Field Margins of Improved Grassland or Probably Improved Grassland Fields. Whole fields managed for arable weed species.

Required multiplex codes: See CR0

CR61 Arable field margins (SC)

Description: specifically to provide benefits for wildlife. The arable field must be in a crop rotation which includes an arable crop, even if in certain years the field is in temporary grass, set-aside or fallow. Arable Field Margins are usually sited on the outer 2-12m margin of the arable field, although when planted as blocks they occasionally extend further into the field centre. The following margin types are included:

a.) Cultivated, low-input margins. These are areas within arable fields that are cultivated periodically, usually annually or biennially, but are not sprayed with spring/summer insecticides and not normally sprayed with herbicides (except for the control of injurious weeds or problem grasses such as creeping thistle, black grass, sterile brome or wild oat). Cultivated, low input margins include conservation headlands and land managed specifically to create habitat for annual arable plants.

b.) Margins sown to provide seed for wild birds. These are margins or blocks sown with plants that are allowed to set seed and which remain in place over the winter. They may be sown with cereals and/or small-seeded broad-leaved plants or grasses but areas sown with maize are excluded as they are of lower value for wild birds.

c.) Margins sown with wild flowers or agricultural legumes and managed to allow flowering to provide pollen and nectar resources for invertebrates.

d.) Margins providing permanent, grass strips with mixtures of tussocky and fine-leaved grasses. Areas of grass established as cross compliance requirements are excluded from this definition, but all other strips of grassland created by sowing or natural regeneration, such as field margins or beetle banks, are included.

Not included: Margins established as cross compliance requirements under the Single Payment Scheme (in England and Scotland) or as mandatory requirements of an Entry-Level Agri-environment Scheme (in Wales and likely in Northern Ireland) are excluded. These margins, where present, would be included as part of the Priority Hedgerow Habitat, where put in place to protect the hedgerow. Also see CR6.

Required multiplex codes: See CR0.

CR7 Freshly harvested/stubble (SC)

Description:

Not included: Headlands and uncultivated strips in fields that are otherwise cropped. Set-aside land that is planted for non-commercial crops.

Required multiplex codes: See CR0.

INLAND ROCK EXPOSURE, SCREES AND SPOIL

Inland rock

RE11 Inland cliff (PH1)

Description: Rock surfaces over 2m high and sloping at >60°. (NCC, 1990).

Not included: Vegetated cliffs with >10% vascular plant cover are not included, these should be included under the appropriate habitat section category (e.g. GC~), and if applicable cross-referenced with the relevant matrix vegetation category (e.g. OT~).

Correlates with: CORINE 61.2.

RE112 Lowland natural rock and scree habitats (SC)

Description: Natural rock exposures in the lowlands.

RE1Z Other natural rock exposure feature (IC)

Description: Includes gullies, crevices, swallet holes. Will be mapped as point features.

RE21 Quarry (PH1)

Description: Includes gravel, sand or chalk pits, and stone quarries, the developed vegetation (if any) of which has not succeeded to another broad habitat type. (NCC, 1990).

Not included: Pits or quarries in-filled with water should be recorded under an AS~ standing open water category.

RE22 Spoil heap (PH1)

Description: Includes abandoned industrial areas (dominated by waste or spoil) and tips of waste materials such as coal mine spoil and slag. Spoil dumped outside the cast area should be included here. Spoil derived from a deep-mine should be included here. (NCC, 1990).

Not included: Spoil heaps within quarries should be included under RE21. Mine spoil within an open-cast mine should be included under RE23.

RE24 Refuse tip (PH1)

Description: Rubbish tips, worked landfill sites. (NCC, 1990).

RE2Z Other artifical rock exposure and waste (IC)

Description: Any other artificial rock exposure, waste, refuse or spoil.

BOUNDARY AND LINEAR FEATURES

Boundary and linear features

LF1 Hedges/line of trees (RC)

Description: A boundary line of trees and shrubs over 20m long..., provided that at one time the trees and shrubs were stock proof and more or less continuous. It includes an earth bank or wall only where such a feature occurs in association with the hedgerow. (Bickmore C.J., 2002). Any bank, wall, ditch or tree within 2m of the centre of the hedgerow is considered to be part of the hedgerow habitat, as is the herbaceous vegetation within 2m of the centre of the hedgerow. (JNCC, 2006) Where boundary features are too narrow to map as polygon features they may be added as matrix codes to the appropriate habitat of the adjacent fields. Lines of tree or hegerows less than 20metres long should be recorded as an appropriate "scattered" matrix code.

LF11 Hedgerows (PHT)

Description: All hedgerows consisting predominantly of at least one woody native species. ('Predominantly' means more than 50% cover of native woody species in the hedgerow.) This definition would cover 99% of hedgerows in the countryside in Great Britain. The reference to woody native species includes species recorded by Preston *et al.* (2002) as native somewhere in the UK, and archeophytes (i.e. plants naturalised before AD 1500). If a species is native/archeophyte somewhere in its range in the UK, it will be treated as native everywhere. Sycamore (*Acer pseudoplatanus*) is a borderline case for inclusion, being present in the 16th century and possibly earlier, but it is proposed that sycamore be included. Climbers such as honeysuckle (*Lonicera trichosantha*) and bramble (*Rubus fruticosus*) are recognised as integral to many hedgerows and they provide important food resources and shelter for wildlife. However, they require other woody plants to be present to form a distinct woody boundary feature, and therefore they are not included in the definition of hedgerows.

LF11Z – Non-important hedgerows (IC)

Definition: Hedgerows not meeting the criteria for 'Important' hedgerows as defined in The Hedgerow Regulations 1997 above. (HMSO, 1997).

LF2 Other boundaries and linear features (RC)

Description: Boundary and linear features that are not hedges, including lines of trees, banks, walls, dry ditches, grass strips, and fences, and linear features such as transport corridors containing roads, tracks and paths, and railways, and which also contain narrow verges, embankments and cuttings associated with them.

LF21 Line of trees (SC)

Description: A line of open-grown trees (native or otherwise) which have not been intended to be or are not now stock proof, the lines of which may or may nor mark boundaries. Examples include lines of lombardy poplars, lines of (often pollarded) willows along watercourses, and windbreaks or avenues, etc.

Required multiplex codes: Qualify this category by cross-referencing with appropriate categories from the woodland classes in the Land-use/description section. (I.e. from WG~, WF~, WS~, or WM~ categories, as appropriate).

LF23 Wall (PH1)

Description: Vertically upright free-standing constructions of layers of stone, brick or masonry. (NCC, 1990).

