Appendix 12-C Habitats and Plant Communities

12-C.1 National Vegetation Classification and Vegetation

Introduction

Background

12-C.1.1 The National Vegetation Classification (NVC) was undertaken by ACTA with the majority completed during the period of June to the end of September 2005, further surveys on the species rich grassland were undertaken in 2006.

Classification

12-C.1.2 The NVC is a scheme which helps to identify and understand vegetation types encountered in the field. All vascular plants, bryophytes and macrolichens rooted or attached within the sample are identified and listed. Once the species have been identified the data is then compared to the floristic tables which are used to define the NVC vegetation types. The NVC communities are labelled by the most frequent and abundant constants, with any sub-communities named using distinctive preferentials. Every NVC community has a letter and number code, the letter(s) abbreviate the major vegetation type and the number indicates the position in the sequence of community descriptions.

Survey Methods

12-C.1.3 Sample areas were compared to the plant communities summarised in the NVC floristic tables. Due to the lack of complexity of the majority of the communities surveyed, this was achieved by visual recognition rather than sampling.

12-C.1.4 Quadrats of 2m x 2m were used for the more complex fen communities. For every species recorded, an estimate was made of its quantitative contribution to the vegetation. Cover/abundance is a measure of the vertical projection on the ground of the extent of the living parts of the species.

Results

12-C.1.5 The following NVC communities were identified:

A2 Common duck-weed (*Lemna minor*) community;

A3 Greater duckweed (*Spirodela polyrhiza*) frog-bit (*Hydrocharis morsus-ranae*) community;

A4 Frog-bit - Water-soldier (*Stratiotes aloides*) community;

A5 Hornwort (*Ceratophyllum demersum*) community;

A9 Floating Pondweed (*Potamogeton natans*) community;

A8 Yellow water-lily (*Nuphar lutea)* community;

A9 Broad-leaved pondweed (*Potamogeton natans*) community;

A15 Canadian waterweed (*Elodea canadensis*)/Nuttall's waterweed (*Elodea nuttallii*) community;

M24 Purple moor-grass (*Molinia caerulea*) meadow-thistle (*Cirsium dissectum*) fen-meadow;

MG1 False oat-grass (*Arrhenatherum elatius*) grassland;

MG5 Crested dog's-tail (*Cynosurus cristatus*)-common knapweed (*Centaurea nigra*) grassland;

MG6 Rye-grass (*Lolium perenne*)-crested dog's-tail (*Cynosurus cristatus*) grassland;

MG6a Meadow Foxtail (*Alopecurus pratensis)* sub-community;

MG7 Rye-grass (*Lolium perenne*) leys and related grassland;

MG7d Meadow Foxtail (*Alopecurus pratensis)* sub-community;

MG9 Yorkshire fog (*Holcus lanatus*)-tufted hair-grass (*Deschampsia cespitosa*) grassland;

MG10 Yorkshire fog (*Holcus lanatus*)-soft rush (*Juncus effusus)* rush pasture;

MG13 Creeping bent (*Agrostis stolonifera*) marsh foxtail (*Alopecurus geniculatus*) grassland;

S4 Common reed (*Phragmites australis*) swamp and reedbeds;

S5 Reed sweet-grass (*Glyceria maxima*) swamp;

S6 Greater pond-sedge (*Carex riparia*) swamp;

S12 Bulrush (*Typha latifolia*) swamp;

S14 Branched bur-reed (*Sparganium erectum*) swamp;

S17 Cyperus Sedge (*Carex pseudocyperus*) swamp;

S22 Flote-grass (*Glyceria fluitans*) swamp;

S26 Common reed (*Phragmites australis*) nettle (*Urtica dioica*) tall-herb fen;

S28 Reed canary-grass (*Phalaris arundinacea*) tall-herb fen;

W6 Alder (*Alnus glutinosa*)-nettle (*Urtica dioica*) woodland;

W6b Elder (*Sambucus nigra*) sub-community;

W6d Crack Willow (*Salix fragilis*) sub-community;

W8 Ash (*Fraxinus excelsior*)-field maple (*Acer campestre*)-dog's mercury (*Mercurialis perennis*) woodland;

W8a Primrose (*Primula vulgaris*) ground ivy (*Glechoma hederacea*) sub-community;

W8b D. ivy (*Hedera helix*) sub-community;

W10 Oak (*Quercus robur*)-bracken (*Pteridium aquilinum*)-bramble (*Rubus fruticosus*) woodland;

W10b Wood anemone (*Anemone nemorosa*) sub-community;

W10c Yorkshire fog (*Holcus lanatus*) sub-community;

W21 Common Hawthorn (*Crataegus monogyna*) – Ivy (*Hedera helix*);

W21a Stinging nettle (*Urtica dioica*) sub-community;

W24 Bramble (*Rubus fruticosus*)-Yorkshire fog (*Holcus lanatus*) underscrub;

W25 Bramble (*Rubus fruticosus*) - Bracken (*Pteridium aquilinum*) underscrub;

U20 Bramble (*Rubus fruticosus*) – Heath bedstraw (*Galium saxatile*) community;

OV19 Annual meadow-grass (*Poa annua*)-scentless mayweed (*Tripleurospermum inodorum*) community;

12-C.1.6 The following summary descriptions of grassland and woodland are taken from Cooper E. A. 1997, *Summary Descriptions of National Vegetation Classification grasslands and montane communities* J.N.C.C. UK Nature Conservation No. 14 and Whitbread A.M. and Kirby K. J. 1992, *Summary of National Vegetation Classification woodland descriptions* J.N.C.C. UK Nature Conservation No. 4 respectively. Summary descriptions of other communities have been prepared directly from the NVC handbooks (see bibliography).

A2 Lemna minor community

12-C.1.7 This consists essentially of floating mats of *Lemna minor*, the small thalli often very numerous and densely crowded, but usually forming a single layer on the water surface. There are no other constants and, indeed, associates of any kind are often very few, with their abundance being local or ephemeral or indicating a shift to different kinds of vegetation. At a few places in south-east England, the rare alien duckweed *L. minuta* has been recorded as an aggressive invader of this vegetation.

12-C.1.8 A distinctive form of the community has locally prominent *L. trisulca* beneath the floating mat of duckweed and some stands are characterised by the periodic occurrence of aquatic liverworts.

A3 *Spirodela polyrhiza - Hydrocharis morsus-ranae community*

12-C.1.9 The major element of this community consists of a floating mat of various mixtures of the duckweeds *Lemna minor, L. gibba* and, particularly distinctive here, *Spirodela polyrhiza*, together with *Hydrocharis morsus-ranae*. The rare *Wolffia arrhiza* is also occasionally found and the alien fern *Azolla filiculoides* sometimes occurs. Beneath this, there is a closely associated layer of submerged plants, with *Elodea canadensis* and *Ceratophyllum demersum* very common and sometimes abundant, and entangled among them the thalli of *L. trisulca*. Other more occasional associates are *Callitriche platycarpa, C. obtusangula, Ranunculus circinatus, Zannichellia palustris, Potamogeton crispus, P. pectinatus* and *P. brechtoldii*.

A4 Hydrocharis morsus – ranae - Stratiotes aloides community

12-C.1.10 The *Hydrocharis morsus – ranae - Stratiotes aloides* community has a usually abundant submerged element comprising luxuriant masses of *Ceratophyllum demersum* with *Utricularia vulgaris* and quite often some of the rare *Myriophyllum verticillatum. Stratiotes aloides* is a rarity which is now particularly associated with this kind of vegetation within its much contracted range, and its striking large rosettes of rigid leaves can be quite abundant here. They remain submerged for much of the time, rising to the surface at flowering, but reproduction is by offsets in this country, male plants being very scarce and fruit never set.

12-C.1.11 Floating above this layer is a surface mat *of Hydrocharis morsus-ranae, Lemna minor, L. trisulca, Polygonum amphibium* and *Nuphar lutea*, often mixed in with abundant algal scum, mainly *Rhizoclonium*. Occasionally there are some emergent shoots of *Potentilla palustris, Hottonia palustris, Berula erecta,*

Oenanthe aquatica, Sparganium erectum, Nasturtium officinale, Sium latifolium, Alisma Plantago-aquatica or *Sagittaria saggitifolia*.

A5 Ceratophyllum demersum community

12-C.1.12 This community is characterised by often dense free-floating masses of *Ceratophyllum demersum*, usually with at least a little, sometimes much, *Elodea sp*. Some stands have few other plants, apart from a patchy floating mat of *Lemna minor*, but others are richer, with frequent records for *Ranunculus circinatus, Callitriche stagnalis* and one of the other introduced waterweeds, *E. nuttallii*, with *L. gibba* and *Nuphar lutea* among the floating element.

A8 Nuphar lutea community

12-C.1.13 The *Nuphar* community includes all those stands in which its submerged and floating foliage, put up annually in the spring, makes up a substantial proportion of the cover. Much of the vegetation is species-poor, consisting of little else apart *from N. lutea*, and even where its associates are more numerous and consistent, it is hard to know whether the assemblages are wholly natural because of the frequent introduction of the plant. Some stands, mostly in southern Britain, also have *N. alba*.

12-C.1.14 Few other species occur with any consistency throughout the community, but *Elodea canadensis/ E. nuttallii* can be very common and abundant beneath the canopy of floating leaves and, in the different kinds of *Nuphar* stand, a range of other aquatics enriches the various elements of the vegetation. Quite often, for example, there are fragments of a duckweed mat occurring among the lily pads, with *Lemna minor* being particularly frequent, and other floating-leaved plants, notably *Polygonum amphibium* and, rather less commonly, *Potamogeton natans*, sometimes contribute to the surface cover. Then, among the submerged species, *Callitriche* spp can be found, with a variety of pondweeds occurring in the different sub-communities, sometimes in abundance, with *Ceratophyllum demersum* and *Myriophyllum spicatum* infrequent, but locally prominent. Water-crowfoots may also be found in quite dense clumps and *Sparganium emersum, S. natans, Littorella uniflora* and the rare *Eleocharis* have been recorded. Some stands have locally dense swards of *Nitella* spp. or *Chara* spp.

12-C.1.15 Smaller plants of water margins, such as various *Glyceria* spp., *Sagittaria saggitifolia, Veronica beccabunga, Apium nodiflorum* and *Mentha aquatica*, may also be found trailing among or growing through the cover of *Nuphar* leaves.

A9 Potamogeton natans community

12-C.1.16 *Potamogeton natans* is one of only two widely distributed pondweeds in Britain. The plant figures as an occasional in various kinds of aquatic vegetation, and can persist at low frequencies in some more open swamps. In this community it includes all those stands where *P. natans* is a clear dominant over the water surface, often to the total exclusion of other free-floating or floating-leaved species and with just very sparse submerged or emergent associates. Where these plants become a little more common, rather ill-defined sub-communities can be recognised, but if the associated floras are consistently rich, the vegetation is best regarded as a mosaic of the *P. natans* community with other aquatic assemblages.

A15 Elodea canadensis/E. nuttallii community

12-C.1.17 The NVC handbook describes A15 as an *Elodea canadensis* community comprising species-poor vegetation. The plant overwinters as short unbranched stems or as turions but, by early summer, it can become very abundant, either as free-floating masses or with the shoots rather loosely anchored in the substrate. In such stands, other species are at most only occasional, though quite a variety is represented at low frequency. Then, there are quite often some associated mats of duckweeds *Lemna minor* and *L. gibba*, with *Potamogeton natans* and *Polygonum amphibium* forming an open canopy of floating leaves. *Glyceria fluitans* shoots sometimes trail in from water margins.

12-C.1.18 *E. nuttallii* is a much later introduction (first noted in 1966). Extensive and luxuriant stands of *E. nuttallii* certainly occurred at the time of writing, but there were insufficient data to define a distinct vegetation with it as sole dominant, or indeed to say very much about its ecological preferences. In the present survey very little *E. canadensis* was recorded and most of the Elodea was *E. nuttallii*. Given the increase in this species since the period when the NVC data were collected (Preston C.D., Pearman D. A., Dines T.D. 2004, *New Atlas of the British Flora*: 670), the large areas present could perhaps be regarded as a variant of A15.

M24 Molinia caerulea-Cirsium dissectum fen-meadow

12-C.1.19 This community includes the bulk of the *Molinia caerulea* vegetation in the lowland of south-east Britain. *Molinia* is almost always the dominant plant in the community and it can be very abundant, forming the basis of a rough sward or occurring as a more strongly-tussocky cover. There are stands in which the abundance of *Molinia* is so overwhelming that its dense

12-C.1.20 The herbage and thick litter reduce the associated flora to scattered individuals of a very few species. Often, however, the number of companions is considerable, although many of the associates are plants of fairly wide distribution among damper meadows and pastures, the most frequent of them comprise a quite distinctive assemblage.

12-C.1.21 The most important associates of *Molinia* are other monocotyledons of medium stature, particularly rushes, which can make quite a substantial contribution to the dense layer of herbage characteristic of the community. What helps distinguish the community is the prominence among the associated flora of dicotyledons. Some of these plants, such as *Cirsium palustre* and *Angelica sylvestris*, can persist in this vegetation as non-flowering rosettes, even in quite close-cropped herbage, but they are also able to grow very tall. *Filipendula ulmaria* is of similar growth form and wide occurrence among other kinds of fen vegetation and it likewise can be common here. *Centaurea nigra*, another hemicryptophyte, is likewise confined to more mesotrophic situations. Much more strictly limited to the kind of short to moderately tall herbage typical of this community are *Valeriana dioica, Succisa pratensis* and *Cirsium dissectum*.

12-C.1.22 In contrast to much tall-herb fen coarser grasses are often prominent here, with *Holcus lanatus* and *Anthoxanthum odoratum* the most frequent, *Festuca rubra, Deschampsia cespitosa* and *Agrostis stolonifera* less common, though sometimes abundant. There can be some sedges, though the bulkier species like *Carex acutiformis, C. disticha, C. elata* and *C. paniculata*, are very

rare here. The bryophyte flora is generally poor and of low cover, the dense herbage and thick litter inhibiting its development.

MG1 Arrhenatherum elatius grassland

12-C.1.23 The *Arrhenatherum elatius* grassland is a community in which coarse-leaved tussock grasses, notably *A. elatius* with usually smaller amounts of *Dactylis glomerata* and *Holcus lanatus*, are always conspicuous and generally dominant. Large umbellifers are frequent throughout and sometimes abundant, and the sequential flowering of first *Anthriscus sylvestris* and later *Heracleum sphondylium* and *Chaerophyllum temulentum* (or, on lime-rich soils, *Pastanica sativa*) is highly distinctive. Apart from *Cirsium arvense, Centaurea nigra* and *Urtica dioica*, other tall-herbs are generally infrequent, though a variety of species may attain dominance locally.

12-C.1.24 Beneath these taller species there is usually a layer of fine-leaved grasses, most frequently *Festuca rubra, Poa pratensis*, *P. trivialis, Lolium perenne* and *Elytrigia repens* and small dicotyledons, including *Trifolium pratense, T. repens, Achillea millefolium, Taraxacum officinale* agg., *Plantago lanceolata, Lotus corniculatus* and *Rumex acetosa*. At the height of the growing season the vegetation often becomes choked by sprawling legumes such as Lathyrus pratensis, Vicia sativa, V. cracca, V. sepium and trailing stems of Galium aparine, with Rubus fruticosus agg. in less frequently mown places. Bryophytes are usually confined to the often-large amount of decaying leaf material and small patches of bare soil. Brachythecium rutabulum is the most frequent species throughout, with some Eurhynchium praelongum, Pseudoscleropodium purum and Rhytidiadelphus squarrosus.

12-C.1.25 The variation among the sub-communities is mostly due to the edaphic variable of pH, nutrients or informal treatment of stands, including physical disturbance or enrichment by minerals or organic material, which is generally responsible for the prominence of the variants of the *Festuca* (MG1a) and the *Urtica* (MG1b) sub-communities.

12-C.1.26 Above all, this is ungrazed grassland. It is characteristics of circum-neutral brown earths throughout the British lowlands and occurs on road verges, railway embankments, in churchyards and in neglected agricultural and industrial sites, such as pastures and meadows, building sites, disused quarries and rubbish dumps. In artificial habitats the soils may be shallow and somewhat stony or compacted and clayey. Without regular mowing, stands are eventually invaded by shrubs.

MG5 Cynosurus cristatus-Centaurea nigra grassland

12-C.1.27 The *Cynosurus-Centaurea* grassland is dicotyledon-rich grassland of rather variable appearance: it may have a tight, low-growing sward or comprise a fairly lush growth up to 60cm tall according to grazing intensity. The fine-leaved grasses *Festuca rubra*, *Cynosurus cristatus* and *Agrostis* capillaries are most frequent and may be abundant. *Anthoxanthum odoratum* and the coarser *Dactylis glomerata* and *Holcus lanatus* are rather less frequent and usually not so abundant. *Lolium perenne* and *Trisetum flavescens* occur throughout, but are affiliated with particular sub-communities and almost always have low cover. *Briza media* is a distinctive occasional, that is easily overlooked early in the season. *Arrhenatherum elatius* and *Festuca arundinacea* are uncommon but their

robust tussock habit may make them conspicuous. Sedges may be abundant in some stands.

12-C.1.28 Dicotyledons always comprise a substantial proportion of the herbage and exceptionally may account for 95% of the cover. Among these, legumes and rosette plants are particularly prominent. *Lotus corniculatus, Plantago lanceolata* and *Trifolium repens* are the most frequent and generally most abundant species, with *T. pratense* and *Centaurea nigra* rather less so. Other species frequent throughout are *Ranunculus acris, R. bulbosus, Rumex acetosa, Hypochaeris radicata, Taraxacum officinale* agg., *Achillea millefolium, Prunella vulgaris* and *Leucanthemum vulgare. Rhinanthus minor* may be prominent.

12-C.1.29 Bryophytes are generally present, although their total cover is variable. The most frequent species are *Brachythecium rutabulum, Eurhynchium praelongum* and *Rhytidiadelphus squarrosus. Pseudoscleropodium purum* and *Calliergon cuspidatum* are less common, but any of these may be abundant in particular stands.

12-C.1.30 The *Cynosurus-Centaurea* grassland is the typical grassland of grazed hay-meadows treated in the traditional fashion on circum-neutral brown soils of loamy to clayey texture though out the lowlands of Britain. It is becoming increasingly rare as a result of agricultural improvement. Traditional meadow management of this kind of grassland comprised grazing, the taking of a hay crop and the light application of organic manures. The climate of England's lowlands is generally mild enough to permit grazing throughout the winter, and stock are usually left out until the end of April, when the fields are shut up for hay and lightly dressed, traditionally with farmyard manure. The hay is mown in June and the stock turned out again to graze the aftermath. Most of the floristic variation between the sub-communities is related to edaphic differences.

MG6 Lolium perenne-Cynosurus cristatus grassland

12-C.1.31 The *Lolium-Cynosurus* grassland generally has a short, tight sward which is grass-dominated. The most abundant grass is usually *Lolium perenne*, with varying amounts of *Cynosurus cristatus*. *Festuca rubra* and *Agrostis capillaris* frequent throughout and, in long-established pastures, these may be abundant. *Holcus lanatus* and *Dactylis glomerata* are also frequent, but often patchy in distribution; they may become more prominent as coarse tussocks if pasture is under-grazed. *Poa pratensis* and *P. trivialis* are the only other grasses frequent throughout. Among the rather limited range of *dicotyledons*, the most frequent and abundant species overall is *Trifolium repens*, which may attain co-dominance with *L. perenne* in intensively managed swards. *Cerastium fontanum, Plantago lanceolata, Ranunculus acris, Achillea millefolium* and *Bellis perennis* are also frequent but generally at low cover. *Senecio jacobaea* and *Cirsium arvense* are frequent; with poor management they can readily become abundant and tenacious weeds. The range of associates may be increased by the persistence of meadow species from previous or adjacent stands of *Cynosurus-Centaurea* grassland (MG5). A variety of ephemerals may occur alongside footpaths, around gateways or on patches of bare soil exposed by poaching. *Bromus hordeaceus* ssp. *hordeaceus, Medicago lupulina, Trifolium dubium, Poa annua* and *Hordeum murinum* may be locally abundant in such situations. Tall-herbs are generally rare, but *Urtica dioica, Heracleum sphondylium* and *Anthriscus sylvestris* may be prominent where there is soil eutrophication and disturbance around gateways or along field margins.

12-C.1.32 Bryophytes are generally present in the sward at low cover together with scattered plants of *Brachythecium rutabulum, Eurhynchium praelongum* and *Rhytidiadelphus squarrosus*. *Brachythecium rutabulum* occasionally shows great abundance on moist patches of bare soil.

12-C.1.33 The *Lolium-Cynosurus* grassland is the major permanent pasture type on moist but freely draining or moderately impeded circum neutral, mesotrophic brown soils in lowland Britain. Enclosed stands form the bulk of higher grade agricultural pasture in many parts of the country, as well as providing occasional crops of hay or silage. The community is also widespread as a long-established recreational sward, on road verges and on lawns.

MG6a Alopecurus pratensis sub-community

12-C.1.34 *Alopecurus pratensis* may become abundant and may attain co-dominance with the taller forms of *Lolium perenne. Ranunculus acris* is slightly preferential.

MG7 Lolium perenne leys and related grasslands

12-C.1.35 These are species-poor, grass-dominated swards characterized by the constant abundance of *Lolium perenne* and other specially selected grasses such as *Phleum pratense* ssp. *pretense, Alopecurus pratensis, Poa trivialis* and *Festuca pratensis* but in the absence of *Cynosurus cristatus*. These grasses are dominated by long-stalked, erect-leaved and fast-growing cultivars, along with improved strains of *Trifolium repens*. The widespread use of cultivars of *L. perenne* and other grasses and the development of a range of distinctive styles of intensive grassland treatment, including the frequent addition of fertilizers, have produced a wide variety of specialized grass-dominated and species-poor swards throughout lowland Britain. Six of these have been included within this broad-based vegetation type.

12-C.1.36 Grasslands of this kind are often specially sown as high-productivity swards, for intensive agricultural or recreational use, and sometimes as long-term leys sown in rotation with arable root crops. They are occasionally derived from *Lolium-Cynosurus* grassland (MG6) by further improvement, or develop naturally where other swards are trampled, heavily grazed or subject to ‘natural enrichment’.

MG7d Alopecurus pratensis

12-C.1.37 Tall, species-poor swards, with *Alopecurus pratensis* and *Lolium perenne* becoming dominant among the grasses. The most frequent dicotyledons are *Taraxacum officinale agg., Ranunculus repens, Cerastium fontanum, Rumex acetosa*, and *Trifolium pratense*. Bryophytes are sparse.

12-C.1.38 It is most characteristic of moist and fertile alluvial soils in the lowland river valleys where there is less frequent inundation and/or better drainage than is characteristic of the *Lolium-Alopecurus-Festuca* flood-pasture.

MG9 Holcus lanatus-Deschampsia cespitosa grassland

12-C.1.39 The *Holcus-Deschampsia* grassland has a coarse sward dominated by *Deschampsia cespitosa* and the other large tufted or tussocky grasses *Holcus lanatus, Dactylis glomerata* and *Arrhenatherum elatius*. In pasture, avoidance by

stock may accentuate the competitive advantage of *D. cespitosa*, causing a mosaic structure to develop in the vegetation.

12-C.1.40 Where the tussocks of *Deschampsia cespitosa* are scattered, there is between them a sward, often cropped short by preferential grazing, in which *Holcus lanatus, Festuca rubra, Agrostis stolonifera, A. capillaris, Poa trivialis, Dactylis glomerata, Lolium perenne* and *Alopecurus pratensis* may each be locally abundant. Dicotyledons are numerous and varied but none is constant. The most frequent species are *Ranunculus repens, R. acris, Cirsium arvense, Rumex acetosa, Cerastium fontanum, Plantago lanceolata, Lathyrus pratensis* and *Centaurea nigra*. Among other occasional, poor-fen species may be conspicuous: *Juncus effusus* and *J. inflexus* sometimes occur as scattered clumps, and *Filipendula ulmaria, Cardamine pratensis, Angelica sylvestris, Carex hirta, Lotus uliginosus* and *Achillea ptarmica* may be encountered at low frequency.

12-C.1.41 Where the *Deschampsia cespitosa* tussocks are close, there is a reduction in diversity in the vegetation. In such stands in early spring, and particularly where the *D. cespitosa* has been graced hard back over the winter, there may be considerable areas of bare soil; indeed some grasses (e.g. *Holcus lanatus, Agrostis stolonifera, Lolium perenne* and *Alopecurus pratensis*) may show a temporary abundance before the leaves of *D. cespitosa* extend. Between fully expanded tussocks there is often a very sparse ground flora of spindly *Poa trivialis* and *Agrostis stolonifera* with a little *Ranunculus repens*. Certain sprawlers, such as *Lathyrus pratensis* and *Lotus uliginosus*, and some taller dicotyledons, such as *Filipendula ulmaria, Centaurea nigra, Angelica sylvestris* and *Rumex crispus*, along with *Dactylis glomerata*, are able to grow up among the tussocks. In many cases, however, stands are uncompromisingly dominated by *D. cespitosa*. Where such vegetation is inundated by flood-water there may be largely bare silty runnels between the tussocks with *Potentilla anserina* and *Mentha aquatica*.

12-C.1.42 Bryophytes are rather infrequent in the community, although *Brachythecium rutabulum* and *Eurhynchium praelongum* are occasionally abundant on bare soil and decaying litter.

12-C.1.43 The *Holcus-Deschampsia* grassland is highly characteristic of permanently moist, gleyed and periodically inundated circum-neutral soils and is widespread throughout the British lowlands. It occurs patchily or as extensive stands on level to moderately steeply sloping ground in pastures and meadows, in woodland rides and clearings, on road verges, in churchyards, on river levees, at fen margins and around the upper limit of inundation around pools, lakes and reservoirs. In agricultural situations the spread of *Deschampsia cespitosa* is generally vegetative and slow, but on more disturbed, moist soils stands can arise from an explosive spread of *D. cespitosa* by seed. The type may also be the result of reversion from land that was previously arable or improved pasture on neutral soils.

MG10 Holcus lanatus-Juncus effuses rush-pasture

12-C.1.44 The *Holcus-Juncus* rush-pasture has a sward with prominent tussocks of *Juncus effusus* in a generally species-poor and shorter grassy ground. *Holcus lanatus* and *Agrostis stolonifera* are the only constant grasses, and one or both may be abundant. *Poa trivialis, Lolium perenne, Alopecurus geniculatus, A. pratensis* and *Festuca pratensis* are less frequent and usually

much less abundant. Sedges are generally uncommon throughout the community as a whole.

12-C.1.45 Dicotyledons are relatively few in number, although particular species may be conspicuous. *Ranunculus repens* and *R. acris* are frequent and sometimes abundant, with generally smaller amounts of *Cardamine pratensis, Trifolium repens, Rumex acetosa, Plantago lanceolata, Potentilla anserine* and *Cerastium fontanum*. Taller *Rumex* spp., such as *Rumex crispus, R. obtusifolius* and *R. conglomerates*, are occasionally prominent. Poor-fen species such as *Lotus uliginosus, Stellaria alsine* and *Cirsium palustre* are never frequent. Bryophytes are somewhat sparse, although *Calliergon cuspidatum* and *Eurhynchium praelongum* may attain abundance in some stands.

12-C.1.46 The *Holcus-Juncus* rush-pasture is characteristic of strongly impeded drainage in a wide range of mineral soils of varying pH throughout the British lowlands and on the upland fringes. The soils frequently show gleying in the surface horizons. This kind of vegetation is widely distributed in pastures, but is also common on abandoned agricultural land, on damp verges, in ditches and around pools and fens, including dune-slacks. The community is generally grazed between the clumps of rushes, and this can often strongly affect the vegetation. Heavy grazing can result in a patchwork of isolated clumps of *Holcus-Juncus* rush-pasture (MG10) amidst *Lolium-Cynosurus* grassland (MG6).

MG13 Agrostis stolonifera-Alopecurus geniculatus grassland

12-C.1.47 The *Agrostis-Alopecurus* grassland comprises both open and closed swards dominated by mixtures of *Agrostis stolonifera* and *Alopecurus geniculatus*, together with a variety of occasional associates that may be abundant in particular stands. These include *Ranunculus repens, Holcus lanatus, Poa trivialis, Glyceria fluitans* and, less frequently, *G. plicata* and *G. declinata*, a variety of rushes and the tall *Rumex* spp. Also distinctive at low frequency are *Polygonum hydropiper, R. sceleratus* and *Oenanthe fistulosa*. Bryophytes are uncommon, although *Brachythecium rutabulum* is occasionally conspicuous. There are no sub-communities.

12-C.1.48 The grassland is widely distributed throughout the British lowlands, typically on silty circum-neutral soils kept moist and sometimes waterlogged by periodic inundation with fresh water. It often occurs as fragmentary stands alongside sluggish streams and rivers and around pools in lowland pasture especially where there is moderate poaching by stock.

OV10 Poa annua-Senecio vulgaris community

12-C.1.49 The *Poa annua-Senecio vulgaris* community brings together a variety of weed assemblages that are distinctive in their combinations of common species rather than by the presence of striking differentials. *Poa annua* and *Senecio vulgaris* are the only constants throughout but *Lolium perenne* is very frequent and *Capsella bursa-pastoris* and *Cerastium fontanum* occur commonly in various sub-communities. Occasionals include *Cirsium arvense, Plantago major, Poa trivialis, Veronica persica* and *Urtica dioica*. The assemblages vary in their total cover and, though most of the more frequent species are ephemeral, a perennial grassy element can be seen establishing in some sub-communities.

12-C.1.50 The community is characteristically a pioneer weed assemblage of open cultivated or trampled ground, especially where fertile soils have been

moist. It is ubiquitous through the British lowlands, being particularly frequent in arable land, gardens, ill-sown and badly-poached leys and recreational grasslands, way-sides, gateways and freshly-dumped earth on building sites and roadworks.

12-C.1.51 Of the various sub-communities, the *Polygonum-Ranunculus* type is especially characteristic of arable and garden crops, poorly-sown leys and disturbed ground on heavier clay and clay-loam soils in the warmer and drier south-east of Britain. Among the other sub-communities, all of which are more widespread in their occurrence, the *Polygonum-Matricaria* type is characteristic of lighter sands and loams, the *Dactylis-Agrostis* type of disturbed, some what improved pastures and waysides on slightly more acidic soils and the *Agrostis-Rumex* type of poorly-managed leys, pastures and recreational swards on neutral loams.

12-C.1.52 In arable fields, the *Poa-Senecio* community can occur patchily within or around the crop, alone or with other assemblages typical of cereals, roots or vegetables, the *Polygonum-Matricaria* or, mostly in the south-east, the *Polygonum-Ranunculus* sub-community being the typical forms here.

12-C.1.53 In weedy leys or pastures, the *Agrostis-Rumex* sub-community often occurs among some Lolium-Plantago swards, sometimes with patches of *Urtica-Cirsium* vegetation. Around drier gateways, there is often a sequence of *Polygonum-Matricaria* and *Poa-Plantago* assemblages. On slighter more acidic and less eutrophic soils, the *Dactylis-Agrostis* sub-community replaced the *Agrostis-Rumex* type. This sort of *Poa-Senecio* vegetation can also be seen with *Lolium-Dactylis* grassland on disturbed waysides and verges.

12-C.1.54 Both *P. annua* and *S. vulgaris* are able to complete their life cycle very quickly and, where conditions do not remain congenial, this community can have but a fleeting existence. In arable fields or seasonally-poached leys, it may return year after year but, where swards close, it is typically replaced by some form of vegetation like the *Lolium-Dactylis* community.

OV19 Poa annua-Matricaria perforata community

12-C.1.55 The *Poa annua-Matricaria perforata* community includes coarse weedy vegetation with a variety of more ephemeral herbs, some small, others more bulky, and some perennial grasses. *Poa annua* is the commonest grass but *Elytrigia repens* and *Agrostis stolonifera* are frequent in many of the sub-communities and *Lolium perenne* is also often prominent. *Matricaria perforata* and somewhat less commonly, *Matricaria discoidea* are characteristics, too, with *Polygonum aviculare*. No other associates of the community as a whole are frequent throughout but *Capsella bursa-pastoris, Holcus lanatus, Chenopod album, Rumex obtusifolius* and *R. crispus* occur commonly in several sub-communities. *Plantago lanceolata, Taraxacum officinale* agg., *Stellaria media, Sinapis arvensis* and *Anagallis arvensis* are scarce throughout. Bryophytes are sparse.

12-C.1.56 It is an ephemeral vegetation type characteristic of disturbed verge edges along roads, on farm tracks and around gateways where there is only moderate trampling and occurs widely on suitable habitat throughout lowland Britain.

S4 Phragmites australis swamp and reed-beds

12-C.1.57 *Phragmites* is normally a highly gregarious species and individual stands of the community can be very extensive. The vegetation is generally very species-poor and no other species attains even occasional frequency throughout, but individual stands may show marked peculiarities of composition.

12-C.1.58 *Phragmites* is a natural dominant type in a wide range of permanently wet or periodically waterlogged habitats of differing trophic state and with a variety of substrates. The wide ecological amplitude makes the *Phragmites* one of the commonest components of zonations in open-water transitions and flood-plain mires and means that a wide variety of other swamp and fen communities, with more exacting species, can be found in association with it. In extensive open-water transitions it is often the most distal swamp type giving way directly, in deeper unpolluted waters, to floating-leaved or submerged aquatic vegetation. In some cases, stands are fronted by other swamp types.

12-C.1.59 Where there is a substantial depth of water available for colonisation, it is usually the *Phragmites* sub-community that leads such sequences. In waters that are shallower throughout, the *Galium* sub-community is more usual. Very commonly, a gradual reduction in water-level is matched by the *Phragmites* sub-community.

12-C.1.60 At some sites, the *Phragmites* may give way more, but still in standing water, to other swamp types. Frequently, however, the community gives way directly to some form of fen. The more landward parts of these zonations are strongly influenced by the trophic state of the substrate and also by human interference which, pushing out to the limit of standing water, has made intact sequences increasingly rare. In the more complete transitions, the *Phragmitetum* may pass gradually, through the *Galium* sub-community and with a progressive increase in the number and variety of associates, to fen vegetation in which *Phragmites* remains a prominent component. On mesotrophic silts and organic soils, there can be zonations to the *Phragmites-Eupatorium* fen.

12-C.1.61 A very common feature of disturbed and eutrophicated sites throughout the lowlands is the juxtaposition of the *Phragmites* or *Galium* sub-communities with various kinds of *Phragmites-Urtica* fen or tall-herb vegetation.

S5 Glyceria maxima swamp

12-C.1.62 This community is always overwhelmingly dominated by *Glyceria maxima,* which forms a typically dense and luxuriant cover of leafy shoots. The gross appearance of the vegetation is somewhat variable. The *G. maxima* plants may be firmly anchored at the edges of streams and drains and the shoots largely erect forming a tall emergent swamp. In other cases, stands occur as swinging masses of marginal ‘hover’, loosely attached below and with the shoots showing a marked tendency to lodge. Whatever its physiognomy, the community is typically very species-poor and pure stands are common.

