

APPENDIX 3 - NVC COMMUNITIES IN HERTFORDSHIRE

The National Vegetation Classification (NVC), edited by J S Rodwell, comprehensively describes the vegetation communities of the UK in 5 volumes. No major NVC surveys have as yet been undertaken in Hertfordshire, but the following communities would be expected to occur, and are described under each of the major habitats for which action plans have been written.

WOODLAND

Carr Woodland

The following carr woodlands are described more fully under Wetlands.

W1 *Salix cinerea-Galium palustre* woodland

W2 *Salix cinerea-Betula pubescens-Phragmites australis* woodland

W5 *Alnus glutinosa-Carex paniculata* woodland

W6 *Alnus glutinosa-Urtica dioica* woodland

Woodland

W8 *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland - This community is characteristic of heavier base-rich (calcareous mull) soils in south-east England, including Hertfordshire. It probably forms the climax forest type of these base-rich soils, which are generally derived from a wide variety of calcareous parent materials, such as sedimentary limestones, shales and clays and superficial deposits like glacial drift. The community is naturally extremely diverse in both the canopy and field layers and this diversity has often been further influenced by past management practices. It can include both ancient woodlands and more recent naturally regenerated woodland.

This community is typically dominated by Ash *Fraxinus excelsior*, Field Maple *Acer campestre* and Hazel *Corylus avellana*, with smaller quantities of Pedunculate Oak *Quercus robur*. The community occurs in this form on the chalky boulder clay of north-east Herts. However, further south in Hertfordshire, this community may be dominated by Hornbeam *Carpinus betulus*, with Ash and Oak standards, though with Field Maple and Hazel less dominant. This dominance by Hornbeam is a result of the species favouring the natural decalcification of the thin glacial soils due to intense management and past silvicultural selection practices, used to grow Hornbeam for charcoal production. In addition to the above species, the understorey will often contain Hawthorn *Crataegus monogyna*, Blackthorn *Prunus spinosa*, Elder *Sambucus nigra*, Dogwood *Cornus sanguinea* and Sallow *Salix capraea*. The ground flora is often rich, with Dogs Mercury *Mercurialis perennis*, Bluebell *Hyacinthoides non-scripta*, Wood Avens *Geum urbanum*, Enchanters Nightshade *Circaea lutetiana*, Lords and Ladies *Arum maculatum* and dog violets *Viola spp.* often

present. It is also characterised by the presence of orchids, Primrose *Primula vulgaris* and Herb Paris *Paris quadrifolia*.

W10 *Quercus robur*-*Pteridium aquilinum*-*Rubus fruticosus* woodland - This is the typical climax woodland community across the majority of base-poor brown soils throughout the temperate lowlands of southern Britain. It is usually found over clays, sandstones, sands and gravels, but not over limestones or calcareous superficial deposits such as Chalky Boulder Clay, or over free draining acidic deposits. Locally, it is especially predominant on the London Clay of the Thames Basin. Like the W8 community, it is extremely diverse in the canopy, understorey and field layers and the species composition of the canopy and shrub layers has often been influenced by past silvicultural treatments. It too includes both ancient woodland communities and more recent naturally regenerating woodland.

Oaks, Pedunculate Oak in southern and eastern Britain and Sessile Oak *Quercus petraea* in northern and western areas are usually the most abundant tree. In Hertfordshire, on lighter soils Silver Birch *Betula pendula* is the next most common tree. However, in Hertfordshire, on the heavier soils, Hornbeam is the natural co-dominant, forming the typical Oak-Hornbeam woodlands of most of the south and central part of the county. A further interesting variation in parts of southern Hertfordshire, is the replacement of Pedunculate Oak by Sessile Oak as the dominant oak species. This is particularly marked on highly acidic free-draining soils. In south-east Herts, Sessile Oak would have been the dominant tree.