Not included: Walls occurring as boundaries in built-up areas should be included under UR~.

LF26 Fence (PH1)

Description: Including rail, and wire fences. (NCC, 1990).

LF271 Transport corridor without associated verges (SC)

Description: Metalled roads, railways, canals, and surfaced woodland rides which are unvegetated.

Not included: The associated verges (See LF272).

Required multiplex codes: The transport corridor should be categorised by cross-referencing with the relevant UL~ code for the corresponding linear built environment.

LF272 Transport corridor associated verges only (SC)

Description: Vegetation occurring in road, rail, canals or other transport corridors and usually in a verge, embankment, or cutting.

Not included: The associated transport corridor itself (See LF271).

Required multiplex codes: The habitat should be linked to the associated corridor type by cross-referencing with a specific LT~ land-use code.

LF273 Transport corridors with natural land surface (SC)

Description: Transport corridors with natural land surface where there is little or no differentiation between the corridor itself and the associated verge.

Comments: If using OS Mastermap, the polygon will be described as having a natural surface. For aerial photo interpretation: if <5m wide = LF27, if >5m wide =OVZ, or if additional data available should be allocated to an actual habitat type' .

BUILT-UP AREAS AND GARDENS

Built up areas and gardens

UR0 Built-up areas and gardens (BHT)

Description: Includes urban and rural settlements, domestic gardens and allotments, farm buildings and yard, caravan parks, and other man made built structures such as industrial estates, retail parks, waste and derelict ground and urban transport infrastructure (changed from Jackson D.L., 2000).

Not included: Amenity grassland (in urban parks, playing fields, golf courses etc.) should be included under GI0 Improved grassland (BHT) and identified with a land-use code. (NB "Urban parkland" has been omitted from the IHS UR0 description because it normally comprises amenity grassland, specifically excluded from UR0 in Jackson, 2000.) Vegetation occurring as a linear habitat alongside rivers, canals, railways or roads/tracks should be included under LF~, as should the actual roadway, railway or track. Canals should be included under AS~, rivers under AR~. Encapsulated remnant semi-natural vegetation or late-succession secondary vegetation in a built environment (woodland, grassland, heathland, wetland etc.) should be included under the relevant Broad Habitat Type.

Required multiplex codes: Qualify UR0 with a UA~ category from the built up areas categories of the Land-use/description section. Any matrix vegetation (scrub, scattered trees, patchy bracken, tall herb and fern, ephemeral/short perennial herb, and introduced shrub) in a built environment should be cross-referenced with UR0.

ADDITIONAL REMOTE CLASSIFICATION

Unknown terrestrial vegetation

OV3 Undetermined young woodland (SC)

Description: Code to be used only for aerial photographic interpretation (or other remote sensing techniques) where it is impossible to determine between coniferous and broadleaved tree species.

MARINE

Supralittoral rock

SR1 Maritime cliff and slopes

Description: The junction between land and sea where a break in slope is formed by slippage or erosion by the sea. There appears to be no generally accepted definition of the minimum height or angle of slope which constitutes a cliff (though 15^{o} is used by some authorities. On the seaward side, the plan extends to the limit of the supralittoral zone and so includes the splash zone lichens and other species occupying this habitat (UK Biodiversity Group, 1999). Exposure to wind and salt spray is a key determinant of vegetation type, plus the geology of the cliff or slope. Vegetation is a transition from maritime species to terrestrial communities further inland, and varies according to steepness of slope (gravitational instability), as affects degree of plant cover and depth of soil. Vegetated cliff species include sea campion (*Silene maritime*), thrift (*Armeria maritime*), rock samphire (*Crithmum maritimum*), buck's horn plantain (*Plantago maritime*), and high frequency of red fescue (*Festuca rubra* ssp *pruinosa*) (the densely salt-tolerant ecotype), and creeping bent (*Agrostis stolonifera*). Maybe also maidenhair fern (*Adiantum capillus-veneris*). Lichen-dominated cliffs support yellow and grey lichens. The habitat also provides an important breeding ground for a range of seabirds. The habitat occurs on most of the British shoreline, except between the Thames and Humber Estuaries.

Not included: Maritime cliff and slope of less than 15^{o} or where vegetation exhibits a transition to another terrestrial habitat type should be coded as that habitat type and qualified as Maritime cliff and slope (PHT) by cross-reference with the MC1habitat complex from the Habitat Complexes section - e.g. Lowland calcareous grasslands perched on maritime slopes are coded CG1.GM12.GL21.MC1.

Correlates with: Phase 1 - H8, NVC - MC1 to MC12, CORINE - 18.2.

Comments: The BAP priority habitat type has now been designated as a habitat complex in the Habitat Complexes section MC1, allowing it to be cross-referenced with other habitats where there may be an overlap. The replacement category still sits here in the hierarchy to code for strictly maritime influenced vegetation, which does not exhibit transitional plant communities.

SR11 Maritime soft cliffs and slopes (SWMP)

Description: 'Soft' cliffs frequently unstable and have a sloping or slumped profile, often with a distinct 'undercliff'; they occur on a range of soft rocks, or on hard rocks interspersed with softer deposits. The more mobile soft cliffs occur where there are unstable soft deposits such as mudstones or glacial drift deposits. They may be subject to mudslides or landslips, which create complexes of pioneer and more mature vegetation. Also included are areas of variable lithology, for example limestones or sandstones overlaying clays where failure of the soft lithology at the base of the cliff leads to failure. On relatively stable soft cliffs a wide range of progressively less-specialised communities can occur, including grassland, heath, scrub and even woodland. More mobile soft cliffs show a complex sequence of successional communities related to degrees of instability and the age of the slope. The vegetation of these sites forms a mosaic of pioneer, ruderal, grassland, scrub and woodland communities. Streams and flushes provide a freshwater wetland element, and seepage lines may be rich in orchids. The vegetation of mobile soft cliffs is inadequately described by the NVC at present. Included in this group are the rocks of intermediate intermediate hardness including chalk, limestone, shales and sandstones that form near vertical cliffs but prone to erosion and and slumping and rarely have well developed crevice communities.