12-C.1.63 The plant has high mineral requirements and is very much a species of eutrophic water margins. It is especially characteristic of nutrient-rich, circum-neutral to basic mineral substrates, such as certain alluvia, and it can maintain itself on such material even where the waters are stagnant. The classic community occurs as a fringe to sluggish rivers and streams, along dykes and canals, in open-water transitions around ponds, lakes and abandoned industrial

water bodies and on regularly inundated flood-plain washlands. Provided eutrophic conditions are maintained, the community seems tolerant of a wide range of water depth

12-C.1.64 Extensive, virtually pure stands of the *Glyceria* sub-community are quite common and sometimes completely choke small ponds, ox-bows or flat, narrow channels with standing or slow-moving water. Frequently, however, it occurs as a definite zone in open-water transitions and riparian sequences, typically passing to *Sparganium erectum* in deeper water and above to *Phalaris arundinacea*. Where banks shelve gently, the community may occur in both forms, the *Alisma-Sparganium* sub-community forming a fragmentary transition to the *Sparganium erectum* and giving way above to a belt of the *Glyceria* sub-community. Away from open water, the community usually gives way to some kind of fen vegetation in which both *G. maxima* and *P. australis* are important components, e.g. the *Glyceria* sub-community of S24 or the *Epilobium hirsutum* sub-community of the *Phragmites-Urtica* fen.

S6 Carex riparia swamp

12-C.1.65 This community is generally dominated by *Carex riparia.* It is typically rather species-poor and pure stands are not uncommon. Frequently, however, the community is marked by the patchy abundance of other swamp emergents and/or tall herbs. Among these, *Phragmites australis, Equisetum fluviatile, E. palustre, Epilobium hirsutum, Phalaris arundinacea* and *Filipendula ulmaria* are the most frequent and there is occasionally prominent *Galium palustre* and *Mentha aquatica*. Less frequent, though sometimes conspicuous, are *Sparganium erectum, Typha latifolia, Juncus effusus, Lycopus europaeus, Oenanthe crocata, Solanum dulcamara* and *Carex acuta*.

12-C.1.66 The community seems to be most characteristic of wet or waterlogged, mesotrophic to eutrophic, circum-neutral mineral soils alongside standing or slow-moving waters. It occurs, sometimes as large stands, by sluggish rivers and streams, in drainage ditches, around ponds and lakes and in clearings within fen woodlands, always in the lowlands.

S12 Typha latifolia swamp

12-C.1.67 *Typha latifolia* is always dominant in this community and pure stands are common.

12-C.1.68 It is most characteristic of standing or slow-moving, mesotrophic to eutrophic, circum-neutral to basic waters with silty substrates. It is frequent around lowland lakes, ponds and reservoirs, along canals and dykes and in sluggish streams. The community seems tolerant of a wide range of water levels and it will survive in depths of up to 60cm.

S14 Sparganium erectum swamp

12-C.1.69 The community is generally dominated by *Sparganium erectum* which forms an open or closed cover of shoots about 1m tall. Although pure and denser stands occur, there are usually some associates and certain of these can attain local prominence. *S. erectum* thrives best in full sunlight, but it is shade-tolerant and will stand overtopping by other species, provided these are not too bulky.

12-C.1.70 This is a community of shallow, mesotrophic to eutrophic waters with mineral substrates. It occurs widely in the standing waters of small pools, agricultural ponds, dykes and canals, but its tolerance of moderate currents makes it also one of the commonest vegetation types along lowland streams and rivers. Although *S. erectum* can survive in up to about 1m of water and can even grow when fully submerged, the community thrives best in shallows and on water margins but it will not tolerate long periods with a water-table below the roots, about 10cm below the substrate surface. It seems to grow best in waters where there is negligible flow and the densest and most luxuriant stands occur in the standing waters of small ponds and narrower dykes.

S22 Glyceria fluitans water-margin vegetation

12-C.1.71 The community is dominated by a low mat or floating carpet of Glyceria fluitans, sometimes continuous and very species-poor, in other cases as a more open cover with a variety of associates, some of which may attain local prominence. No other species reaches even occasional frequency throughout but the most usual associates are plants of shallow water margins such as Alisma plantago-aquatica, Myosotis scorpioides*, Apium nodiflorum* and *Eleocharis palustris*.

S26 Phragmites australis-Urtica dioica tall-herb fen

12-C.1.72 The tall-herb fen vegetation included in this community is very variable. Apart from the two constants, *Galium aparine* is the only species that is at all frequent throughout. Moreover, although both *Phragmites* and *U. dioica* are generally abundant and often dominant, the various sub-communities are marked by the characteristically patchy local prominence of a variety of other tall dicotyledons or monocotyledons, most notably *Epilobium hirsutum, Filipendula ulmaria, Oenanthe crocata, Calystegia sepium, Solanum dulcamara, Glyceria maxima, Arrhenatherum elatius* and, less frequently, *Carex riparia* or *Phalaris arundinacea*. These form a typically chequered canopy usually 1-2m in height which is often dense and so tangled by climbers and sprawlers as to be virtually impenetrable.

12-C.1.73 Stands are frequently species-poor and, even in more open vegetation, associates are rather varied. There are sometimes scattered plants of species characteristic of richer fens, e.g. *Lythrum salicaria, Lysimachia vulgaris, Angelica sylvestris, Cirsium palustre, Iris pseudacorus* and *Rumex hydrolapathum* and, beneath these, occasional *Pulicharia dysenterica, Equisetum fluviatile, Scutellaria galericulata* and *Silene dioica*. In other cases, there may be a grassy understorey with *Poa trivialis, Holcus lanatus* and *Dactylis glomerata*. Sprawling *Galium palustre, Lotus uliginosus* and *Rubus fruticosus* agg. sometimes add to the tangle.

12-C.1.74 The *Phragmites-Urtica* fen is characteristic of eutrophic, circum-neutral to basic water margins and mires where organic or mineral substrates are kept fairly moist throughout the year with groundwater greying and, in some cases, winter flooding. It occurs as primary fen in some naturally more nutrient-rich open-water transitions and flood-plain mires. Often, however, its distribution can be related to the eutrophication that may follow the drying and disturbance of fen surfaces or the contamination of groundwaters by agricultural run-off, sewage or some industrial effluents. It is a common community in the moister parts of some drained and disturbed floodplain and valley mires and may represent the only fen vegetation that survives in much-improved lowland agricultural

landscapes. It also occurs occasionally on grossly disturbed spring mires. It is widely distributed, though often as fragmentary strips, along ditches and canals and around ponds.

S28 Phalaris arundinacea tall-herb fen

12-C.1.75 The community comprises vegetation in which *Phalaris arundinacea* is dominant, forming an often dense canopy, usually 1-1.5 m tall. The vegetation is almost always species-poor and, although certain species attain prominence in some sub-communities, no associate is frequent throughout. It is typical of the margins of fluctuating, circum-neutral and mesotrophic to eutrophic waters, both standing and running. Although it can be found on organic soils, it is more characteristic of mineral substrates, from fine clays to coarse gravels. It is common in open-water transitions around ponds and lakes of all sizes and also occurs around reservoirs, flooded clay and gravel pits, in some flood-plain and basin mires. It is widespread, too, along periodically flooded dykes and by rivers, even swift and spatey hill streams, and may occur patchily on river shoals.

12-C.1.76 Although *P. arundinacea* can be found growing in 40cm or more of water, it will not tolerate permanent flooding and stands of the community have a summer water-table that is below the surface for most of the season. Often, however, there is some unseasonable fluctuation in water-level and the community seems to thrive on strongly gleyed soils.

W6 Alnus glutinosa – Urtica dioica woodland

12-C.1.77 This is a community of eutrophic moist soils, typically either sites where there has been substantial deposition of mineral matter or on flood plain mires where enriched waters flood fen peat. It is rather ill-defined. There are a variety of canopy dominants – *Alnus glutinosa, Salix* spp. and *Betula pubescens* – and the field layer is generally species-poor.

12-C.1.78 Overall, *Alnus glutinosa* is the commonest tree particularly on the wetter soils. However, it is replaced by *Salix fragilis* in one sub-community and by *Betula pubescens* on drier sites. Other trees are uncommon. There is usually an open patchy understorey. *Salix cinerea* is the most common shrub with *Crataegus monogyna* and *Sambucus nigra* on drier ground. *Salix caprea, Ilex aquifolium, Corylus avellana, Viburnum opulus* and *Prunus spinosa* are generally sparse. The osiers *Salix viminalis, S. triandra* and *S. purpurea* may be abundant in some stands.

12-C.1.79 The feature distinguishing this community from closely related types is the poor representation of large swamp and tall fen species. *Urtica dioica* is the really typical herb layer species and sometimes forms a virtual monoculture. Where soils are moist towards the surface, *Poa trivialis* and *Galium aparine* are frequent with some *Solanum dulcamara*. There may also be clumps of swamp and fen species. On drier substrates these species are less important whilst *Lonicera periclymenum, Dryopteris dilatata* and *Rubus fruticosus* increase in prominence. Other less frequent species include *Arrhenatherum elatius, Heracleum sphondylium, Ranunculus repens, Cardamine flexuosa, Glechoma hederacea, Angelica sylvestris* and *Cirsium palustre*. This field layer is often associated with a ‘run-down’ appearance, stands often being choked with brush-wood from winter flooding whilst direr stands show signs of disturbance.

W6b Sambucus nigra sub-community

12-C.1.80 *Alnus* is constant here and it is usually the dominant in a tall, more or less closed canopy, but *Betula pubescens* now becomes occasional and it can be locally abundant. *Fraxinus, Acer pseudoplatanus, Salix fragilis* and *Quercus robur* occur more psarsely. There is often a distinct understorey, though the cover is variable. *Salix cinerea* is still frequent but it is not usually abundant and a much more obvious feature here is the common presence of scattered bushes of *Sambucus nigra. Crataegus monogyna* occurs occasionally and *Prunus spinosa* makes an infrequent appearance. *Corylus* and *Ilex* are rare and saplings, too, are rather uncommon with sparse records for young *Fraxinus, A. pseudoplatanus* and *B. pubescens.*

W6d Salix fragilis sub-community

12-C.1.81 *Alnus* remains frequent here but it generally occurs as scattered trees in a canopy dominated by *Salix fragilis.* This willow can grow up to form tall individuals but its widely-spreading branches make for broad, irregular crowns so that the canopy is often rather uneven-topped and somewhat open. Other trees are rare but, beneath gaps and in younger stands, shrubs can be large enough to make stratification indistinct. Mature woodlands of this kind usually have a low understorey with a patchy distribution of shrubs and saplings over mosaics of drier and wetter ground, a common feature of the habitat here. *Salix cinerea* and *Sambucus nigra* are the commonest species, the former thickening up the moister places, the latter more prominent , sometimes with a little *Crataegus monogyna,* in drier parts. Saplings can be numerous with young *S.fragilis, Alnus, Fraxinus* and *Acer pseudoplatanus.* As branches of the canopy *S. fragilis* grow heavy with age, they readily crack off at their junctions and large limbs may crash down in high winds or snow. Sometimes, they take root and sprout afresh but often they die, leaving the understorey choked with decaying wood. Winter-flooding also frequently washes in river drift and *Solanum* and *Humulus* can add to the tangle, making the vegetation almost impenetrable.

W8 Fraxinus excelsior - Acer campestre – Mercurialis perennis woodland

12-C.1.82 A community of calcareous mull soils found mainly but not exclusively in the relatively warm, dry, lowlands of southern Britain. It is marked by the presence of species with a southern distribution which helps to separate the community from *Fraxinus-Sorbus-Mercurialis* types (W9). It occurs on soils derived from a variety of calcareous parent materials in the drier parts of the country where the affects of leaching are limited. Mull humus and the quick incorporation of plant material into the soil are characteristic of this community.

12-C.1.83 Soil variations are the main cause of differences between and within the two main suites of sub-communities. In the south-east W8 is rare on free-draining calcareous soils where *Fagus sylvatica* woodland (especially W12) tends to predominate. Instead W8 occurs on softer argillaceous rocks with a fairly impermeable clay soil and is associated with moderate terrain of gentle slopes and undulating plateaus. Differences between sub-communities in the south-east are related to the extent and duration of soil waterlogging. In the north-west of its range (upland-lowland borders) W8 occurs on limestones. The soils are free-draining yet moist and generally calcareous and base-rich. Thus clay soil species characteristic of the south eastern sub-communities are sparse whilst plants indicative of free-draining soils are more common. The topography is more sharply defined here with much steeper slopes.

Major variations within the tree and shrub layer

12-C.1.84 The presence of *Fraxinus excelsior, Acer campestre* and *Corylus avellana* are the main diagnostic features of this community but these are sometimes relegated to a minor role due to the local abundance of species which are only occasional throughout the community as a whole:

- One group of sub-communities (types a-c) have a south-eastern distribution. *Quercus robur* is the next most common species after the three above and is strongly preferential to this group. In addition there are other species which may achieve local dominance including *Tilia cordata, Carpinus betulus* and the invasive elms *Ulmus procera* and *U. minor minor*. *Tilia* and *Carpinus* may both occur as dense single species stands imposing a structural uniformity which has been further accentuated by generations of coppicing. However these species are not confined to this community and often form dense stands in *Quercus-Pteridium-Rubus* woodland (W10). *Castanea sativa*, which is also locally abundant in W10, is rare in W8. Sub-communities a-c are more likely to occur in woods managed previously under a coppice-with-standards system. The canopy/understorey structure of high forests is often absent, although this is changing with the abandonment of coppicing. Hazel is the most frequent shrub, except in dense *Tilia* or *Carpinus* coppices. The hawthorns are also common and *Crataegus laevigata* is preferential to this group, particularly in long-established stands; and,
- Sub-community d is largely southern in its distribution, but overlaps the ranges of both the above groups and this is reflected in its tree and shrub layer.

12-C.1.85 On the lighter, base-rich soils of southern England *Fagus sylvatica* and *Taxus baccata* are common and form transitions between the types in category 1 and types W12 and W13. To the north, away from its presumed natural range, *Fagus sylvatica* tends to dominate on lighter, acidic soils so does not pose the same problems of definition as in the south. There are also transitions between W8 and *Alnus* types (W5-W7) around flushes and on wet plateaux. *Alnus glutinosa* is generally rare in W8 but can become common on permanently waterlogged soils where the woodland merges with *Alnus-Fraxinus-Lysimachia* community (W7).

12-C.1.86 Common shrub species include *Crataegus monogyna, Sambucus nigra* (in more eutrophic situations), *Prunus spinosa* (particularly as post-coppice and ride vegetation in the *Deschampsia* sub-community), *Cornus sanguinea, Euonymus europaeus* and *Ligustrum vulgare* (on the more base-rich soils), *Salix caprea* and *S. cinerea*.

Ground Flora

12-C.1.87 *Mercurialis perennis* is the most distinctive field layer species (but is also common in W9) with mixtures of *Hyacinthoides non-scripta, Circaea lutetiana, Geum urbanum, Arum maculatum* and *Viola riviniana reichenbachiana*. Less frequent but still characteristic are *Lamiastrum galeobdolon, Carex sylvatica, Sanicula europaea, Adoxa moschatellina* and *Conopodium majus*. *Hedera helix* and *Brachypodium sylvaticum* are common in some sub-communities. These combinations can be found in other communities but usually with a different canopy or with other species such as ferns that are typically scarce in W8. *Rubus fruticosus* may be common with occasional *Rosa canina,*

Rubus idaeus, R. caesius, Ribes rubrum, R. uva-crispa and *Lonicera periclymenum*. These may suppress the abundance of *Mercurialis perennis* such that the community can resemble W10. However, the presence of scattered *Circaea lutetiana, Geum urbanum* and *Arum maculatum* will usually aid separation. *Pteridium aquilinum* is usually rare in W8.

12-C.1.88 One group of herbs follows *Quercus robur, Carpinus betulus, Tilia cordata*, the invasive elms and *Crataegus laevigata* in being associated with heavier base-rich soils of the south-east. These are *Poa trivialis, Glechoma hederacea, Ajuga reptans. Primula vulgaris*, *Hyacinthoides non-scripta* and *Rosa canina*. These species are less common in the north-west except on the moister soils. There the increase in *Acer pseudoplatanus, Ulmus glabra, Quercus petraea* and *Ilex aquifolium* is matched by greater abundance of *Urtica dioica, Galium aparine*, *Geranium robertianum* and *Phyllitis scolopendrium*.

12-C.1.89 Variation in the duration and extent of soil waterlogging results in variation in the abundance of *Mercurialis*. The *Primula-Glechoma* sub-community (a) is the central type. Where soils remain wetter longer the *Anemone* sub-community (b) takes over. The *Deschampsia* sub-community (c) is found mainly on soils which are free from waterlogging for only a short period in the summer. A further sub-community of the south is characterised by an abundance of *Hedera helix* (d). This is distinctive of the more oceanic south-west and also of younger woods on base-rich soils in the south-east.

W6b – Hedera helix sub-community

12-C.1.90 This kind of woodland is almost always found with a closed cover of woody plants. This is very often a continuous canopy of trees and the understorey, too, can be very extensive, so that stands frequently have a rather dense and gloomy appearance. However, in terms of species composition, the woody component here is less rich and variable than in other south-eastern Fraxinus, Acer-Mercurialis woodlands.

12-C.1.91 Quite commonly, various combinations of *Fraxinus, Corylus* and *Acer campestre* dominate and signs of past coppicing are frequent, but neglect is almost universal with the hazel and maple stools much overgrown and the (usually *Quercus robur)* standards often overtopped by emergent maidens of *Fraxinus*

W10 Quercus robur – Pteridium aquilinum – Rubus fruticosus woodland

12-C.1.92 A community of base-poor brown earths mainly in the lowlands of southern Britain. The soils on which it occurs show a variety of textures, water and humus regimes, but the pH is usually between 4 and 5.5. Its composition shows a slight continental/continental-southern element, which differentiates it from north western community types, but it is more oceanic than similar European types.

12-C.1.93 Oak is the commonest tree, usually *Quercus robur* but also *Q. petraea* in places. *Betula pendula* is also abundant, particularly in younger stands. *Acer campestre* tends to be rare and *Fraxinus excelsior* uncommon in the south-east except on acidic but fertile sites. In the north-west *Fraxinus, Acer pseudoplatanus* and sometimes *Ulmus glabra* occur with oak on damper sites usually in the form of high forest or abandoned coppice. *Tilia cordata* and *Carpinus betulus* are locally prominent as in W8. *Castanea saliva* is also locally

abundant in this community. Other trees which may be present at low frequencies include *Ilex aquifolium, Sorbus aucuparia, Fagus sylvatica, Prunus avium, Sorbus torminalis* and *Malus sylvestris* with *Alnus glutinosa* and *Populus tremula* on damper soils.

12-C.1.94 Conifers have been widely planted in W10 but often enough of the ground flora remains to classify the type. *Corylus avellana* is usually abundant in the understorey often with *Crataegus monogyna* and *C. laevigata*.

12-C.1.95 The ground flora lacks the base-rich indicators such as *Mercurialis perennis* that are common in W8. *Hyacinthoides non-scripta* and *Anemone nemorosa* are spring dominants, but *Rubus fruticosus, Pteridium aquilinum* and *Lonicera periclymenum* singly or in combination are the commonest species. *Dryopteris filix-mas* and *D. dilatata* may be locally abundant and conspicuous where *Pteridium aquilinum* is sparse. Many stands have a grassy appearance (although this is more pronounced in W11), especially before the emergence of *Pteridium* fronds with *Holcus mollis, Deschampsia cespitosa, Poa trivialis, Milium effusum* or *Melica uniflora*. A wide range of other species occur locally including *Stellaria holostea, Silene dioica, Luzula pilosa, Digitalis purpurea, Solidago virgaurea*, and *Corydalis claviculata*. Bryophyte cover is low with *Eurhynchium praelongum* and *Mnium hornum* as typical species.

W10b Anemone nemorosa sub-community

12-C.1.96 Found on winter or spring waterlogged soils on the heavier clays, present on waterlogged plateaus and hollows in undulating topography. *Quercus robur* is the characteristic oak with some birch, ash, sycamore and aspen over a thin hazel understorey. Lime and hornbeam are sparse associates but can be locally abundant. Chestnut is often abundant. The cover of *Pteridium aquilinum* is lower than in the rest of W10. Soils are generally too moist for an abundance of *Hyacinthoides non-scripta* but *Anemone nemorosa* carpets in spring are distinctive features.

W10d Holcus lanatus sub-community

12-C.1.97 A very tedious community, typical of oak and conifer plantations and of recent secondary birch/oak woods. The understorey is sparse or absent. Hazel typically infrequent, but scattered hawthorn, elder, blackthorn. *Pteridium aquilinum* is abundant, *Rubus fruticosus/Lonicera periclymenum* are common, and there few other species. *Hyacinthoides non-scripta* is very rare, *Anemone nemorosa* is absent, and other normal associates of W10 are uncommon. Scattered *Holcus lanatus* is the most distinctive feature, usually with tall herb/ruderal/ephemeral species.

W21 Crataegus monogyna – Hedera helix scrub

12-C.1.98 The *Crataegus monogyna – Hedera helix* scrub is a compendious community which includes most of the seral thorn scrub and many hedges in the British Isles. The vegetation is always dominated by various mixtures of smaller trees and shrubs, undershrubs and woody climbers and sprawlers. However physiognomically, it is quite diverse and sometimes difficult to separate from more open herbaceous vegetation with scattered woody plants on the one hand and woodland on the other. Although typically, the woody cover of the community as defined here is dense, often closed or almost so, such that half-and-half mixtures of grassland and scrub would be considered as mosaics of this kind of

vegetation and others. The canopy can, however, be quite low, sometimes little more than a metre high and only rarely more than 5m. Although stands can be very uneven-topped, where once discrete groups of shrubs, trees and undershrubs are coalescing, the woody cover is characteristically unstratified. Saplings of some species of taller trees are common in the community and occasional species may protrude a little but they never form an overtopping canopy.

12-C.1.99 In floristic terms, the woody component of this vegetation is quite varied, being influence not only by edaphic differences but also by the availability of the seed-parents and the vagaries of dispersal and establishment; and, once the canopy has begun to close, there is some competitive interplay between certain of the species. However, a strong common element is provided by various spinosa plants. *Crataegus monogyna* is the most frequent of these overall and it is often the most abundant tree, it is usually among the first invaders of the various kinds of neglected herbaceous vegetation from which the community often develops and, except on shallower soils (usually rendzinas here), it can be very abundant from the start. It is also the most widely planted species of hedges, and in younger stretches, it may be the sole dominant. *Crataegus laevigata,* by contrast, is very rare, though it may appear in stands developing within or close to long-established woodlands in Southern Britain. The other common thorny tree here is *Prunus spinosa.* It is somewhat less frequent overall than *Crataegus monogyna* but it is prominent in situations where established bushes can sucker in to developing scrub and it probably has an edge over hawthorn on heavier, moister soils. It is also more resistant to salt-spray than *Crataegus monogyna* and tends to replace it as the common dominant on exposed sea-cliffs, although much coastal blackthorn scrub is better place in the *Prunus-Rubus* community.

W24 Rubus fruticosus-Holcus lanatus underscrub

12-C.1.100 The *Rubus fruticosus* agg.-*Holcus lanatus* underscrub is typically dominated by mixtures of brambles, rank grasses and tall dicotyledons, forming an untidy cover of rather variable height, but usually less than 1m. Although it is very commonly found in close association with taller woody vegetation, in active successions and in stabilised zonations around scrub and woodland margins, trees and shrubs are characteristically sparse within the community itself. There are sometimes scattered *Crataegus monogyna, Prunus spinosa, Sambucus nigra* and saplings of *Fraxinus excelsior, Acer pseudoplatanus, Fagus sylvatica* or *Quercus robur*, but their total cover is generally low.

12-C.1.101 *R. fruticosus* agg. is a constant component of the vegetation but its abundance is rather variable. In many stands it is very plentiful, forming dense clumps of tangled arching shoots and, in such cases, most of the other plants are confined to the margins of the bushes or areas between them. In other stands, brambles occur as more widely scattered bushes or as sparse shoots throughout, when the proportion of herbs is consequently greater. Where the community occurs on hedge-banks, where it typically forms a narrow zone between hedge and verge, the bramble cover may be occasionally cut back, but this vegetation is not regularly mown. Other undershrubs are relatively infrequent but *Rosa canina* agg. or *R. arvensis* are sometimes found and, on more acid soils, there can be some *Ulex europaeus*.

12-C.1.102 A rank growth of grasses is usually a prominent feature of the community. The commonest species throughout are *Holcus lanatus* and *Dactylis glomerata*, but *Arrhenatherum elatius* also occurs quite frequently and with

Festuca rubra, is especially characteristic of one kind of *Rubus-Holcus* underscrub. *Brachypodium sylvaticum* is occasionally found on more base-rich soils and, where drainage is impeded, *Deschampsia cespitosa* can be abundant. Where there is little or no grazing, the usual state of affairs, these species grow as bulky tussocks between or fronting the bramble. Where herbivores have gained access after the bramble cover has developed, the grasses may continue to bulk large in the cropped sward extending between the stabilised or regressing bush cover. Smaller grasses, too, can make some contribution to the vegetation. *Poa trivialis* occurs occasionally and can extend as a patchy mat beneath quite dense bramble and, in more open, weedy vegetation, *Agrostis stolonifera* is common. On more acidic soils, species such as *Agrostis capillaris* and *Anthoxanthum odoratum* can be found, though an increase in such grasses, and in the abundance of *Ulex europaeus*, usually marks a transition to the *Ulex-Rubus* scrub.

12-C.1.103 In this coarse, grassy ground, taller dicotyledons occur as scattered plants or with patchy local abundance. *Urtica dioica*, often accompanied by scrambling *Galium aparine*, is common throughout but most of the remaining species segregate into two groups, each characteristic of the different kinds of *Rubus-Holcus* underscrub. In the *Arrhenatherum-Heracleum* sub-community, plants of unmown and ungrazed grasslands predominate with umbellifers like *Heracleum sphondylium, Anthriscus sylvestris* and *Chaerophyllum temulentum* figuring frequently; in the *Cirsium* sub-community, such plants occur occasionally, but the vegetation has a more marked weedy element with *Cirsium arvense, C. vulgare* and *Epilobium angustifolium* occurring commonly. In contrast to the *Pteridium-Rubus* underscrub, where some of these species are also represented, along with brambles and certain of the grasses, *Pteridium aquilinum* is rare here.

12-C.1.104 Smaller dicotyledons are often overwhelmed by the dense brambles and bulky herbage but a variety of species occur at low frequencies throughout. Some of these, like *Ranunculus acris, Equisetum arvense, Trifolium repens, Hypochaeris radicata* and *Lotus corniculatus* are survivors from the previous herbaceous vegetation which persist in more open places. Others can tolerate considerable shade and form a patchy understorey to less dense bramble covers. These being especially well developed where the community forms a stabilised fringe to hedges or woodland. In such situations, a ground carpet of *Hedera helix* is characteristic and there can be scattered plants of *Geranium robertianum, Geum urbanum, Veronica chamaedrys, Viola riviniana, Arum maculatum* and, where the community abuts on to older woods and hedges, *Mercurialis perennis*.

12-C.1.105 Bryophytes are generally sparse but *Eurhynchium praelongum* occurs occasionally and there are infrequent records for *Pseudoscleropodium purum, Hypnum cupressiforme* and *Brachythecium rutabulum*.

W25 Pteridium aquilinum – Rubus fruticosus underscrub

12-C.1.106 The *Pteridium aquilinum – Rubus fruticosus agg.* underscrub brings together vegetation dominated by mixtures of bracken and bramble. As with *Rubus-Holcus* underscrub, although this community is often found closely with taller woody vegetation, shrubs and trees generally make a negligible contribution to the cover. Scattered *Crataegus monogyna, Sambucus nigra* and *Prunus spinosa* are sometimes found and there can be very occasional saplings of *Fraxinus excelsior, Acer pseudoplatanus, Quercus robur* or *Fagus sylvatica.*

12-C.1.107 *Pteridium aquilinum* is generally the more abundant of the two constants and, by mid-summer when its fronds are fully unfurled, it can form a virtually complete canopy to the vegetation up to a metre or more in height. In other stands, brambles are more prominent, forming a thick tangle of arching shoots with patches of bracken between or scattered fronds throughout. The brambles, which generally retain some of their leaves through winter, may become more conspicuous when the bracken has died back, through their shoots often hold the dead fronds upright until they decay. Other undershrubs are infrequent, though *Rubus idaeus, Rosa canina* and *Rosa arvensis* have been recorded in one sub-community and *Ulex europaeus* is a scarce associate in another.

12-C.1.108 No other plants attain consistency throughout and many show a marked preference for one or other of the sub-communities. Also, with the often dense cover of the dominants, the abundance of these associates is sometimes low and some are very confined to more open areas between bracken and bramble. Of those species *Urtica dioica* and *Holcus lanatus* are the most common, with *Silene dioica, Rumex acetosa* and *Viola riviniana* occasional. Hedera helix sometimes forms a patchy ground carpet and there can be some scrambling *Lonicera periclymenum*. Weedy plants like *Epilobium angustifolium* and *Cirsium arvense* can be locally prominent and, in more open places, *Festuca rubra, Arrhenatherum elatius* and *Heracleum sphondylium* are sometimes found, though these are never so frequent here as in the *Rubus-Holcus* underscrub.

12-C.1.109 Bryophytes are strongly preferential to one of the sub-communities but, even there, are not very numerous or consistently abundant.

U20 Pteridium aquilinum - Galium saxatile community

12-C.1.110 *Pteridium aquilinum* is a characteristic member of a variety of vegetation types, being especially important as a constant in the field layers of a number of woodland, scrub and underscrub communities, often occurring there in abundance, and locally prominent also among some heaths and grasslands. In the *Pteridium aquilinum – Galium saxatile* community, however, it is the sole dominant in the very familiar acidophilous bracken vegetation, occurring always here with a cover of more than 25%, and being overwhelmingly abundant in many stands. The fronds sometimes reaching 2 m or more in height and growing so thickly as to be virtually impenetrable by the middle of the season.

12-C.1.111 The structure and composition of the community are fairly simple and the major lines of floristic variation readily discerned. The common associates are few and their contribution to the cover varies inversely with the preponderance of bracken. Only *Galium saxatile, Potentilla erecta* and *Festuca ovina* (occasionally *Festuca rubra)* attain constancy among the herbs and even these are often very sparse, limited to puny scattered individuals among the thick litter beneath the densest covers. Some other grasses also occur very often, *Agrostis capillaris* and *Anthoxanthum odoratum* chief among them, again frequently as small, widely-distributed tufts, though where there is any suggestion of a more continuous sward beneath a thinner cover of fronds. It is these species which commonly make up the bulk of the cover.

12-C.1.112 Apart from *Galium saxatile* and *Potentilla erecta* the herbaceous dicotyledons of this vegetation are not very numerous or diverse and the striking vernal floras found in the more mesophytic *Pteridium-Rubus* community, where carpets of *Hyacinthoides non-scripta* can occur among the unfurling bracken

fronds, are not characteristic here. For the most part the associated herbs are small, forming a very low ground cover and, even where sub-shrubs occur in the vegetation, they often lack vigour and height.

12-C.1.113 Non-vascular plants are not generally a prominent element in this vegetation but a number of bryophytes occur quite often and there is sometimes local enrichment and patchy abundance. Most common throughout are mosses such as *Pseudoscleropodium purum, Rhytidiadelphus squarrosus, Dicranum scoparium, Pleurozium schreberi, Hypnum cupressiforme s.l.* and *Hylocmium splendens,* which can survive in the tufts and wefts among the litter.

12-C.2 Floodplain Grassland and Fen

Introduction

Survey Method

12-C.2.1 The overall results of a National Vegetation Classification (NVC) survey of floodplain grassland and fen for the whole of the Combe Haven Valley are shown on Figure 12.1C. NVC communities are described in Appendix 11-3A.

12-C.2.2 NVC communities were plotted from field observation and analysis of air photographs. Information was recorded field-by-field, together with supplementary notes. In many cases the plant community was so self-evident that it was not necessary to take a quadrat, but where these were necessary, 2 x 2m samples were taken in accordance with the standard NVC method, recording the position with a Garmin Geko 201 GPS and recording DOMIN for each sample. This scale is as follows:

10	91-100%	
9	76-90%	
8	51-75%	
7	34-50%	
6	26-33%	
5	11-25%	
4	4-10%	
3		many individuals
2	< 4%	several individuals
1		few individuals

12-C.2.3 The GPS plots and the field observations are the basis of Figure 12.1C. Quadrats were allocated to communities using the NVC keys. A rapid and limited NVC survey was undertaken by Dr Tim Rich in 1995 and a more general survey by Simon Davey in 1988. A comparison is made field-by-field with these surveys where appropriate.

Communities Recorded

12-C.2.4 The following communities were recorded in the Combe Haven Valley as a whole:

- M24 Purple Moor-grass (*Molinia caerulea*) - Meadow Thistle (*Cirsium dissectum*) fen-meadow;
- MG1 False Oat-grass (*Arrhenatherum elatius*) grassland;
- MG6 Rye-grass (*Lolium perenne*) Crested Dog's-tail (*Cynosurus cristatus*) grassland;
- MG7 Rye-grass leys and related grasslands;
- MG9 Yorkshire Fog (*Holcus lanatus*) – Soft Rush (*Juncus effusus*) rush pasture;
- MG10 Yorkshire Fog – Tufted Hair-grass (*Deschampsia cespitosa*) grassland;
- MG13 Creeping Bent (*Agrostis stolonifera*) - Marsh Foxtail (*Alopecurus geniculatus*);
- S4 Common Reed (*Phragmites australis*) swamps and reedbed;
- S5 Reed Sweet-grass (*Glyceria maxima*) swamp;
- S6 Greater Pond-sedge (*Carex riparia*) swamp;
- S14 Branched Bur-reed (*Sparganium erectum*) swamp; and
- S28 Reed Canary-grass (*Phalaris arundinacea*) tall-herb fen.

Overall Vegetation Pattern

12-C.2.5 Twelve zones can be recognised across the valley, as shown on Figure 12.1C.

12-C.2.6 Zones 1-4 are dominated by MG6 Rye-grass - Crested Dog's-tail and/or MG7 rye-grass pastures and leys and are now the only areas that are grazed. The distinction is sometimes difficult to make but MG6 tends to be prevalent in the drier areas and MG7 in the wetter. Meadow Foxtail is a characteristic feature of much of the grassland within the floodplain and some of it can probably be attributed to MG7d, the Rye-grass - Meadow Foxtail sub-community.