In addition to Hornbeam, other species typical of the understorey are Hazel and Common Hawthorn. The ground flora is generally species poor, with Bluebell dominating in the spring on less acidic soils, though Wood Anemone *Anemone nemorosa* may be locally prominent. Later in the year Bramble *Rubus fruticosus*, Bracken *Pteridium aquilinum* and Honeysuckle *Lonicera periclymenum* usually dominate.

W12 *Fagus sylvatica*-*Mercurialis perennis* woodland - This is the dominant community on free-draining, base-rich and calcareous soils in south-eastern Britain. It is essentially a community of limestone scarplands, and appears at the present time to represent a stable end point of successions in such areas. The dominance of Beech *Fagus sylvatica* in some areas has been as a result of past selection.

In this community, no other tree species dominate other than in very local areas. Ash is the next most commonest tree followed by Whitebeam *Sorbus aria*. The understorey, though sparse where beech is dominant, most commonly includes a mixture of Hazel, Hawthorn, Field Maple, Elder, Holly *Ilex aquifolium*, Spindle *Euonymus europaeus*, Privet *Ligustrum vulgare*, Dogwood and Wayfaring Tree *Viburnum lantana*. The ground flora usually includes Dogs Mercury, Sanicle *Sanicula europaea*, Lords and Ladies, dog violets and Wood False-brome *Brachypodium sylvaticum*. Other characteristic species include Fly

Orchid *Orchis insectifera*, Woodruff *Galium odoratum* and Yellow Archangel *Lamium galeobdolon*, as well as rarer orchid species.

This community is naturally found, only at the western and north-western edge of the county, where the Chilterns scarp crosses the county boundary. However, beech woodlands do occur in North-east Herts, as a result of past planting. In South-west Herts, a special form of beech woodland occurs, which mixes the W12 and W14 communities, on damper dip-slope soils and is characterised by a richer flora including Coral-root Bittercress *Cardamine bulbifera*.

W14 *Fagus sylvatica*-*Rubus fruticosus* woodland - This community is confined to base-poor brown earths with moderate to slightly impeded drainage in southern England. It is typical of the plateaus and dip slopes of the southern chalk, which are covered by superficial deposits such as Clay-with-Flints and Plateau Drift. It probably represents the climax forest in such situations, though again has often been influenced by past silvicultural treatments and also grazing. This community can be found in both ancient and relatively young woodlands.

In mature stands, Beech is the major dominant, often forming a closed, even-topped cover of trees. The most characteristic associate of Beech in this community is Pedunculate Oak with other canopy species such as Silver Birch and Ash only ever occasional. Locally on the Chilterns dip slope, Wild Cherry *Prunus avium* can be widespread. The understorey is generally sparse with Holly being the most frequent and distinctive species. Bramble, Bracken and Honeysuckle are the dominant components of the ground flora. In Hertfordshire, this is the dominant community of the Chilterns dip slope in the west of the county, where much of the woodland has been subjected to recent high forest management of beech for the furniture industry.

W15 *Fagus sylvatica*-*Deschampsia flexuosa* woodland - This community is confined to very base-poor, infertile soils in the southern lowlands of Britain. In Hertfordshire, it only naturally occurs on the dip slope of the Chilterns, where remnants of very acidic sandy deposits are intermixed with the Clay-with-Flints. It is also probably a climax forest type, but again many stands have been altered by silvicultural treatments, and some form part of a wood-pasture system.

Beech, while still dominant, is not as dominant as in the previous two communities. Again the next most frequent canopy tree is Pedunculate Oak, with Silver birch occurring in clearings. The understorey is generally sparse and dominated by Holly. Bracken and Wavy Hair-grass *Deschampsia flexuosa* are the most common components of the ground flora.

W16 *Quercus* spp.-*Betula* spp.-*Deschampsia flexuosa* woodland - This community is confined to very acid and oligotrophic soils in the southern lowlands of Britain, where it forms the climax forest type. In Hertfordshire, it occurs on the most acidic sandy and

gravelly soils in the southern half of the county. Some stands are ancient, but it has often developed recently on former heathy commons.