Correlates with: NVC MC8-12, H7+H8d, WB21-25, OV39+OV41b

SR111 Maritime soft cliff and slope grassland and lichen communities (NVC)

Description: Closed grasslands, exposed to maritime influence by sea spray, which determines the species composition of the sward. In some cases it is rank of tussocky, usually inaccessible to stock, in others very short by heavy grazing, and can occur in steep to moderate slopes, and in exposed or more sheltered situations. Red fescue (*Festuca rubra*), thrift (*Armeria maritima*), yorkshire fog (*Holcus lanatus*), ribwort plantain (*Plantago lanceolata*),buck's horn plantain (*P. coronopus*), sea plantain (*P. maritima*), creeping bent (*Agrostis stolonifera*) and sea carrot (*Daucus carota spp. gummifer*) are associated species to this habitat.

Correlates with: NVC MC8-12

SR113 Maritime soft cliff and slope grassy ruderal communities

Description: Tall herb vegetation on soft cliffs and slopes, maintained by disturbance from erosion and landslip.

Not included: Scattered ruderals should be included under a OT~ matrix code.

SR114 Maritime soft cliff and slope scrub communities (NE, NVC)

Description: Includes all continuous scrub stands of >90% cover and >0.25 ha. occurring on soft cliffs, acid or calcareous. There are no species associated only to this habitat, but are frequently found Hazel (*Corylus avellana*), Blackthorn (*Prunus spinosa*), Bramble (*Rubus fruticosus*), Gorse (*Ulex europaeus*), Privet (*Ligustrum vulgare*), Burnet rose (*Rosa spinosissima*) and Juniper (*Juniperus communis*) (the two latter species occurring on calcareous substrate), In the more sheltered parts of the cliff broadleaved woodland may replace this community: scrub tends to be a successional habitat replacing grasslands once the soil is established enough and grazing does not take place or has ceased. However, it can become the climax community in exposed situations. Lichens also form part of this community.

Not included: Patches of dwarf-gorse scrub (Dwarf gorse (*Ulex minor*), Western gorse (*U. gallii*)) should be included under SR122 Maritime hard cliff and slope heaths. Montane willow scrub should be included in MH~ Montane Category (Jackson D. L., 2000). Low or patchy bog-myrtle (*Myrica gale*) should be included under an EO~ or EM~ category. Young trees or stump regrowth less than 5m high should be included under the appropriate WB~ category for their species mix and habitat type. See WB0.

Required multiplex codes: See WB0.

Not included: Scattered scrub or stands >0.25 ha should be included under a SC~ matrix code.

Correlates with: NVC (W21-W25) amongst other NVC codes.

SR115 Unvegetated maritime soft cliffs and slopes

Description: Maritime soft cliffs and slopes with no vegetation or scattered vegetation for which matrix codes should be used.

SR2 Boulders and rock above the high tide mark (PH1)

Description: Areas of boulders and rocks above the high tide mark which are only wetted by wave splash and salt spray. The habitat is important for lichens including scrambled egg lichen (*Fulgensia fulgens*), ciliate strap lichen (*Heterodermia leucomelos*) and the southern grey physcia (*Physcia tribaciodes*). Vascular plants include common scurvygrass (*Cochleria officinalis*) and sea lavender (*Limonium recurvum*). Can be important as a breeding ground for Common seal (Scotland) and Grey seal (rare), and for breeding birds (Rock pipit) and wintering birds (Turnstone, Purple sandpiper). Marine species include limpets, winkles and sandhoppers along with terrestrial Bristle-tails and woodlouse species. 6700 km of British coastline is rocky at the high tide mark, 84% of which occurs in Scotland. (NCC, 1990).

Correlates with: Phase 1 - H4.

SR23 Communities on artificial boulder formations above the high tide mark

Description: Areas of boulders above the high tide mark which are only wetted by wave splash and salt spray. Includes sea defence structures of rock armour.

Supralittoral sediment

SS0 Supralittoral Sediment (BHT)

Description: The region of shore immediately above the highest water level, and subject to wetting by spray/wave splash (also called the splash zone). Salt-tolerant species are the characteristic colonisers of this habitat and the biotopes present are strongly influenced by sediment size as well as degree of wave exposure of the shore. Characteristic vascular plants plants include the sea sandwort (*Honckenya peploides*), saltwort (*Salsola kali*), and sea beet (*Beta maritime*). (UK Biodiversity Group, 1999) Sand covered shorelines especially on shore areas of sand created by the action of wind and often colonised and stabilised by communities of coarse maritime grasses. Shingle beaches are covered by pebbles, sometimes boulders, usually formed by wave action. (Jackson D.L., 2000).

Correlates with: CORINE - 16, 17.

SS1 Coastal sand dunes (PHT)

Description: Wind blown sand formations (stable and shifting) plus associated foreshore, slacks (dune wetland), grassland, heathland, scrub and woodland. They develop where sediment reaches up to 2mm in size. A critical factor is for a large beach which dries out at low tide and the sand grains are blown on to land by the wind, and vegetation prevents sand dispersing further. Dunes are generally floristically rich and many rare or local species favour sand/calcareous soils. This category includes: Embryonic and mobile dunes - occur mainly on the seaward side of a dune system where sand deposition is occurring and occasionally further inland in blow-outs. They support very few plant species, the most characteristic being marram grass (*Ammophila arenaria*). Semi-fixed dunes - occur where the rate of sand accretion has slowed but the surface is still predominantly bare sand; marram is still common but there is an increasing number of other species. Fixed dune grassland- forms largely closed swards where accretion is no longer significant, the surface is stabilised and some soil development has taken place. Dune grassland - marram less frequent, a shift to plant species associated with calcareous grassland. Dune slacks - wetland within a dune system, where close rabbit grazing leads to rare/scarce plants such as fen orchid (*Liparis loeselii*) and petalwort (*Petalophyllum ralfsii*). Dune heath - stable areas of acid/lime deficient dunes with heather (*Calluna vulgaris*) almost always present, plus bell heather (*Erica cinerea*), western gorse (*Ulex gallii*), crowberry (*Empetrum nigrum* ssp *nigrum*), sheep's fescue (*Festuca ovina*) and the characteristic sand sedge (*Carex arenaria*). Dune scrub - dry with sea buckthorn (*Hippophae rhamnoides*) or wet with willow (*Salix repens* ssp *argentea*) and birch (*Betula*) spp.. Above the beach is often a seaward strip of low dunes with plants tolerant of short immersion e.g. sand couch (*Agropyron junceiforme*), sea rocket (*Cakile maritima*), prickly saltwort (*Salsola kali* ssp *kali*) and sea sandwort (*Honckenya peploides*). (UK Biodiversity Group, 1998b).

Correlates with: Phase 1 - H6, NVC - SD2, SD5 to 17, H10 to 11, M15 to 16, CORINE - 16.