12-C.2.7 There are three other characteristic features. In the lower-lying parts of the fields there are patches of Creeping Bent and Marsh Foxtail. Sometimes these are sufficiently large to be recognised as MG13, Creeping Bent - Marsh Foxtail grassland in which Floating Sweet-grass (*Glyceria fluitans* s.l.) is frequent. Since several of the fields in which this occurs were recorded as MG13 by Dr Rich there must have been some drying-out for them to change from an inundation grassland community. Second, there are patches where Reed Sweet-grass is present within the sward. This is kept in check by grazing and there is little doubt that if this were to be abandoned these patches would rapidly develop to S5, Reed Sweet-grass swamp. Third, there are patches, generally towards the centre of the fields, where rushes have invaded and MG10 Yorkshire Fog - Soft

Rush pasture is present. In two cases Soft Rush is replaced by Hard Rush (*Juncus inflexus*) so that the MG10b Hard Rush sub-community is present. The Yorkshire Fog - Tufted Hair-grass MG9 community is also present and is generally found in slightly drier locations than MG10.

12-C.2.8 Zones 5 and 6 are characterised by dominance of MG9 and/or MG10 with the latter present in the lower, wetter, areas. Zone 4 is a narrow band close to the edge of the Haven where grazing appears to have been abandoned quite recently. MG13 is also locally present. Zone 6 occupies a similar position in relation to the stream that flows south from Regland Wood, but is more varied. It has stands of S6 Greater Pond-sedge swamp, patches of S28 Reed Canary-grass tall-herb fen and S4 Common Reed reedbed.

12-C.2.9 Zone 7 is an isolated area where wetland communities have formed around a spring. There is a zonation extending outwards from the stand of Greater Pond-sedge at the lowest point.

12-C.2.10 Zone 8 is similar to Zone 9 and there are probably complex groundwater conditions arising from wet flushes. Here however, reed canary-grass (S28) is the characteristic community, as opposed to the S5 of Zone 9, probably indicating that the latter is wetter. The S28 contains Common Reed and Reed Sweet-grass (although not in the same locations). At the south edge, MG9 and 10 are frequent and there are patches of S5 and Brown Sedge (*Carex disticha*). A narrow valley descending from the higher ground has a complex pattern of vegetation, including extensive areas of OV26 the Great Willowherb (*Epilobium hirsutum*) community. At the west edge, there is a stand of M24 the Purple Moor-grass - Meadow Thistle fen-meadow indicative of gently-moving groundwater.

12-C.2.11 Zone 9 has Reed Sweet-grass (S5) that occupies most of the lower ground in this zone, generally surrounded by Reed Canary-grass (S28) and/or Common Reed (S4). There are patches of Greater Pond-sedge and Brown Sedge and locally quite varied patches of broadleaved fen plants like Yellow Loosestrife (*Lysimachia vulgaris*) and Common Skullcap (*Scutellaria galericulata*).

12-C.2.12 Zone 10 is an area occupies a wide shallow valley north of Filsham Reedbed. Much of it is Common Reed and at the west edge this is intermixed with clumps of Grey Willow (*Salix cinerea*). South of an area of higher ground with MG1 False Oat-grass (*Arrhenatherum elatius*) grassland, there are stands of S12 Bulrush (*Typha latifolia*) swamp intermixed with Reed Canary-grass and Greater Pond-sedge. At the junction with the higher ground there is MG10 and patches of Tufted Hair-grass.

12-C.2.13 Zone 11 is Filsham Reedbed and is dominated by S4 with areas of open water and clumps of Grey Willow.

12-C.2.14 Zone 12 is a narrow band of relatively dry vegetation on the west bank of the Combe Haven Channel comprising mainly Grey Willow – Marsh Bedstraw (*Galium palustre*) W1 woodland, Hawthorn (*Crataegus monogyna*) – Ivy (*Hedera helix*) W21a scrub formed on dry ground and reedbeds of both the

S4 and S26 Common Reed – Stinging Nettle (*Urtica dioica*) communities. At the west edge there is MG1 and ruderal vegetation.

Field-by Field Descriptions

12-C.2.15 The following descriptions are of the fields within 500m of the route. The quadrats are given in Annex 11-3B and are numbered Qxx in the text. They are not sequential since quadrats were originally take for the whole of the valley

Field 1

12-C.2.16 This field comprises mainly improved MG7 with Meadow Barley (*Hordeum secalinum*) as a characteristic species, but towards the north edge (Q77) there is quite frequent Soft Rush and Jointed Rush (*Juncus articulatus*) and a patch of MG13. Floating Sweet-grass is present in the wetter areas and Marsh Cudweed (*Gnaphalium uliginosum*) is found in disturbed areas.

12-C.2.17 No access in 1995.

Field 2

12-C.2.18 This field is predominantly MG10 (Q76) with MG7 on the outer, higher parts of the field. On the lowest part there are patches of Reed Sweet-grass and Creeping Bent, and although no Marsh Foxtail was found, the latter could be considered as MG13.

12-C.2.19 There are two distinctly wetter areas with abundant Branched Bur-reed (S14, Q75) and quite varied fen vegetation including Water Chickweed (*Myosoton aquaticum*), Greater Bird's-foot-trefoil (*Lotus pedunculatus*) and Cuckoo Flower (*Cardamine pratensis*).

12-C.2.20 No access in 1995.

Field 3

12-C.2.21 This field is MG7 with a scattering of Soft Rush and Sharp-flowered Rush (*Juncus acutiflorus*) beginning to emerge at the lowest points and one area which can be classified as MG10. It must have been cultivated and re-seeded since 1995 when it was described as S5/S28. Tufted hair-grass, Silverweed (*Potentilla anserina*), Lesser Spearwort (*Ranunculus flammula*), Creeping Buttercup *(R repens*) and Lesser Stitchwort (*Stellaria graminea*) were said to be present.

12-C.2.22 No access in 1995.

Field 4

12-C.2.23 This is improved Rye-grass pasture (MG6/7). There was no access in 1995, but in 1988 it was said to be dry and heavily grazed but with wet patches

supporting Marsh Foxtail and Toad Rush (*Juncus bufonius*). Hardly any of these were found in 2004, so it is likely that the field has become drier.

Field 5

12-C.2.24 Much of the central part of this field is MG10 (Q91) with quite frequent Couch Grass (*Elytrigia repens*), which is a feature of other areas of dry rush pasture in the locality. There are also occasional patches of Soft Rush merging with a stand of MG9 towards the east (Q92). The same two communities are present to the north-east of the Rye-grass-dominated (MG6) track that extends across the field. At the east edge there is a clump of Reed Sweet-grass (S5) with occasional Clustered Dock (*Rumex conglomeratus*). At the south and east edges there is species-poor MG1 with frequent Creeping Bent, Creeping Buttercup (*Ranunculus repens*), and couch grass, but also with a scattering of wet ground plants including Silverweed, Soft rush and Reed Sweet-grass. In the extreme south-east corner adjacent to a clump of Grey Willow (W1) there is a patch of common reed (S4).

Field 6

12-C.2.25 Like the adjacent F13 this has a complex pattern of communities and because access through the tall vegetation is difficult, the pattern shown on Figure 12.1C and described here is only approximate. At the east edge there is a fringe of Common Reed (S4) which soon gives way to a swathe of Reed Canary-grass (S28) that encompasses the east and part of the north side (Q99). There are two small patches of MG13 near the Reed Canary-grass (Q98). The central part of the field is occupied by MG9 (Q100), S5 and MG10 (Q102) in the west. The latter has abundant Creeping Bent and has the appearance of the MG13 community being invaded by rushes. There are also tufts of Brown Sedge and Hairy Sedge (*Carex hirta*). At the north edge there is very variable MG9 while in the south there is Reed Canary-grass merging with the Common Reed (S4) that has grown out from the ditches. There are clumps of Greater Pond-sedge (S6) and Brown Sedge.

12-C.2.26 In the south-east corner, where the land rises slightly, there is disturbed ground vegetation with abundant Stinging Nettle, Timothy grass (*Phleum pratense*), Couch grass, Hemp Dead-nettle (*Galeopsis tetrahit*), Angelica (*Angelica sylvestris*) and Clustered Dock adjacent to clumps of Blackthorn (*Prunus spinosa*) and Hawthorn. A Common Reed-dominated ditch separates this field from F5. On the F5 side there is rather weedy Common Reed with hemp agrimony (*Eupatorium cannabinum*), Hemp Dead-nettle and Yellow Loosestrife.

12-C.2.27 No access in 1995.

Field 7

12-C.2.28 Most of this field is dominated by Reed Canary-grass (S28, Q103) intermingled with patches of Common Reed. In the north-west corner there is Reed Sweet-grass, and around the edges MG7/6 with patches of Tufted Hair-grass.

Field 8

12-C.2.29 Like the field to the north, much of this field is dominated by M10 (Q73) although it is more varied and drier than many other stands. Yarrow (*Achillea millefolium*), Sorrel (*Rumex acetosa*), Creeping Thistle (*Cirsium arvense*), Red and White Clover (*Trifolium pratense, T. repens*), Self-heal (*Prunella vulgaris*), Cat's-ear (*Hypocharis radicata*), Curled Dock (*Rumex crispus*) and Tufted Hair-grass are present. In the east corner there is varied fen vegetation (Q74) with Greater Pond-sedge (S6), Gipsywort (*Lycopus europaeus*) and Fen Bedstraw. The west edge of the field can be classified as MG7 but like many stands of this community it has slightly lower areas with patches of Creeping Bent and Marsh Foxtail.

Field 9

12-C.2.30 Most of this field is MG6. It is largely grass-dominated with Smaller Cat's-tail (*Phleum bertolonii*), Crested Dog's-tail, Couch grass, Creeping and Common Bent (*Agrostis capillaris*), Cock's-foot (*Dactylis glomerata*) and Heath-grass (*Danthonia decumbens*). The principal broadleaf plants are Common Knapweed (*Centaurea nigra*), Creeping Thistle (*Cirsium arvense*), Creeping Buttercup and Stinging Nettle. Around the edges there are patches of Tufted Hair-grass and Reed Canary-grass.

12-C.2.31 In the north corner there is ungrazed grassland with Creeping Thistle, Common Bent and Reed Canary-grass and disturbed ground with Tufted Hair-grass, Creeping Bent, Square-stalked Willowherb (*Epilobium tetragonum*) and occasional Marsh Foxtail. It can be ascribed to MG9. North of this there is MG9 and more disturbed ground vegetation with docks (*Rumex* sp) and Hedge Bindweed (*Calystegia sepium*) as well as Common Hemp-nettle, Water Pepper (*Persicaria hydropiper*) and clumps of Tall Fescue (*Festuca arundinacea*).

12-C.2.32 Not assessed in 1995.

Field 10

12-C.2.33 Most of this field is dominated by MG10. Occasionally fen plants like Gipsywort are present. Around the MG10 there is MG9 on the drier ground and there are a few small patches of more varied grassland. The largest and most interesting of these is by the gate at the west end where there are Jointed and Sharp-flowered Rush, Gipsywort, Purple-loosestrife (*Lythrum salicaria*), Water Chickweed, Yellow Toadflax (*Linaria vulgaris*), Reed Canary-grass and abundant Couch. In 1995 it was described as MG7. In 1988 it was said to be well-grazed and dryish, but with Floating Sweet-grass in the east.

Field 11

12-C.2.34 At the south-east corner of this long, narrow field there is Hawthorn and Grey Willow scrub around the base of a demolished structure. This is best regarded as the W21 Hawthorn – Ivy scrub community. Along the south edge, where D63 has been cleared quite recently, there is a wide band of silt and cleared vegetation characterised by Lesser Spearwort, Soft Rush, Creeping

Bent, Trifid Bur-marigold (*Bidens tripartita*), Water Pepper and a sedge (*Carex cf disticha*). The east part of the field is MG9 (Q41, 42) and the west part is MG13 (Q43). There is a mixed area between with patches of Trifid Bur-marigold, Jointed Rush and sedges. Soft Rush and Tufted Hair-grass are also found around the west and south edges of the MG13.

12-C.2.35 This was broadly ascribed to MG13 in 1995 but the 1988 survey recorded a wide range of species, distinguishing between dry ground in the north-east and a sward characterised by Floating Sweet-grass, Common Sedge (*Carex nigra*) and Lesser Spearwort in the west.

Field 12

12-C.2.36 This field is dominated by Reed Canary-grass (S28) around the edges and at the west end (Q46). In the former it is intermixed with Reed Sweet-grass (Q48). Towards the centre and at the east end there is S4. There are also patches of Greater Pond-sedge (S6) and in addition to the Reed Sweet-grass intermixed with S28 there is a stand of S4 in the south-west corner. In 1995 the whole of the field was ascribed to S5, which may mean that it has dried out considerably since then.

Field 13

12-C.2.37 This is a varied field with a substantial hedge on the south side, the base of which is about 1.5 m above the field level. On the higher ground at the south-west corner there is MG9 which merges in the east with patches of Reed Canary-grass (S28, Q52), Gipsywort and Fen bedstraw adjacent to M10 (Q49). From the MG9 northwards there is a band of Reed Canary-grass (S28) within a lower area that also has with patches of MG13 (Q54), and MG10 towards the centre of the field. Most of the field north and east of this is Reed Canary-grass (S28, Q55) with patches of Reed Sweet-grass (S5) but also mixtures of the two. In drier areas there are patches of Couch grass and sedges (mainly Greater Pond-sedge and Brown Sedge), Trifid Bur-marigold, Creeping Bent and Marsh Willowherb (*Epilobium palustre*). Towards the north-east corner there is a stand of mixed Greater Pond-sedge and Meadowsweet (S6).

Field 14

12-C.2.38 This field is unusual in that the west part contains a substantial amount of Purple Moor-grass in a more-or-less pure stand of M24 (Q56), but also mixed with other vegetation. To the east there is quite species-rich MG9 with Sorrel, Forget-me-nots (mainly Water Forget-me-not, *Myosotis sorpioides*), Silverweed, Brown Sedge, Jointed Rush, Gipsywort, Yellow Flag (*Iris pseudacorus*), Watermint (*Mentha aquatica*) and Yellow Loosestrife together with stands of Meadowsweet. Around the edges of the field, and merging with the MG9, there is a mosaic of Reed Sweet-grass and Reed Canary-grass with few other species present.

Field 15

12-C.2.39 This is crossed by a band of willows of the W6b community along the line of the disused narrow-gauge railway. Quadrats 37-40 were taken in this field. Around the north, east and south sides there are bands of MG9 and a stand of S5 in the north-east corner. This has a substantial amount of Creeping Bent and Floating Sweet-grass which occupies most of the ground south-east of the willow. There are small patches of Reed Sweet-grass (S5) and Tufted Hair-grass (MG9) adjacent to the south edge. The pattern of vegetation arises because the field dips towards the centre and perhaps because the disused railway impedes drainage. At the dry edges there is a narrow band of grassland broadly attributable to MG7 where Autumn Hawkbit (*Leontodon autumnalis*) is a characteristic plant.

12-C.2.40 In 1995 the south-east triangle was wetter and was ascribed to S22. The 1988 survey noted MG13 near the edge of the Haven.

Field 16

12-C.2.41 The whole of this field can be broadly allocated to the MG7d community (Q32-35) characterised by Meadow Foxtail, but it has varied vegetation. Meadow Barley is common, as is Creeping Thistle in the drier areas. In contrast, the lowest areas have patches of Creeping Bent and occasional Marsh Foxtail. At the east edge Tufted Hair-grass becomes quite frequent but there is not enough for the community to be considered as MG9. Locally, White Clover (Q31) and Creeping Buttercup (Q35) can be frequent. Velvet Bent (*Agrostis canina*) was recorded in 2003.

12-C.2.42 Not assessed in 1995.

Field 17

12-C.2.43 This is more-or-less identical to F16.

Field 18

12-C.2.44 This is similar to F19 in comprising MG7 with Creeping Bent and patches of Tufted Hair-grass on the lower areas. In 1995 the whole of the field was ascribed to MG10a which must mean either that it has been managed to remove the coarse grasses or that it has been cultivated and re-seeded.

Field 19

12-C.2.45 This field can be ascribed to MG7 (Q105-7) but the lower-lying areas have abundant Creeping Bent and occasional Marsh Foxtail.

Field 20

12-C.2.46 The west part of this field is almost entirely dense S5. Around the edges there is disturbed MG7 and around the base of the viaduct abutment there is a band of willow woodland W1. The vegetation in the ditch adjacent to the viaduct, comprising mainly Greater Pond-sedge and Branching Bur-reed spreads into the edge of the Reed Sweet-grass. In the east there is a disturbed and trampled area of MG10b in which Hard Rush partially replaces Soft Rush. Frequent young willow and occasional Tufted Hair-grass are present. In the north-east corner there is Reed Sweet-grass (S5) and disturbed Greater Pond-sedge (S6).

12-C.2.47 In 1995 this had a complex vegetation pattern. There was a broad band of S5, immediately west of the viaduct abutment, with MG10a beyond and a small stand of S28 in the northwest corner. Due north-east of the abutment MG10b merged with MG10a. The 1988 survey gave a substantial list of common species for the east half, and reported the Lesser Tussock-sedge (*Carex diandra*). However subsequent searches have failed to find it. Marsh Cudweed, Ragged Robin (*Lychnis flos-cuculi*) and Common Skullcap were also recorded.

Field 21

12-C.2.48 The outer parts of this field are probably best classified as MG7d (Q109) and the inner as MG13 (Q108), although there are small patches of MG13 within the former. There is also scattered Tufted Hair-grass and Soft Rush and occasional Silverweed and Fen Bedstraw. In 1995 it was described as entirely MG13.

Field 22

12-C.2.49 This field is bounded at its north-west edge by the Powdermill Stream which swings south at its junction with D45 to enter the Combe Haven channel directly. The land slopes south-westwards from the stream to the main channel and on the lower ground the field is divided-up by three ditches that drain into a ditch parallel to the Combe Haven, but below it.

12-C.2.50 Much of the field can be classified as MG6 and Rye-grass is present in all of the samples taken (Q22-30). At the lower ground there are substantial areas of rush so that much of this is likely to become MG10 if the present management regime continues, or can be classified as it is already, e.g. Q28/29. Occasionally there are wet hollows dominated by Creeping Bent and Marsh Foxtail (Q27) and there are small patches of Reed Sweet-grass kept down by grazing. Tufted Hair-grass is also present and MG9 may also develop. Yet even within the rush-dominated areas, there are patches where the vegetation is probably MG6 (Q23). At the north-west edge the ground is sufficiently dry for anthills to form. Autumn hawkbit and yarrow are found here, together with frequent patches of fescue-bent grassland and widely scattered young Hawthorn.

12-C.2.51 The 1995 survey arrived at a broadly similar classification, but the west two thirds of the lower ground were classified as MG13, which implies that they have dried out since then.

Field 23

12-C.2.52 Most of this field is dominated by Reed Sweet-grass (S5). There is MG10 at the north edge, a patch of MG9 in the south-east corner and the edges of the field are disturbed MG7 with occasional patches of Tufted Hair-grass. This broadly corresponds with the 1995 survey.

Field 24

12-C.2.53 This is best allocated to MG7b (Q110, 111), although there are patches of Soft Rush and Tufted Hair-grass as well as Creeping Thistle, Broadleaved Dock (*Rumex obtusifolius*) and hollows with Common Bent and Marsh Foxtail. Silverweed is quite frequent and there are small stands of Common Reed at the edges.

12-C.2.54 In 1988 and 1995 the field was recorded as MG13.

Field 25

12-C.2.55 This field has irregular hedges with patches of Bracken (*Pteridium aquilinum*) on the west, north and east sides. The ground falls from these high points towards the centre. The grassland is mainly MG7, but at the lowest point near the east edge there is a wet area. Jointed and Soft Rush, Yorkshire Fog, Branched Bur-reed, Fen Bedstraw, Meadow Foxtail and a few young Grey Willow are present. This area can be broadly ascribed to MG10.

Fields 26 and 27

12-C.2.56 These fields consist of a long, narrow section on the higher ground opening-out adjacent to the Combe Haven stream to a wider area. The long, narrow section is MG1 False Oat-grass grassland with patches of bramble. Cock's-foot, Common Thistle (*Cirsium vulgare*) Hogweed (*Heracleum sphondyllium*) and Common Knapweed are frequent. Wet patches have Soft Rush, Marsh Thistle (*Cirsium palustre*), Reed Sweet-grass and Great Willowherb. Burnet Saxifrage (*Pimpinella saxifraga*) is also present and there is a patch of W21a Hawthorn – Ivy scrub, typical sub-community. In the wider area, wet ground vegetation with Tufted Hair-grass, Gipsywort, Soft Rush, Reed Canary-grass, Hemlock Water-dropwort and occasional Reed Sweet-grass are present. The area is too mixed to be ascribed to a particular community. However, as the ground levels out, it is predominantly MG10.

Field 28

12-C.2.57 This is improved Rye-grass pasture.

Field 29

12-C.2.58 The west part of the field is rough grassland broadly attributable to MG9 but with patches of MG10. Jointed Rush, Hemlock Water-dropwort, Creeping Bent and Lesser Stitchwort are common. There are patches of Rye-

grass, Crested Dog's-tail and Couch grass on the drier margins. In the south there are patches of Common Reed spreading from the ditch associated with the adjacent hedge.

12-C.2.59 To the east, Grey Willow and Alder of the W6 Alder-Stinging Nettle community dominate a former lagoon. Reed Sweet-grass and Branched Bur-reed are common and there is an extensive area of Greater Pond-sedge with some Lesser Pond-sedge (*Carex acutiformis*). Around the edges, there are patches of Fen Bedstraw, Water Pepper and other fen species. There is MG1 grassland in the north with Red Fescue, patches of ephemeral chickweeds (*Cerastium* sp), Yarrow and Hoary Ragwort (*Senecio erucifolius*) and with False Oat-grass on the raised ground around it.

Field 30

12-C.2.60 This field appears to have been sown with Rye-grass quite recently but the lower-lying areas are being invaded by Creeping Bent, Marsh Foxtail, Reed Sweet-grass and Soft Rush so that it comprises a mixture of MG13 and MG7 (Q57-60). The wet ground and liability to waterlogging is illustrated by the presence of Lesser Spearwort. Tufted Hair-grass is also present in the sward, together with Jointed and Sharp-Flowered Rush.

12-C.2.61 In 1995 the lower part of the field was described as MG10, so it has presumably been cultivated and re-seeded since then. It was described as heavily-grazed in 1990, but in 1988 a quite varied list of grassland species was recorded including Marsh Foxtail, Tall Fescue and Meadow Barley.

Field 31

12-C.2.62 This field consists of newly-seeded rye-grass pasture which is reverting to MG13 (Q61-65) although Soft Rush is frequent. As in F30, Lesser Spearwort is abundant and there are patches of Tufted Hair-grass. At the east end, rush becomes increasingly common, although dense stands forming the MG10 community are scarce and it is perhaps best to regard these areas as MG13 in a transitional phase. Around the east edge there is drier ground which has species-poor MG7 with Red Fescue (*Festuca rubra*) and thistles.

12-C.2.63 In 1990 this was described as MG10 with a band of MG6/7 adjacent to Decoy Pond Wood. In 1988 typical coarse grassland species were recorded in the MG10 area. At the north-east edge woodland plants, including Red Campion (*Silene dioica*), Wild Strawberry (*Fragraria vesca*) and Wood Club-rush (*Scirpus sylvatica*), were noted in 1988.

Field 33

12-C.2.64 This field rises to a bank with extensive patches of fescue-bent grassland at its north edge, but overall, it is best classified as MG1 (Q21). At the foot of the bank there is a band of MG9 with some MG10 within it. Most of the field is dominated by Reed Sweet-grass (S5). Locally, there are patches of Trifid Bur-marigold, Stinging Nettle, Reed Canary-grass, Water Pepper, Hedge Bindweed and Marsh Woundwort (*Stachys palustris*). Around the south-east and

west edges, Tufted Hair-grass, Cock's-foot, Creeping Bent and Hairy Sedge have invaded grassland of the MG7 community.

12-C.2.65 The 1995 survey recorded the same communities, although the drier grassland was classified as MG6. The 1988 survey recorded several fen species.

Annex 12-C.2 Floodplain Grassland and Fen Quadrats

PRN	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	37	38	39	40	41	42	43	46	48	49	52	54	55	56	57	58	59	60	61	62	63	64	65	73	74	75	76	77	91	92	98	99	100	102	103	105	106	107	108	109	110	111
Achillea millefolium	2			1																																																						
Agrostis capillaris	6		4	7	7		5	5	4		7	5	4	5	imp	4					4	4											4	G fluitans						4														5									
Agrostis stolonifera		5			4	5	4	7	5	6	5	5	4	rvee	4	7	7	7	7	4	4	8			4					7	ditch	7	7	6	7	7	8	6	4		6	5	6	4	5	10		7	5	6	8	5	7	7	7	7	5
Alopec myosuroides																																																											
Alopecurus geniculatus						2	3	1									4		4			5								3		5					4						4											5				
Angelica sylvestris																																								1																	
Arrhenatherum elatius																																																									
Bidens tripartita																	4					4																																						
Carex cf otrubae																				3	4																																							
Carex disticha									3					pasture																				3																								
Carex hirta		1	1	1		4			2	2				no	4																		2						3						3	3	4				3	2	3					
Carex nigra			3						4					sample																																													
Carex riparia																													7											6									4								
Carex sp																																																											
Cerastium fontanum																																																											
Cirsium arvense			4																																				4					4														
Dactylis glomerata	6	3	3		1				2	2		5																		2																												
Desch caespitosa				4	4				2	4											4												5			4			4						7	5			9	4		4					
Elytrigia repens		4										3																																	4														
Epilob. tetragonum																																																											
Epilobium hirsutum																																																											
Epilobium palustre																																							3																				
Equisetum tetragonum																																																										
Eupatorium cannabinum																																																										
Festuca rubra	7	4	4			4				2			2		1			4			3									4		4	5																											
Filipendula ulmaria																													2																												
Galeopsis tetrahit																																																										
Galium palustre																1			2						3																				1														
Glyceria fluitans					1	3		7										5	3													3			8																						
Glyceria maxima					3											8	7	4	5					7		7																																	
Holcus lanatus			1	3					2																														4	5		6																	
Hordeum secalinum																																																										
Juncus acutiflorus																																	2																										
Juncus artic/acutifl																																																										
Juncus articulatus																																						3			4																
Juncus effusus									7							4		2							9	C.disticha				3			4			6		6	7		4	7			7			8	4							
Juncus effusus/inf		8			7																																																					
Lathyrus pratensis	1																																																									
Leontodon autumnalis		1		1								2								3	5																																								
Lolium perenne		5	7	7	5	7	8	6		6		6	8		8					5	4						in MG13			4		5	4	7			4	4				5							5	7	7	4	7	6	8
Lotus corniculatus				2																																																							

PRN	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	37	38	39	40	41	42	43	46	48	49	52	54	55	56	57	58	59	60	61	62	63	64	65	73	74	75	76	77	91	92	98	99	100	102	103	105	106	107	108	109	110	111
Lotus uliginosus																													1												3																	
Lycopus europaeus																									1													1	1	7																	
Lythrum salicaria																																																											
Molinia caerulea																													6																															
Moss		1																																																										
Myosoton aquaticum																																									3																		
Persicaria hydropiper								1								1	1																							1																	1			
Phalaris arundinacea																							10	7		7			10	4																												2	
Phleum bertolonii																																																											
Phleum pratense											4	5	4																																																
Phragmites australis																																																											
Phragmites communis																																																											
Poa annua							2																																																					
Poa pratensis											4																			4																														
Poa trivialis							3										4																																											
Polygonum arenastrum																																																											
Potentilla anserina					3	3												4							2												2						2		5	2		3		2				1	1	2
Pulicharia dysenterica																																						1																			
Ranunculus flammula						3		4	4							4	4	4	3			4								2		2			2	3						2															
Ranunculus repens	1	3		3	7	4			4	2			4		4			2		4	4											2	4	3		4		2	4	2		3	5	5	2			4		4	4	4	1		2	4
Rhytid squarrosus				1																																																							
Rubus fruticosus																													2																														
Rumex acetosa	1	3		3	1		2		2	2	2														3																	1																	
Rumex hydrolpathum																																																										
Rumex obtusifolius											1									8																																							4	1
Rumex pulcher																									2																				2															
Scutellaria galeric																																																											
Senecio aquaticus																																																											
Sinapis arvensis																																																											
Solanum dulcamara																																																											
Sonchus oleraceus																																																											
Sparganium erectum																																									6																		
Stellaria alsine																																									1																		
Stellaria graminea	3			2											1																																													
Taraxacum officinale															1																																													
Trifolium pratense																																		1																										
Trifolium repens			4			4	4				7				3					2	2																																								3
Typha latifolia																																																											
Urtica dioica																																																											
Veronica arvensis																																																											

12-C.3 Ditches

12-C.3 Introduction

12-C.3.1 Ditches throughout the Combe Haven Valley were surveyed in 2004 in accordance with the method devised by Margaret Palmer (Palmer 2002), which was also the one in use by English Nature. The NVC is of limited application in the survey and classification of ditches (Rodwell 1995, 17-22) because much of it is based on mono-specific stands. In Palmer's method a20m sample section is taken, recording all plants present on the scale D (Dominant) 70-100%, A (Abundant) 30-70%, F (Frequent) 10-30%, O (Occasional) 3-10%, R (Rare) <3%. A grapnel was used to ensure that all submerged and floating plants were sampled. Due to the need to collect as much botanical data as possible starting late in the season, the background information listed by Palmer was not recorded but a general description of the ditch was prepared and dominance by a particular species – generally Common Reed (Phragmites australis), Reed Sweet-grass (Glyceria maxima), Reed Canary-grass (Phalaris arundinacea) or Branching bur-reed (Sparganium erectum) – was recorded, relating vegetation to NVC communities where appropriate. All species present within the ditch were recorded whether classed as aquatics by Palmer or not.

12-C.3.2 Species in bold on the sample lists below are those on Palmer's lists. Samples were generally taken at the most open section on a ditch. Data collected by Dr Tim Rich in 1995 allowed a direct comparison to be made between then and 2004. Some comparisons could also be made with data collected by Simon Davey in 1988

12-C.3.3 Although the survey method does not use the NVC the following NVC communities were noted:

A2 Common Duckweed (*Lemna minor*) community;

A33 Greater Duckweed (*Spirodela polyrhiza*) - Frog-bit (*Hydrocharis morsus-ranae*) community;

A4 Frog-bit - Water-soldier (*Stratiotes aloides*) community;

A5 Hornwort (*Ceratophyllum demersum*) community;

A7 Yellow Water-lily (*Nuphar lutea*) community;

A9 Floating Pondweed (*Potamogeton natans*) community;

A15 Nuttall's Waterweed (*Elodea nuttalii*) community;

S4 Common Reed swamp and reedbeds;

S5 Reed Sweet-grass swamp;

S6 Greater Pond-sedge (*Carex riparia*) swamp;

S12 Bulrush (*Typha latifolia*) swamp;

S14 Branching Bur-reed swamp;

S17 Cypress Sedge (*Carex pseudocyperus*) swamp;

S22 Floating Sweet-grass (*Glyceria fluitans*) water-margin vegetation;

S26 Common Reed – Stinging Nettle (*Urtica dioica*) tall-herb fen; and,

S28 Reed Canary-grass tall-herb fen.

12-C.3.4 The average number of species per 20m length for most ditches was below the figure of seven given by Palmer for a ditch in good condition. From these results, and taking into account Dr Rich's work, the following observations can be made.

12-C.3.5 First, the principal area of 'good' ditches was the south side of the valley between the ditches just west of the viaduct abutment and the west edge of Filsham Reedbed, as it was in 1995. Grazing, which keeps down the vigorous marginals and sometimes results in trampled edges is a major factor in the interest of this area, but the ditches are also generally wider with higher water levels. The other principal areas of significance were around new pasture just south of Decoy Pond Wood and in the narrow strip on the north bank between the Watermill and Powdermill Streams. Within the ungrazed areas, the range of species was low, although in several cases it was not possible to sample the ditches safely. Outside the SSSI within the main valley, the Watermill Stream Valley and the Powdermill Stream Valley the ditches were poor, probably as a result of their profiles, water levels, flow rates and perhaps substrate.

12-C.3.6 Second, the ditches contained few species of shallow water such as Common Skullcap (*Scutellaria galericulata*) because they were generally steep-sided even when they are being managed under the Countryside Stewardship Scheme. This is likely to account for the decline of species like Water-plantain (*Alisma plantago-aquatica*), Water Horsetail (*Equisetum fluviatile*) and the Water-dropworts (*Oenanthe* sp) since 1995. It is also notable that most of the ditch species listed by Kate Ryland in 1999 as having been lost from the site are species of shallow water with quite precise habitat requirements.

12-C.3.7 Third, floating species such as the duckweeds were much less frequent than in 1995, but this may simply be a result of weather conditions. There was heavy rain before and during the sampling period which may have flushed away these species and it was noticeable that the cover of Unbranched Bur-reed (*Sparganium emersum*) in the main channel increased as the period of heavy rain eased off.

12-C.3.8 Finally, even allowing for the decline in the variety of ditch conditions, the species composition of the ditches seems less diverse than sites like Pevensey Levels, as is the case for the invertebrates discussed in Appendix 12-I. This does not mean that the site is of lower nature conservation value than other large wetlands, simply that it has a distinctive flora.

12-C.3.9 During 2005 and 2006 the ditches near the proposed route were examined in more detail. The spread of data collection over a longer period than is usual in ecological impact assessment has meant that this period means that a more balanced view of the significance of the ditches as a whole and of individual ditches can be taken.

Ditch 1 Main Combe Haven Channel

12-C.3.10 This lies beyond the study area and is steep-sided and similar to D2.

Ditch 2 Main Combe Haven Channel

12-C.3.11 This is a deep, near-vertical channel overhung by the vegetation on the banks. The characteristic species were abundant Common Reed, Hemlock Water-dropwort (*Oenanthe crocata*), False Oat-grass (*Arrhenatherum elatius*) and Stinging Nettle (*Urtica dioica*). Shrubs comprised intermittent Blackthorn (*Prunus spinosa*), Hawthorn (*Crataegus monogyna*), Alder (*Alnus glutinosa*) Pedunculate Oak (*Quercus robur*) and Grey Willow (*Salix cinerea*).

12-C.3.12 There were three parallel bands of herbaceous vegetation along most of the channel. The outer band comprised weedy vegetation characterised by Stinging Nettle, Broad-leaved Dock (*Rumex obtusifolius*), Cleavers (*Galium aparine*), Creeping Bent (*Agrostis stolonifera*), Cock's-foot (*Dactylis glomerata*) and Rough Meadow-grass (*Poa trivialis*). On the shaded banks there was Male Fern (*Dryopteris filix-mas*), Herb Robert (*Geranium robertianum*) and Ivy (*Hedera helix*). Where there was more light, patches of grasses, Giant Stitchwort (*Stellaria holostea*) and Common Knapweed (*Centaurea nigra*) are present.