Pedunculate and Sessile Oak and Silver Birch are the dominant trees of this community locally. Rowan *Sorbus aucuparia* and Holly are the two commonest species of the understorey. The field layer is characteristically species poor, with Bracken and Wavy Hair-grass most frequent.

Scrub

W21 *Crataegus monogyna-Hedera helix* scrub - This community is very wide ranging, being the typical sub-climax community of circumneutral to base-rich soils throughout the British lowlands. It develops on bare ground or as part of a succession from grassland to woodland. It includes most of the seral thorn scrub and many hedges found in Britain. Hawthorn, Blackthorn, Bramble and Dog Rose *Rosa canina* agg. are usually present. On calcareous soils a more species rich sub-community can develop, which also includes, Wayfaring Tree, Dogwood, Privet, Buckthorn and Spindle and climbers such as Black Bryony *Tamus communis* and Travellers Joy *Clematis vitalba*. The ground flora is generally species-poor, with Ivy *Hedera helix* usually being most dominant. However, under the *Viburnum lantana* sub-community it is often quite rich, including various Orchids and Yellow-wort *Blackstonia perfoliata*.

W22 *Prunus spinosa-Rubus fruticosus* scrub - This community occurs on mesotrophic mull soils of moderate base-status in lowland Britain. It typically develops from grasslands where grazing has ceased and forms a seral stage to high forest. Blackthorn is the dominant woody species with brambles dominating the undershrubs. The ground layer is species-poor with Bracken, Common Nettle *Urtica dioica* and Cleavers *Galium aparine* frequent.

W23 *Ulex europaeus-Rubus fruticosus* scrub - This community is characteristic of moderately to strongly acid brown-earth soils which are generally free-draining. Again it forms part of the succession from neglected grasslands or heaths to woodland. Common Gorse *Ulex europaeus* is the dominant species, though it may be accompanied by Broom *Cytisus scoparius*. The other members of the scrub cover are Bramble very frequently and Raspberry *Rubus idaeus*. The herb layer is often non-existent under the dense shade of the scrub.

W24 *Rubus fruticosus-Holcus lanatus* underscrub - This is a very typical community of abandoned and neglected ground in lowland Britain, on a wide variety of circumneutral and less oligotrophic soils, where it represents an early stage in successions to mixed deciduous or oak-birch woodlands. The community is dominated by Bramble, rank grasses such as Yorkshire Fog *Holcus lanatus*, Cocksfoot *Dactylis glomerata* and False Oat-grass *Arrhenatherum elatius* and tall dicotyledons such as Common Nettle, Cleavers. Red Campion *Silene dioica* and Greater Stitchwort *Stellaria holostea* can be frequent.

W25 *Pteridium aquilinum-Rubus fruticosus* underscrub - The typical community of deeper and generally free-draining, circumneutral to moderately acid and fairly fertile soils

in the British lowlands. It is commonly found within woodlands or has developed from neglected heaths. Once established the community can be quite permanent unless disturbance allows woody species to begin colonising. The community is dominated by mixtures of Bracken and Bramble, with Bracken generally the more abundant. Of the ground flora, Common Nettle and Yorkshire Fog are the most common, but Bluebell is sometimes frequent in woodland margin localities, where in Hertfordshire it indicates an ancient woodland site.

WETLANDS

Fen, Marsh and Swamp

S4 *Phragmites australis* swamp. Single species swamp of open water transitions dominated by Common Reed - reedbeds.

S5 *Glyceria maxima* swamp. Single species swamp of nutrient enriched water margins, especially on alluvial soils, dominated by Reed Sweet-grass.

S6 *Carex riparia* swamp. A single species Greater Pond Sedge swamp typical of mineral soils alongside sluggish rivers or other open waters.

S7 *Carex acutiformis* swamp. The Lesser Pond Sedge swamp is found in similar situations to the *Carex riparia* but is more consistently associated with calcareous habitats such as fen meadows, peaty ditches and margins of slow chalk streams.