SS11 Embryonic shifting dunes (AN1)

Description: Associated with developing dunes, these are very localised, covering less than 1000 ha in the UK but with a wide geographic distribution. Vegetation exists in a highly dynamic state and is dependant on the continued operation of physical processes at the dune/beach interface. It is species-poor with marram (*Ammophila arenaria*) being common. Strandline species may be present and include sea rocket (*Cakile maritime*), lyme grass (*Leymus arenarius*) (more abundant in the north and east) and sand couch (*Elytrigia juncea*) (south and west). This is a transient habitat eventually either displaced by marram-dominated vegetation or washed away by storms. (Brown *et. al.*, 1997).

Correlates with: NVC - SD2 to 4, CORINE - 16.211.

SS111 Embryonic shifting dunes with Ammophila arenaria

Description: Associated with developing dunes, these are very localised, covering less than 1000 ha in the UK but with a wide geographic distribution. Vegetation exists in a highly dynamic state and is dependent on the continued operation of physical processes at the dune/beach interface. It is species-poor with marram (*Ammophila arenaria*) being common. Strandline species may be present and include sea rocket (*Cakile maritime*), lyme grass (*Leymus arenarius*) (more abundant in the north and east). This is a transient habitat eventually either displaced by marram-dominated vegetation or washed away by storms. (Brown *et. al.*, 1997).

Correlates with: NVC - SD4

SS112 Embryonic shifting dunes with Elytrigia Juncea

Description: Associated with developing dunes, these are very localised, covering less than 1000 ha in the UK but with a wide geographic distribution. Vegetation exists in a highly dynamic state and is dependant on the continued operation of physical processes at the dune/beach interface. It is species-poor with sand couch (*Elytrigia juncea*) being common. Strandline species may be present and include sea rocket (*Cakile maritime*), lyme grass (*Leymus arenarius*) (more abundant in the north and east) and is absent. Floristically close to SS312 Annual vegetation of driftlines but not on a shingle substrate and thus not included in the vegetated shingle class.

Correlates with: NVC – SD4

SS12 Shifting dunes along the shoreline ["White dunes"]

Description: Geographically widespread, although often restricted to a narrow strip. Marram (*Ammophila arenaria*) is always prominent and usually dominant, with other vegetation composition affected by the degree of instability. Rapid sand accretion results in only marram, whereas lower levels of sand deposition encourages first specialist dune plants, then less specialised grasses, drought-tolerant annuals and specialist bryophytes such as the moss *Tortula ruralis* ssp. *ruraliformis* which is important for the stabilisation of the sand surface. On

the seaward edge salt-tolerant plants such as sea sandwort (*Honckenya peploides*) may be prominent. In the south shifting dune plants such as portland spurge (*Euphorbia portlandica*) and sea holly (*Eryngium maritimum*) may be present, as may lyme grass (*Leymus arenarius*) in the north. This habitat is an unstable system maintained by change. (Brown *et. al.*, 1997).

Correlates with: NVC - SD5, SD6, CORINE - 16.212.

SS13 Fixed dunes with herbaceous vegetation ["grey dunes"] (AN1)

Description: A complex habitat type, occurring mainly on the largest dune systems, typically forming inland of the zone dominated by marram (*Ammophila arenaria*), which is replaced as the dune stabilises. There is considerable species variation, the most common vegetation type being Atlantic dune grassland consisting of a short sward of red fescue (*Festuca rubra*) and lady's bedstraw (*Galium verum*) and other species typical of calcareous substrates. There are many regional variations - in the south-west and Wales wild thyme (*Thymus polytrichus*) is often dominant, bloody crane's-bill (*Geranium sanguineum*) is prominent in the north-east, and lichens dominate in East Anglia. (Brown *et. al.*, 1997).

Correlates with: NVC - SD7, SD8, SD9, CORINE - 16.22.

SS131 Ammophila arenaria – Festuca rubra semi fixed dunes

Description: A major vegetation type where dunes are stablising, still dominated by marram (*Ammophila arenaria*) but sufficiently stable to enable a fairly rich associated flora. Associated grasses can include lyme-grass (*Leymus arenarius*) notably in the more northerly regions particularly in disturbed situations. In the south sand couch (*Elytrigia juncea*), which can be relatively common in the more mobile dunes is usually scarcer, here red fescue (*Festuca rubra*) can be more noticeable.

Correlates with: NVC - SD7 CORINE - 16.221.

SS132 Festuca rubra – Galium verum fixed dunes

Description: The characteristic grassland of more calcareous fixed dunes. A closed sward with abundant red fescue (*Festuca rubra*) and a variety of grasses, dicotyledons and mosses and frequently rank. Marram (*Ammophila arenaria*) can be common but no longer a constant. A community frequently found where the dunes have a high shell content. Where the ground is moister yorkshire fog (*Holcus lanatus*), cock's-foot (*Dactylis glomerata*) or creeping bent (*Agrostis stolonifera*) can become more prominent.

Correlates with: NVC – SD8 CORINE - 16.225.

Not included: If the ground is very moist and creeping willow (*Salix repens*) is present then the Damp pasture dune slack communities SS174 may be more appropriate if *Salix repens* dominates then SS15 Dunes with *Salix repens* ssp. *argentea* [*Salicion arenariae*] should be used.

SS133 Ammophila arenaria – Arrhenatherum elatius fixed dunes

Description: Includes rank tussocky swards in which both red fescue (*Festuca rubra*) and marram (*Ammophila arenaria*) remain very common with the former often dominant. The presence of false oat grass (*Arrhenatherum*) requires the absence of herbivores which will preferentially graze it. In ungrazed swards common restharrow (*Ononis repens*) and bloody crane's-bill (*Geranium sanguineum*) can be frequent.

Correlates with: NVC – SD9 CORINE - 16.221.

SS134 Elytrigia atherica fixed dunes

Description: A fixed dune community on brackish sands that may be subject to infrequent tidal inundation probably restricted to spring tides or where there are brackish water tables. May also show transitions to saline to the saline tolerant sand couch (*Elytrigia juncea*) swards where the soil is less frequently inundated but retains a strongly brackish influence. Pioneer saltmarsh annuals are usually absent, upper saltmarsh plants may occur but infrequent.

Correlates with:

Not included: Sea couch (*Elytrigia atherica*) communities on other substrates which should be include with SM37

SS14 Decalcified fixed dunes (AN1)

Description: Stable dune systems occurring on larger sites where there is width for it to develop. Loss of calcium carbonate and increased soil acidity result from leaching of the

surface layers by rainfall. The habitat is characterised by dune heath dominated by heather (*Calluna vulgaris*) and sand sedge (*Carex arenaria*). Both Annex 1 categories are similar in composition and can be difficult to distinguish and may succeed one another in the same location over time. (Brown *et. al.*, 1997).