12-C.3.13 The sampled section comprised:

Angelica sylvestris	O
Urtica dioica	A
Anthriscus sylvestris	O
Phragmites australis	**A**
Phalaris arundinacea	**A**
Filipendula ulmaria	O
Cirsium arvense	F
Rumex obtusifolius	F
Glyceria fluitans	**R**
Galium aparine	F
Equisetum arvense	R
Apium nodiflorum	**O**
Dactylis glomerata	O
Poa trivialis	O

Ditch 3

12-C.3.14 This is cleared regularly, but when visited when the vegetation had been allowed to develop there was abundant Common Reed, Fool's Watercress (*Apium nodiflorum*), Reed Canary-grass, Hemlock Water-dropwort and Great Willowherb (*Epilobium hirsutum*) in the south. The margins were dominated by the MG1 False Oat-grass community with abundant docks (*Rumex crispus, R.*

conglomeratus). There was greater variety of wetland plants to the north, with abundant Reed-canary grass and Stinging Nettle as well as Marsh Woundwort (*Stachys palustris*) and Yellow Flag (*Iris pseudacorus*).

Ditch 4 Main Combe Haven Channel

12-C.3.15 On the edges of this ditch there was a mixture of wetland species and plants of rough ground set within the MG1 community. Stinging Nettle, Reed Canary-grass, and Common Reed were frequent and Angelica (*Angelica sylvestris*), Cleavers, Cock's-foot, Hogweed (*Heracleum sphondylium*) and Field Horsetail (*Equisetum arvense*) were also present.

Phalaris arundinacea	F
Phragmites australis	F
Rumex obtusifolius	O
Apium nodiflorum	O
Sparganium erectum	O
Glyceria fluitans	O
Lapsana communis	O

Ditch 5

12-C.3.16 The south end of this ditch was dominated by Common Reed, the north end by Reed Sweet-grass, Soft Rush (*Juncus effusus*) and Greater Pond-sedge. There was some Grey Willow.

Phragmites australis	O
Phalaris arundinacea	F
Dactylis glomerata	F
Salix caprea	O
Eupatorium cannabinum	R
Juncus effusus	O
Calystegia sepium	O
Cirsium arvense	O
Arrhenatherum elatius	F

Ditch 6 Main Combe Haven Channel

12-C.3.17 This is a steep-sided channel with Common Reed at the edges. The channel was dominated by soft rush.

Persicaria hydropiper	O
Polygonum persicaria	F
Juncus effusus	A-D

Glyceria fluitans F

Phalaris arundinacea O

12-C.3.18 Yorkshire Fog (*Holcus lanatus*) is adjacent.

Ditch 7

12-C.3.19 This was more-or-less dry at the time of survey and can be ascribed to the NVC MG13 Creeping Bent - Marsh Foxtail (*Alopecurus geniculatus*) community. Water-pepper (*Persicaria hydropiper*) and Lesser Spearwort (*Ranunculus flammula*) were frequent and Jointed Rush (*Juncus articulatus*), Curled, Broad-leaved and Conglomerate Docks were also present.

Ditch 8

12-C.3.20 This was dominated by Reed Sweet-grass. Water-pepper is also present. In 1988 it was said to be choked with other species in addition to Reed Sweet-grass, including Common Reed, but was sufficiently open to support Water-plantain, Water Horsetail and Marsh Horsetail (*Equisetum. palustre*).

Ditch 9

12-C.3.21 The ditch was dominated by Reed Sweet-grass. In 1988 it was dry with a mixture of species including Bulrush (*Typha latifolia*), Floating Sweet-grass, Gipsywort and Lesser Spearwort, so is likely to have been cleared at least once since then.

Ditch 10

12-C.3.22 This deep and steep-sided near the main channel and was choked with marginal vegetation but there is sufficient open water to support large patches of Common Duckweed. The water was turbid at the time of survey and there were patches of Bulrush and Reed Sweet-grass at the edges. However, the dominant species were Fool's Watercress, Floating Sweet-grass, and Branched Bur-reed. Great Willowherb, Himalayan Balsam (*Impatiens glandulifera*) and Stinging Nettle were locally abundant.

Ditch 11 Watermill Stream Main Channel (Upper reaches beyond D 13)

12-C.3.23 This is shaded by scrub, with very little aquatic vegetation. The principal species were Alder, Blackthorn, Bamble, and Grey Willow.

Ditch 13 Watermill Stream

12-C.3.24 This section of the Watermill Stream had abundant Common Reed, together with Greater Pond-sedge, Lesser Water-parsnip (*Berula erecta*), Gipsywort, Purple-loosestrife, Water betony (*Scrophularia auriculata*), Branched Bur-reed, Water Chickweed (*Myosoton aquaticum*), Himalayan Balsam and Common Duckweed.

Ditch 14/18 Watermill Stream

12-C.3.25 The vegetation of this section is variable as a result of frequent clearance. Most recently near the crossing point for the road one bank was a mass of Common Hemp-nettle (*Galeopsis tetrahit*) while the other was dominated by Grey Willow. The ditch has recently been cleared and the main vegetation is Water-plantain with a small amount of Branched Bur-reed. The Hemp-nettle bank also has Purple-loosestrife, False Oat-grass, Couch (*Elytrigia repens*) and Branched Bur-reed. The opposite bank has Yorkshire Fog, Purple-loosestrife, Meadowsweet (*Filipendula ulmaria*), Redshank (*Persicaria maculosa*), Hedge Bindweed (*Calystegia sepium*), Angelica, Branched Bur-Reed, Sorrel (*Rumex acetosa*) and Gipsywort. A little further along the west bank has Branched Bur-Reed, Reed Canary-grass, Yellow Loosestrife (*Lysimachia vulgaris*), Hemlock Water-dropwort, Bittersweet (*Solanum dulcamara*), Nipplewort (*Lapsana communis*), Dog Rose (*Rosa canina*) and an edge of MG1. Further along there is Yellow and Purple-loosestrife a lot of Hawthorn, Alder, Branched Bur-reed and Bittersweet.

12-C.3.26 The dry bank on the east side has MG 1 with Stinging Nettle, False Oat-grass, Hogweed, Cleavers, Cock's-foot (*Dactylis glomerata*), Nipplewort (*Lapsana communis*), Couch grass, Hedge Bindweed, Hemlock Water-dropwort, Dog Rose and Marsh Woundwort. There is Himalayan Balsam and then open water with Branching Bur-reed in the far edge with Bittersweet flopping into the water with Floating Sweet-grass and Water Starwort. This rises to a bank with Rye-grass pasture and Couch together with Bittersweet, Reed Sweet-grass. There is Hogweed at the edges with Reed Canary-grass, Stinging Nettle and Water-pepper.

12-C.3.27 On the west bank, adjacent to F29 there is abundant Reed Canary-grass, Greater and Lesser Pond-sedges, Branching Bur-reed and Fool's Watercress, giving way on the drier ground to Hogweed, Bittersweet, Gipsywort and Marsh Woundwort. Within the channel there is Branching Bur-reed, Hemlock Water-dropwort, Floating Sweet-grass, Reed Canary-grass, Bittersweet, Creeping Bent, Great Water-dock (*Rumex hydrolapathum*) Hemp Agrimony (*Eupatoria cannabinum*), Tufted Hair-Grass (*Deschampsia cespitosa*) and Yarrow.

12-C.3.28 Immediately adjacent to the footbridge there is Waterweed (Canadian and Nuttall's), Great Willowherb, Hemlock Water-dropwort, Grey Willow, Himalayan Balsam, Hedge Bindweed, Bramble and Stinging Nettle. On the opposite bank there is MG1 with Bittersweet, Branching Bur-reed, Yorkshire Fog, Hemlock Water-dropwort and Bulrush. Creeping Cinquefoil (*Potentilla reptans*) is found in moderately varied grassland with Sorrel, Red Fescue, Common Knapweed (*Centaurea nigra*), Common Mouse-ear (*Cerastium fontanum*) and Field Rose (*Rosa arvensis*).

Ditch 15

12-C.3.29 The ditch was dominated by Bulrush with occasional more open areas such as the one sampled.

Typha latifolia	F-A
Salix cinerea	O
Calystegia sepium	F
Juncus effusus	F
Lycopus europaeus	F
Solanum dulcamara	O
Lythrum salicaria	R
Bidens tripartita	lF
Galeopsis tetrahit	O
Eupatorium cannabinum	O
Stellaria uliginosa	R
Agrostis stolonifera	F
Sparganium erectum	O

Ditch 16

12-C.3.30 This had a cover of dense Bramble scrub with Water Starwort.

Ditch 17

12-C.3.31 This ditch was dominated by Branching Bur-reed with a dense layer of Floating Sweet-grass extending out into the water.

Glyceria fluitans	D
Lycopus europaeus	O
Lysimachia vulgaris	O
Juncus effusus	A
Potentilla reptans	O

Phalaris arundinacea R

Sparganium erectum

12-C.3.32 Yellow loosestrife is also present nearby. In 1995, a much more varied flora of mixed fen with Marsh Pennywort (*Hydrocotyle vulgaris*) and Water-plantain was recorded.

Ditch 19

12-C.3.33 This has the following species: Purple-loosestrife, Yellow Loosestrife, Nipplewort, Angelica, Soft Rush, Hedge Bindweed, Floating Sweet-grass, Gipsywort, Greater Bird's-foot Trefoil and Branching Bur-reed.

12-C.3.34 There is an edge of MG1 with Field Sow-Thistle (*Sonchus arvensis*), Creeping Bent, Creeping Thistle, Tufted Hair-grass, Common Knapweed, Soft Rush, Creeping Buttercup, Couch grass, Yorkshire Fog, Bittersweet, Common Knapweed, Timothy Grass (*Phleum pratense)*, Creeping Buttercup, Tufted Hair-grass, Bird's-foot Trefoil (*Lotus corniculatus*), Lesser Cat's-ear (*Phleum bertolonii*), Cock's-foot, Smooth Meadow-grass (*Poa pratensis*) Dog Rose and docks.

Ditch 20

12-C.3.35 A line of Hawthorns along this ditch has recently been cleared. The aquatic vegetation is mainly Reed Sweet-grass.

Ditch 21

12-C.3.36 This ditch was more-or-less dry at the west end but became wetter towards the east where it was substantially species richer. It is about 1m wide in the dry section. At the west end there was MG1 on one bank and Soft Rush, Floating Sweet-grass, Creeping Bent, Trifid Bur-marigold (*Bidens tripartita*), Gipsywort and Tufted Hair-grass on the other. The MG1 changed to MG9 the Yorkshire Fog –Tufted Hair-grass community towards the end.

12-C.3.37 A typical section of dense aquatic vegetation comprised:

Glyceria maxima	F
Bidens tripartita	F
Alisma plantago-aquatica	F
Filamentous green algae	O
Hydrocharis morsus-ranae	R
Juncus effusus	O
Glyceria fluitans	O
Juncus articulatus	O

12-C.3.38 On the adjacent exposed banks there was abundant Trifid Bur-marigold and Lesser Spearwort. The more open section described below had extensive Branched Bur-reed, Reed Sweet-grass and some Unbranched Bur-reed and is wider and shallower.

Glyceria maxima	A
Phalaris arundinacea	O/lF
Persicaria hydropiper	R
Potamogeton natans	O
Hydrocharis morsus-ranae	O
Alisma plantago-aquatica	F
Lycopus europaeus	O
Juncus effusus/articulatus/ acutiflorus	O
Sparganium submersum	O
Sparganium erectum	O
Glyceria fluitans	O
Agrostis stolonifera	O
Bidens tripartita	F

12-C.3.39 Water Horsetail was present at the edge of the sample area.

12-C.3.40 A third sample in an area with open water area at the junction with D24 was as follows:

Ranunculus flammula	O
Persicaria hydropiper	O
Lycopus europaeus	O
Carex riparia	O
Gnaphalium uliginosum	R
Galium palustre	R
Hottonia palustris	R

12-C.3.41 In 1995 the ditch was said to contain Common Reed and Branched Bur-reed, with a dominance of Reed Sweet-grass towards the west but also sufficient open water to support Frog-bit, Water-violet (*Hottonia palustris*) and Broad-leaved Pondweed.

Ditch 22

12-C.3.42 This ditch had been cleared shortly before the survey and had quite varied vegetation in addition to patches of Reed Sweet-grass and Branched Bur-reed. It is steep-sided and over 2m wide.

Potamogeton natans	O
Alisma plantago-aquatica	O
Hydrocharis morsus-ranae	O
Lythrum salicaria	R
Glyceria maxima	F
Sparganium erectum	F
Bidens tripartita	O
Glyceria fluitans	O
Agrostis stolonifera	O
Ranunculus flammula	O
Juncus acutiflorus	O
Juncus effusus	O
Lycopus europaeus	R
Phalaris arundinacea	O

12-C.3.43 In 1988 it was dominated by Reed-sweet Grass in the west, but there was sufficient open water for Frog-bit, Broad-leaved Pondweed and Floating Sweet-grass.

Ditch 23

12-C.3.44 This was dominated by Reed Sweet-grass with MG1 on both banks, but there was a cleared section with the following:

Hydrocharis morsus-ranae	lA/D
Alisma plantago-aquatica	O
Unidentified aquatic moss	R
Glyceria fluitans	O
Lysimachia vulgaris	O
Agrostis stolonifera	O

Ditch 24

12-C.3.45 This had an abundance of Branched Bur-reed and Reed Sweet-grass, frequent Reed Canary-grass and occasional Common Reed. The banks had MG9 and MG1. The plants in the sample section characterised the ditch as a whole, although there were patches of Branched Bur-reed, together with a substantial clump of Common Reed adjacent to the ditch.

Glyceria maxima	D
Lythrum salicaria	O
Hydrocharis morsus-ranae	R
Lemna minor	O

Phalaris arundinacea	F
Persicaria hydropiper	O
Vicia sativa	O
Lotus uliginosus	O
Lycopus europaeus	R

12-C.3.46 In 1995 the south end had a good range of floating and marginal plants and the more aggressive species were absent. Marsh Pennywort, Lesser Spearwort, Trifid Bur-marigold and Marsh Cudweed (*Gnaphalium uliginosum*) were among the species present.

Ditch 25

12-C.3.47 Although this ditch was dominated by Common Reed and was sufficiently dried-out in some areas for Grey Willow and Hawthorn to have become established, there were open sections and the following sample was taken at one of these.

Potamogeton natans	lF
Equisetum fluviatile	O
Ranunculus flammula	O
Phalaris arundinacea	F
Sparganium erectum	f-lD
Lemna minor	R/O
Hydrocharis morsus-ranae	lF
Juncus effusus	O
Equisetum palustre	O
Glyceria maxima	O
Glyceria fluitans	R

12-C.3.48 In the mid-section there were more open patches with a lot of Marsh Horsetail, Frog-bit, Purple-loosestrife, Floating Sweet-grass, Water-plantain, Fen Bedstraw (*Galium palustre*), Greater Pond-sedge and Gipsywort. It was drier towards the east where there was frequent Marsh Woundwort, before returning to Common Reed-dominated vegetation for the last 80m or so. The banks were dominated by MG9.

12-C.3.49 In 1988 it was said to be largely open and had plants of boggy margins like Marsh Pennywort, Lesser Spearwort, Greater Bird's-foot-trefoil (*Lotus pedunculatus*) as well as Broad-leaved Pondweed.

Ditch 26

12-C.3.50 The outer sections of this ditch were dominated by Common Reed and Reed Canary-grass. There was occasional Purple-loosestrife, Yellow Loosestrife, Greater Pond-sedge and Water-pepper. At the edges, the ditches

were nearly dry and Grey Willow and Bramble were invading. There was sufficient open water to support Frog-bit and Water Horsetail.

Phragmites australis	F
Filipendula ulmaria	O
Solanum dulcamara	O
Glyceria maxima	D
***Carex* sp**	O

12-C.3.51 In 1995 the ditch was much more varied, supporting Marsh Pennywort, Water-pepper, Common Duckweed and Fine-leaved Water-dropwort (*Oenanthe aquatica*). Seven years before, it was described as 'more-or-less open' with Broad-leaved pondweed and Frog-bit.

Ditch 27

12-C.3.52 In 2003, prior to clearance, Reed Sweet-grass, Branched Bur-reed, Creeping Bent and Soft Rush were frequent in this ditch. In 2004 it had a margin of Branched Bur-reed, occasional Reed Sweet-grass and patches of Floating Sweet-grass. Lesser Spearwort and Trifid Bur-marigold had begun to spread vigorously in the excavated material.

Alisma plantago-aquatica	O
Glyceria maxima	F-A
Sparganium erectum	O
Potamogeton natans	O
Filamentous green algae	R
Bidens tripartita	R
Phalaris arundinacea	O
Phragmites australis	R
Hydrocharis morsus-ranae	O
Callitriche cf stagnalis	R

12-C.3.53 In 1988 the ditch was dominated by Reed Sweet-grass but with sufficient open water to support Frog-bit and Water-plantain.

Ditch 28

12-C.3.54 Dry at the time of survey.

Ditch 29

12-C.3.55 This ditch was dominated by Reed Sweet-grass and Common Reed with frequent Reed Canary-grass. However, there were sufficient open areas to support occasional Yellow Loosestrife, Water Plantain, Purple-loosestrife, Trifid Bur-marigold, Broad-leaved Pondweed and Marsh Woundwort.

The field margins are dominated by Tufted Hair-grass with frequent Silverweed (*Potentilla anserina*) and Creeping Bent.

Glyceria maxima	lD
Phragmites australis	lD
Lythrum salicaria	O
Potamogeton natans	O
Hydrocharis morsus-ranae	O
Lycopus europaeus	O
Equisetum palustre	R
Glyceria fluitans	O
Agrostis stolonifera	O
Carex hirta	O
Lotus uliginosus	O
Phalaris arundinacea	O

12-C.3.56 In 1995 11 species were present including Common Duckweed and Water Horsetail. In 1988 the ditch supported Water-violet and Common Skullcap as well as other plants of open margins.

Ditch 30

12-C.3.57 The ditch was largely choked with Reed Sweet-grass and Common Reed, but there was sufficient open water to support Water-violet, Frog-bit and Waterweed. Water-violet was not recorded in 1988 when the ditch was said to be similarly choked.

Ditch 31

12-C.3.58 At the east end there was Unbranched Bur-reed and Rigid Hornwort (*Ceratophyllum demersum*) together with Broad-leaved Pondweed, Water-plantain, Spiked Water-milfoil (*Myriophyllum spicatum*) and Nuttall's Waterweed. Greater Pond-sedge was present at the east end beyond the ditch and Common Reed near the footbridge.

Potamogeton natans	O
Sparganium emersum	O
Equisetum palustre	R
Ceratophyllum demersum	F
Phalaris arundinacea	A-lD
Glyceria maxima	O
Lythrum salicaria	O
Carex riparia	O
Filipendula ulmaria	O

Stachys palustris	R

12-C.3.59 When surveyed in 1995, this ditch had a moderate variety of marginal species including Water-plantain, Reed Sweet-grass, Gipsywort and Fine-leaved Water-dropwort. It had been cleared shortly before it was surveyed in 1988 when it had a greater variety of floating species including Frog-bit, Marsh-violet and Broad-leaved Pondweed.

Ditch 32

Juncus effusus	lF
Glyceria maxima	A
Persicaria hydropiper	O
Sparganium erectum	A
Glyceria maxima	F
Bidens tripartita	O
Alisma plantago-aquatica	O
Phalaris arundinacea	F
Lythrum salicaria	O
Filipendula ulmaria	O
Atriplex hastata	O
Phragmites australis	F

12-C.3.60 In 1988 this ditch was choked with Reed Sweet-grass and Common Reed, but Frog-bit, Yellow Flag (*Iris pseudacorus*) and Ragged Robin (*Lychnis flos-cuculi*) were present in the more open east section.

Ditch 34 Powdermill Stream

12-C.3.61 This is the section of the Powdermill Stream at the south end of the disused railway abutment. Hawthorn, Field Maple (*Acer campestre*), Alder, Ash (*Fraxinus excelsior*) and Pedunculate Oak largely overshadow it. The 'hedge' is at least HEGS grade 2 (Appendix 3F) but is better regarded as a copse. Bramble, Dog Rose, Stinging Nettle, Hawthorn and rough ground species are abundant at the edge. The principal wetland species within and at the edges of the channel are Great Willowherb, Hemp Agrimony (*Eupatorium cannabinum*), Reed Canary-grass, Meadowsweet, Common Water-starwort (*Callitriche stagnalis*), Pendulous Sedge (*Carex pendula*), Purple-loosestrife and Water Betony (*Scrophularia auriculata*). It appears to have changed little since 1988 when Common Reed and Meadowsweet were also recorded.

Ditch 36

12-C.3.62 This was more-or-less dominated by Common Reed with occasional Reed Canary-grass. Blackthorn scrub (W22 the Blackthorn - Bramble scrub community) has started to develop and there were patches of Grey Willow at the wetter edges. There were occasional Hawthorn, Pedunculate Oak and Ash,

together with abundant Hedge Bindweed. The margins were dominated by MG1 with Yorkshire Fog and patches of Stinging Nettle. At the north end the ditch has almost completely disappeared.

Ditch 37 Powdermill Stream

12-C.3.63 This stream flows along the west edge of the ridge on which Adams Farm lies. It is within a deep channel and was over-arched by Alder, Field Maple, Blackthorn, Ash and Pedunculate Oak. There was a fringe of rough MG1 grassland with Yorkshire Fog, Creeping Thistle (*Cirsium arvense*), Cock's-foot and similar vigorous plants of disturbed ground as well as plants of damp ground such as common fleabane (*Pulicharia dysenterica*) on the west side The aquatic vegetation is intermittent and subject to scouring and clearance. It comprises mainly Common Duckweed and small patches of marginal vegetation including Fool's Watercress, Water Chickweed (*Myosoton aquaticum*), Gipsywort, Floating Sweet-grass and Purple-loosestrife.

Ditch 38

12-C.3.64 The ditch had abundant Reed Sweet-grass with occasional Branched Bur-reed but was sufficiently open to support Fog-bit, Purple-loosestrife, Water-pepper and Fine-leaved Water-dropwort. There was MG9 on one bank and MG10 Yorkshire Fog – Soft Rush pasture on the other, where Marsh Woundwort and Purple-loosestrife were also present.

Glyceria maxima	D
Juncus effusus	O
Agrostis stolonifera	O
Carex hirta	O
Phragmites australis	O

12-C.3.65 In 1995 16 wetland species were recorded including Water-plantain, Trifid Bur-marigold, Frog-bit, Common Duckweed and Broad-leaved Pondweed, indicating much more open vegetation.

Ditch 39

12-C.3.66 The ditch was sufficiently open to support Common Water-starwort, Trifid Bur-marigold and locally frequent Water-pepper. In 1995 there was a greater range of species including Reed Sweet-grass, Marsh Cudweed and Fine-Leaved Water-dropwort.

Ditch 40

12-C.3.67 Bladderwort (*Utricularia australis*) was present in this ditch at the west end. It was increasing choked with Greater Pond-sedge and Common Reed towards the east and the open water was locally dominated by Nuttall's Waterweed. Frog-bit was locally dominant and there were substantial amounts of Gipsywort, Yellow Loosestrife and Purple-loosestrife. In 1995 only 10 wetland

species were recorded, but in 1988 there were several species of fen and open water including Small Pondweed (*Potamogeton brechtoldii*) and Common Skullcap.

Potamogeton natans	A
Alisma plantago-aquatica	lA
Sparganium erectum	F
Phragmites australis	F
Glyceria fluitans	O
Lycopus europaeus	O
Oenanthe aquatica	O
Elodea nuttallii	D
Hydrocharis morsus-ranae	lF

Ditch 41

12-C.3.68 This ditch was more-or-less dry. In 1995 it contained 14 aquatic species including Water-plantain, Trifid Bur-marigold, Reed Canary-grass, Common Duckweed, Water Forget-me-not (*Myosotis scorpioides*), Branched Bur-reed and Lesser Spearwort. This represented a succession from the open water community recorded in 1988 when Common Water- starwort, Spiked Water-milfoil, pondweeds (*Potamogeton* spp), waterweed (*Elodea* sp) and Frog-bit were the only species recorded.

Ditch 42

12-C.3.69 The ditch was more-or-less dry and dominated by Reed Sweet-grass with Common Reed. The principal other species were Creeping Bent, Water-pepper, Silverweed and Creeping Buttercup (*Ranunculus repens*). In 1995 the ditch was much more open. Common spike-rush (*Eleocharis palustris*), Marsh Cudweed, Fine-leaved Water-dropwort, Water-pepper, and Lesser Spearwort were among the 17 wetland species recorded. The 1988 survey records it as dominated by Reed Sweet-grass, so it was probably cleared soon afterwards.

Ditch 43

12-C.3.70 This was a shallow, almost dry, ditch with Soft Rush and Branched Bur-reed together with Common Water-starwort, Greater Pond-sedge, Floating Sweet-grass, Trifid Bur-marigold and Water-pepper. Bramble was beginning to invade.

Ditch 44

12-C.3.71 This ditch was very variable. Some sections were dominated by Reed Canary-grass but there were substantial amounts of Water-plantain, Frog-bit, Water-pepper, Silverweed and Bulrush as well as Clustered Dock (*Rumex conglomeratus*) in the drier areas. Fifteen species were recorded in 1995 (13 in 2003) and the balance between open water and marginal species was broadly

similar. In 1988 it had mainly open water with species of exposed margins such as Celery-leaved Water-buttercup (*Ranunculus sceleratus*) and so must have recently been cleared.

Ditch 45

12-C.3.72 This is the open section of the Powdermill Stream between the shaded section at the foot of the viaduct abutment and the outfall into the main Combe Haven channel. The margins are dominated by Fool's Watercress, Reed Sweet-grass and Branched Bur-reed. Water-pepper is frequent and Marsh Woundwort locally abundant. However there are some areas of open water with Common Duckweed.

Sample 1

Lythrum salicaria	O
Sparganium erectum	A
Lemna minor	O
Lemna trisulca	O
Glyceria fluitans	lF
Epilobium hirsutum	O
Apium nodiflorum	O
Glyceria maxima	O
Typha latifolia	R
Urtica dioica	O
Phalaris arundinacea	O
Persicaria maculosa	O
Rumex crispus	O
Eupatorium cannabinum	O
Stachys palustris	O
Lycopus europaeus	O

Sample 2

Alisma plantago-aquatica	F
Juncus effusus	A/D
Ranunculus flammula	O
Hydrocharis morsus-ranae	lD
Glyceria fluitans	A/lD
Typha latifolia	O
Persicaria hydropiper	O

Ranunculus repens	O

12-C.3.73 In 1995 the ditch was said to be particularly rich in wetland species: 21 were present including Brooklime (*Veronica beccabunga*), Nuttall's Waterweed, Least Duckweed (*Lemna minor*) and Jointed Rush (*Juncus articulatus*). The 1988 survey recorded a less rich flora but no dominance of vigorous marginals, so it is not clear when the ditch was cleared.

Ditch 46

12-C.3.74 This is a wide, varied ditch with mainly Common Reed and Branched Bur-reed on the margins and a considerable area of open water.

Lycopus europaeus	O
Sparganium erectum	F/lD
Agrostis stolonifera	F
Phragmites australis	A-lD
Juncus effusus	F- lA
Potamogeton natans	LA
Epilobium palustre	O
Deschampsia cespitosa	O
Filamentous green algae	O
Hydrocharis morsus-ranae	F
Elodea nuttallii	D
Callitriche stagnalis	R
Carex cf riparia	O
Alisma plantago-aquatica	O
Ranunculus flammula	O

12-C.3.75 There was Square-stalked St. John's- wort (*Hypericum tetrapterum*) nearby.

12-C.3.76 In 1990 this ditch was largely dry and dominated by Common Reed with abundant Greater Pond-sedge. Hawthorn and Blackthorn were beginning to invade. But in the small areas of open water, Frog-bit and Common Duckweed were abundant. Five years later 24 wetland species were recorded including three species of duckweed, Marsh Cudweed and Water Forget-me-not, indicating that the ditch had been substantially cleared between the two surveys.

Ditch 47

12-C.3.77 Despite the local abundance of Common Reed and Branched Bur-reed, this ditch has very varied vegetation, including locally-dominant Frog-bit, plus frequent Gipsywort, Water-plantain and Marsh Woundwort. In 1995 17 wetland species were present including Trifid Bur-marigold, Intermediate Water-starwort (*Callitriche hamulata*), Common Skullcap and Tufted Forget-me-not

(*Myosotis laxa*). In 1988 it was described as choked with Reed Sweet-grass although it had a good range of fen plants in the more open southern third and Water-violet was present. It must have been dredged between 1988 and 1995 and perhaps between 1995 and 2004.

Ditch 48

12-C.3.78 Although this had substantial quantities of Common Reed and Branching Bur-reed, it was fairly open, with a good range of species.

Agrostis stolonifera	O
Hydrocharis morsus-ranae	A
Elodea nuttallii	D
Glyceria maxima	F
Carex riparia	O
Sparganium erectum	A
Phragmites australis	A-lD
Juncus effusus	A
Alisma plantago-aquatica	O
Mentha aquatica	O
Lemna minor	O
Lycopus europaeus	O
Agrostis stolonifera	O
Glyceria fluitans	O

12-C.3.79 When it was surveyed in 1995 18 species were recorded including Frog-bit, three species of duckweed and several fen species.

Ditch 49

12-C.3.80 This has been cleared shortly before it was surveyed

Glyceria maxima	F
Glyceria fluitans	O
Pulicharia dysenterica	O
Typha latifolia	O
Phalaris arundinacea	O
Lysimachia vulgaris	O
Urtica dioica	O

12-C.3.81 On the south bank there was Fool's Watercress, Common Bent, Bramble, Hogweed, Hard Rush (*Juncus inflexus*) and Tufted Hair-grass. The ditch was not surveyed in 1995, but in 1988 was dominated by Reed Canary-grass, Reed Sweet-grass and Water Dock.

Ditch 50

12-C.3.82 This was dominated by Branched Bur-reed. There were scattered Blackthorn, one Alder and occasional Crack Willow (*Salix fragilis*). There was MG1 on the banks. A clump of Bulrush, Silverweed and Reed Canary-grass was also present. In 1995 the ditch had only five wetland species and appears to have been dominated by Reed Sweet-grass and Bulrush. This was also the case seven years earlier.

Rosa canina	O
Glyceria maxima	D
Epilobium hirsutum	R
Urtica dioica	F

12-C.3.83 A good patch of common skullcap within the adjacent fen was noted.

Ditch 51

12-C.3.84 This ditch was dominated by Common Reed in the south but was more open in the north where Common Water-starwort, Broad-leaved Pondweed and Nuttall's waterweed were abundant. Water plantain was locally abundant.

Ditch 52

12-C.3.85 This ditch lies within dense reed canary-grass and is inaccessible for sampling. It is unlikely to contain a great range of species.

Ditch 54

12-C.3.86 This ditch was dominated by dense Reed Sweet-grass. In 1988 it was described as being dominated by Reed-canary grass and Reed Sweet-grass. Water-plantain, Yellow Flag, Water Forget-me-not and Water Horsetail were also present.

Ditch 55

12-C.3.87 This ditch was within dense Common Reed and was so overhung that it could not be sampled safely. It is unlikely to contain much apart from the reed.

Ditch 56

Phragmites australis	O
Phalaris arundinacea	O
Lycopus europaeus	O
Glyceria maxima	O
Stachys palustris	R

Glyceria fluitans	O
Persicaria maculosa	O
Equisetum fluviatile	O
Solanum dulcamara	O

12-C.3.88 When this was surveyed in 1995 it contained only nine wetland species including Greater Pond-sedge, Reed Sweet-grass, Common Reed and Branched Bur-reed but was sufficiently open to support Water Horsetail and Broad-leaved Pondweed.

Ditch 57

12-C.3.89 This ditch had abundant Common Reed but also retained open water and had a quite varied flora in which Broad-leaved Pondweed was locally dominant and Frog-bit was present. In 1995 there were more open-water species, notably Water Horsetail, Water-violet, Common Duckweed and Ivy-leaved Duckweed (*Lemna trisulca*).

Potamogeton natans	D
Phragmites australis	O
Hydrocharis morsus-ranae	O
Juncus acutiflorus/articulatus	O
Carex cf riparia	F
Alisma plantago-aquatica	O
Sparganium erectum	F
Deschampsia cespitosa	O
Myriophyllum spicatum	R

Ditch 58

12-C.3.90 This is a line of crack willows along the disused mini-railway. There were wet patches with Reed Sweet-grass and sedge that may have been Lesser Pond-sedge (*Carex acutiformis*). Other plants present included Water-plantain, Water Betony, Fen Bedstraw, Purple-loosestrife, Silverweed, Greater pond-sedge, Trifid bur-marigold and Lesser Spearwort.

Ditch 59

12-C.3.91 This ditch was largely choked with Reed Sweet-grass but had some open patches where it is parallel to the main channel. It supported Frog-bit, Broad-leaved Pondweed, waterweed, Yellow Flag and Purple-loosestrife in small quantities. There were substantial quantities of Lesser and Greater Pond-sedge which had spread onto the banks and merged with MG1. Soft rush, water plantain and silverweed were also frequent.

Carex riparia	lA
Phalaris arundinacea	F

Glyceria fluitans	A
Potamogeton natans	lF
Juncus effusus	O
Ranunculus flammula	O
Bidens tripartita	O
Equisetum palustre	O
Oenanthe aquatica	O
Alisma plantago-aquatica	O
Agrostis stolonifera	O
Glyceria fluitans	O

12-C.3.92 In 1995 it supported several aquatic and fen species including Unbranched Bur-reed as well as Branched Bur-reed, Water-plantain, Trifid bur-marigold and Broad-leaved Pondweed.:

Ditch 60

12-C.3.93 Two species that are now uncommon in Combe Haven were recorded here in abundance: Arrowhead (*Saggitaria saggitifolia*) and Rigid Hornwort. Waterweed, Reed-sweet Grass, Broad-leaved Pondweed, Silverweed and Branched Bur-reed were frequent or locally abundant.

Ditch 61

12-C.3.94 This was dominated by Common Reed with locally abundant Reed Sweet-grass but there was sufficient open water for Water Horsetail and Frog-bit.

Phragmites australis	D
Equisetum palustre	lF
Carex riparia	F
Potamogeton natans	F-lD
Glyceria maxima	F
Juncus effusus	O
Agrostis stolonifera	O
Lemna minor	O
Equisetum fluviatile	O
Lycopus europaeus	O

12-C.3.95 In 1995 the ditch was much more open – it contained 20 wetland species including Lesser and Ivy-leaved Duckweed and Lesser Spearwort. In 1988 it supported Water-violet and the alien Large-flowered Waterweed (*Egreria densa*), indicating very open conditions.

Ditch 62 Combe Haven

12-C.3.96 This is the main channel within the steep-sided section at the weir. On the margins there were patches of Branched Bur-reed and Fool's Watercress, and within the water there were patches of Common Duckweed, but the main feature was abundant unbranched bur-reed.

Ditch 63

12-C.3.97 This ditch had frequent Common Reed and Reed Sweet-grass. Greater pond-sedge was abundant and Bramble and Soft Rush locally frequent. Fine-leaved Water-dropwort was also present. There were soft edges with Floating Sweet-grass and Creeping Bent. The following sample was taken in an open area:

Juncus effusus	A
Carex riparia	F
Polygonum hydropiper	F
Alisma plantago-aquatica	O
Bidens tripartita	O
Lythrum salicaria	O
Agrostis stolonifera	O
Glyceria fluitans	O
Sparganium emersum	F
Equisetum palustre	O
Phragmites australis	O
Glyceria maxima	O

12-C.3.98 In 1995 it was sufficiently open to support water horsetail, trifid bur-marigold and water pepper.