S8 *Scirpus lacustris* swamp. Stands of Bulrush, usually found in deeper water in lakes or slow flowing rivers.

S12 *Typha latifolia* swamp. A single species swamp dominated by Greater Reedmace. Typical of standing or slow moving moderately eutrophic waters with silty substrates.

S13 *Typha angustifolia* swamp. The Lesser Reedmace swamp occupies similar habitats to the greater but is perhaps typical of less enriched conditions.

S14 *Sparganium erectum* swamp. A community of moderately enriched waters with mineral soils. The tolerance of the dominant Branched Bur-reed to moderate currents makes it one of the most frequent vegetation types along lowland rivers and streams.

S22 *Glyceria fluitans* swamp. This community is characteristic of shallow, standing or sluggish, waters with silty substrates. Found by pools and streams, frequently in flood plains.

S23 Other water margin vegetation. A floristically varied vegetation of the unshaded margins of waters where there is an accumulation of medium to fine textured mineral sediments.

S25 *Phragmites australis-Eupatorium cannabinum* fen. A moderately species-rich community of tall herbaceous fen vegetation dominated by Common Reed. Found in moderately eutrophic situations where soils are irrigated and frequently water-logged by base-rich waters.

S26 *Phragmites australis-Urtica dioica* fen. Similar to the *Phragmites-Eupatorium* community but a typically less species-rich mix of Common Reed and Stinging Nettle found on enriched water margins and mires.

S28 *Phalaris arundinacea* fen. A species-poor tall vegetation dominated by Reed Canary-grass and most typical of water margins with fluctuating levels and mineral soils.

M22 *Juncus subnodulosus-Cirsium palustre* fen meadow. A species-rich mix of rushes and other marsh plants found on moist base-rich peats and mineral soils and ultimately dependant on grazing or mowing to maintain its integrity.

M27 *Filipendula ulmaria-Angelica sylvestris* mire. A vegetation mix dominated by Meadowsweet, bulky sedges, rushes and other tall marsh plants, typical of ungrazed neutral mineral or organic soils kept damp for much or all of the year.

Wet Grasslands

MG9 *Holcus lanatus-Deschampsia cespitosa* grassland. Highly characteristic coarse tussocky grassland of permanently moist and periodically inundated soils occurring at fen margins or around the upper limit of inundation by pools, lakes and reservoirs.

MG10 *Holcus lanatus-Juncus effusus* rush pasture. A species-poor grassland with prominent rush tussocks typical of permanently moist soils around pools and fens.

MG13 *Agrostis stolonifera-Alopecurus geniculatus* grassland. A lush grassland community of neutral soils kept moist and sometimes waterlogged by periodic inundation with fresh water. Frequently providing valuable summer grazing.

Carr Woodland

W1 *Salix-Galium palustre* woodland. A relatively species-poor Sallow woodland community of waterlogged mineral soils on the margins of standing or slow moving open waters.

W2 *Salix-Betula-Phragmites* woodland. Sallow and Birch woodland developing on fen peats often from valley mire or fen meadows. Rich in ground flora, it is classically found through the East Anglian fens and broads.

W5 *Alnus-Carex paniculata* woodland. Alder woodland associated with the primary colonisation of swamp vegetation where waters are fairly base-rich and only moderately eutrophic, allowing development of fen peat. The ground flora is rich with many associated rarities.

W6 *Alnus-Urtica* woodland. Replaces the *Alnus-Carex* woodland in more markedly nutrient-rich situations. It can develop on fen peat where there has been enrichment through drainage or disturbance but is more typical of rich alluvial sites in river valleys. The flora is

much poorer than in the *Alnus-Carex* woodland, here being dominated by nutrient-demanding plants such as Stinging Nettle, Hairy Willowherb and Cleavers.

HEATHLAND / ACID GRASSLAND

Heath

H1 *Calluna vulgaris-Festuca ovina* dry heath - This is the dry heath community which is found across East Anglia, with the more continental climate.