Correlates with: NVC: H1, H10, H11, CORINE - 16.23, 16.24.

SS1412 Atlantic decalcified fixed dune Carex arenaria grasssland (AN1)

Description: Includes very open to more or less closed swards in which sand-sedge is the most abundant plant, where vascular associates are few in number and usually sparsely distributed. The surface may retain elements of mobile sand with very little if any contribution from mosses and lichens.

Not included similar communities found on shingle rich substrates, see SS3114 Shingle acid grassland. Lichen rich swards should be classed as SS1413.

Correlates with: NVC - SD10CORINE - 16.24.

SS16 Dunes with Sea buckthorn [Hippophae rhamnoides] (AN1)

Description: Stable dunes where sea buckthorn (*Hippophae rhammoides*) is dominant or abundant. Sea buckthorn is an invasive species, non-native over most of the UK and is actively controlled where it occurs. (Brown *et. al.*, 1997).

Correlates with: NVC - SD18. CORINE 16.25

SS17 Humid dune slacks (AN1)

Description: Low-lying areas within dune systems that are seasonally flooded and where nutrient levels are low. They are more common in the west and north. A wide range of communities can occur but creeping willow (*Salix arenaria*) is frequently present, variously in association with yorkshire fog (*Holcus lanatus*) and the bryophytes *Campylium stellatum* and *Calliergon cuspidatum*. A further community is typified by silverweed (*Potentilla anserine*) and common sedge (*Carex nigra*). Wetter sites at an earlier successional stage may support rare plants such as fen orchid (*Liparis loeselii*) and round-leaved wintergreen (*Pyrola rotundifolia*). (Brown *et. al.*, 1997).

Not included: Habitats where creeping willow (*Salix arenaria*) is dominant should be classified as SS15 Dunes with *Salix arenaria* (AN1).

Correlates with: NVC - SD13 to 17, CORINE - 16.31 to 16.35.

SS171 Pioneer dune slack communities

Description: Open or patchy cover of creeping willow (*Salix repens*) with ephemeral vegetation and bryophytes colonizing bare damp patches of sand exposed by falling water levels. Typically found in the draw down zone of base rich slacks flooded in winter. The vegetation will tolerate brief submergence to a shallow depth and may also occur in very wet slacks that have dense shading formed by a canopy of creeping willow (*Salix repens*). Vascular perennials plants are sparse and may include sand sedge (*Carex arenaria*), jointed rush (*Juncus articulates*), creeping bent (*Agrostis stolonifera*) and scattered rosettes of rough hawkbit (*Leontodon hispidus*). Late spring may show numerous small plants of knotted pearlwort (*Sagina nodosa*) and common centaury (*Centaurium erythraea*). Bryophytes may include common green bryum moss (*Bryum pseudotriquetrum*) and greasewort (*Aneura pinguis*) with occasional endive pellia (*Pellia endiviifolia*).

Not included: Habitats where *Salix arenaria* is dominant should be classified as SS15 Dunes with *Salix arenaria* (AN1).

Correlates with: NVC - SD13

SS172 Wet dune slack communities

Description: A closed vegetation with an extensive low bushy carpet of Creeping willow (*Salix repens*), frequently species rich. Younger base rich communities are usually associated with the *Salix repens-Campylium stellatum* community [NVC SD14] whilst older relatively base poor slacks with more prolonged inundation are more usually associated with the relatively species poor *Salix repens-Calliergon cuspidatum* community [NVC SD15].

Not included: Habitats where *Salix arenaria* is dominant should be classified as SS15 Dunes with *Salix arenaria* (AN1).

Correlates with: NVC - SD14-15

SS174 Damp pasture dune slack communities

Description: A widespread community occupying the older drier slacks in large and complex dune systems, rarely flooded to any extent, frequently comprising the bulk of vegetative cover between stable dune ridges. Creeping willow (*Salix repens*) may be frequent and associated with yorkshire fog (*Holcus lanatus*) and red fescue (*Festuca rubra*). Creeping bent (*Agrostis stolonifera*) is frequently present and may, in some sub communities, replace yorkshire fog (*Holcus lanatus*) as the dominant. Associates may include glaucous sedge (*Carex flacca*), eyebright (*Euphrasia officinalis* agg). and selfheal (*Prunella vulgaris*).

Not included: Habitats where *Salix arenaria* is dominant should be classified as SS15 Dunes with *Salix arenaria* (AN1).

Correlates with: NVC – SD16

SS175 Rush pasture dune slack communities

Description: A very scarce community occupying the older slacks in a similar habitat to SS174 but with the nationally scarce sharp rush (*Juncus acutus*) locally dominant. Sites known in the dune structures in Sandwich, Kent and Braunton Burrows, North Devon

SS19 Unvegetated sand and dunes above the high tide mark (TT)

Description: Mostly formed by sand beaches and includes artificial beaches above the high tide mark.

SS1Z Other sand dunes (IC)

Description: Includes Annex 1 habitats Dune Juniper thickets, and Open grassland with *Corynephorus* and *Agrostis* of continental dunes which are very rare in the UK, and sand dunes other than those which are classified as Annex 1 habitats.

SS31 Coastal vegetated shingle (PHT)

Description: Shingle is defined as sediment with particle sizes in the range 2-200 mm. Shingle structures take the form either of spits, barriers or barrier islands formed by longshore drift, or of cuspate forelands where a series of parallel ridges piles up against the coastline. The vegetation communities of shingles features depend on the amount of finer material mixed in with the shingle, and on the hydrological regime. The classic pioneer species on the seaward edge include sea kale (*Crambe maritime*); sea pea (*Lathyrus japonicas*); babington's orache (*Atriplex glabriuscula*); sea beet (*Beta vulgaris*); and sea campion (*Silene uniflora*); such species can withstand exposure to salt spray and some degree of burial or erosion. Further from the shore, where conditions are more stable, more mixed communities develop, leading to mature grassland, lowland heath, moss and lichen communities, or even scrub. Shingle structures support breeding birds including gulls, waders and terns. (UK Biodiversity Group, 1999) Shingle with any level of vegetation cover should be included.

Correlates with: NVC - SD1 (and a large number of other NVC communities).