Ditch 64

12-C.3.99 This is an intermittent ditch with patches of Hemlock Water-dropwort, Water Plantain and Reed Sweet-grass (*Glyceria maxima*). It is surrounded by quite varied MG1 grassland with patches of Bramble plus Bracken, Common Knapweed (*Centaurea nigra*), docks, Burnt Saxifrage (*Pimpinella saxifraga*), Hairy Sedge (*Carex hirta*), Bird's-foot Trefoil (*Lotus corniculatus*), Barren Brome (*Anisantha sterilis*), Hogweed and False Oat-grass.

12-C.4 Dry Grassland Scub

Introduction

12-C.4.1 This category comprises areas of neutral grassland, and slightly more diverse areas of mesotrophic grassland plus those with scattered scrub. Scrub woodland is dealt with in Appendix 12-C.5. Small areas of dry grassland within the floodplain are discussed in Appendix 12-C.2. In general the grasslands are distinct from those of wet ground and comprise mainly MG6 Rye-grass (*Lolium perenne*)-Crested Dog's-tail (*Cynosurus cristatus*) grassland. Two areas, G6 and G23 can be classed as MG5 Crested Dog's-tail - Common knapweed (*Centaurea nigra*) grassland, but these also contain Rye-grass.

12-C.4.2 Most of the MG6 belongs to the typical sub-community (MG6a) but there are a few areas of Meadow Foxtail (*Alopecurus pratensis*) MG6b sub-community. As on the floodplain, there are stands which could probably be ascribed to MG7 Rye-grass leys and related grasslands notably the MG7c Rye-grass - Meadow Foxtail sub-community. Most of the MG6 belongs to the typical sub-community.

12-C.4.3 Where grazing has been abandoned, grassland has usually developed to MG1 False Oat -grass grassland (*Arrhenatherum elatius*) with patches of Bramble (*Rubus fruticosus*), generally of the W24 Bramble-Yorkshire fog *(Holcus lanatus*) underscrub. In the drier areas there is also bracken (*Pteridium aquilinum*) which can be variously ascribed to the W25 Bracken – Bramble underscrub or the U20 Bracken - Heath Bedstraw (*Galium saxatile*) community.

12-C.4.4 Towards the south of the site the grassland is found mainly in areas of heavy grazing or trampling, notably within horse paddocks. In the north and east it is found at the mid-upper slopes of ridges. Some of the most varied sites in the latter category, notably G20 are unmanaged and being encroached by scrub so that they are likely to become dominated by scrub woodland soon.

G1

12-C.4.5 This is quite closely grazed MG6 with frequent Common Bent (*Agrostis capillaris*), White Clover (*Trifolium repens*), Ribwort and Great Plantain (*Plantago lanceolata, P. major*), Meadow Buttercup (*Ranunculus acris*) and Creeping Buttercup (*R. repens*).

G3

12-C.4.6 This is an over-grazed field of MG6 with frequent Creeping Buttercup, Autumn Hawkbit (*Leontodon autumnalis*), White Clover and Creeping Bent. The 1994 survey also listed Yorkshire Fog, Timothy (*Phleum pratense*), Rough Meadow-grass, Creeping and Common Thistle (*Cirsium arvense, C. vulgare*), Ribwort Plantain, Common Ragwort (*Senecio jacobea*), Red Clover, Dandelion (*Taraxacum officinale*), Meadow Buttercup, Self-heal (*Prunella vulgaris*), Great

Plantain, Thyme leaved Speedwell (*Veronica serpylifolia*) and Daisy (*Bellis perennis*).

G4

12-C.4.7 This was identified as species-rich MG5a Crested Dog's-tail-Common Knapweed pasture, Meadow Vetchling sub-community in 1995 (BHWB ES) when it was surveyed before a hay crop was cut. The dominant species were Meadow Foxtail and Meadow Barley. Thirty other grassland species were recorded, the most notable of which was Yellow Rattle (*Rhinanthus minor*) which is a typical species of old meadows. The current management appears to be horse grazing after a hay cut and the field was visited when it was closely grazed in a period of drought. Nevertheless the species composition appears to have changed to some extent since 1995 with more Crested Dog's-tail and Common and Creeping Bent. Yellow Rattle is still present and the most notable broadleaved species are abundant Bird's-foot Trefoil, Autumn Hawkbit, Ox-eye Daisy (*Chrysanthemum leucanthemum*), Centaury, Self-heal and Red and White Clover. In the small wet areas at the edges there are patches of Common Fleabane (*Pulicharia dysenterica*) and Hemlock Water-dropwort (*Oenanthe crocata*).

G5 Buckholt Kennels

12-C.4.8 This area has been cleared fairly recently from woodland and although it can be classified as MG7, Bluebell (*Hyacinthoides non-scripta*) and Wood Anemone (*Anemone nemorosa*) are present. At G5.1, the principal species in addition to Rye-grass are Yorkshire Fog, Common Bent and Red Fescue (*Festuca rubra*). G5.2 is a rubbish tip with abundant Stinging Nettle gradually merging with the disturbed wood edge. There is occasional Elder (*Sambucus nigra*) and Figwort (*Scrophularia nodosa*). To east, W24 Bramble-Yorkshire Fog underscrub dominates. G5.3 is similar to G5.2. There is frequent Stinging Nettle, Creeping Thistle, Soft Rush and Creeping Buttercup around the edges.

12-C.4.9 G5.4 on the opposite side of the entrance drive is the same as G5.3. G5.5 is very closely grazed. Much of G5.6 is hardcore with trampled MG7 around the edges, merging with the retained stools of Hornbeam (*Carpinus betulus*) that remain from the woodland which have patches of Rough Meadow-grass (*Poa trivialis*) at the edges.

G8 The Mount

12-C.4.10 Hawthorn (*Crataegus monogyna*), Ash (*Fraxinus excelsior*), Blackthorn (*Prunus spinosa*), Bracken, Bramble and Stinging Nettle (*Urtica dioica*) form a fringe of woody vegetation around a mixture of rough and damp grassland with Cock's-foot (*Dactylis glomerata*), Meadow Foxtail, Timothy and finer-leaved grasses. There is abundant Soft Rush (*Juncus effusus*) and other species include Clustered Dock (*Rumex conglomeratus*), Ground Ivy and Creeping Buttercup (*Ranunculus repens*). Drier areas have Common Knapweed, Cow Parsley, Creeping Thistle, Common Fleabane, Common Thistle and Sharp dock. The grassland can be broadly ascribed to a mixture of MG1 and MG6. There are also patches of Bracken.

G6

12-C.4.11 Most of the field in which this lies is agriculturally improved, but in the north-east corner, there is a good stand of MG5 Crested Dog's Tail – Common Knapweed (*Centaurea nigra*) grassland with Red Fescue, Crested Dog's-tail, Sweet Vernal-grass, Common Bent, Red Clover, Yarrow, Sorrel, Agrimony (*Agrimonia eupatoria*), Common Mouse-ear (*Cerastium fontanum*), Meadow Vetchling (*Lathyrus pratensis*), Cat's-ear (*Hypochaeris radicata*), Creeping Thistle, Fairy Flax (*Linum catharticum*), Bird's-foot Trefoil (*Lotus corniculatus*), a large amount of Common Knapweed, clumps of Oxeye Daisy (*Leucanthemum vulgare*) and frequent Dyer's Greenweed (*Genista tinctoria*).

Quadrat at 75112 10504:

Centaurea nigra	7
Anthoxanthum odoratum	5
Holcus lanatus	5
Agrostis capillaris	4
Genista tinctoria	4
Lotus corniculatus	4
Cynosurus cristatus	4
Dactylis glomerata	3
Ranunculus repens	3
Lolium perenne	4

G7, 8 and 9: only a small part of 9 lies within 500m of the route

12-C.4.12 These three fields were recorded together in 2003 and in 2004. The most frequent grasses are Common Bent, Crested Dog's-tail, Cock's-foot (*Dactylis glomerata*), and Timothy (*Phleum pratense*). Yarrow (*Achillea millefolium*), Creeping Thistle and Creeping Buttercup were the more common broadleaves. The following additional species were noted in 2004: Rye-grass, Red Fescue, Creeping Buttercup, Lesser Stitchwort (*Stellaria graminea*), Yorkshire Fog, Small Cat's-tail (*Phleum bertolonii*), Common Mouse-ear, Crested Dog's-tail, Red Clover (*Trifolium pratense*), Autumn Hawkbit (*Lentodon autumnalis*) and Ribwort Plantain (*Plantago lanceolata*).

G10 Adams Farm

12-C.4.13 This area contains a variety of other habitats in addition to grassland and scrub, but it is convenient to describe it in one section. From the house at the centre of the property the land rises north-westwards to two barns between two improved Rye-grass dominated fields. From the barns the land falls to a triangular-shaped area which includes fragments of woodland, mature trees and semi-natural vegetation, mown lawns and ornamental planting. Around the house and to the south the landscapes are more ornamental, but to the east of the approach to the house there is a long, narrow disused quarry with a clearing at

the south end. A bank extends south-south westwards from the clearing towards the house.

12-C.4.14 Around the barns the grassland is mainly improved, with common ruderals, but there are also patches of MG1, particularly adjacent to the field. Docks and Cock's-foot are common. On the east side of the triangular area there are mature trees, notably Pedunculate Oak (*Quercus robur*) and Beech (*Fagus sylvatica*) plus patches of Hazel (*Corylus avellana*), and Blackthorn (*Prunus spinosa*) and occasional Holly (*Ilex aquifolium*). The shaded bank at the top of the slope has abundant Ivy (*Ilex aquifolium*), but also Soft Shield-fern (*Polystichum setiferum*), Red Campion (*Silene dioica*) and Wild Arum (*Arum maculatum*) in addition to weed species such as Cleavers (*Galium aparine*) and Ground Elder (*Aegopodium podagraria*). Slightly damper areas have Burdock (*Arctium minus*), Hemp Dead-nettle (*Galeopsis tetrahit*), Yorkshire Fog, Hogweed, Nettle, Herb Robert, Pendulous Sedge (*Carex pendula*) and Black Nightshade (*Solanum nigrum*). Common dog violet (*Viola riviniana* and possibly other Viola species) is present, together with a small amount of Giant Fescue (*Festuca gigantea*). Other species present include Yellow Archangel (*Lamium galeobdolon*), Wood Melick (*Melica uniflora*), Polypody Fern (*Polypodium vulgare*), Hazel, Ribwort Plantain (*Plantago lanceolata*), Common Vetch (*Vicia sativa)*, Hogweed (*Heracleum sphondylium*), Primrose (*Primula vulgaris*), Wood Anemone (*Anemone nemorosa*) and Sweet Vernal-grass.

12-C.4.15 The native Bluebell (*Hyacinthoides non-scripta*) is present. Elsewhere on the site Spanish Bluebell (*H hispanica*) is also found and the hybrid between the two may be present.

12-C.4.16 The quarry has a range of vegetation, exposed sandstone faces and faces covered with Ivy. There is an intermittent cover of Hazel, Ash, Grey Willow (*Salix cinerea*), Goat Willow (*Salix caprea*), Hornbeam and occasional Pedunculate Oak. Beneath there are the following ancient woodland indicators: Tutsan (*Hypericum androsaemum*), Wood Speedwell (*Veronica montana*), Soft Shield-fern, Spurge-laurel (*Daphne laureola*), Wood Brome (*Bromopsis ramosa*), Wood Melick (*Melica uniflora*), Wood Sedge (*Carex sylvatica*) Bluebell and Wood Anemone.

12-C.4.17 Frequent secondary woodland and disturbed ground plants include Wood Avens (*Geum urbanum*), Wild Arum, Ground Ivy, Herb Robert (*Geranium robertianum*), Dog's-Mercury (*Mercurialis perennis*) and Hedge Woundwort (*Stachys sylvatica*).

12-C.4.18 Within the clearing and in small patches elsewhere there is disturbed and dry ground vegetation such as Scentless Mayweed (*Tripleurospermum inodorum*), Centaury (*Centaurium erythrea*), White Clover (*Trifolium repens*), Hop Trefoil (*Trifolium campestre*), Self-heal (*Prunella vulgaris*) and Perforate St. John's wort (*Hypericum perforatum*). Common Mallow *(Malva sylvestris*), Stinging Nettle and Bramble are frequent. There are patches of open grassland which can be broadly ascribed to MG1 with False Oat-grass, Common Knapweed, Cock's-foot, Hairy Ragwort (*Senecio erucifolius*) and similar species. Occasional cultivated plants such as Stag's-horn Sumach (*Rhus typhina*) and Shasta Daisy (*Leucanthemum x superbum*) do not detract from the largely native character of the vegetation. Surrounding the clearing the wooded margins are varied, with

Ash, Pedunculate Oak, Field Maple (*Acer campestre*), Bracken and abundant climbers including Black Bryony (*Tamus communis*).

12-C.4.19 South of the quarry the short turf on the bank near the house has a good range of species with fescue-bent grassland including Wood Melick (*Melica uniflora*) Yarrow, Wood Speedwell, Wood False-brome (*Brachypodium sylvaticum*), Primrose, Harebell (*Campanula rotundfoila*), Common Dog Violet and Nipplewort (*Lapsana communis*) and Wild Strawberry (*Fragaria vesca*) plus Yellow Archangel at the edges. Bluebells are present, but while some of them are certainly the native species, most appear to be the alien Spanish Bluebell and some plants are probably the hybrid between the two. The acidic soil conditions are indicated by plants of Heath Bedstraw (*Galium saxatile*) Towards of the bank, Bracken, Wood Sedge, Blackcurrant (*Ribes nigrum*), Yellow Archangel, Black Bryony, Dog's Mercury, Buddleia (*Buddleia davidii*) are present.

12-C.4.20 Other plants present on the site include: Lesser Celandine (*Ranunculus ficaria*), Tufted Hair-grass (*Deschampsia cespitosa*), Ramsons (*Allium ursinum*), Rough Meadow-grass, Sycamore (*Acer pseudoplatanus*), Hemlock Water-dropwort (*Oenanthe crocata*), Meadowsweet (*Filipendula ulmaria*), Alder (*Alnus glutinosa*), Garlic Mustard (*Alliaria petiolata*), Greater Stitchwort (*Stellaria holostea*), Wood Forget-me-Not (*Myosotis sylvatica*), Figwort, Curled Dock (*Rumex crispus*), Broad-leaved Dock (*R obtusifolius*), Scaly Male-fern (*Dryopteris affinis*) and Female Fern (*Athyrium filix-femina*)

G11 and G12

12-C.4.21 Viewed from the roadside, these have abundant Meadow Foxtail and buttercups and probably belong to the MG7b or c community. Access for survey was denied.

G13

12-C.4.22 This field is flat in the east but falls increasingly steeply to the south-west. The biodiversity increases with the gradient. In the east it is largely MG6 with species such as Meadow Barley (*Hordeum secalinum*) and Sweet Vernal-grass (*Anthoxanthum odoratum*). These grasses and Common Bent (*Agrostis capillaris*) increase and the amount of Rye-grass (*Lolium perenne*) decreases down the slope, Broadleaved plants, notably Common Knapweed, Agrimony (*Agrimonia eupatoria*), Meadow Buttercup (*Ranunculus acris*) and clovers (including Zig-zag Clover, *Trifolium dubium*) increase.

	Site 1 **TQ 76952 10883**	**Site 2** **TQ 76899 10847**	**Site 3** **TQ 76857 10864**
Lolium perenne	7	5	7
Hordeum secalinum	5	5	5
Anthoxanthum odoratum	5	5	5
Agrostis capillaris	4	4	4
Cirsium arvense	4	4	5
Cynosurus cristatus	4		4
Holcus lanatus	4	4	4
Trifolium repens	3		1
Prunella vulgaris	1		1
Cerastium fontanum	1		5
Dactylis glomerata	1		1
Plantago lanceolata	1	4	1
Ranunculus repens	1		1
Agrimonia eupatoria		4	4
Lotus corniculatus		4	4
Genista tinctora		1	
Agrostis lamina		1	
Ranunculus acris		1	
Festuca rubra			4
Convolvulus arvensis			4

G14

12-C.4.23 This is largely improved grassland, but there is a scattering of Bluebells on the bank parallel to the edge of Chapel Wood, indicating that this may have been an old boundary.

G15

12-C.4.24 This is MG6/7, but Yorkshire Fog is frequent. There are patches of Meadow Barley adjacent to the hedges and Meadow Buttercup, docks and Sorrel are present.

G16 and G17

12-C.4.25 These fields can be broadly ascribed to MG6b. While they have frequent Rye-grass and Crested Dog's-tail, they also have a quite varied broadleaved flora including Thyme-leaved Speedwell (*Veronica serpylifolia*), Common Fleabane (*Pulicharia dysenterica*) and Meadow buttercup (*Ranunculus acris*). Around the edges there is taller grass and scrub with plants such as Agrimony.

G18

12-C.4.26 This is largely dominated by Bracken.

G19

12-C.4.27 This has abundant Meadow Foxtail and parches of intensive grazing.

G20

12-C.4.28 This area is a mosaic of scrub, scrub woodland and grassland, which has developed between the southwest edge of the Marline Wood SSSI and Queensway. It was surveyed in 2004 when it was described as follows.

12-C.4.29 G20.1 is a 2-3m verge of sown rye-grass behind which is a band of W21a Hawthorn-Ivy scrub, Ivy – Stinging Nettle sub-community with Bramble more-or-less dominant at ground level. There are young Pedunculate Oak and slightly older Ash, with some semi-mature trees, together with Hazel, Blackthorn and occasional Sweet Chestnut. Stinging Nettle is frequent and there is an open area of varied MG1.

12-C.4.30 G20.2 is broadly similar to G20.1 above but without woody plants apart from scattered Blackthorn, Grey Willow and Hawthorn.

12-C.4.31 G20.3 consists of W23 Gorse (*Ulex europaeus*) - Bramble scrub beyond which is weedy, disturbed MG1 grassland with dense young tree regeneration further up the slope. Bramble is abundant throughout.

12-C.4.32 G20.4 consists of MG1 grassland with scattered young Ash, Dog Rose, Hawthorn and Bramble.

12-C.4.33 G20.5 is a plantation of semi-mature Grey Alder (*Alnus incana*) and Ash.

12-C.4.34 G20.6 is disturbed MG1 with abundant Ground-ivy, which is indicative of rabbit-grazing. There is a scattering of tree seedlings including ash and field maple.

12-C.4.35 G20.7 is a mixed band of rough grass and Blackthorn forming a transition between the woodland edge and the grassland of area 4. Creeping Thistle and Black Nightshade (*Solanum nigrum*) are abundant.

12-C.4.36 G20.8 is MG6 short turf dominated by Common Bent and Rye-grass. There is Yorkshire Fog at the edges and a scattering of Marsh Cudweed in the rutted areas, together with Common Mouse-ear (*Cerastium fontanum*), White Clover (*Trifolium repens*) and Red Fescue.

12-C.4.37 G20.9 is a Bramble-dominated edge within occasional Ash. There is disturbed ground with plants like Red Dead-nettle (*Lamium purpureum*), and Creeping Thistle plus patches of Bracken on the drier ground.

12-C.4.38 G20.10 is a Hazel and Hawthorn hedge with an edge dominated by Bramble. Sycamores have been planted along the east side. It can all be ascribed to W21a.

12-C.4.39 G20.11 is a small area of grassland between two bands of W21a and is divided-up by ditches.

12-C.4.40 G20.12 is fundamentally the same type of MG7 as G20.4 but is characterised by patches of Nettle, Common Thistle (*Cirsium lanceolata*), Annual Meadow-grass (*Poa annua)* and Common Ragwort (*Senecio jacobea*).

12-C.4.41 G20.13 is a patch of more-or-less uniform W24 Bramble-Yorkshire Fog underscrub (W24). In the open fringes there are willowherbs (*Epilobium* sp), Creeping Buttercup, Smooth Sow-thistle (*Sonchus oleraceus*), Common Fleabane, Curled Dock, Common Knapweed and Bents.

12-C.4.42 G20.14 is a bank of dense, over-mature Gorse of the W23 community. G20.15 is dense Ash regeneration.

12-C.4.43 G20.16 is a mixture of the Bracken U20 community and scrub with patches of MG7. It is characterised by Creeping Buttercup, Rye-grass, Common Bent, Red Fescue and White Clover with a gradual transition to G20.17. Within the latter, Elder and Grey Willow overlie Bracken and there is a rough grass edge with Common Knapweed and Creeping Thistle. Abundant Self-heal (*Prunella vulgaris*) indicates that the area has been over-grazed. Bracken dominates much of G20.18, with Hawthorn mainly on the lower slope and Silver Birch (*Betula pendula*) on the upper, with larger birch towards the south. There are patches of MG6 grassland and bare ground dominated by species like Marsh Cudweed (*Gnaphalium uliginosum*). The Pedunculate Oak at the south edge is bigger than most other trees present.

12-C.4.44 At the centre of G20.19 there is a group of mature Pedunculate Oak. Around them is scattered Elder and Bracken.

12-C.4.45 G20.20 consists of bands of Bracken and MG6 grassland.

12-C.4.46 G20.21 is dense Bracken with scattered Elder and occasional Bramble. On the low ground at G20.22 there is Gorse and patches of Bramble together with Field Maple, Hawthorn and Elder, but also wetter ground indicated by Water-pepper, Marsh Cudweed and Yorkshire Fog. There are fragments of weedy MG7 grassland characterised by Self-heal.

12-C.4.47 G20.23 is largely the same as area 6 but has patches dominated by mosses, together with Common Sedge (*Carex nigra*), Field Woodrush (*Luzula campestre*) and patches of Sorrel.

12-C.4.48 G20.24 is a Bramble-dominated edge to the SSSI with frequent Marsh Thistle, Bracken, Gorse and Grey Willow with patches of MG1.

12-C.4.49 G20.25 is predominantly Bracken with a single large clump of Elder and patches of MG1 and Yorkshire Fog at the edge.

12-C.4.50 G20.26 is largely Gorse with Elder and scattered trees.

12-C.4.51 The centre of the strip of woodland at G20.27 is dominated by Ash with occasional Oak. At the edges there are Field Maple, Hawthorn, Ash, birch, Pedunculate Oak, Holly, Crab Apple (*Malus sylvestris*), Elder and Dog Rose plus occasional Sweet Chestnut (*Castanea sativa*) and Goat Willow. The ground flora has abundant ferns (notably Male Fern), Honeysuckle (*Lonicera periclymenum*), Ivy and Dog's-Mercury. Bracken is most frequent towards the edges. Overall, the woodland can be broadly ascribed to W8.

12-C.4.52 G20.28 is a scattering of mainly Hawthorn shrubs within G20.23.

12-C.4.53 G20.29 is W8 woodland with Sweet Chestnut, Oak and Ash and a ground flora with Bracken, Dog's-mercury and Honeysuckle. There is frequent Grey Willow alongside the railway line.

12-C.4.54 G20.30 is Creeping Thistle-dominated MG7 and G20.31 is Bracken of the U20 community. G20.32 is Elder scrub with patches of Bracken. G20.33 is a shaw that contains oak standards and abandoned Hazel coppice with Sweet Chestnut and Holly, plus occasional Hornbeam and Birch. The edge is dominated by Bracken and Bramble scrub. Locally, there are denser areas with frequent Common Fleabane. The presence of Meadow Barley and Burnet Saxifrage (*Pimpinella saxifraga*) may indicate that the grassland is long-established.

12-C.4.55 The area was revisited in 2007 and found to have changed little apart from the development of a more closed sward in the open areas so that the frequency of species like Marsh Cudweed was greatly reduced

12-C.4.56 The area adjacent to the south-west tip of Marline Wood was examined in more detail. The end of the wood is mainly Hornbeam coppice with a Bracken-dominated ride with Enchanter's Nightshade (*Circea lutetiana*) and Stinging Nettle. There is some Hazel and Holly in addition to Hornbeam. The SSSI ends at a fence, but apparent ancient woodland extends beyond. On level ground there is Yellow Pimpernel (*Lysimachia vulgaris*) and Primrose plus frequent Bluebell and Common Dog -violet. The railway embankment abuts it on the west side and extends to a ditch with Bluebell, Enchanter's Nightshade, oak and Holly.

12-C.4.57 A ditch and bank are parallel to the railway and they have Dog's Mercury, Bramble, Soft Shield-fern, Bluebell, Pendulous Sedge, Hazel and Bramble. The bank along the base has Hazel, Enchanter's Nightshade, Wood Avens, Ground Ivy, Yellow Archangel, Broad Buckler-fern, Red Campion throughout plus Wood Avens also Common Ragwort, Bluebell and Foxglove. An upper track has Downy Birch (*Betula pubescens*), Bracken and Soft Rush.

12-C.4.58 Other species noted in G20 in general were Hard Rush (*Juncus inflexus*), Common Knapweed, Hairy Sedge, Sweet Vernal-grass, Lesser Stitchwort, Yorkshire Fog. Great Willowherb, Bramble, Cleavers, Creeping Cinquefoil, Bracken, Bird's-foot Trefoil, Ribbed Melilot (*Melilotus officinalis*), Hemp Agrimony (*Eupatorium cannabinum*), White Campion (*Silene alba*), Smooth Tare (*Vicia tetrasperma*), Cow Parsley (*Anthriscus sylvestris*), Foxglove (*Digitalis purpurea*) and Grass Vetchling (*Lathyrus nissiola*).

G23

12-C.4.59 This was quite varied at the time of survey in 2006 because of the grazing pattern. Most of the field is closely grazed by horses. It is MG6 with frequent Common Bent and other fine-leaved grasses, together with plants of trampled ground like Great Plantain and Cat's-ear (*Hypocharis radicata*). Meadow Buttercup is also present, plus White Clover, Ribwort Plantain and occasional docks. Adjacent to the disused railway line there is an ungrazed strip with Stinging Nettle (*Urtica dioica*), Broad-leaved and Curled Dock (*Rumex obtusifolius*, *R. crispus*), Scentless Mayweed (*Tripleurospermum inodorum*), Common Mallow (*Malva sylvestris)*, Shepherd's Purse (*Capsella bursa-pastoris*), Wild Rocket (*Sisymbrium officinale*), Yarrow (*Achillea millefolium*), Cock's-Foot (*Dactylis glomerata*), Yorkshire Fog, Creeping Buttercup, Common Ragwort and Oilseed Rape (*Brassica napus*). To the north-east of the grazed area there is similar vegetation abutting the farm buildings. At the south-west edge of the field, abutting the rear gardens of the houses on St James's Crescent there is a fringe of Stinging Nettles and scrub.

G23a

12-C.4.60 Adjacent to the barn near Hedges 29 a and b there is MG6 with occasional Meadow Barley (*Hordeum secalinum*) and Timothy plus frequent Common and Creeping Bent and Stinging Nettle. There is a large pit nearby with common arable weeds.

G24

12-C.4.61 This is MG6.

G25

12-C.4.62 This field is no longer grazed and as a result has developed as MG1 False Oat-grass grassland with frequent Broad-leaved and Curled Docks. Bramble scrub has developed adjacent to the rear gardens of Alford Way and Pebsham Lane.

G26

12-C.4.63 This is similar to G25.

G27

12-C.4.64 This is MG6 Rye-grass - Crested Dog's-tail grassland which has been grazed very short by horses. There are patches of Red Fescue (*Festuca rubra*) and Common Bent and there is MG1 False Oat-grass (*Arrhenatherum elatius*) grassland with abundant Yorkshire Fog at the edges.

G28

12-C.4.65 This field is closely grazed by horses and comprises MG6 grassland with patches of Red Fescue, Common Bent and Sweet Vernal-grass (*Anthoxanthum odoratum*). At the edges, where the grazing is less intense there is frequent Red Clover, patches of Bird's-foot Trefoil (*Lotus corniculatus*) and Common Knapweed. There are trees scattered across the east half, principally Pedunculate Oak (*Quercus robur*), but also Scots Pine (*Pinus sylvestris*) and poplar (*Populus* sp). The tallest of these trees is about 10m and there are several fallen branches. Some may have sites for bat roosts and hole-nesting birds. Babtie noted a large, old tree stump with roots partially uncovered, covered in a Bramble and Stinging Nettle.

G29

12-C.4.66 This is a field of MG6 with a stream at the southwest end with four Pedunculate Oak standards adjacent. There are Fool's Watercress (*Apium nodiflorum*), Common Duckweed (*Lemna minor*) and Flote-grass (*Glyceria fluitans* sl) within the water and a fringe of rough grassland that includes Creeping Buttercup and Bluebell (*Hyacinthoides non-scripta*).

12-C.4.67 Most of the grassland is quite closely grazed and has frequent Common Bent as well as Creeping Buttercup, Red and White Clover, Red Fescue, Nipplewort (*Lapsana communis*) and Autumn Hawkbit. There are patches of disturbed ground with bare soil and plants such as Marsh Cudweed

(*Gnaphalium uliginosum*), Centaury and Equal-leaved Knotgrass (*Polygonum arenastrum*).

G30

12-C.4.68 This is a closely-grazed sward similar to G29.

G31

12-C.4.69 This is MG6 similar to G29 but with less disturbed ground species.

G32

12-C.4.70 This is MG6 with patches of finer-leaved grassland comprising mainly Common Bent and Creeping Bent. Field Convolvulus (*Convolvulus arvensis*) is quite frequent.

G33

12-C.4.71 This is improved MG6 grassland which is a public open space. Ash (*Fraxinus excelsior*), Field Maple (*Acer campestre*) and Grey Alder (*Alnus incana*) have been planted in the north corner and a similar range of species on the south-east edge.

G34

12-C.4.72 This is improved MG6 grassland with frequent Yorkshire Fog, Creeping and Common Thistle, Creeping and Common Bent and occasional Bird's-foot Trefoil.

G35

12-C.4.73 This is improved MG6 with abundant Creeping Thistle and frequent Yorkshire Fog. It has a similar range of weed species to G36.

G36

12-C.4.74 This is improved MG6 grassland with substantial areas of Creeping Thistle and occasional Spear Thistle. There are small patches of disturbed ground with common arable weeds including docks, Bristly Ox-tongue (*Picris echioides*), Great Plantain (*Plantago major*) and Scented Mayweed (*Matricaria recutita*).

G37

12-C.4.75 This is MG6 grassland with abundant patches of Soft Rush, particularly on the lower ground towards the centre. Although they may not yet belong to the MG10 Yorkshire Fog Soft-Rush pasture, they will do so if the rush continues to increase. Curled Dock and Marsh Thistle (*Cirsium palustre*) are frequent.

G38

12-C.4.76 This is species-poor MG6.

G40-46

12-C.4.77 These are species-poor MG6.

12-C.5 Woodland

Introduction

12-C.5.1 The majority of the woodland within the study area is ancient and semi-natural. Even the small copses, many of which appear to have been formed around marl pits, have ancient woodland ground flora as well as frequent Field Maple (*Acer campestre*). The woodland is typical of the High Weald in consisting of W8 Ash (*Fraxinus excelsior*) - Field Maple - Dog's Mercury (*Mercurialis perennis*) woodland in the more base rich areas and the W10 Pedunculate Oak (*Quercus robur*) – Bracken (*Pteridium aquilinum*) – Bramble (*Rubus fruticosus*) community on the more acidic and drier areas. In general sub-communities have not been differentiated, although surveys by Chris Blandford Associates (CBA) for the Bexhill Hastings Western Bypass identified the following:

- W8a Primrose (Primula vulgaris) - Ground Ivy (Glechoma hederacea) sub-community;
- W8d Ivy (Hedera helix) sub-community;
- W10b Wood Anemone (Anemone nemorosa) sub-community; and
- W10c Yorkshire Fog (Holcus lanatus) sub-community.

12-C.5.2 Many woods are dominated by abandoned Hornbeam (*Carpinus betulus*) coppice. There are smaller amounts of Sweet Chestnut (*Castanea sativa*) and Hazel (*Corylus avellana*) coppice. They contain a good range of ancient woodland indicators as described by Rose (Rose 1999). The following table lists the indicator species recorded since 2004. Several other species were found in Simon Davey's surveys of 2003 and earlier, although none can be regarded as particularly unusual in the Weald.

Ancient Woodland Indicator Species Recorded in 2004 and Subsequently

Common Name	**Scientific Name**
Field Maple	*Acer campestre*
Moschatel	*Adoxa moschatellina*
Ramsons	*Allium ursinum*
Wood Anemone	*Anemone nemorosa*
Hard Fern	*Blechnum spicant*
Hairy-brome	*Bromopsis ramosa*
Pendulous Sedge	*Carex pendula*
Remote Sedge	*Carex remota*
Thin-spiked Wood-sedge	*Carex strigosa*
Wood-sedge	*Carex sylvatica*
Hornbeam	*Carpinus betulus*
Opposite-leaved Golden-saxifrage	*Chrysosplenium oppositifolium*
Pignut	*Conopodium majus*
Spurge-laurel	*Daphne laureola*
Broad-leaved Helleborine	*Epipactis helleborine*

Violet Helleborine	*Epipactis purpurata*
Wood Spurge	*Euphorbia amygdaloides*
Giant Fescue	*Festuca gigantea*
Creeping Soft-grass	*Holcus mollis*
Bluebell	*Hyacinthoides non-scripta*
Tutsan	*Hypericum androsaemum*
Holly	*Ilex aquifolium*
Stinking Iris	*Iris foetidissima*
Yellow Archangel	*Lamiastrum galeobdolon*
Hairy Wood-rush	*Luzula pilosa*
Great Wood-rush	*Luzula sylvatica*
Yellow Pimpernel	*Lysimachia nemorum*
Wood Melick	*Melica uniflora*
wood millet	*Milium effusum*
Three-veined Sandwort	*Moehringia trinerva*
Early-Purple Orchid	*Orchid mascula*
Wood-sorrel	*Oxalis acetosella*
Hart's-tongue	*Phyllitis scolopendrium*
Wood Meadow-grass	*Poa nemoralis*
Hard Shield-fern	*Polystichum aculeatum*
Soft Shield-fern	*Polystichum setiferum*
Aspen	*Populus tremula*
Barren Strawberry	*Potentilla sterilis*
Primrose	*Primula vulgaris*
Wild Cherry	*Prunus avium*
Red Currant	*Ribes rubrum*
Field-rose	*Rosa arvensis*
Butcher's Broom	*Ruscus aculeatus*
Sanicle	*Sanicula europaea*
Wood Club-rush	*Scirpus sylvaticus*
Betony	*Stachys officinalis*
Black Bryony	*Tamus communis*
Wych Elm	*Ulmus glabra*
Wood Speedwell	*Veronica montana*
Guelder Rose	*Viburnum opulus*
Bush Vetch	*Vicia sepium*

12-C.5.3 Within wet areas there is W6 Alder (*Alnus glutinosa*) - Stinging Nettle (*Urtica dioica*) woodland and W6d, the Elder (*Sambucus nigra*) sub-community and W6b the Crack Willow (*Salix fragilis*) sub-community. The CBA survey of 1992/3 also recorded W7 alder-ash yellow pimpernel (*Lysimachia nemorum*) woodland, but this attribution is doubtful.