H2 *Calluna vulgaris-Ulex minor* dry heath - This is the major dry heath community of the Weald and central southern England, where the climate is more oceanic. With Hertfordshire's climate being less continental than East Anglia, this dry heath community may have occurred.

M16 *Erica tetralix-Sphagnum compactum* wet heath - This wet heath community may have occurred along wetter flushes and in wet hollows.

Acid Grassland

U1 *Festuca ovina-Agrostis capillaris-Rumex acetosella* grassland - This is the major acid grassland community to be found in the county and would have formed extensive areas in a patchwork with the dry heath communities. Heavier grazing would have favoured this community over the dry heath communities.

U20 *Pteridium aquilinum-Galium saxatile* community - This community would also have formed a patchwork with the dry heath and acid grassland communities. It would have favoured slightly richer soils and occurred particularly after burning, and in the absence of grazing or cutting management.

Scrub

The following scrub communities are often associated with heathlands;

W23 *Ulex europaeus-Rubus fruticosus* scrub - This community would have been found on the most enriched and disturbed soils.

W25 *Pteridium aquilinum-Rubus fruticosus* underscrub - This community would have been typical of more nutrient enriched soils and developed particularly after burning, but also in the absence of grazing and cutting management.

Woodland

In the long-term absence of grazing or cutting management, heathlands eventually succeed to woodlands. The following woodland communities could occur as transitory or more permanent features;

W16 *Quercus spp-Betula spp-Deschampsia flexuosa* woodland - This is the major climax woodland community for the majority of heathland soils.

W14 *Fagus sylvatica-Rubus fruticosus* woodland - This community is a potential climax community for the heathland soils in the Chilterns.

W10 *Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland - This is the likely climax woodland for the richer heathland soils over much of Hertfordshire.

NEUTRAL GRASSLAND

MG1 *Arrhenatherum elatius* grassland - This community is characteristic of ungrazed grasslands, occurring on road verges, railway embankments and churchyards and in neglected pastures and meadows. It is maintained by regular but infrequent cutting. If cuttings are removed the sward may be quite species rich, though this often does not occur. Early cutting and application of herbicides will drastically reduce the variety of herbs. Resumption of grazing will change the sward towards a MG5 community. Absence of cutting will result in often rapid succession to scrub and woodland.

MG4 *Alopecurus pratensis* - *Sanguisorba officinalis* grassland - This community occurs where traditional hay meadow treatment has been applied to seasonally flooded land with alluvial soils. With such widespread improvement of grasslands and river drainage it is now of very restricted occurrence. Some of the best examples have survived where common rights have maintained traditional management for many generations. This traditional management is based on a mixture of taking an annual hay crop in July and grazing from August until February or March. The grasslands receive no fertiliser except from the manure of grazing animals. Winter flooding, which provides salts, alluvial silt and decaying organic matter is however vital in order to maintain the fertility. Increasing grazing intensity particularly through the spring changes the community leading to a loss of many of the most distinctive species such as Fritillary or Pepper Saxifrage. Cessation of winter grazing results in a change to MG1 or MG9 communities depending on soil moisture.

MG5 *Cynosaurus cristatus* - *Centaurea nigra* grassland - This community is the typical grassland of grazed hay meadows treated in the traditional fashion throughout the lowlands of Britain. It occurs in farm fields, churchyards and on road verges. It has become increasingly rare as a result of agricultural improvement which decreases the herb and grass species richness. The traditional management involves grazing, taking a hay cut and application of organic manures. Although many of the most species-rich examples of this community have been treated in the traditional way for a long period, moderately species-rich examples can develop quite quickly on more recent grasslands if other conditions, particularly nutrient levels, are suitable. Increases in grazing intensity or frequent mowing result in a loss of species richness and a move towards the MG6 community, which is the typical semi-improved pasture of lowland Britain. Absence of grazing results in an increase in coarse grasses and the invasion of scrub.