SS311 Perennial vegetation of stony banks (AN1)

Description: Occurring mostly in north-east Scotland and south-east England, this habitat develops when a sequence of foreshore beaches are deposited at the limit of high tide. The largest and most stable structures support scrub with broom (*Cytisus scoparius*) and blackthorn (*Prunus spinosa*), or heath vegetation with heather (*Calluna vulgaris*) and/or crowberry (*Empetrum nigrum*). Narrow, less stable structure support yellow-horned poppy (*Glaucium flavum*), sea kale (*Crambe maritime*) and sea pea (*Lathyrus japonicas*), with thrift (*Armeria maritime*) and sea campion (*Silene uniflora*) in more stable areas above this zone. These may exist in a matrix with abundant lichens. (Brown *et. al.*, 1997).

Correlates with: CORINE - 17.3.

SS3111 Shingle successional vegetation (AN1)

Description: Vegetation community developing after primary colonisation by driftline communities in SS312. Dominated by false oat grass (*Arrhenatherum elatius*) and may include hedge bedstraw (*Galium mollugo*) and sticky groundsel (*Senecio viscosus*). May also be associated with recolonisation following disturbance.

SS3112 Shingle heathland communities (TT)

Description: Long established continuous or near continuous heathland communities

SS3113 Shingle mesotrophic vegetation (AN1)

Description: Vegetation community commonly associated with disturbed shingle or developed sites. Includes ribwort plantain (*Plantago lanceolata*), flattened meadow grass (*Poa compressa*) and common ragwort (*Senecio jacobaea*).

SS3114 Shingle scrub communities (AN1)

Description: Frequently pure stands of gorse (*Ulex europaeus*), elder (*Sambucus nigra*), blackthorn (*Prunus spinosa*) or holly (*Ilex aquifolium*).

SS3115 Shingle acid grassland (AN1)

Description: Acid grassland found on shingle substrates where a significant soil has developed and may include shingle/dune transitions frequently found on the margins shingle formations. In the east grey hair-grass (*Corynephorus canescens*) may be prominent. In drier conditions the habitat forms transitions with acidic dune grassland characterised by sheep's fescue (*Festuca ovina*) and common bent (*Agrostis capillaris*). Lichens tend to dominate on nutrient-poor sand subject to severe drought. (Brown *et. al.*, 1997).

Not included: Similar communities found on dune substrates, see **SS1412 Atlantic decalcified fixed dune acid grassland (AN1)**.

Correlates with: NVC - SD10, SD11, SD12, U1 [only on shingle substrates] CORINE - 16.24.

SS311Z Other vegetated shingle (IC)

Description: Other perennial vegetated shingle not included above.

SS312 Annual vegetation of drift lines (AN1)

Description: A transient habitat occurring on shingle at or above mean high water spring tides. The vegetation is ephemeral and composed of annual or short-lived perennial species such as sea beet (*Beta vulgaris* ssp. *maritime*), orache (*Atriplex*) spp. and sea sandwort (*Honckenya peploides*). (Brown *et. al.*, 1997).

Not included: Driftlines on essentially sandy beaches.

Correlates with: CORINE - 17.2.

SS3Z Other shingle above high tide mark (IC)

Description: Shingle beaches including spits, barriers, cuspate forelands and barrier islands which do not support vegetation.

SS4 Strandline vegetation (PH1)

Description: A transient habitat formed on accumulations of drift materials and gravels rich in nitrogenous organic matter at or near the high water mark. They support few species but include sea sandwort (*Honckenya peploides*), saltwort (*Salsola kali*) and sea rocket (*Cakile maritime*). Rarer species include shore dock (*Rumex rupestris*) in the south-west and oysterplant (*Mertensia maritime*) in the north. Invertebrates that utilise the rotting organic matter on the strandline include specialised species such as the woodlouse *Armadillidum album* and the beetles *Nebria complanata* and *Aphodius plagiatus*. Due to its transient nature there are currently no estimates of the extent of this habitat in the UK. (NCC, 1990).

Correlates with: NVC - SD2 to SD3, Phase 1 - H5.

Littoral rock

LR1 Intertidal chalk (PHT)

Description: Intertidal chalk coastline habitats. Characteristic features of chalk coastlines are their geomorphological formations, such as cliffs, which create a range of microhabitats of biological importance. Littoral-fringe and supralittoral chalk cliffs support algal communities unique to the substrata

which comprise members of the *Chrysophyceae* and *Haptophyceae* such as *Apistonema carterae* and *Chrysotila spp*. Their restricted presence may be due to physical characteristics of chalk, particularly its porosity and ability to remain moist. The generally soft nature of chalk results in the presence of a characteristic flora and fauna, notably rock-boring invertebrates such as the spionid worm *Polydora sp* and piddocks. Intertidal chalk also characteristically lacks species common on hard rocky shores (e.g. *Pelvetia canaliculata* and *Ascophyllum nodosum*), but supports distinct successive zones of algae and animals such as *Fucus spp*, kelps *Laminaria spp* and red algal turfs, or barnacles and mussels on wave-exposed shores. (UK Biodiversity Group, 1999)

Not included: Sublittoral chalk coasts should be classified as IR6 Subtidal chalk (PHT).

LR4 Intertidal underboulder communities (TT)

Description: Rock, boulders and rubble in the intertidal zone. Frequently associated with flood defence systems. May include fine sediments.

LR41 Intertidal communities on natural boulder formations with no algal cover

Description: Rock, boulders and rubble in the intertidal zone. May include fine sediments.

LR43 Intertidal communities on artificial boulder formations with no algal cover

Description: Rock, boulders and rubble in the intertidal zone. Includes rock armour flood defence systems below the high water mark. Frequently associated with eroded former defence structures and exposed rock core and armour of former bunds. May include fine sediments.

LR5 Littoral built structures (TT)

Description: Concrete and built features below the high water mark. Includes concrete sea walls and slipways.

LR72 Littoral soft rock exposures (SWHMP)

Description: Intertidal rock exposures composed of soft rocks.

Not included: Hard rocks should be classed under LR71 (see above). Chalk should be classed under LR1 or one of its sub-communities. Raised mud or clay platforms of former saltmarsh should be classed under LS413

LRZ Other littoral rock (IC) (PHT)

Description: Hard substrate in the littoral zone excluding chalk, surge gullies, caves and *Sabellaria* reefs

Littoral sediment

LS2 Seagrass beds [Zostera noltii] (PHT)

Description: Dwarf eelgrass (*Zostera noltii*) is found high on the shore, often adjacent to lower saltmarsh communities. It develops in intertidal and shallow subtidal areas on sand and mud in marine inlets, bays, lagoons and channels, sheltered from significant wave action. The eelgrass stabilises the substratum and is an important source of organic matter and shelter. Leaves may be colonised by diatoms and algae *Enteromorpha* spp., *Cladophora rectangularis*, *Rhodophysema georgii* and *Ceramium rubrum*. Jellyfish and anemones may also be present. The stabilised substrate supports Sea potato, Netted dog-whelk, Sand mason and Burrowing anemone. (UK Biodiversity Group, 1998b).