12-C.5.4 Much of the secondary woodland and scrub belongs to the W21 Hawthorn (*Crataegus monogyna*) - Ivy scrub and a considerable proportion to W21a, the Ivy – Stinging Nettle sub-community, but no attempt has been made to classify these woodlands systematically.

Wood 1

12-C.5.5 This comprises a line of mature, planted Pedunculate Oak with spreading crowns. Beneath them there is dense W24 Yorkshire Fog (*Holcus lanatus*) - Bramble *(Rubus fruticosus*) underscrub with abundant Stinging Nettle and frequent Ivy. Other species present in small quantities include Holly, Hawthorn, Silver Birch (*Betula pendula*), Dog Rose (*Rosa canina*) and Honeysuckle (*Lonicera periclymenum*). At the edge adjacent to the field there is a fringe of MG1 False Oat-grass (*Arrhenatherum elatius*) grassland with abundant docks (*Rumex* sp).

Wood 2 Woodland at The Mount

12-C.5.6 There is a substantial pit in the north part of this wood, perhaps resulting from iron-working or quarrying. The undisturbed areas are dominated by Hazel, although the stools are not very large and there may not have been regular coppicing. Within these areas there is abundant Bluebell and Wood Anemone, with lesser amounts of Yellow Archangel (*Lamium galeobdolon*) and small amounts of Moschatel, Stinking Iris and Soft Shield-fern on wetter ground. In contrast, the disturbed areas are dominated by Dog's Mercury (*Mercurialis perennis*), patches of Ivy and Bramble.

12-C.5.7 Pedunculate Oak is the principal canopy species but Ash (*Fraxinus excelsior*) is also present and there are some old Ash coppice stools, which are probably older than the Hazel. There is dense Hawthorn at the edges with occasional Field Maple. Other species present include Greater Stitchwort (*Stellaria holostea*), Red Campion (*Silene dioica*), Broad Buckler-fern (*Dryopteris dilatata*), Honeysuckle, Primrose, Red Currant and Dog Rose.

12-C.5.8 At the south end there is W24 on disturbed ground with abundant Stinging Nettle and scattered Grey Willow (*Salix cinerea*) and Great Sallow (*Salix caprea*). Beyond this there is scrub with Pedunculate Oak and Ash up to 6m high, together with Hawthorn and Blackthorn. At the south edge there is a line of Pedunculate Oak and Hornbeam (*Carpinus betulus*). Elder (*Sambucus nigra*) and occasional Bluebell are also present.

Wood 3

12-C.5.9 This is a narrow strip of woodland around four ponds one of which supports amphibians. The ponds are shaded and are largely dry in summer. There are patches of Alder and Grey Willow around the edges. Wet areas away from the ponds have Cuckoo-flower (*Cardamine pratensis*) and Pendulous Sedge (*Carex pendula*). There is also a small amount of Yellow Flag (*Iris pseudacorus*) and, surprisingly, Unbranched Bur-reed (*Sparganium emersum*)

12-C.5.10 Around the edges of the wood and in the open areas within, there is abundant Stinging Nettle with Hogweed (*Heracleum sphondylium*), Teasel (*Dipsacus fullonum*), Bramble, Field Rose (*Rosa arvensis*), Dog Rose, Ivy and Dog's Mercury as well as coarse grasses, notably Cock's-foot (*Dactylis glomerata*), False Oat-grass and Yorkshire Fog. At the southeast corner there is a more varied area adjacent to a fringe of Blackthorn (*Prunus spinosa*). This has

Common Knapweed (*Centaurea nigra*), Couch Grass (*Elytrigia repens*) and Cow Parsley (*Anthriscus sylvestris*). But within the wood there is also frequent Bluebell, Soft Shield-fern, Yellow Archangel, Wood Melick, Primrose, Early Dog-Violet (*Viola reichenbachiana*) and Wood Meadow-grass so that these are undoubtedly fragments of probable ancient woodland. Other woodland plants include Greater Stitchwort (*Stellaria holostea*).

12-C.5.11 The copses are intermittently ringed by Field Maple, a typical feature of such sites. Crab Apple (*Malus sylvestris*) is also present towards the edge, where Pedunculate Oak, Ash, Hazel, Holly, Blackthorn, Spindle (*Euonymus europaeus*) and Hornbeam can be found plus occasional Mountain Ash (*Sorbus aucuparia*). Some of the Ash on the edge has grown up from old coppice stools. Within the copses, Hornbeam, Hazel and oak are frequent and there are occasional Alder at the lowest points, together with Grey Willow and Goat Willow.

Wood 4

12-C.5.12 This is a small valet containing a holloway with Ash and Hazel coppice over dense Bluebell.

Wood 5

12-C.5.13 This is a triangular-shaped wood with the disused railway line on the south side and a track and ditch on the northeast side. Alongside the latter there is a fringe of Goat Willow and Hazel over a ditch with Hemp Agrimony (*Eupatorium cannabinum*), Floating Sweet-grass grass (*Glyceria fluitans* s l), Stinging Nettle, Fool's Watercress (*Apium nodiflorum*), and Rough Meadow-grass (*Poa trivialis*). On the east side there is another ditch and extensive Crack Willow (*Salix fragilis*), Alder, Silver Willow (*Salix alba sericea*) and Downy Birch (*Betula pubescens*).

12-C.5.14 In the east part of the main wood there is abundant Yellow Archangel plus other ancient woodland indicators including Primrose, Guelder Rose, Opposite-leaved Golden-saxifrage, Bluebell and Wood Anemone, so it is likely that most of the site is ancient woodland. Other groundcover plants include Male-fern (*Dryopteris filix-mas*), Broad Buckler-fern (*D dilatata*), Stinging Nettle, Bramble, Enchanter's Nightshade, Herb Robert and abundant Dog's Mercury. The principal woody plants are Crack, Goat and Grey Willows (*Salix fragilis, S caprea S cinerea*), Alder (both as coppice and maiden trees) and Elder.

12-C.5.15 In 1992/3 CBA classified this as W6 Alder-Nettle woodland, and while this is probably a broadly correct, the presence of abundant Yellow Archangel and groundcover species of drier ground indicates a complex origin, perhaps as drier ancient woodland which has been affected by the construction of the railway.

12-C.5.16 On the south side, at the foot of the railway embankment there is a broad ditch which extends eastwards towards woodland W6. It is dominated by Common Reed (*Phragmites communis*) with occasional Great Willowherb (*Epilobium hirsutum*) and Reed Canary-grass (*Phalaris arundinacea*) and is partially overgrown with Hedge Bindweed (*Calystegia sepium*). Stinging Nettle is

occasionally present and this vegetation belongs to the S26 Common Reed – Stinging Nettle tall-herb fen community. Around the ditch there is disturbed ground with Hogweed, Field Horsetail (*Equisetum arvense*), Sorrel (*Rumex acetosa*), Hedge Bindweed, Marsh Woundwort (*Stachys palustris*), Bush Vetch (*Vicia cracca*), Spear Thistle (*Cirsium vulgare*), Soft Rush (*Juncus effusus*), Hemp Agrimony Creeping Bent (*Agrostis capillaris*), False Oat-grass, Cock's-foot, Cleavers and Bristly Oxtongue (*Picris echioides*).

Wood 6

12-C.5.17 This copse consists of an outer line of Pedunculate Oak and Hazel surrounded by a ditch, an inner area of disturbed ground/tip and a southern group of trees comprising two large oak and a Field Maple. The tip has very varied vegetation with abundant Bristly Oxtongue, Couch Grass, Stinging Nettle, Rye-grass, Creeping Thistle, Lesser Trefoil (*Trifolium dubium*), frequent Hedge Bindweed (*Calystegia sepium*), False Oat-grass, Curled Dock (*Rumex crispus*), Yorkshire Fog and Ribwort Plantain. Other, less frequent, species are White Melilot (*Melilotus alba*), Marsh Cudweed (*Gnaphalium uliginosum*), Hard Rush (*Juncus inflexus*), Dandelion (*Taraxacum officinale*) and Great Willowherb.

12-C.5.18 In hollows around the trees, the vegetation is grass-dominated with Lesser Cat's-tail (*Phleum bertolonii*), Couch Grass, False Oat-grass, Cock's-foot and Common Bent. Around the group of two oak and a Field Maple the vegetation is dominated by Stinging Nettle with abundant patches of Ground Ivy and occasional Red Campion and Cock's-foot together with Stinging Nettle and Bramble. Elder and Holly are also present. In 1992/3 the wood was described as comprising a central group of trees surrounded by Hawthorn, Blackthorn, Bramble and Elder scrub and ascribed to the W21a Ivy-Stinging Nettle sub-community of Hawthorn-Ivy scrub. It has changed radically since then and it would now be difficult to ascribe it to any NVC community.

Wood 7 Levett's Wood

12-C.5.19 This is the name of the rectangular wood at the centre of this complex. To the east, either side of Buckholt Lane, there are two blocks of woodland in disturbed and pitted ground (W7.1 and W7.2) and to the north is a long narrow belt or shaw (W7.3).

12-C.5.20 The main wood falls northwards towards a dry stream bed. It is dominated by very large multi-stemmed Sweet Chestnut. These do not look as if they have been repeatedly coppiced and the wood may be a nineteenth-century plantation which has been cut once. Ash, Sycamore (Acer pseudoplatanus) and Pedunculate Oak also form canopy trees. At the time of survey the ground layer was dominated by Bramble and Ivy, with occasional patches of grasses which were too far decayed to be able to identify the species. There are pits and hollows within the wood

12-C.5.21 There is a considerable amount of trampling but not as much as in W7.1 and W7.2, which are dominated by well-spaced Pedunculate Oak. Beneath, there are equally well-spaced Hawthorn and where vegetation is present it consists of dense Bramble and Stinging Nettle.

12-C.5.22 W7.4 extends north from Levetts Wood and lies about 0.5-1m below the adjacent land. At the north end it is dominated by Alder, with White and Silver Willow (*Salix alba, S. alba sericea*). Some of the Alder has been coppiced and there are quite large stools. Cattle have trampled or eaten almost all of the ground-layer vegetation at the north end and bare areas continue southwards, eventually petering out into dense Bramble, Ivy and Nettle. In the south and at the drier edges in the north there are Holly, Hornbeam, Oak, Ash and Sweet Chestnut. There is a fringe of Hawthorn, Blackthorn, Elder, Dog Rose and Bramble with occasional Guelder Rose.

Wood 8

12-C.5.23 This has a varied edge. There is a canopy and shrub layer of Alder, Hazel, Ash and Common Sallow, together with lesser amounts of Hawthorn, Holly, Spindle (*Euonymus europaeus*) and Dog Rose. W8.1 in the centre of the wood is dominated by pole-stage Ash. Towards the west, there is Ash and Hazel coppice with patches of Alder together with a band of Alder along a wet flush through the wood. It contains several ancient woodland indicator plants including Bluebell, Yellow Archangel, Wood Sedge (*Carex sylvatica*), Early-purple Orchid (*Orchis mascula*) and Wood Millet (*Milium effusum*). Plants typical of secondary woodland include Male and Broad Buckler-ferns, Cow Parsley (*Anthiscus sylvestris*) and Hedge Woundwort (*Stachys sylvatica*). At the edge there is an open ditch with Crack Willow, MG1 False Oat-grass grassland and Meadowsweet. The drier areas belong to W10c and the wetter areas to W6a.

Wood 9 Little Henniker Wood

12-C.5.24 This wood is mainly abandoned Sweet Chestnut coppice, but at the east end abandoned Hornbeam coppice predominates. W9.1 is a mixture of W24 Bramble-Yorkshire Fog scrub and Hornbeam coppice. W9.4 is a particularly species-rich woodland edge linking to hedgerows OA 535 to the east and Buckholt Lane to the west. The section to the east of the entrance to Buckholt Kennels has Bluebell, Butcher's Broom, Wood Anemone and other ancient woodland plants intermixed with MG1 False Oat-grass grassland. On the west side of the entrance there is a similar range of plants but also abundant Wood Melick, Saw-wort (*Serratula tinctora*) and Wood Sage (*Teucrium scordonia*).

Wood 10 Cole Wood

12-C.5.25 The SNCI citation describes this as oak standards over abandoned Hornbeam coppice with active coppice of Ash, birch and Sweet Chestnut. The ground flora comprises Bluebell, Wood Anemone and Honeysuckle with Wood Spurge and Wood Millet in the recently coppiced areas. A gill through the wood has Alder, Male and Broad Buckler-ferns with a good range of lower plants. A more detailed survey by CBA in 1992 of the south end noted that it was dominated by Sweet Chestnut and Hazel Coppice with oak standards. The survey ascribed the area to the W10d community and the wet woodland to W7, but, as noted above, this is doubtful.

Wood 11 Great Henniker Wood

12-C.5.26 This is dominated by Pedunculate Oak standards with occasional Ash over abandoned Hornbeam coppice. There are patches of Sweet Chestnut, particularly towards the edges. Alder is present in the wetter areas and Hazel, Hawthorn and Holly in the shrub layer. There is abundant Bluebell and Wood Anemone with lesser amounts of Wood Melick, Wood Millet and several species of fern including Soft Shield-fern. At the centre of the south edge there are ponds with a dense growth of Common Duckweed and localised areas of recent coppicing. Most of the wood is W10, but there are patches of W8 and W6. At the south edge, W11.1 is a planted copse of which two Scots Pines (*Pinus sylvestris*) and one Ash remain and with Field Maple and Ash at the edge. As a result of work to the ponds and woodland management there are disturbed areas with Foxglove, Spear Thistle, Nipplewort, Honeysuckle, Soft Grass (*Holcus mollis*), Red Campion (*Silene dioica*), Hedge Bindweed, Bracken, Hawthorn, Black Bryony, Field Rose, Creeping Bent, Sweet Vernal-grass (*Anthoxanthum odoratum*), Common Vetch, Self-heal (*Prunella vulgaris*),Ribwort Plantain (*Plantago lanceolata*), Rye-grass, Yorkshire Fog, Meadow Barley, Creeping Thistle, Cock's-foot, Betony (*Betonica officinalis*), Common Knapweed, Agrimony *(Agrimonia eupatoria*), Crested Dog's-Tail, Self-heal and Timothy Grass.

Wood 12 Hanging Wood

12-C.5.27 In 1995 when the wood was surveyed as a potential SNCI it was described as being open as a result of clearance of storm damage, with mature Pedunculate Oaks over a grassy ground layer and with Bramble, Bluebell, patches of Elder, Holly, Hazel and Dogwood (*Cornus sanguinea*) and ancient coppice stools on an old bank. Since then, a more varied ground flora has become apparent with Yellow Archangel and Yellow Pimpernel amongst the most frequent ancient woodland plants together with patches of Bracken and Ivy. There is little ground flora other than Bluebell under the dense abandoned Hornbeam coppice. W10 is the principal plant community.

Wood 13 Large Copse Northwest of Hanging Wood

12-C.5.28 This ancient woodland copse, which contains a large pond was not surveyed, but is well away from any route options or the proposed country park.

Wood 14 Ring Wood

12-C.5.29 This comprises three contiguous areas which and are included in the Buckholt Farm Woodlands SNCI. The whole area is described in the SNCI citation as abandoned Hornbeam, Ash, Sweet Chestnut and birch coppice. The ancient woodland indicators include Bluebell, Wood Anemone, Male-fern, Ramsons and occasional Early Purple-orchid.

12-C.5.30 Survey of the central part of the wood in 2003 by Simon Davey showed it to have been recently disturbed and dominated by abandoned Hornbeam and Sweet Chestnut coppice with several ancient woodland indicators, including Bluebell, Wood Spurge and Wood Speedwell. The disturbed areas had abundant Silver Birch and Rosebay Willowherb (*Chamerion*

augustifolium). The NVC communities are likely to be a mixture of W8 and W10. The ancient woodland lower plants *Isothecium myosuroides* and *Enterographa crassa* were also recorded.

Wood 15 Copse North of Byne's Farm

12-C.5.31 In this copse dense field maple, hawthorn, ash, blackthorn, oak and bramble surround a dried-out pond.

Wood 16

12-C.5.32 This is a small copse immediately adjacent to Hillcroft Farm.

Wood 17 Copse Adjacent to the North Section of the Disused Railway

12-C.5.33 The copse lies within a large hollow. The principal woody plants are Field Maple, Hornbeam, Ash, Holly and Blackthorn. The ground flora is dominated by Dog's-Mercury but ancient woodland indicators, including Wood Sedge and Bluebell are present in quantity. There are a few plants of Spurge Laurel. There is a dense edge with Dog and Field Rose (*Rosa arvensis*), Bramble and Cow Parsley.

Wood 18 Decoy Pond Wood

12-C.5.34 The area is shown on the Second Edition Ordnance Survey 25-inch series map as Decoy Pond Wood, but the present ponds appear to be post-war. They now have a blanket of Common Duckweed with marginal vegetation dominated by Bulrush (*Typha latifolia*). There is frequent Gypsywort (*Lycopus europaeus*), Hemlock Water-dropwort (*Oenanthe crocata*), patches of Greater Pond-sedge (*Carex riparia*), Yellow Loosestrife (*Lysimachia vulgaris*), Yellow Flag (*Iris pseudacorus*), Lesser Spearwort (*Ranunculus flammula*), Jointed Rush (*Juncus articulatus*) and Water-plantain (*Alisma plantago-aquatica*). At the margins and elsewhere within the wood there are patches of wet ground plants such as Pendulous Sedge and Tufted Hair-grass (*Deschampsia cespitosa*). Spoil tips created by construction of the ponds have dense Hazel coppice and Holly is frequent. The ancient woodland ground flora comprises mainly Bluebell in the drier areas and Ramsons on the lower ground. Yellow Archangel is also locally frequent. Around the ponds there is frequent White Willow, Grey Willow and Alder.

12-C.5.35 The principal trees on the drier ground are Pedunculate Oak and Ash, but along the east edge, there is a row of mature Sycamore and frequent semi-mature Wych Elm (*Ulmus glabra*). There is no evidence of Dutch Elm Disease. At the north side of the wood there is a plantation of semi-mature Ash and Cherry (*Prunus avium*) with a ground layer of rough grass and nettles. On the east side there is a partially overgrown track separating the wood from Decoy Pond Shaw, but the woody vegetation is effectively continuous.

12-C.5.36 A ditch along the north edge of the wood has Floating Sweet-grass, Branched Bur-reed (*Sparganium erectum*), Meadowsweet, Fool's-Watercress

Brooklime (*Veronica beccabunga*) and Common Duckweed (*Lemna minor*). The adjacent bank has Field Horsetail (*Equisetum arvense*), Stinging Nettle, Soft Shield-fern, Red Campion, Hogweed, Ivy, Wood Speedwell, Broad Buckler-fern and Tufted Hair-grass.

12-C.5.37 Adjacent to the stream there is Sycamore adjacent to a quite wide path with an edge of Ash, Bramble and Stinging Nettle border.

12-C.5.38 The lichen flora includes *Enterographa crassa*. In 1990 a wider range of species was recorded including *Everina prunastri* and *Parmelia acetabulum*.

Wood 19 The Bog

12-C.5.39 This wood, which is dominated by Alder with occasional Ash, falls slightly from a dry bank at the west edge which has Ash, Grey Willow, Cow Parsley, birch and Hazel and similar species. There is a gradient of moisture from northwest to south, so that to that while the water table is high throughout the wood it is at above the surface for most of the year at the south end. This wettest area has a fringe of Common Reed and Soft Rush behind which there is Pendulous Sedge and Tussock Sedge (*Carex paniculata*). The open water here and elsewhere in the wood is dominated by Fool's Water-grass. Between these two areas there is a tall herbaceous layer of Hemlock Water-dropwort, Yellow Loosestrife, Yellow Flag, Meadowsweet, Female Fern (*Athyrium filix-femina*), Broad Buckler-fern and occasional Narrow Bucker-fern (*D. carthusiana*). Other wetland plants include Figwort (*Scrophularia auriculata*), Common Skullcap (*Scutellaria galericulata*), Hemp Agrimony (*Eupatorium cannabinum*) and Purple Loosestrife (*Lythrum salicaria*).

12-C.5.40 Guelder Rose, Opposite-leaved Golden-saxifrage (*Carex strigosa*), Thin-spiked Wood-sedge and Wood-sedge are present around the edges and the dry bank has abundant Yellow Archangel, Wood Anemone and Bluebell.

Wood 20 Whitfield Wood

12-C.5.41 This substantial area of ancient woodland has not been surveyed. Access was denied.

Wood 21 Whitfield Bog

12-C.5.42 This L-shaped copse contains large ponds. Access was denied.

Wood 22 Copse

12-C.5.43 This copse surrounds a seasonally-dry pond dominated by Common Duckweed (*Lemna minor*) and is surrounded by Docks, Common Bent and annual weeds. It was being enlarged at the time of survey in 2006. It consists of three main areas.

- Bramble and Hazel edge on the north side, but also a ditch with scattered Bluebell plus Hazel and Bracken which stop where four well-spaced Field Maple extend uphill. At this point the edges have dense Bramble with Dog Rose. A further four trees extend up to the crest. The hedge leading to the top has Elder, Bramble and Hawthorn without ancient woodland indicators and has a long gap at the top end. This area has Butcher's Broom, Soft Grass, Greater Stitchwort, Wood False-brome Hazel, Holly, Red Campion, Greater Stitchwort abundant Bluebell and a bank with Common Chickweed (*Stellaria media*) and Lesser Celandine.

- A central grassy clearing containing Rough Meadow-grass, Cock's-foot, Bracken, Stinging Nettle, a willowherb (*Epilobium* sp), Curled Dock, Lesser Stitchwort, Sweet Vernal-grass, Sorrel, Ribwort Plantain, False Oat-grass, Rough Meadow-grass and Ivy.

- An outer ring of Field Maple and Pedunculate Oak.

12-C.5.44 Other plants present include docks, Black Bryony, Cleavers, Foxglove and Blackthorn.

Wood 23 Chapel Wood

12-C.5.45 This is a varied north-facing wood, largely ancient, with a gradient from dry ground with Bracken at the south edge to wetland vegetation in the north has abandoned Hornbeam, Ash and Sweet Chestnut coppice with Pedunculate Oak, Ash and Sweet Chestnut as the principal standards. Holly and Hazel are frequent and it contains at least 15 ancient woodland indicators, including Great Woodrush, Hard Fern and Wood Sorrel. These three, and some other ground cover plants present, are strict calcifuges, and overall the woodland probably belongs to one of the W10 communities, but patches of Dog's-Mercury and the dominance of Ash indicate some areas have more neutral conditions. One plant of the uncommon Violet Hellebore (*Epipactis purpurata*) has been found near the road.

12-C.5.46 The south edge is very varied with Pedunculate Oak, Ash, Crab Apple (*Malus sylvestris*), Hornbeam, Field Maple and Sweet Chestnut standards and frequent Hazel and a ground flora that includes Yellow Archangel, Wood Speedwell Soft Shield-fern and Red Campion, together with Hedge Woundwort and Enchanter's Nightshade, Honeysuckle and Male-fern. Other plants present in this area include the following: Bramble, Stinging Nettle, Figwort, Meadow Buttercup, Creeping Thistle, Rye-grass, Foxglove, Cleavers, Ribwort Plantain, Sorrel, Timothy, Curled Dock, Sweet Vernal-grass, Soft Rush, Dog Rose, Creeping Buttercup, Yorkshire Fog, Broad-leaved Dock, Hedge Woundwort and Rough Meadow-grass.

12-C.5.47 The Hornbeam that dominates the central part of the wood gives way to Hazel and at the top there is frequent Holly, Bluebell, Soft Shield-fern and some quite large Ash stools ending in an edge of Cow Parsley (*Anthriscus sylvestris*). Although the east and part of the west ends of the edge are rather abrupt, there is a central section of soft edge with Bramble scrub.

12-C.5.48 At the southeast corner where the ground dips, there is W24 Bramble-Yorkshire Fog underscrub interspersed with rough grassland. A few Holly and a single Ash are present at the edge, which leads to a larger area of Broom (*Cytisus scoparius*). Within the scrub and rough grass Scaly Male-fern (*Dryopteris affnis*), Bird's-foot Trefoil, Creeping Bent, Stinging Nettle, Rye-grass, Rough Meadow-grass, Hedge Bedstraw (*Galium mollugo*), Common Knapweed and Yorkshire Fog are indicative of the varied conditions and micro-habitats. Immediately north there is denser scrub with Hawthorn, Blackthorn, Bramble, Elder and patches of Bracken. Down the west side, outside the woodland there is a band of Gorse.

12-C.5.49 Further north down the slope there is more Holly and Ash as well as Ash and Dog Rose and an edge of Ground-Ivy (*Glechoma hederacea*) and Yorkshire Fog mixed with finer grasses including Sweet Vernal-grass also Field Rose.

12-C.5.50 Within the main part of the wood abandoned Hornbeam coppice dominates and there is a gradient from W10 dominated by Bluebell on the upper slopes to W8 dominated by Ramsons with Wood Anemone and on the lower slopes. There is considerable disturbance from pig-grazing, but in the less intensively grazed areas there are patches of Greater Stitchwort, Soft Shield-fern, Giant Fescue, Bluebell, Bugle, Common Dog-violet, Primrose, Yellow Archangel, Honeysuckle and Broad Bucker-fern as well as the principal ground cover species.

12-C.5.51 Within the wood there is Field Maple and Blackthorn at the edge but the first area is mainly Ash with Black Bryony at the edge. Downhill there is frequent Pendulous Sedge and Ramsons, False Wood-brome, Cleavers and Scaly Male-Fern and Curled Dock beneath Ash coppice. Uphill, there is Butcher's Broom, Wood Sedge, Wood Anemone, Thin-spiked Wood-sedge, Enchanter's Nightshade, Lesser Celandine, Bramble, Greater Stitchwort, Male fern, Soft Shield-fern and Scaly Male-fern. Where more light penetrates there is Red Campion but also Cleavers.

12-C.5.52 The north edge has a central area of wet ground with abundant Hemlock, Water-dropwort and sedges, notably Pendulous Sedge with abundant Stinging Nettle and Female Fern plus lesser amounts of Meadowsweet, Cleavers, Broad Buckler-Fern, Creeping Buttercup, Wood Avens (*Geum urbanum*) and Male Fern plus Ramsons, Cuckoo Flower (*Cardamine pratensis*). Large Bittercress (*Cardamine amara*), Rough Meadow-grass, Guelder Rose and Bugle. Around the edges of this wet area there are Wood Sorrel, Wood Speedwell, Hedge Woundwort and Red Currant (*Ribes rubrum*).

12-C.5.53 To the northwest there is a very disturbed area with a large number of fallen trees and abundant Holly plus a mall amount of Field Maple and good Ash seedlings. Other plants include Scaly Male-fern, Male-Fern, Yellow Archangel, Pendulous Sedge, Cleavers, Thin-spiked Wood-sedge, Bluebell, Wood Anemone, Ivy, Wood Millet and Honeysuckle plus Red Campion, Enchanter's Nightshade and Dog's Mercury. There is Wild Cherry (*Prunus avium*) in the canopy.

12-C.5.54 Towards the top of the slope there is an increasing amount of Yellow Archangel and Wood Speedwell together with Hedge Woundwort and Enchanter's Nightshade, Honeysuckle and Male Fern. The Hornbeam that dominates the central part of the wood gives way to Hazel and at the top there is frequent Holly, Bluebell, Soft Shield-fern and some quite large Ash stools ending in an edge of Cow Parsley (*Anthriscus sylvestris*).

Wood 24

12-C.5.55 This consists of secondary scrub woodland with Ash, Field Maple and Oak and a ground layer of W24 Bramble-Yorkshire Fog underscrub.

Wood 25 and Wood 26

12-C.5.56 These are railway-side woodlands on steep cuttings. Pedunculate Oak dominates them, although Ash, Turkey Oak (*Quercus cerris*) and Sweet Chestnut are also present. There is an intermittent shrub layer, principally of Hawthorn. Ivy dominates the ground layer in the shaded areas and Male-fern is frequent. The more open areas have dense Bramble and Stinging Nettle. Nearer the railway line there is a band of vegetation cut on a two-year cycle with frequent Hazel plus Dog's Mercury, Ivy and Stinging Nettle. The herbaceous vegetation extends into the areas nearer the track that are cut annually. Angelica (*Angelica sylvestris*), Field Horsetail and thistles are common, as are plants of dry banks like Bush Vetch (*Vicia cracca*). There are occasional wet flushes with Hemp Agrimony, Pendulous Sedge and Butterbur (*Petasites hybridus*). In these more open conditions, woodland plants such as Bluebell and Broad-leaved Helleborine (*Epipactis helleborine*) can be found. Scrambling plants, notably Wild Clematis (*Clematis vitalba*) and Hedge Bindweed, are frequent. W26a is the same as the woodland on the opposite side of Queensway, consisting of planted Field Maple and Ash with an edge of W24 underscrub.

Wood 27 Marline Wood

12-C.5.57 Since the construction of Queensway, the land between it and the wood has been largely unmanaged and this has allowed the spread of scrub within rough grassland, which is described under G20 in Appendix 11-3D. The wood itself is quite complex, with ridge-top woodland sloping down to a gill wood to the north. In 1992/3 CBA surveyed the southwest corner, which is also the area nearest the present scheme and reported as follows:

"The eastern arm contained three ponds. All were heavily silted and two were very shaded. They contained little aquatic vegetation. The third was dominated by bulrush. The woodland canopy was dominated by oak with frequent ash and occasional field maple, sweet chestnut and alder. The shrub layer contained coppiced hazel, hornbeam and field maple. The NVC type was W8d, the ivy sub-community of the ash – field maple – dog's mercury woodland.

The western arm consisted of abandoned coppice of hornbeam and hazel. Oak standards were present, as was a wet flush dominated by alder. The

NVC type was W10c, the ivy sub-community of pedunculate oak – bracken – bramble woodland.

The main section of woodland was dominated by abandoned hornbeam coppice with oak and ash standards. The shrub layer comprised hawthorn, holly and young ash and beech. The ground flora was notable for its fern assemblage, which included hart's-tongue, narrow buckler-fern and male fern."

Wood 28

12-C.5.58 This is secondary woodland. It consists of Elder, Ash, Poplar and Wych Elm on the north side enclosing mixed MG1 grassland and W24 underscrub on the south. Stinging Nettle and Common Knapweed are abundant. There are wetter patches with Hemlock Water-dropwort, Creeping Buttercup and Great Willowherb. Three areas can be identified: an edge of dense Stinging Nettles with Yorkshire Fog, Brambles and Stinging Nettles of the W24 Bramble-Yorkshire Fog underscrub community with Great Willowherb and patches of Soft Rush; Woodland with Pedunculate Oak, Hawthorn, Hazel and Wych Elm. Northwards there is an edge of Alder, Crack Willow, White Willow (*Salix alba*), Poplar (*Populus cf nigra*) leading to an open area with Blackthorn at the edge.

Wood 29

12-C.5.59 This is a mixture of W6 Alder- Stinging Nettle woodland and W10 with Hornbeam. The Alder wood lies along a stream at the south edge. There is a small amount of Crack Willow in the north and Stinging Nettle dominates the ground flora. The Hornbeam coppice has a ground flora of Bluebells and opens out to W24 underscrub adjacent to the railway woodland.

Woods 30, 31, 32 and 33

12-C.5.60 Access denied.

Wood 34

12-C.5.61 Much of this woodland has been felled and there is a ground flora characterised by Rosebay Willowherb, thistles, Common Sow-thistle (*Sonchus oleraceus*), Creeping Buttercup and Singing Nettle. Bracken is dominant in several areas and the principal surviving woody plants are Hazel, Ash, Holly and Blackthorn. At the north end there is a quite dense, soft edge of Holly, Ash and Hazel.

Wood 35

12-C.5.62 This is Blackthorn and Hawthorn scrub which has been grazed by pigs so that there is now no ground flora.

Wood 57 Monkham Wood

12-C.5.63 Monkham Wood comprises mainly abandoned Hornbeam coppice, some of which has been singled, plus a smaller amount of Sweet Chestnut. There are widely-spaced Pedunculate Oak standards and occasional Hawthorn in the shrub layer. Bluebell is quite frequent but there are also areas with Bramble and Dog's Mercury and areas without significant cover as a result of trampling by cattle. The edges are more varied, with Blackthorn, Hawthorn, Sycamore and Ash and a fringe of W24 underscrub with abundant Stinging Nettle. In the southeast there is lower ground with Wild Garlic, Pendulous Sedge, Giant Fescue (*Festuca gigantea*) and a small amount of Alder. Other plants present include: Sycamore, Cow Parsley, Fiddle Dock (*Rumex pulcher*), Enchanter's Nightshade, Wood Avens, Dog's Mercury, Ash, Stinging Nettle, Ivy, Wood Sedge, Male-fern, Wood Meadow-grass , Cleavers, Rough Meadow-grass, Greater Stitchwort, Elder, Primrose, Holly, Field Maple, Butcher's Broom, Wood Speedwell, Hogweed, Giant Fescue, Wood Anemone, Garlic Mustard, Yellow Archangel, Yorkshire Fog, Tufted Hair-grass, Enchanter' Nightshade, Pendulous Sedge, Pignut , Red Campion, Lesser Celandine, Thin-spiked Wood-sedge, Broad Buckler-fern, Herb Robert and Black Bryony.

Disused Railway: South

12-C.5.64 The disused railway is dominated by secondary woodland and scrub. But it also has areas of rough grassland together with patches of wetland vegetation on the track. North of Ninfield Bridge it is a SNCI and the abutment for the former viaduct is within the SSSI. The section from Little Common Road (A259) to Glovers Farm Bridge is described in the Urban Areas appendix, Appendix 11-3G. Beyond this, within the study area for the road there are four sections.

12-C.5.65 The first is dominated by Ash, Sycamore, Broom and Bramble. There is an open area at the top of the cutting which is severely trampled. Here there is more Ash plus frequent Stinging Nettle, Male-Fern and Hogweed leading to a grassy area with Common Ragwort (*Senecio jacobea*) and patches of Red Fescue with Cock's-foot. The track bed is dominated by dense Stinging Nettle. There is a fringe of Goat Willow within MG1 with Cock's-foot. As the cutting changes to embankment it becomes dominated by Bramble-Stinging Nettle scrub with Field Bindweed and Common Horsetail at the edges. This extends as far as the first bridge.

12-C.5.66 The second section comprises mainly MG1 and birch scrub on east side. On the west side there is birch and oak leading to a more open area with MG1 and with some disturbance evident from Rosebay Willowherb (*Chamerion angustifolium*), Mugwort (*Artemisia vulgaris*),Yorkshire Fog, Common Knapweed, Bush Vetch (*Vicia cracca*) and Hemp Agrimony (*Eupatoria cannabinum*). The other main plant species are Gorse, Dog, Cow Parsley and Hazel near the end. There is also abundant Hogweed and Bush Vetch on the east side and Alder by the track.