MG9 *Holcus lanatus* - *Deschampsia cespitosa* grassland - This community occurs on poorly drained, moist soils in pastures and meadows, in woodland rides and clearings, churchyards, on road verges, river levees and at the upper margins of wetlands. It may occur as a mosaic within MG5 and MG1 grasslands or as more extensive stands and often occurs as part of an ecotone from grassland to fen or swamps. A range of intermediate communities between this and other grasslands or fen or swamps may occur and grazing or mowing can further complicate matters.

CHALK GRASSLAND

Grassland

CG2 *Festuca ovina* - *Avenula pratensis* grassland - This community is what many people consider as typical chalk grassland. It generally consists of a very short, tight, springy turf, with an intimate mixture of fine leaved grasses and low growing herbs. The community is dependent on some form of grazing for its maintenance, and this is most usually sheep and/or rabbit grazing. The community is usually found on the steeper natural slopes or on drift free plateaus. It would have been the major chalk grassland community found in Hertfordshire in the past. The Nature Conservancy Councils (now English Nature) 1987 chalk grassland survey identified sub-communities CG2a, CG2c and CG2d present in Hertfordshire.

CG3 *Bromus erectus* grassland - This community is typical of lightly grazed or ungrazed chalk grasslands, and is more species poor than the above community with many of the smaller herbs much reduced in abundance or absent. It can be regarded as the major natural ungrazed counterpart of the CG2 grasslands described above, over most of the southern part of their range, including Hertfordshire. Sub-communities CG3a and CG3d were recorded in Hertfordshire in the 1987 survey.

CG6 *Avenula pubescens* grassland - This community is likely to develop on moister, more nutrient rich chalk soils, on flat or gently sloping ground. It generally occurs where there is little or no grazing, and is more likely to develop in response to a history of disturbance, such as ploughing, rather than from ungrazed grassland swards. It is likely to be only rarely found in Herts, because suitable soils are easily cultivated, however, it could develop over a long period of time on set-aside land allowed to revert to permanent grassland. Only sub-community CG6a was recorded in the 1987 NCC survey.

CG7 *Festuca ovina* - *Hieracium pilosella* - *Thymus praecox/pulegioides* grassland - This community is typical of more continental climatic conditions with heavy rabbit grazing and perhaps some past disturbance such as ploughing. It occurs on thin, stoney, very free draining and nutrient poor calcareous soils. It was unlikely to have formed a major component of chalk grassland in Herts, however, it could have occurred in NE Herts in the past, where the climate is more continental. Communities with some similarities to this community may potentially develop on some of the arable areas of this part of the county, should arable land be allowed to revert to permanent grassland swards. This community was not recorded in the 1987 NCC survey.

Scrub

In the absence of grazing or cutting, chalk grasslands will eventually succeed to the following scrub and woodland communities.

W21 *Crataegus monogyna* - *Hedera helix* scrub - This scrub community represents the typical chalk scrub which develops on neglected grasslands or on disturbed calcareous soils. It is now very widespread on the fragments of former chalk grassland remaining in Hertfordshire. Species rich calcareous scrub, particularly where this is a long-standing feature is an important community, though there are few areas of species rich calcareous scrub in Hertfordshire.

W12 *Fagus sylvatica* - *Mercurialis perennis* woodland - This is the climax woodland community of chalk scarp slopes, where the soils are very thin and free draining. Its occurrence in Hertfordshire is limited due to the very limited extent of the Chiltern scarp in the county.

W8 *Fraxinus excelsior* - *Acer campestre* - *Mercurialis perennis* woodland - This community represents the climax woodland community over the majority of base rich chalk soils in Hertfordshire.

A further interesting variation is the occurrence of "chalk heath" in some localities here more acidic deposits outcrop over the chalk. Heather and gorses can typify such situations, and local variations in topography bringing the chalk closer to the surface can result in intimate mixtures of chalk grassland and dry heath / acid grassland.