Correlates with: Phase 1 - H111, H121, H131, CORINE - 11.32, MNCR - LMUD.HS.Z.

LS31 Salicornia and other annuals colonising mud and sand (AN1)

Description: Widespread in the saltmarshes of England and Wales but restricted in Scotland and Northern Ireland, occurring as an integral part of a sequence of habitats from sand/mudflats to more stable saltmarsh vegetation. Pioneer vegetation consists of a very small number of species and is dominated by open stands of glasswort (*Salicornia*) spp. or annual sea-blite (*Suaeda maritima*), although density can vary. Other species may be present including common saltmarsh-grass (*Puccinellia maritima*) and common cord-grass (*Spartina anglica*). Ephemeral species may also colonise open pans in upper saltmarshes such as sea pearlwort (*Sagina maritima*) and knotted pearlwort (*Sagina nodosa*) (Brown *et. al.*, 1997). This class refers only to those occurences where it forms a pioneer community colonising mud and sediments, otherwise LS331 should be used or if there is frequent *Aster tripolium* then LS334.

Correlates with: NVC - SM8 (*Salicornia*), SM9 (*Suaeda maritima*), SM27 (*Sagina* spp.), CORINE - 15.11.

LS311 Salicornia colonising mud and sand (TT)

Description: This class refers only to those occurrences where *Salicornia* agg. species forms a pioneer community colonising mud and sediments, otherwise LS331 should be used.

Correlates with: NVC - SM8 (*Salicornia*), CORINE - 15.11.

LS312 Suaeda colonising mud and sand (TT)

Description: This class refers only to those occurrences where annual sea-blite (*Suaeda maritima*) forms a pioneer community colonising mud and sediments, otherwise LS331 should be used

Correlates with: NVC - SM9 (*Suaeda maritima*), CORINE - 15.11.

LS313 Aster tripolium colonising mud and sand (TT)

Description: Widespread pioneer community. In saline areas frequently found in association with *Salicornia* spp. and *Suaeda*. In brackish waters frequently found as a pioneer community in association with sea club rush *Bolboschoenus maritimus.*

This class refers only to those occurrences where it forms a pioneer community colonising mud and sediments, otherwise LS334 should be used. Where the community forms stands of less 5m in width then EM214 should be used.

LS32 Spartina swards [Cord grass] [Spartinion] (AN1)

Description: Cord-grass (*Spartina*) spp. colonises a wide range of substrates and occurs on the seaward edge of saltmarshes and creeksides and may colonise old pans in upper saltmarsh. Only areas of small cord-grass (*Spartina maritima*), smooth cord-grass (*S. alterniflora*) and the resulting hybrid Townsend's cord-grass (*S. x* townsendii) are of conservation value. There are only two sites in the UK where these species occur in any quantity, having been displaced by common cord-grass (*S. anglica*).

Correlates with: NVC - SM4 to 6, CORINE - 15.12.

LS321 Spartinion maritimae swards

Description: Stands dominated by small cord-grass (*Spartina maritime*), smooth cord-grass (*S. alterniflora*), or supporting the rare and local hybrid Townsend's cored grass (*S. x townsendii*), which are those *Spartina* swards of conservation value. The most extensive remaining stand of the native small cord-grass (*Spartina maritima*) in the UK and possibly in Europe is found in the Essex Estuaries, at Foulness Point and covers approximately 0.17 ha. Other smaller stands are found elsewhere in the estuary complex, notably in the Colne estuary, where it forms a major component of the upper marsh areas. Solent Maritime is the only site for smooth cord-grass (*Spartina alterniflora*) in the UK and is one of only two sites where significant amounts of small cord-grass (*S. maritima*) are found. It is also one of the few remaining sites for Townsend's cord-grass (*S. x townsendii*) and holds extensive areas of common cord-grass (*Spartina anglica*), all four taxa thus occurring here in close proximity (JNCC, 2007).

Not included: Monospecific swards of the widely-planted invasive *S. anglica* should be included under LS32Z.

Correlates with: NVC SM4 - 5

LS322 – Other Spartina swards

Description: Stands dominated by the invasive non-native *Spartina anglica*. *S. anglica* is widespread and locally abundant on saltmarshes in England and Wales, but has only a few scattered localities in Scotland and Northern Ireland (JNCC, 2007). Hybrids of *S. anglica* are also included in this class.

Not included: Stands dominated by *Spartina maritima, S. alterniflora*, or that support *S. x townsendii* should be included under LS321.

Correlates with: NVC SM6

LS331 Transitional low-marsh (NVC SM9+SM10+SM11+SM12) (TT)

Description: Transitional low-marsh vegetation dominated by a mixture of annual sea bright (*Suaeda maritime*), annual glasswort (*Salicornia*) spp, and common saltmarsh grass (*Puccinellia maritime*). Cord grass (*Spartina*) is often present, frequently in small localised stands but too small to map as LS32.

Not included: Common cord grass (*Spartina anglica*) or saltmarsh dominated by annual glassworts (*Salicornia*) spp (SM8) where forming a pioneer community or mid-marsh to upper-marsh vegetation with some common saltmarsh grass (*Puccinellia maritime*) and rare orache (*Atriplex*).

Correlates with: NVC - SM9 (*Suaeda maritima*), SM10, SM11 (*Aster tripolium var. discoideus*), SM12 (Rayed *Aster tripolium*).

LS332 Puccinellia mid-marsh (NVC SM13) (TT)

Description: Mid-marsh vegetation dominated by common saltmarsh grass (*Puccinellia maritime*), distinguished from low marsh by reduced frequency and cover-abundance of annual glasswort (*Salicornia*) spp and common cord grass (*Spartina anglica*), and includes at the upper range red fescue (*Festuca rubra*), creeping bent (*Agrostis stolonifera*) and saltmarsh rush (*Juncus gerardi*) where they do not form sufficiently discrete communities to fall within the LS34 class. Orache (*Atriplex*) spp. may be present but only in rare or small localised stands that cannot be mapped separately as LS333.

Not included: Mid-marsh vegetation with dominant or frequent sea-purslane (*Atriplex portulacoides*).