12-C.5.67 The third section is more overgrown and lies in cutting. There is Bramble and Nettle beneath fairly scrubby oak, plus Goat Willow, Hogweed, Male-fern, Enchanter's Nightshade and Broad Bucker-fern (*Dryopteris dilatata*).

There is a lot of Goat Willow, Scaly Male-fern and Wood Sedge. The edge comprises Bramble, Stinging Nettle, Elder, oak, docks and Stinging Nettle.

12-C.5.68 The final section is an embankment with a narrow verge of Stinging Nettle, Cleavers and False Oat-grass leading to Bracken, Blackthorn and young oak. Towards the end there is a very large Blackthorn tree with a Stinging-Nettle and Bramble edge plus Male-fern and a Honeysuckle, Hawthorn and Holly with occasional Oak. The ground flora is mainly Ivy at the end there is dense oak and Alder with abundant Ivy. The ground vegetation comprises Tufted Hair-grass, Hart's-tongue Fern, Dog's Mercury, Enchanter's Nightshade and Herb Robert.

12-C.5.69 It is difficult to ascribe the fluctuating plant communities of this area to NVC communities without a detailed survey but most of the woodland and scrub can be ascribed to W21, hawthorn-ivy scrub.

Disused Railway North of Combe Haven

12-C.5.70 This has a number of wooded areas characterised by Hornbeam, Pedunculate Oak, Ash, birch, willow and Hawthorn and a ground flora that includes Enchanter's Nightshade, Wood-avens and Male-fern. Patches of grassland have frequent Yarrow, Agrimony, Wild Carrot (*Daucus carota*) and occasional Pyramidal Orchid (*Anacamptis pyramidalis*) established on the base-rich ballast. Dog Rose, Gorse and Blackthorn are encroaching on these areas. Elsewhere, the tree and shrub cover now comprise mainly Field Maple, Hawthorn, Ash, Holly, Blackthorn and oak with patches of Stinging Nettle, Dog and Field Rose, Ivy, Wood Sedge, Dog's-mercury, Bramble and Hedge Woundwort.

12-C.6 Hedgerows

3F.1 Introduction

12-C.6.1 A few hedges were surveyed by CBA in 1992/4 and classified according to the NVC. Ten hedges that were on or close to route options were surveyed by Simon Davey (SD) in 2003, listing species on the DAFOR scale. But there was no general assessment of the hedges until the surveys carried out in September 2004 and 2006 using the Hedgerow Evaluation and Grading System (HEGS) system which is explained in detail in Hedgerow Evaluation and Grading System (HEGS): *A Methodology for the Ecological Survey, Evaluation and Grading of Hedgerows* by D.K. Clements and R.J.Tofts Countryside Planning and Management Test Draft (September, 1992) and summarised here.

12-C.6.2 Part 1 of the document comprises theoretical basis and justification for HEGS and discusses the benefits of standardised recording and evaluation for hedges, hedgerow features of value to wildlife and justification for the chosen methodology. Part 2 is the manual for survey and assessment. For the purposes of this system, a hedge is defined as:

- A line or narrow belt of closely-spaced woody shrubs, retained and/or
- Managed so as to form a more or less continuous barrier

12-C.6.3 The aim of HEGS is to allow the rapid recording and ecological appraisal of the hedgerow resource of any given site in the UK, and to allow the grading of the individual hedges present, in order to identify those that are likely to be of greatest significance to wildlife.

12-C.6.4 The process is split into two stages. The field survey sage creates field map records and records attribute such as structure, connectivity, diversity and associated features. The analysis stage calculates scores for attributes and features, resulting in the hedge being assigned a grade on a scale of 4- (very low value) and 1+ (very high value), which is an overall estimate of its nature conservation significance. The results are described below and can be summarised as follows.

12-C.6.5 Many of the hedges within the study area are unmanaged and contain a good range of shrub species, although for much of the area the variety is restricted by the acid soil. Ash (*Fraxinus excelsior*) and Pedunculate Oak (*Quercus robur*) are the most frequent standards, but Field Maple (*Acer campestre*) is locally frequent as a standard and a shrub. Some of the unmanaged hedges have spread to form a wide scrub edge. While these can have significant nature conservation interest, they often consist of uniform blackthorn (*Prunus spinosa*) which is of lower value. Ancient woodland indicator plants sometimes occur within this type of hedge.

12-C.6.6 At the edge of Combe Haven the unmanaged hedges have wet ditches.

12-C.6.7 Managed hedges are often cut to below 1.5m and are generally species-poor, often with only Hawthorn (*Crataegus monogyna*) and/or Blackthorn. They are primarily within arable areas and often have substantial gaps.

12-C.6.8 Although there are verges between the hedge and the pasture or arable crop these are generally narrow and comprise mainly assemblages of weed species such as Stinging Nettle (*Urtica dioica*) and Cleavers (*Galium aparine*) or the MG1 False Oat-grass (*Arrhenatherum elatius*) community. Occasionally there are banks with finer sward characterised by Red Fescue (*Festuca rubra*) and Common Bent (*Agrostis capillaris*).

12-C.6.9 Fig 11.4 in Volume 1 of the ES shows the five areas where there is a high concentration of good-quality hedges linked to copses and woodland: from Chapel Wood south to the floodplain; around Adams Farm: around Byne's and Hillcroft Farms; north and south of Combe Wood and north of Pebsham. The remaining areas have a less good network either because the hedges are poor, as in the Powdermill Stream Valley, or because they are widely dispersed, as they are north of Bexhill.

Hedge 1 Grade 4

12-C.6.10 This is a shallow ditch rather than a hedgerow, with Bramble (*Rubus fruticosus*) and Bracken (*Pteridium aquilinum*) at the east end intermixed with MG1 with frequent Cock's-foot (*Dactylis glomerata*). To the west this gives way to MG1 at the edges of the Rye-grass (*Lolium perenne*) pasture with occasional patches of Bramble, but at the west end there is slightly lower area with Grey Willow (*Salix cinerea*), Hedge Woundwort (*Stachys sylvatica*) and Great Willowherb (*Epilobium hirsutum*).

Hedge 2 Grade 3

12-C.6.11 This hedgerow is mainly standard trees comprising four Field Maple (*Acer campestre*), 10 mature Pedunculate Oak, three Ash and a Holly (*Ilex aquifolium*). Hazel (*Corylus avellana*) is also present.

Hedge 3 Grade 3

12-C.6.12 This is at the north end of H2 and is regularly cut. The shrubs are Hawthorn (*Crataegus monogyna*), Dog Rose (*Rosa canina*), Field Rose (*Rosa arvensis*) and Blackthorn (*Prunus spinosa*). There are patches of Bluebell (*Hyacinthoides non-scripta*) and Cleavers (*Galium aparine*), occasional Primrose (*Primula vulgaris*) and Honeysuckle (*Lonicera perclymenum*), together with and some ornamental conifers, Buddleia (*Buddleia davidii*) and Blackcurrant (*Ribes nigrum*) that have spread from the adjacent allotment.

Hedge OA500 (Hedge 4) Grade 2-

12-C.6.13 There are no standards in this hedge which is about 1.8m high, but the shrubs are quite varied with Blackthorn, Field Maple, Spindle (*Euonymus*

europaeus), Gooseberry (*Ribes uva-crispa*), Hazel and Hawthorn. Bracken is frequent on the edges. There is MG1 with Couch Grass (*Elytrigia repens*) and Cow Parsley (*Anthriscus sylvestris*) plus frequent climbers including Dog Rose, Bramble and Black Bryony (*Tamus communis*).

Hedge 5 Grade 2-

12-C.6.14 This has eight scrubby Pedunculate Oaks, beneath which there is Blackthorn and Bramble. Bluebell is locally abundant, perhaps indicating that this is an old boundary and there is a section of grazed bank with Field Wood-rush (*Luzula campestris*), Annual Meadow-grass (*Poa annua*) and Common Ragwort (*Senecio jacobea*). The remaining areas are MG1 with Hogweed (*Heracleum sphondylium*), docks, False Oat-grass (*Arrhenatherum elatius*), Cock's-foot and Wild Arum (*Arum maculatum*).

Hedge 6 Grade 2

12-C.6.15 This has oak standards over Blackthorn, Hawthorn, Bramble, Hazel, Oak, Holly, Hawthorn and Bluebell adjacent to the Allotments.

Hedge 7 Grade 1-

12-C.6.16 In the south section, before the gate, there are five Pedunculate Oak over Hazel and Hawthorn up to 4m high with Field Rose, Stinging Nettle (*Urtica dioica*), Dog's Mercury (*Mercurialis perennis*), Bramble, Male-fern (*Dryopteris filix-mas*) and Rough Meadow-grass (*Poa trivialis*). Beyond this there is a section with eight oak and one Beech (*Fagus sylvatica*) over sparse Hawthorn, Blackthorn, Holly, Dog Rose, Field Rose. There is a fringe of MG1 and a ditch about 0.5m deep with abundant Stinging Nettle and Hemlock Water-dropwort (*Oenanthe crocata*). Beyond the gate the hedge has a better structure up to 2m high with Blackthorn, Hawthorn, Hazel, Pedunculate Oak standards, Field Maple, Hedge Bindweed, Dog Rose and Hornbeam (*Carpinus betulus*). The ditch is shallow with Hemlock Water-dropwort and the marginal vegetation includes Cow Parsley (*Anthriscus sylvestris*), Yorkshire Fog (*Holcus lanatus*), Male Fern, Giant Fescue (*Festuca gigantea*) and Wood Brome (*Bromopsis ramosa*).

Hedge 7a Grade 2

12-C.6.17 This is dominated by standard trees comprising six Pedunculate Oaks, one Ash and three Field Maples. The shrubs, which are about 3m high, comprise Hawthorn, Hazel, Grey Willow, Field Rose and Elder (*Sambucus nigra*). There is a lynchet bank, with the west side being about 1m higher than the rest and a shallow ditch with Cock's-foot, Greater Bird's-foot Trefoil (*Lotus uliginosus*), Common Fleabane (*Pulicharia dysenterica*), Figwort (*Scrophularia nodosa*) and sedges. The drier areas have MG1 and occasional bare areas with Centaury (*Centaurium erythrea*). The shaded areas have Herb Robert (*Geranium robertianum*) and Ivy (*Hedera helix*).

Hedge 8 Grade 2

12-C.6.18 This has shrubs up to 4m high and four Pedunculate Oak standards. There is a substantial ditch at least 0.5m deep on the east side. The shrubs are Elder, Hazel, Holly, Field Maple and Ash. There is a narrow fringe of ungrazed MG6 on the west side with docks, Creeping Bent and Self-heal. Within the ditch there is Greater Bird's-foot Trefoil, Marsh Thistle (*Cirsium palustre*), Rough Meadow-grass, Soft Rush, Great Willowherb (*Epilobium hirsutum*), Creeping Bent (*Agrostis stolonifera*) and sedge (*Carex* sp). The rough ground at the edges has Foxglove (*Digitalis purpurea*), docks, Square-stemmed St. John's-Wort (*Hypericum tetrapterum*), Ivy, Hogweed and Curled Dock.

Hedge 9 Grade 3-

12-C.6.19 This is an irregular line of scrub rather than a hedge with intermittent Gorse (*Ulex europaeus*), five Pedunculate Oaks, Field Maple and a Holly. The shallow ditch has Common Fleabane, Creeping Buttercup (*Ranunculus repens*), Redshank (*Polygonum maculosa*), Remote Sedge (*Carex remota*) and Marsh Cudweed (*Gnaphalium uliginosum*). There are patches of Bluebell as well as Common Knapweed, Red Campion, Perforate St. John's-wort, Celery-leaved Buttercup (*Ranunculus sceleratus*), Annual Meadow-grass (*Poa annua*) and finer grassland with Common Bent and Sweet Vernal-grass (*Anthoxanthum odoratum*).

Hedge 9a Grade 3

12-C.6.20 This short section has two Pedunculate Oak and one Field Maple standards. The hedge is formed by sparse Blackthorn. There is a narrow strip of MG1 with Stinging Nettle adjacent.

Hedge 10

12-C.6.21 Number not used.

Hedge 11 Grade 2+

12-C.6.22 The canopy of this 250m stretch of hedge is dominated by mature oak. Field Maple and Blackthorn dominate the shrub layer. Ash and Holly are also present. The ground layer is sparse. Where present it is mainly Bracken, Ivy and Field Rose.

Hedges 12 and 13 Buckholt Lane Grade 1

12-C.6.23 The lane falls steeply from the edge of the houses. At this point there is a drain with an outfall to the ditch adjacent to H12. The lane generally has good Hazel and Hawthorn and occasional oak and both banks have Bluebell, Wood Anemone (*Anemone nemorosa*), Wood Melick (*Melica uniflora*), Wood Brome and Polypody Fern (*Polypodium vulgare*) which are ancient woodland indicators. Other plants include Dog's Mercury, Lesser Celandine (*Ranunculus ficaria*), Hogweed, Male and Broad Buckler-ferns (*Dryopteris dilitata*), Ivy (*Hedera*

helix), Greater Stitchwort (*Stellaria holostea*) and violets (*Viola reichenbachiana, V riviniana*). H12 adjacent to G29 has four Pedunculate Oak standards over Hawthorn up to 2m high. There is a deep ditch and a bank with Cow Parsley and Hogweed amongst MG1.

Hedges 14-17

12-C.6.24 Outside study area.

Hedge 18

12-C.6.25 Boundary to private gardens.

Hedge 19 Low Hedge Adjacent to G8 within The Mount Grade3

12-C.6.26 This hedge is adjacent to the west edge of The Mount and is in part contiguous with scrub and scrub woodland of W2a. There are six Pedunculate Oak standards which dominate the hedge and beneath these Hawthorn and Elder up to 2.5m high and 4m wide. There is a substantial edge of Hawthorn and Dog Rose. MG1 is present along the edges.

Hedge 20 Grade 2-

12-C.6.27 This is dominated by eight Pedunculate Oak standards and six Field Maple standards. The shade cast by the oaks has made the shrub layer variable and intermittent but Ash, Hazel, Blackthorn, Elder and Hawthorn are present. There is abundant Bramble and an edge of MG1. At the north end, the ancient woodland indicators Stinking Iris (*Iris foetidissima)* and Butcher's Broom (*Ruscus aculeatus*) are present.

Hedge 21 Grade 2-

12-C.6.28 At the east end there is row of Leyland Cypress (*x Cupressocyparis leylandii*) around the northwest edge of the northernmost garden on Bodiam Close. It ends in a large well-formed Pedunculate Oak. From here H21 follows the back gardens of St. James Crescent. It lies on a slight bank and has intermittent shrubs, mainly Blackthorn, Hawthorn, Gorse and Dog Rose, but with a good section of Hazel and two well-formed multi-stemmed Field Maples. Bramble, Stinging Nettle and Cleavers are abundant. There is also a cultivated Pear (*Pyrus communis*).

Hedge 22 Grade 3+

12-C.6.29 There are no standards in this trimmed hedge and canopy species include Blackthorn, Hazel, Elder, Hawthorn, Bramble, Field Maple and Goat Willow.

Hedge 23 Grade 3-

12-C.6.30 At the south end of this hedge where it abuts H22 and H24 a small copse of Blackthorn is present, but northwards the hedge is much lower-lying between two arable fields and there is a single Goat Willow standard. It is 1.5-2m high and 2m wide, dominated by Hawthorn and Blackthorn. Pedunculate Oak, Dog Rose and Bramble are also present. There are verges of MG1 False Oat-grass grassland on both sides.

Hedge 24 Grade 3

12-C.6.31 This long hedge lies between two arable fields. There is a ditch on the south side. It is about 2m high and 2m wide with a narrow verge of MG1. There is abundant Stinging Nettle, Cleavers and Hedge Bindweed on both sides. The principal woody species are Blackthorn, Hawthorn, Hazel and Field Maple, with occasional Holly and Elder. There is Hemlock Water-dropwort growing in the ditch and a verge that includes Bracken, Ivy, Stinging Nettle, Cleavers, Bittersweet (*Solanum dulcamara*), Black Bryony, Red Campion (*Silene dioica*), docks and Creeping Buttercup. At the extreme east end there is Leyland Cypress which is continuous with the Leyland Cypress in H21 and appears to have been planted to screen the garden extending north from the house at the northeast end of Bodiam Close.

Hedge 25 Grade 3

12-C.6.32 This long, intermittent hedge is parallel to Wrestwood Road. There is a footpath and wide verge with a mixture of young, mature and ornamental trees on the south side. It is up to 1.8m high and, where present, dominated by Blackthorn, Hawthorn and Field Maple. At the east end it gives way to a chainlink fence.

Hedge 25a Grade 2 (where substantial)

12-C.6.33 The rear gardens of Bodiam Close have boundary fences forming the southern two thirds of this boundary. There is little vegetation here apart from patches of Bramble and Bracken. However, the north third is a robust hedge up to 4-5m high and about 2-3m wide with frequent Field Maple as well as Blackthorn, Hawthorn, Elder and Hazel and abundant Bramble. Ivy dominates the centre and there is a fringe of MG1 with frequent Barren Brome, Nipplewort (*Lapsana communis*) and Cow Parsley.

Hedge 26 Grade 1+

12-C.6.34 This hedge is over 4m high and more than 3m wide. There are 16 mature trees along the stretch surveyed including Field Maple, Pedunculate Oak, Ash and apple (*Malus* sp). It is trimmed on one side and is on a bank over 1m high. Hedge canopy species also include Hawthorn, Blackthorn, Bramble and Dog Rose. Herbaceous species include Stinging Nettle, Ivy, Bracken and Cow Parsley.

Hedge 27 Grade 1

12-C.6.35 This continuous hedge adjacent to The Mount has abundant Blackthorn, together with Pedunculate Oak, Field Maple, Sycamore, Ash, Holly and Field Rose. Dog Rose, Stinging Nettle, Bramble, Ivy, Hawthorn, Spindle (*Euonymus europaeus*) and Wild Privet (*Ligustrum vulgare*) are also present. The edges have Bracken with frequent arable weeds.

Hedge 28 Grade 2-

12-C.6.36 This is a square-section hedge at the west end about 3m high by 3m wide with Blackthorn, Hawthorn, Field Maple and Sycamore, but most of it is enclosed within recent planting of Pedunculate Oak, Field Maple, Goat Willow, Hornbeam, Sweet Chestnut, Hawthorn and other species. There are a few oak standards at the south edge and a scrub edge of Hazel, Hawthorn and Guelder Rose which would now benefit from having the tree shelters removed to promote bushiness. There is dense bramble within the plantation to over 3m high, but this does not appear to have impaired the vigorous growth of the planting. A fringe of MG1 widens locally to support robust plants like Common Ragwort, Black Knapweed (*Centaurea nigra*), willowherb (*Epilobium* sp) and docks.

Hedge 29 Grade 3+

12-C.6.37 This is a shelterbelt around the south and west sides of Glover's Farm buildings. It lies on a bank and comprises Horse Chestnut (*Aesculus hippocastanum*), Hawthorn, Ash, Pedunculate Oak, Holly and Alder. There is a fringe of MG1 around it with abundant False Oat-grass, Stinging Nettle, Bramble, Cow Parsley, Couch Grass, Red Dead-nettle (*Lamium purpureum*), Cleavers, Ivy, Scented Mayweed (*Matricaria recutita*), Common Orache (*Atriplex patula*) and Autumn Hawkbit (*Leontodon autumnalis*).

Hedge 29a Grade 3+

12-C.6.38 This hedge is about 4m high by 3m wide and comprises mainly Hawthorn with occasional Field Maple and Blackthorn. There is Ivy at the centre and edges of Bramble with MG1 that has frequent Smaller Cat's-tail (*Phleum bertolonii*).

Hedge 29b and c Grade 3+

12-C.6.39 This is similar to H29a but with more Blackthorn and with Elder.

Hedge 30 Grade 1-

12-C.6.40 The section immediately north of H30a is dominated by Grey Willow (*Salix cinerea*) with some Guelder Rose and Hazel. There is a fringe of Stinging Nettle, Hogweed, Bramble and Bracken set within MG1. Bramble and Black Bryony are frequent. As the hedgerow descends the slope it becomes wider and appears to follow the edge of a disused holloway, eventually merging with a wide, Bluebell-dominated copse adjacent to the disused railway. Bluebell and other

ancient woodland indicators occur in the lower section outside the study area. This part of the hedge is effectively a shaw up to 10m wide with eight Pedunculate Oak and three Field Maple standards and with Hazel, Hawthorn, Blackthorn, Holly, Aspen (*Populus tremula*), Goat Willow (*Salix caprea*) and Silver Birch (*Betula pendula*) within the hedge. There is Ivy at the centre and the margins have MG1 with locally dominant patches of Bracken. Hogweed and Stinging Nettle are also frequent.

Hedge 30a Grade 1-

12-C.6.41 This has four standard Pedunculate Oaks and the hedge is up to 8m high with Blackthorn, Hawthorn, Dog Rose and Grey Willow. There is a fringe of MG1 False Oat-grass grassland with Ground Ivy and Bracken. Creeping Thistle and Common Thistle are frequent.

Hedges 31 and 34 Grade 3

12-C.6.42 These are low Hawthorn and Blackthorn-dominated hedges.

Hedge 35a Grade 3

12-C.6.43 This hedge is 2-4m high and 2-3m wide. Hedge canopy species include Blackthorn, Bramble, Dog Rose, Hazel, Elder and Hawthorn, some of which are at mature height. The hedge is on a bank over 1m high with adjacent ditch and there is a grass verge on both sides. The hedge is unmanaged and other species recorded include Stinging Nettle, Creeping Thistle, Creeping Buttercup, coarse grasses, Hedge Bindweed, Bracken, Hogweed, and Bittersweet.

Hedge 37 Grade 4

12-C.6.44 This consists of a small amount of Field Maple, then gap of 40m to a low bank with MG1 and a single Goat Willow Nettle and Bramble in ground cover.

Hedge 38 Grade 2-

12-C.6.45 This is a managed Hawthorn, Blackthorn and Hazel hedge with an adjacent ditch.

Hedge 39 Grade 2-

12-C.6.46 This is an unmanaged and irregular hedge of Hawthorn, Blackthorn and willows with a wet ditch.

Hedge 40 Grade 3+

12-C.6.47 This hedge is unmanaged and is over 4m high and 3m wide. There are nine (mainly oak) mature standards along its 310m length. Hedge canopy

species comprise Goat Willow, Hawthorn, Blackthorn, Turkey Oak and Hazel. The banks have Bramble, MG1 False Oat-grass grassland with Cleavers and Honeysuckle. There is a small internal ditch and a large ditch on the floodplain side.

Hedge 41 Grade2-

12-C.6.48 This has a ditch choked with Common Reed (*Phragmites australis*), with a small amount of Frog-bit (*Hydrocharis morsus-ranae*) at the north end. A clear section has occasional Soft Rush and dominant Stinging Nettle. The bank vegetation comprises MG1 grassland with abundant Couch, False Oat-grass, Ivy, Common Thistle, Creeping Buttercup, Dandelion, Bramble, Yorkshire Fog, Common Horsetail, Cleavers and Cut-leaved Crane's-bill (*Geranium dissectum*). The woody vegetation comprises 12 oak, Hazel, Blackthorn Hawthorn, Goat Willow, Field Maple and Alder.

Hedge 42

12-C.6.49 This is equivalent to Ditch 2.

Hedge 43

12-C.6.50 This is a Hawthorn hedge 2m high by 2.5m wide with a slight ditch. Hazel, Goat Willow, Pedunculate Oak, Bracken, and Hogweed are also present. There is MG1 on the edges, together with Bramble and Bracken and Black Bryony. At the north end, adjacent to the wood, there is Beech (*Fagus sylvatica*), Wood Avens, a lot of Common Cow-What (*Melampyrum pratense*), Common Vetch (*Vicia sativa*), Saw-wort, Hairy-brome, Dog-Rose and Perforate St. John's-Wort.

Hedge 44 Grade 1

12-C.6.51 The lane generally has good Hazel and Hawthorn and occasional birch Field Maple, Ash, Goat Willow, Pedunculate Oak and both banks have Bluebell, Wood Anemone (*Anemone nemorosa*), Wood Melick (*Melica uniflora*), Wood Brome and Polypody Fern (*Polypodium vulgare*) which are ancient woodland indicators. Other plants include Dog's Mercury, Lesser Celandine (*Ranunculus ficaria*), Hogweed, Male and Broad Buckler-ferns (*Dryopteris dilatata*), Ivy (*Hedera helix*), Greater Stitchwort (*Stellaria holostea*), violets (*Viola reichenbachiana, V riviniana*), Hogweed, Bracken, Creeping Thistle, Couch Grass, Rye-grass, Timothy-grass, Meadow Vetchling, Black Bryony, Bush Vetch and Common Knapweed within MH1.

Hedges 45 - 49

12-C.6.52 These hedges are separated from the route by a substantial area of woodland and were not surveyed.

Hedge 50

12-C.6.53 Number not used.

Hedge 51 Grade 1

12-C.6.54 This comprises two hedgerows around a holloway leading from Acton's Farm onto the Combe Haven valley floor. They have very varied vegetation that includes the ancient woodland indicators Bluebell, Wood Melick and Butcher's Broom. The woody species are: Hazel, Holly, Hawthorn, Blackthorn (dominant in parts), Pedunculate Oak, Grey Willow (*Salix cinerea*), Hornbeam (*Carpinus betulus*), Holly and Elder. The bank vegetation includes Cow Parsley, False Wood-brome (*Brachypodium sylvaticum*), Male and Broad-buckler ferns (*Dryopteris filix-mas, D.dilatata*), honeysuckle (*Lonicera periclymenum*), Red Campion (*Silene dioica*) and locally dominant Stinging Nettle. At the south end, as the ground becomes wetter, there are Lesser Pond-sedge (*Carex acutiformis*), Meadowsweet (*Filipendula ulmaria*), Reed Canary-grass (*Phalaris arundinacea*) and other wetland plants adjacent to the hedge.

12-C.6.55 Along the west edge there is Meadow Barley (*Hordeum secalinum*), Greater Pond-Sedge (*Carex riparia*), Bramble, Hedge Bindweed, Grey Willow, grassland with Soft Rush and Yorkshire Fog, Reed Canary-grass, Hogweed, Marsh Thistle (*Cirsium palustre*), Bracken, Ivy, Cow Parsley, Honeysuckle and Wood False-brome (*Brachypodium sylvaticum*).

Hedge 52 Grade 3

12-C.6.56 This is a managed hedge comprising principally Blackthorn and Hawthorn with frequent Bracken, Dog Rose and Bramble.

Hedge 53 Grade 3

12-C.6.57 This is a managed hedge of Blackthorn and Hawthorn with frequent Bracken, Dog Rose and Bramble.

Hedge 54 Grade 3

12-C.6.58 This is a managed hedge comprising mainly Hawthorn with Blackthorn, frequent Bracken, Dog Rose and Bramble. At the east end there is a short return section with Hawthorn, Hazel, oak, Elder, Foxgloves, Holly and a fringe of MG1 with Soft Brome and Black Grass (*Alopecurus myosuroides*).

Hedge OA505 (Hedge 55) Grade 2

12-C.6.59 This consists mainly of intermittent Hawthorn and Blackthorn but also has three scrub oaks and Grey Willows. There is very varied bank vegetation that is predominantly MG1 but includes rank Stinging Nettle, Pendulous Sedge, Marsh Woundwort, Rough Meadow-grass ,Dog Rose, Garlic Mustard *(Alliaria petiolata*), Stinging Nettle, Scentless Mayweed (*Matricaria inodorum*) Burdock

(*Arctium minus*), Couch Grass, Creeping Thistle, Hedge Bindweed, Creeping Buttercup, Broadleaved Dock, Yorkshire Fog, Nipplewort and Bramble. In the adjacent ditch there is Reed Canary-grass, Common Reed, Hedge Bindweed, Meadowsweet, Lesser Pond-sedge, Yellow Loosestrife, Hemlock Water-dropwort. On the bank there are also patches of finer sward with Red Fescue, Creeping Bent, Common Bent and Lesser Stitchwort, Common Reed and Couch grass.

Hedge OA503/4 (Hedge 56) Grade -1

12-C.6.60 This is a shaw rather than a hedge. A mixture of oak and Hawthorn with patches of Blackthorn dominates it. Holly, Field Maple, Ash, Elder, Buddleia, Crack Willow, White Willow and Hazel are also present, together with the ancient woodland indicators Hairy-brome and Giant Fescue (*Festuca gigantea*). It has been used by stock for shelter and there are trampled patches edged by Stinging Nettle. The ditch has Water Pepper, Branched Bur-reed, Hemlock Water-dropwort, Couch Grass, Creeping Bent, Soft Rush and Greater Bird's-foot Trefoil.

Hedge OA535 (Hedge 57 and Hedge 58) Grade 3

12-C.6.61 These consists of 3m high, cut hedges either side of the lane between Acton's Farm and Little Henniker. Each side is Grade 2 and the hedge is 225 m long. There is a good range of woody species including Field Maple and Spindle (*Euonymus europaeus*) and the narrow bank has the calcifuge Sheep's' Sorrel (*Rumex acetosella*) and the ancient woodland indicators Wood Melick and Butcher's Broom.

12-C.6.62 The section that would be removed by the road on the south side has Hawthorn, Bracken, Dog Rose, Blackthorn, Nipplewort, False Oat-grass, Spindle, Hogweed, Hemp Agrimony, Hazel, Pedunculate Oak, Saw-wort (*Serrulata tinctoria*) and Wood-sage (*Teucrium scorodonia*).

12-C.6.63 On the north side there is Bracken, Hazel, Blackthorn, Stinging Nettle, MG1 with False Oat-grass, Spindle, Field Maple, Dog Rose, Hedge Bindweed, Black Bryony, Field Woodrush (*Luzula campestre*), Creeping Bent, Creeping Cinquefoil (*Potentilla reptans*), Hedge Parsley (*Torilis japonica*), Honeysuckle, Soft Brome, Common Bent, Hazel, Black Bryony, Creeping Thistle, Couch Grass, Timothy (*Phleum pratense*), Rye-grass, Meadow Foxtail (*Alopecurus pratensis*), Bush Vetch, Holly, Yorkshire Fog, and Hogweed. Adjacent to the wood there is a disturbed edge of Beech, Hazel and Sweet Chestnut.

12-C.6.64 Further along there is Spindle, Hawthorn, Blackthorn, Hazel, Beech, Hornbeam, Field Maple, Perforate St-John's Wort (*Hypericum perforatum*),Saw-wort, Agrimony, Ash, Goat Willow, Wood Melick, False Oat-grass, Hairy-brome and Honeysuckle.

Hedge OA502 (Hedge 59) Grade 3

12-C.6.65 This is a mixed-species hedge with Hawthorn, Hazel, Blackthorn and Dog Rose. There is a ditch with Common Reed and Stinging Nettle as well as abundant Bramble and Black Bryony.

Hedge 60 Grade 3

12-C.6.66 This is a mixed-species hedge with Hawthorn, Hazel, Blackthorn and Dog Rose. There is a ditch with Common Reed and Stinging Nettle as well as abundant Bramble and Black Bryony.

Hedge 61 Grade 3

12-C.6.67 This rather scrappy hedge consists of Hawthorn and Elder up to 5m high with occasional oak and long edges of Blackthorn and Dog Rose. Other plants present include Ivy, Soft Rush, False Oat-grass, Cock's-foot, Hogweed, Common Reed, Creeping Bent, Creeping Cinquefoil, Hairy Sedge, Common Ragwort, Creeping Thistle and Spear Thistle (*Cirsium vulgare*).

Hedge OA508 (Hedge 61a)

12-C.6.68 This comprised sections of high Hazel and Hawthorn, but is generally about 1.8 x 1.5m and has the following on the banks: Bramble, Hedge Bindweed, Stinging Nettle, Great Willowherb, Cock's-foot, Soft Rush, Rough Meadow-grass, docks, Common Bent, Creeping Bent and Dog Rose.

Hedge 62 Grade 4

12-C.6.69 This is a short isolated section of trees.

Hedge 63 Grade 3

12-C.6.70 This is similar to H81.

Hedge 64 Grade 3+

12-C.6.71 This hedge is unmanaged and made up of Blackthorn, Hawthorn, Hazel and Bramble with three mature Field Maple standards along its 250m length. There is a grass verge on one side and the hedge stands on a bank over 1m high. Other species recorded include Red Fescue, Self-heal (*Prunella vulgaris*), Yarrow, Creeping Buttercup, Common Bent and Bird's-foot Trefoil.

Hedge 65

12-C.6.72 Number not used.

Hedge 66 Grade 2

12-C.6.73 This hedge is over 4m high and over 3m wide. There are four mature Field Maple standards along its 210m unmanaged length. It is a mixed-species hedge with Blackthorn, Hawthorn, Grey Willow, Dog Rose, Hazel and Bramble. The bank is over 1m high and there is MG1 on one side.

Hedge 67 Grade 2

12-C.6.74 This is unmanaged with a substantial ditch that has abundant Common Reed and Stinging Nettle. Field Maple, Blackthorn, Hazel, Elder and Hawthorn are the principal species and there are three oak standards. Dog Rose, Stinging Nettle, Hogweed, Bramble, Bracken, Common Knapweed, Nipplewort (*Lapsana communis*), Marsh Woundwort (*Stachys palustris*), Cow Parsley and Soft Brome (*Bromus hordaceus*) are within an MG1 edge.

Hedge 68

12-C.6.75 This is the same as D16.

Hedge 69 Grade 1-

12-C.6.76 This unmanaged hedge is 500m long and here are over 10 mature standards of Ash, Pedunculate Oak and Field Maple along it. There are no gaps in the hedge canopy which has a mixture of species including abundant Dog Rose, Spindle, Field Rose, Blackthorn, Hazel, Elder, apple (probably cultivated apple *Malus domestica*), Goat Willow, Hornbeam, Hazel, Holly, Hawthorn and Blackthorn. It is on a bank over 1m high with Bramble, Hedge Woundwort, Hogweed, Soft Rush, Stinging Nettle, Great Willowherb, Bush Vetch, Ivy, Couch Grass, Bird's-foot Trefoil and Red Campion within an MG1 edge. Hairy-brome grass and Wood False-brome are also present.

Hedge 70 Grade 2-

12-C.6.77 This unmanaged hedge is 910m long, over 4m high and over 3m wide. It has a mixture of species including Hawthorn, Hazel, Pedunculate Oak, Spindle Turkey Oak, Blackthorn Elder, Goat Willow and Crab Apple (*Malus sylvestris*). There is wide bank of Bramble scrub with Dog Rose and with Blackthorn on the other side. Species present include Black Bryony, False Oat-grass, Bracken, Field Rose, Honeysuckle, Wood False-brome, Bramble, Common Knapweed Ivy, Nipplewort, Cock's-foot, Wood-sage, Bluebell, Creeping Bent, Common Bent, Saw-wort, Greater Stitchwort (*Stellaria holostea*), Yorkshire Fog, Hairy Sedge (*Carex hirta*) and Lesser Burdock (*Arctium minus*).