Correlates with: NVC - SM13 (*Puccinella maritima*) and others.

LS333 Atriplex portulacoides mid-marsh (NVC SM14) (TT)

Description: Mid-marsh vegetation dominated by sea purslane (*Atriplex portulacoides*) with common saltmarsh grass (*Puccinellia maritime*) and low levels of species from the low- and upper-marsh.

Not included: Mid-marsh vegetation with common saltmarsh grass (*Puccinellia maritima*) dominant.

Correlates with: NVC - SM14 (*Atriplex portlulacoides*).

LS334 Aster tripolium low-marsh (NVC SM11, SM12) (TT)

Description: Low-marsh community dominated by sea aster (*Aster tripolium*) (*Aster tripolium* var. *discoideus* and Rayed *Aster tripolium*) frequently with annual sea blite (*Suaeda maritima*) and glasswort (*Salicornia*) spp. and sometimes with cord grass (*Spartina*). Usually located in pans or exposed raised platforms and does not include Aster when a pioneer community.

Not included: LS31 *Salicornia* and *Suaeda* pioneer communities or LS331 Transitional low-marsh with *Puccinellia.*

Correlates with: NVC - SM11 (*Aster tripolium var. discoideus*), SM12 (Rayed *Aster tripolium*).

LS3341Rayed [Aster tripolium] pioneer saltmarshes

Correlates with: NVC- SM12 (*Rayed Aster tripolium*)

LS336 Upper marsh communities

Description: Upper marsh vegetation dominated by inundation and salt tolerant grasses and rushes notably red fescue (*Festuca rubra*) and relatively species poor.

Correlates with: NVC .

LS3361 Festuca rubra upper saltmarsh community (NVC SM16) (TT)

Description: Closed grasslands of saltmarsh rush (*Juncus gerardii*) frequently dominated or co dominated by red fescue (*Festuca rubra*) and creeping bent (*Agrostis stolonifera*). Herbaceous plants may include sea plantain (*Plantago maritime*), sea milkwort (*Glaux maritime*), thrift (*Armeria maritime*) and sea arrowgrass (*Triglochin maritime*) and may be abundant. Saltmarsh rush (*Juncus gerardii*) is present in varying amounts.

Correlates with: NVC - SM16 (*Juncetum gerardii* salt-marsh)

LS3362 Juncus maritimus upper saltmarsh community (NVC SM18) (TT)

Description: Upper salt marsh community dominated by tall clumps of sea rush (*Juncus maritimus*) often with an understory of creeping bent (*Agrostis*

stolonifera), red fescue (*Festuca rubra*), sea milkwort (*Glaux maritime*) and saltmarsh rush (*Juncus gerardii*). It may include a rich communitiy of mesotrophic grassland species mostly autumn hawkbit (*Leontodon autumnalis*) or white clover (*Trifolium repens*) and weed species shrubby orache (*Atriplex hastate*), couch grass (*Elymus repens*) and curled dock (*Rumex crispus*). Stands of sea rush (*Juncus maritime*) may form clumps or as an extensive zone.

Correlates with: NVC - SM18 (*Juncus maritimus* salt-marsh)

LS3363 Juncus maritimus - Triglochin maritima saltmarsh community (NVC SM15) (TT)

Description: Sea rush (*Juncus maritimus*) dominant with sea arrowgrass (*Triglochin maritime*) and sea plantain (*Plantago maritime*) forming an understory. Saltmarsh grass (*Puccinellia*) spp., sea aster *(Aster tripolium*), thrift (*Armeria maritime*) and sea milkwort (*Glaux maritime*) may also occur frequently. Differs from LS342 primarily in the relative infrequency of creeping bent (*Agrostis stolonifera*), red fescue (*Festuca rubra*) and saltmarsh rush (*Juncus gerardii*).

Correlates with: NVC - SM15 (Juncus maritimus-Triglochin maritima salt-marsh)

LS34 Mediterranean salt meadows [Juncetalia maritima] (AN1)

Description: This habitat has a very marked southern and western distribution in the UK especially in Wales. The vegetation is characterised by sea rush (*Juncus maritimus*) which forms a prominent community at the upper levels of grazed marshes. Associated flora includes sea arrowgrass (*Triglochin maritimum*), common sea-lavender (*Limonium vulgare*) and sea aster (*Aster tripolium*). In the west there is also a mesotrophic grassland component with species such as autumn hawkbit (*Leontodon autumnalis*) and parsley water-dropwort (*Oenanthe lachenalii*). (Brown *et. al.*, 1997).

Correlates with: NVC -, CORINE - 15.15.

LS37 Elytrigia atherica upper-marsh (NVC SM24) (TT)

Description: Upper-marsh vegetation dominated by sea couch (*Elytrigia atherica*) often as the sole species or with patchy sea purslane (*Atriplex portulacoides*) and sea wormwood (*Artemisia maritime*).

Not included: Upper-marsh with common saltmarsh grass (*Puccinellia maritime*) and red fescue (*Festuca rubra*).

Correlates with: NVC - SM24 (*Elymus pycnanthus*).

LS41 Mudflats and sandflats not covered by sea water at low tide (AN1)

Description: This habitat is submerged at high tide and exposed at low tide. Mudflats form a major component of estuaries and embayments but also occur on the open coast, and range physically from mobile, coarse-sand beaches of wave-exposed coasts to the stable, fine sediment mudflats of estuaries. The habitat is divided into three categories which grade into each other: Mudflats: Form in sheltered areas where the stable sediment supports *polychaete* worms and bivalve molluscs. The high biomass provides important feeding areas for wildfowl and waders. Clean sands: Due to mobility of sediment and consequent abrasion species tend to be mobile and robust and include amphipod crustaceans such as Sandhoppers *Bathyporeia* spp., some *polychaete* worms and bivalve molluscs. (Brown *et. al.*, 1997).

Correlates with: CORINE - 14.

LS5 Sheltered muddy gravels (PHT)

Description: Occur principally in estuaries, rias and sea lochs, in areas protected from wave action and tidal streams. In fully marine conditions on the lower shore this habitat can become extremely species-rich because the complex nature of the substratum supports a high diversity of both in fauna and epifauna. (Brown *et. al.*, 1997). Polychaetes and bivalve molluscs are normally dominant and the most varied, but representatives of most marine phyla can be present. (UK Biodiversity Group, 1999).

LS6 Intertidal shingle (TT)

Description: May include coarse sand and shells.

LSZ Other littoral sediment (IC)

Description: Other sediments occurring in the intertidal zone.

References used in IHS

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