Hedge OA509 (Hedge 71) Grade 2

12-C.6.78 This has intermittent woody vegetation along it, comprising a clump of scrub oak, Hawthorn, Goat Willow, Dog Rose and Holly. The bank is MG1 with False Oat-grass, Stinging Nettle, Great Willowherb, Redshank (*Persicaria hydropiper*), Smooth Sow-thistle (*Sonchus oleraceus*) and disturbed areas with

Oak-leaved Goosefoot (*Chenopodium glaucum*). There is a dense growth of Hedge Bindweed, Stinging Nettle, Bramble, Bittersweet, Creeping Bent and patches of MG1 and Soft Rush on the banks, plus frequent Great Willowherb, Soft Rush and Gipsywort at the upper edges of the ditch which is over 2m wide with at least 0.5m standing water.

12-C.6.79 A sample section has:

Typha latifolia	A
Sparganium erectum	F
Carex riparia	F
Lysimachia vulgaris	O
Lycopus europaeus	O
Salix cinerea	O
Epilobium hirsutum	O
Rubus fruticosus	A
Agrostis stolonifera	O

12-C.6.80 Water-plantain (*Alisma plantago-aquatica*), Purple Loosestrife (*Lythrum salicaria*), Floating Sweet-grass (*Glyceria fluitans* sl), Common Duckweed, Blanketweed (*Cladophora* sp), Purple Loosestrife, Grey Willow, Marsh Woundwort, Bittersweet, Creeping Thistle (*Galeopsis tetrahit*), Yellow Loosestrife (*Lysimachia vulgaris*) and a small amount of Reed Sweet-grass are present.

12-C.6.81 Other species present include Ivy, Rough Meadow-grass, Bittersweet (*Solanum nigrum*), Soft Rush (*Juncus effusus*), Yorkshire Fog, Greater Bird's-foot-trefoil and Sorrel.

Hedges OA510 and 511 (Hedges 72-74) Grade 3

12-C.6.82 These are the hedges either side of the track leading from Hillcroft Farm down to the valley bottom. The hedge is regularly cut at about 1.5m high and there are six standard trees on the west ride but none on the east.

12-C.6.83 H74 has Field Maple, Bramble, Ivy, Nipplewort, Pedunculate Oak, Stinging Nettle, Ash, Rough Chervil (*Chaerophyllum temulentum*), docks and Blackthorn.

Hedges 75 and 76

12-C.6.84 Distant from road and not surveyed.

Hedge 77 Grade 3+

12-C.6.85 This hedge is 2-4m high and 2-3m wide. Canopy species include Elder, Goat Willow Blackthorn, Field Maple and Hazel.

Hedge 78

12-C.6.86 This is a ditch is dominated by Reed Sweet-grass and Common Reed and is sufficiently dry for Bramble to be abundant. Other plants of drier ground include Stinging Nettle and Couch Grass.

Hedge 79 Grade 3-

12-C.6.87 This is a managed, low, Hawthorn hedge on a low bank with occasional oak, Blackthorn, Goat Willow, Holly and Elder. There is a narrow ditch with Soft Rush, Reed Sweet-grass and Stinging Nettle and a fringe of Tufted Hair-grass. The bank has MG1 with Greater Stitchwort, Wood-sage, Black Bryony, Honeysuckle and Hogweed.

Hedge 80 Grade 4

12-C.6.88 For about 30m at the south end this is more a belt of scrub than a hedge. There is Hawthorn, Blackthorn, Elder and Bramble and a wide margin of MG1, with abundant False Oat-grass and Cock's-foot and occasional Tufted Hair-grass. To the north the shrubs disappear and it becomes a bank of MG1 with patches of Bracken.

Hedge 81 Grade 3-

12-C.6.89 This consists of Hawthorn and Blackthorn about 2m high and 2m wide with a small amount of Field Maple and one oak It ends in a Blackthorn clump. There is a wet area adjacent with Bulrush (*Typha latifolia*), Gipsywort (*Lycopus europaeus*) and Water Plantain (*Alisma plantago-aquatica*).

Hedge 82

12-C.6.90 This is a small band of scrub on the slope below Hillcroft Farm.

Hedge 83

12-C.6.91 Number not used.

Hedge 84

12-C.6.92 Only a few shrubs present.

Hedges 85 and 86 Grade 2

12-C.6.93 This is a dense overgrown hedge with Hawthorn, Blackthorn, Hazel and Goat Willow.

Hedge 87 Grade 2+

12-C.6.94 This is the hedge along the approach to Adam's Farm. It has Hornbeam and Field Maple and ancient woodland indicators including Polypody Fern and Bluebell.

Hedge 88 Crowhurst Lane North and Hedge 89 Crowhurst Lane South

12-C.6.95 The sections of Crowhurst Lane are discussed together under Hedge 110.

Hedge 90 Grade 2

12-C.6.96 This unmanaged hedge is 400m long. It contains 26 mature trees and five young trees of oak, apple, Field Maple, Ash and Hawthorn. There are between 30-10% gaps and a grass verge on both sides. The hedge is on a bank and canopy species include Blackthorn, Bramble, Elder, Hazel, Gorse, Hawthorn, and Hornbeam. Bramble is abundant, together with Dog Rose and there are patches of finer grassland with Red Fescue and Common Bent.

Hedge 91 Grade 2-

12-C.6.97 This 460m stretch of hedge contains three young and seven mature standards, of apple, oak, Field Maple and Goat Willow. There is a grass verge on both sides of the hedge which is on a bank towards the east end. The hedge includes Blackthorn, Hawthorn, Dog Rose, Bramble and Gorse.

Hedge 92 Grade 2

12-C.6.98 This is best regarded as a ditch overshadowed by Hawthorn, Field Maple, Alder, Ash and oak. Bramble, Dog Rose, Stinging Nettle and rough ground species are abundant at the edge. The principal wetland species are Great Willowherb, Hemp Agrimony, Reed Canary-grass, Meadowsweet, Water Starwort (*Callitriche stagnalis*), Pendulous Sedge, Purple-loosestrife (*Lythrum salicaria*) and Water Betony (*Scrophularia auriculata*).

Hedge 93 Grade 3

12-C.6.99 This hedge is unmanaged. It is 475m long and has seven mature and 19 young Ash, oak, Field Maple, Wych Elm (*Ulmus glabra*) and Crack Willow (*Salix fragilis*) trees. There are a small number of gaps in the hedge which is dominated by Hawthorn and Hazel. The hedge is on a high bank and there is a grass verge on one side. The adjacent ditch contains wetland vegetation including Common Reed and Hemp Agrimony.

Hedge 94 Grade 1-

12-C.6.100 This is a managed Hawthorn hedge, fairly low, with two mature and 22 young oak and Ash standards along its 440m length. Hedge canopy species include Hazel, Goat Willow, Bramble, Elder, Blackthorn, Gorse, Dog Rose and some new planting of Hawthorn. There is Bracken, Hogweed, Black Bryony, Creeping Thistle, Stinging Nettle and coarse grasses underneath. The hedge is on a bank that is over 1m high and there is a narrow grass verge on both sides. A slight ditch has Soft Rush and Hard Rush.

Hedge 95 Grade 2

12-C.6.101 This is a mixed-species hedge with Hawthorn, Hazel, willow, Blackthorn and other species with a ditch that contains Common Reed, Hemlock Water-dropwort, Field Horsetail and Stinging Nettle. It is 375m long and at the time of survey had been recently cut to 1-2m high and 2-3m across. There are six mature and eight young standard trees of oak, Ash, Goat Willow and Alder. The following other species are present: Bluebell, Blackthorn, Grey Willow, Stinging Nettle, Field Maple, Creeping Buttercup, Lesser Celandine, Hedge Bindweed, Yorkshire Fog, False Oat-grass, Pendulous Sedge, Bittersweet, Soft Rush, Dog Rose, Field Rose, Hedge Bedstraw (*Galium mollugo*), Common Cat's-ear, Bramble, Reed Canary-grass, Hogweed and Hedge Woundwort.

Hedge 96 Grade 2

12-C.6.102 There are 13 young standard trees and seven mature standard trees in this unmanaged 425m stretch of hedge. The trees are oak, Ash and Field Maple. Hedge canopy species include Blackthorn, Hazel, Hawthorn and Bramble. There is a grass verge on both sides of the hedge which is on a small bank with a ditch. Other species recorded include, Stinging Nettle, Hedge Bindweed, Bracken and Common Reed.

Hedges 99,100 and 101 Crowhurst Lane

12-C.6.103 Discussed under Hedge 110.

Hedges 102 and 103

12-C.6.104 Access denied.

Hedge 104

12-C.6.105 See W28.

Hedge 105 Grade 3+

12-C.6.106 This is a low, intermittent Bramble and Hawthorn hedge with occasional oak and Ash and a small amount of Holly. It is 190 m long.

Hedges 106, 107 and 108 Grade 3

12-C.6.107 This group of 1-2m high intermittent hedges has Bramble, three Ash stools, Blackthorn, Hawthorn, Elder, Hazel, Hogweed and MG1 False Oat-grass grassland with Yorkshire Fog. Further along there are six Field Maple, Pedunculate Oak, Grey Willow and a newly planted section with Dog Rose, Bramble, Ash and Creeping Thistle in False Oat-grass grassland.

Hedge 109 Grade 3

12-C.6.108 H109 is a small trimmed hedge with occasional gaps. Shrubs are sparse and include Hawthorn, Blackthorn, Field Maple, Bramble, Dog Rose and Hazel. There is a grass verge on both sides and Bracken, Creeping Thistle, coarse grasses and Feverfew (*Tanacetum parthenium*) are present.

Hedge 110 Crowhurst Lane Grade 2+

12-C.6.109 The hedges either side of Crowhurst Lane follow a sinuous course northwards from the railway crossing and descends a steep slope widening towards the bottom to small abandoned sandstone quarries. The wider areas are largely unmanaged and there is a good range of tree species including oak standards, Field Maple, Holly, Hornbeam, Hazel, Blackthorn, Bramble and patches of English Elm (*Ulmus minor*) suckers. There is occasional Bracken, a considerable amount of Bluebell and patches of Wood Melick (*Melica uniflora*) and Cleavers as well as Bramble, Dog and Field Roses and Black Bryony. Where it widens out, it is best classed as a copse.

Hedge 111 Grade 4

12-C.6.110 This is an unmanaged hedge dominated by Hawthorns over 4m high. Hedge canopy species also include Blackthorn, Dog Rose, Bramble, Cherry Plum (*Prunus cerasifera*) and Field Rose (*Rosa arvensis*).

Hedge 112 Grade 3+

12-C.6.111 This is an unmanaged Blackthorn hedge adjacent to a track/roadside with frequent Dog Rose, Bracken and Nettle. Standard trees include oak and apple (*Malus* sp) and hedge canopy species include Bramble, Blackthorn, Dog Rose, Hawthorn, Hazel and Gorse. Ivy, Bracken and Black Bryony are also present.

Hedge 113 Grade 3+

12-C.6.112 There are five young standards of Ash, Field Maple and Turkey Oak (*Quercus cerris*) along this 175m stretch of unmanaged hedge. Hedge canopy species include Hawthorn, Blackthorn, Elder, Hazel, Bramble, Dog Rose and Field Maple.

Hedge 114 Grade 2-

12-C.6.113 In 1992/4 this was described as a broad hedge, which may have been double-planted with Hawthorn on the south side and blackthorn on the north. The margin was rough grass and disturbed ground species. In the present survey it was noted as being 190m long 2-4m high and 2-3m wide with 15 mature and 20 young Elm, Field Maple, oak, Hornbeam and Sycamore standards. It also has Hawthorn and Blackthorn, some of which are at mature height, together with Bramble and Dog Rose.

Hedges 115 and 116 Grade 2

12-C.6.114 These hedges are close together around the narrow field G21. They are large, wide and unmanaged with Blackthorn and Bramble edges that are spreading across G23. Mature oak, Blackthorn, Hawthorn, Hornbeam and Ash dominate and there is quite frequent Field Maple. Dog Rose and Field Rose are abundant and there are occasional Holly and Dogwood (*Cornus sanguinea*). Patches of MG1 lie along the margins in which plants like Hogweed are conspicuous.

12-C.6.115 H115 is 375m long and unmanaged with a small number of gaps. There are 18 mature standards and 23 young standards made up of Ash, oak, Field Maple and English Elm. Other species include Blackthorn, Bramble, Hawthorn, Dog Rose, Ivy, Creeping Thistle, Stinging Nettle, Yarrow (*Achillea millefolium*), Couch Grass and Rye-grass (*Lolium perenne*).

12-C.6.116 H116 N-S is 160m long. There is a ditch on one side and canopy species include Blackthorn, Bramble and Dog Rose. There are coarse grasses, Stinging Nettle, Creeping Thistle and Creeping Buttercup underneath.

12-C.6.117 H116 E-W is unmanaged with 11 mature standard trees comprising Field Maple, oak, Holly and Ash. There is a grass verge on both sides and the bank is higher than 1m. The hedge is 325m long and has a large number of species present including Blackthorn, Elder, Dog Rose, Hawthorn and Ivy with a ground flora of Bracken, Stinging Nettle, Black Bryony, Creeping Buttercup and Dog's Mercury.

Hedge 118 Grade 3

12-C.6.118 This is a low hedge with some gaps and with one standard Field Maple. It is unmanaged with a grass verge on both sides. Hedge canopy species include Bramble, Dog Rose, Hawthorn, Holly and Blackthorn. Yellow Archangel, Herb Robert and Red Campion are present in the mid section.

Hedge 119 Grade 2

12-C.6.119 This is unmanaged with two mature and 61 young trees of oak, Field Maple, Ash and Sycamore along its 690m length. The canopy contains a large number of species including Gorse and Hazel. Bracken is frequent. The hedge is on a bank over 1m high and there is a grass verge on one side.

Hedge 120 Grade 2

12-C.6.120 This is a continuation of Hedge 119.

Hedge 121 Grade 1-

12-C.6.121 In 1992/4 this was described as a mixed-species hedge with Holly, Hazel, Blackthorn, Goat Willow and Hawthorn. The last species dominated beyond the section adjacent to Decoy Pond Wood where there were small Alder, Sycamore and Ash. The ditch adjacent to the hedge was dominated by tall broadleaves such as Great Willowherb. Bracken and False Oat-grass were common elsewhere. In the current survey the hedge was unmanaged with 43 young standards of Ash, Field Maple, Alder, Sycamore, oak and Crack Willow. Hedge canopy species present were Hazel, Spindle, Hawthorn, Elder, Bramble, English Elm, Blackthorn, Holly and Gorse that was over 2m in height. Other species recorded were Ground Ivy (*Glechoma hederacea*), Cow Parsley, Cleavers, Ivy, Bracken, Hedge Bindweed, Bluebell, Red Campion, Greater Stitchwort, Black Bryony, Ramsons, Dog's Mercury, Greater Stitchwort, False Oat-grass, Stinging Nettle.

Hedge 122 Grade 2

12-C.6.122 The hedge is 2-4m high and over 3m wide on a small bank and has a grass verge on one side. There are 24 young standard trees of oak, Hornbeam and Field Maple and hedge canopy species present are Hazel, Hawthorn, Elder, Bramble, Dog Rose, Blackthorn and Spindle. There is a thickened corner with Blackthorn, Bracken, Bramble, Field Maple, Yorkshire Fog, Dog Rose and Spindle and a disturbed edge with ruderal species, Soft Rush, Yarrow and Agrimony.

Hedge 123 Grade 2-

12-C.6.123 The hedge is 325m long, over 4m high and 3m wide, on a high bank. There are 10 young Field Maple, oak and Crack Willow standards along its length. The hedge canopy is dominated by Blackthorn and Hawthorn.

Hedge 140 Grade 2

12-C.6.124 This is a large unmanaged hedge with Pedunculate Oak, Ash, Dog Rose, Wych Elm, Hawthorn and an edge of False Oat-grass with Bramble, Honeysuckle, White Dead-nettle Nipplewort, Hazel, Bracken and Soft Rush. There is a holloway with Hazel and Pedunculate Oak adjacent It ends in copse of White Willow, Field Maple and a large Dogwood as a tree.

Hedge 142 Grade 2

12-C.6.125 This 5m wide hedge has Pedunculate Oak, Hornbeam, Blackthorn Holly, Sweet Chestnut, Broom, Bramble, and Dog Rose scrub. There is MG1 False Oat-grass, grassland at the edge with Yorkshire Fog, Agrimony, docks, Couch Grass, Tufted Hair-grass, Timothy grass, Rye-grass, Tufted Vetch, Common Ragwort, Dog Rose, Spear Thistle, Meadow Vetchling, Field Bindweed (*Convolvulus arvensis*), Yarrow, Lesser Stitchwort, Sorrel and Tall Fescue (*Festuca arundinacea*).

12-C.7 Urban Habitats

12-C.7 Introduction

12-C.7.1 The urban area is divided into compartments UA1-55 which are shown on Figs. 12.2a-d. South of Bancroft Road, the vegetation comprises mainly regularly mown amenity grassland of the MG7 community with patches of ornamental planting and W24 Bramble (*Rubus fruticosus*) - Yorkshire Fog (*Holcus lanatus*) underscrub. In places such as the abandoned gardens at the south end of London Road (UA2, Fig 12.2a), MG1 False Oat-grass (*Arrhenatherum elatius*) grassland predominates. The Egerton Stream is in an open channel for much of this section, but it is often dry and has hardly any aquatic marginal vegetation.

12-C.7.2 Between Bancroft Road and Woodsgate Park Road there are dense, often impenetrable areas, of W24 (UA17-19, 21 Fig 12.2a, b) abundant Stinging Nettle and frequent willows (many of which appear to have been planted). On the drier areas (UA20) the scrub is developing as woodland and belongs to the W21a sub-community of Hawthorn-Ivy scrub. Stinging Nettle (*Urtica dioica*) is abundant everywhere. Here the Egerton Stream (UA15) is dominated by Hemlock Water-dropwort and Pendulous Sedge.

12-C.7.3 Between Woodsgate Park and the ESCC depot there is a mosaic of W6a Alder (*Alnus glutinosa*) - Stinging Nettle woodland dominated by Crack Willow (*Salix fragilis*) and patches of MG1 False Oat-grass grassland (UA24-5, 27-9, 31-3 Fig 12.2b). At UA31 there is an abandoned garden/orchard with the remains of fruit trees and coppiced Hazel (*Corylus avellana*). This is more varied than most of the other patches of woodland in the urban corridor, but is quite heavily used by the public. The stream vegetation and the MG1 grassland on the east side (UA30, 26) are a little more varied than elsewhere.

12-C.7.4 Adjacent to the ESCC depot there is quite dense woodland (UA34) which extends northwards to W24 at UA36 Fig 12.2b). The latter is also present on the steep slope below the rear gardens of Buxton Road (UA40, Figs 12.2b, c). Between these two areas there are ruderal communities typical of dry, gravely ground (UA37-9). North of the old engine shed as far as Ninfield Road Bridge, much of the ground is hard surface but there are two bands of scrub woodland (UA42,45 Fig 12.2c) which are predominantly native but containing a few ornamental species.

12-C.7.5 From the Ninfield Road Bridge northwards, the banks of the cutting (UA48-9 Fig 12.2c,d) are covered in dense secondary scrub woodland of the W21 community, with abundant Sycamore (*Acer pseudoplatanus*) and with Ivy (*Hedera helix*) dominating the ground flora. A small number of ancient woodland indicator plants, notably Bluebell (*Hyacinthoides non-scripta*) and Hart's-tongue Fern (*Phyllitis scolopendrium*) occur, although these areas are obviously not ancient woodland. At the south end of this area, where drainage along the surface of the railway track has been impeded (UA50), mud and stagnant water has accumulated and a small amount of aquatic vegetation is present.

12-C.7.6 The scrub woodland on the cutting slopes continues to just past Glover's Farm (UA 51-2, 55, Fig 12.2d). At the north end there is another flooded area (UA54) which has more frequent wetland vegetation, including the locally uncommon Large Bitter-cress (*Cardamine amara*).

UA1 (Fig 12. 2a)

12-C.7.7 Within this narrow compartment the ditch was dry at the time of survey and there is very little groundcover apart from sparse common grasses such as Creeping Bent (*Agrostis stolonifera*). The most notable features are a clump of Japanese Knotweed (*Fallopia japonica*) at the south end and a single Elder (*Sambucus nigra*). On the wall at the south end there is abundant growth of the alien plant Trailing Bellflower (*Campanula poscharskyana*).

UA2 (Fig 12.2a) Private Gardens

12-C.7.8 These private gardens have only been inspected from the edge. Most were originally laid to lawn and where the grass has been neglected or abandoned, MG1 False Oat-grass grassland has developed. The following are abundant:

Bramble

Cleavers (*Galium aparine*)

Dandelion (*Taraxacum vulgare* agg)

False Oat-grass

Garden Privet (*Ligustrum ovalifolium*)

Hedge Bindweed (*Calystegia sepium*)

Ivy

Stinging Nettle (*Urtica dioica*)

12-C.7.9 At U2A there is a chainlink fence with abundant Hop (*Humulus lupulus*) scrambling over it.

UA3-UA4 (Fig 12.2a)

12-C.7.10 There are ornamental beds at the edge of the Leisure Centre. The plants present are not native and have little or no wildlife value other than as nectar sources, but there are frequent weeds of cultivation and disturbed ground species comprising:

Barren Brome (*Anisantha sterilis*)

Bramble

Cleavers

Dandelion

Hedge Bindweed

Ivy

UA5 (Fig 12.2a)

12-C.7.11 This is closely-mown species-poor lawn belongs to the MG7 Rye-grass community.

UA6 (Fig 12.2a)

12-C.7.12 This is an open section of the Egerton Stream with a narrow channel about 1m deep. There is abundant Hemlock-water Dropwort (*Oenanthe crocata*) within and at the edges of the channel, with an outer edge of rough grass comprising mainly Rye-grass and Cock's-foot (*Dactylis glomerata*). The stream is rich in iron compounds at this point which, together with the shade and steep sides probably restrict the growth of aquatic vegetation.

12-C.7.13 The principal species present are:

Cock's-foot	F
Cuckoo Flower (*Cardamine pratensis*)	R
Dandelion	F
False Oat-grass	F
Figwort (*Scrophularia nodosa*)	O
Hairy Bitter-cress (*Cardamine hirsuta*)	O
Hemlock Water-dropwort	(LA-D)
Herb Robert (*Geranium robertianum*)	O
Hogweed (*Heracleum sphondylium*)	F

Lesser Celandine (*Ranunculus ficaria*)	O	
Rye-Grass		

UA8 (Fig 12.2a)

12-C.7.14 Just north of the lane to the school the stream widens out, tapering northwards to UA7. The banks are mown MG7 grassland, but at the edges, Sorrel (*Rumex acetosa*) overhangs the stream which has undercut the bank and there are extensive patches of thallose liverworts in these deeply-shaded areas. Where the stream is at its widest there is a small amount of Bulrush (*Typha latifolia*) and Reed Sweet-grass (*Glyceria maxima*) which appears to be kept in check by frequent clearance. The principal species present are:

Bulrush	R	
Cock's-foot		A
Common Bent (*Agrostis capillaris*)		F
Flote-grass (*Glyceria fluitans*)	R	
Oxeye Daisy (*Leucanthemum vulgare*)	R	
Red Fescue (*Festuca rubra*)	O	
Reed Sweet-grass		R
Rough Meadow-grass (*Poa trivialis*)	O	
Rye-grass	A	
Sorrel	F	

UA9 (Fig 12.2a)

12-C.7.15 This comprises two rows of Leyland cypress (*Cupressocyparis leylandii*).

UA10 (Fig 12.2a)

12-C.7.16 This is mown MG7.

UA11 (Fig 12.2a)

12-C.7.17 This is a multi-stemmed group of White Willow (*Salix alba*) with abundant Stinging Nettle underneath.

UA12 (Fig 12.2a)

12-C.7.18 This compartment can be ascribed to the W24 underscrub community in which Cock's-foot and Stinging Nettle are frequent.

UA13 (Fig 12.2a)

12-C.7.19 Much of the centre of this compartment comprises a gravelled area with fragments of hardstanding. This is dominated by species of disturbed ground and dry conditions notably Bird's foot-Trefoil (*Lotus corniculatus*), Flattened Meadow-grass (*Poa compressa*) and Bristly Oxtongue (*Picris hieracioides*). Towards the edges, where there is more soil, MG1 characterised by abundant Cock's-foot has developed and at the boundary there is fertile disturbed ground that supports Bramble, Stinging Nettle and Raspberry (*Rubus idaeus*). The principal species are:

Bird's-foot Trefoil

Bramble

Bristly Oxtongue

Cock's Foot

Common Vetch (*Vicia sativa*)

Cut-leaved Crane's-bill (*Geranium dissectum*)

False Oat-grass

Flattened Meadow-grass

Honeysuckle (*Lonicera perclymenum*)

Raspberry

Ribwort Plantain (*Plantago lanceolata*)

Smooth Sow-thistle (*Sonchus oleraceus*)

Soft-brome (*Bromus hordaceus*)

Stinging Nettle

White Clover (*Trifolium repens*)

Wild Carrot (*Daucus carota*)

UA14 (Fig 12.2a) Egerton Stream North of Bancroft Road

12-C.7.20 This is a narrow, straight section of stream that emerges from a culvert to the rear of Bancroft Road. It is enclosed by dense Bramble on the west side and a narrow bank of rough grassland and Bramble in the east. Like UA7 this section of the stream has abundant Hemlock Water-dropwort, but little other wetland vegetation apart from a few plants of Yellow Flag (*Iris pseudacorus*) and Floating Sweet-grass (*Glyceria flutans*).

UA15 (Fig 12.2a) East Bank of Egerton Stream North of Bancroft Road

12-C.7.21 This is MG1 False Oat-grass grassland with frequent Bramble. Adjacent to the stream, where the ground is slightly damper, there is frequent Meadow Foxtail (*Alopecurus pratensis*). The principal species are:

Bittersweet (*Solanum dulcamara*)		R
Bramble	F	
Cleavers	F	
Cock's-foot		A
Creeping Buttercup (*Ranunculus repens*)		O
Hedge Bindweed	O	
Meadow Foxtail	O	
Rough Meadow-grass	F	

UA16 (Fig 12.2a) Land Immediately North of Bancroft Road

12-C.7.22 This has a scattering of young White Willow (*Salix alba*) but the canopy is much more open than on the adjacent ground to the north. It is dominated by Stinging Nettle and can be ascribed to the OV24 community. Bramble and Cleavers are also frequent.

UA17 (Fig 12.2a) Central Section North of Bancroft Road

12-C.7.23 Much of this area is dominated by the W24 Yorkshire Fog – Bramble community, but at the west end in particular Cow Parsley and Hedge Bindweed are abundant.

UA18 (Fig 12.2a)

12-C.7.24 This comprises W24 with abundant Stinging Nettle.

UA19 (Fig 12.2a) Bramble Scrub with Cow Parsley North of Bancroft Road

12-C.7.25 Although this compartment can be ascribed to the W24 Bramble - Yorkshire Fog community it is a little more open than other stands of this type and has abundant Cow Parsley (*Anthriscus sylvestris*). An Apple tree (*Malus domestica*) emerges from it.

UA20 (Fig 12.2, b) Scrub Woodland South of Woodsgate Park Bridge

12-C.7.26 This area is slightly higher than the land to the south and east although there are willows at the south end. Under the trees, Ivy dominates, but in the more open areas there is abundant Bramble and Stinging Nettle. Overall it can be attributed to the W21 Hawthorn-Ivy scrub community. The principal species in addition to willows are:

Ash (*Fraxinus excelsior*)

Bramble

Cock's-foot

Hogweed

Lesser Celandine

Stinging Nettle

Sycamore (*Acer pseudoplatanus*)

UA21 (Fig 12.2a, b) Bramble Scrub South of Woodsgate Park Bridge

12-C.7.27 This area of W24 Bramble-Yorkshire Fog underscrub is characterised by patches of Japanese Knotweed and young Sycamore plus Cleavers, Cock's-foot, Dog Rose (*Rosa canina*) and Yorkshire Fog.

UA22 (Fig 12.2b) Woodsgate Park Bridge

12-C.7.28 Herbaceous plants have established in the mortar of this bridge, particularly in the more sheltered areas at the base. The main ones are Red Valerian (*Centranthus ruber*) and Wall-rue (*Asplenium ruta-muraria*).

UA23 (Fig. 12.2b) Scrub Woodland North of Woodsgate Park

12-C.7.29 This is dominated by Hawthorn and Sycamore with occasional willows. Where the tree and shrub cover is dense, Ivy is dominant but in the open areas Cow Parsley, Stinging Nettle and Bramble are frequent. In some patches a flora typical of secondary woodland comprising species like Wood Avens (*Geum urbanum*) has developed. The principal other species are:

Cleavers

Cock's-foot

Cow Parsley

Curled Dock (*Rumex crispus*)

Dandelion

Dog Rose

Hedge Woundwort

Hemp Agrimony (*Eupatorium cannabinum*)

Hogweed

Male-fern (*Dryopteris filix-mas*)

UA24 (Fig 12.2b) Bramble Scrub North of Woodsgate Park Bridge

12-C.7.30 This is dense Bramble scrub of the W24 community.

UA25 (Fig 12.2b) Ditch North of Woodsgate Park Bridge

12-C.7.31 This narrow section of ditch is characterised by Pendulous Sedge (Carex pendula) and Hemlock Water-dropwort.

UA26 (Fig 12.2b) Bank to East of Ditch UA25

12-C.7.32 Unlike most of the banks of the stream within the urban area, this bank is quite open and sunny, at least at the north end. The vegetation belongs to the MG1 False Oat-grass community with frequent clumps of Cock's-foot, Hogweed, Meadow Foxtail, Broad-leaved Dock (*Rumex obtusifolius*) and Curled Dock. Clematis from the adjacent hedge is scrambling over this grassland.

UA27 (Fig 12.2b) Grassland off Buxton Drive

12-C.7.33 This is typical amenity grassland.

UA28 (Fig 12.2b) Scrub Woodland Adjacent to Rear Gardens of Buxton Drive

12-C.7.34 This has frequent willows.

UA29 (Fig 12.2b) Bramble Scrub Adjacent to Rear Gardens of Buxton Drive

12-C.7.35 This is typical W24.

UA30 (Fig 12.2b) North Section of Stream to Rear of Buxton Drive

12-C.7.36 This section of the stream is more open than elsewhere and is dominated by Pendulous Sedge. There is a small amount of Aspen (*Populus tremula*) adjacent to it and a substantial patch of Germander Speedwell (*Veronica chamaedrys*). At its edges there is quite varied disturbed ground/woodland vegetation including the following additional species:

Wood False-brome (*Brachypodium sylvaticum*).

Bay (*Laurus nobilis*)

Garden Privet

Garlic Mustard (*Alliaria petiolata*)

Germander Speedwell

Hogweed

Rough Meadow-grass

Stinging Nettle

Wood Forget-me-not (*Myosotis sylvatica*)

UA31 (Fig 12.2b) Old Garden/Orchard

12-C.7.37 This area is a mosaic of dense, overgrown patches and trampled and eroded areas. There are several quite old stools of Hazel, suckers of Cherry (*Prunus avium*), old apple trees and patches of Blackcurrant (*Ribes nigrum*).

UA32 (Fig 12.2b) Wasteland at the Corner of Woodsgate Park and Buxton Drive

12-C.7.38 The south west part of this area is scrub, the inner part is grassland.

UA33 (Fig 12.2b) Bramble Scrub off Buxton Drive

12-C.7.39 xx

UA34 (Fig 12.2b) Scrub Woodland Adjacent to ESCC Depot

12-C.7.40 xx

UA35 (Fig 12.2b) Allotments off London Road

12-C.7.41 xx

UA36 (Fig 12.2b) Bramble Scrub adjacent to Allotments

12-C.7.42 xx

UA37 (Fig 12.2b) Bed of track Down Line of Old Engine Shed

12-C.7.43 Most of down line area is gravel with ruderal species but with some wetland species notably Pendulous Sedge are present. The principal other species present are:

Barren Brome

Hoary Cress (*Lepidium draba*)

Wild Carrot (*Daucus carota*)

Willowherb (*Epilobium* sp)

Rye-grass

Annual Meadow-grass (*Poa annua*)

Rough Meadow-grass (*Poa trivialis*)

Common Sow-thistle (*Sonchus oleraceus*)

Stonecrop (*Sedum* sp)

Canadian Fleabane (*Erigeron canadensis*)

Buddleia (*Buddleia davidii*)

Cock's-foot

Common Bent

Common Ragwort (*Senecio jacobea*)

Creeping Bent (*Agrostis stolonifera*)

Creeping Cinquefoil (*Potentilla reptans*)

Curled Dock

Dandelion

Eyebright (*Euphrasia officinalis* agg)

Hard Rush (*Juncus inflexus*)

Michaelmas Daisy (*Aster novi-belgae*)

Mugwort (*Artemisia vulgaris*)

Oxeye Daisy (*Leucanthemum vulgare*)

Purple Toadflax (*Linaria purpurea*)

Ribwort plantain

Smooth Hawk's-beard (*Crepis capillaris*)

UA38 (Fig 12.2b) Land Southwest of Old Engine Shed

12-C.7.44 This has similar vegetation to UA37 but there are wetter shaded areas around the building which support Pendulous Sedge and Rough Meadow-grass. The drier areas have the following:

Annual meadow-grass

Buddleia

Canadian Fleabane

Common Ragwort

Hoary Bitter-cress

Michaelmas Daisy

Perennial Rye-grass

Rough Meadow-grass

Sedum sp

Smooth Hawk's-beard

Smooth Sow-thistle

Wild Carrot

UA39 (Fig 12.2 b, c) Gravely area below Buxton Drive

12-C.7.45 xx

UA40 (Fig 12.2 b, c) Bramble Scrub Below Buxton Drive

12-C.7.46 xx

UA41 (Fig 12.2b) Scrub behind Old Engine Shed

12-C.7.47 xx

UA42 (Fig 12.2b) Southeast Side of Motorbike Training Area

12-C.7.48 This is a steep bank, densely covered with a mixture of native and non-native trees and shrubs including Wild Privet (*Ligustrum vulgare*), Holly (*Ilex aquifolium*), Cotoneaster sp, Hawthorn and Silver Birch (*Betula pendula*). The ground flora is dominated by Ivy and the vegetation can be ascribed to the W21 Hawthorn-Ivy scrub community. Other plants include:

Cleavers

Cotoneaster seedling

Dog Rose

Field Horsetail

Goat Willow

Hawthorn

Hemp Agrimony

Holly

Holm Oak (*Quercus ilex*) seedling

Primrose (*Primula cf vulgaris*) perhaps as a self-sown hybrid

Bramble

White Dogwood (*Cornus alba*)

Wild Privet

Wood False-brome

12-C.7.49 At the south end there is a patch of W24 Bramble-Yorkshire Fog underscrub and along the edge of the hard surface a slightly fringe with Hemp Agrimony (*Eupatorium cannabinum*) and Field Horsetail (*Equisetum arvense*).

UA43 (Fig 12.2c) Grassland and Scrub South of Motorbike Training Area

12-C.7.50 The centre of this area is grassland which merges with scrub at the edges. It was partially flooded when surveyed in late spring 2006, but this appears to be a short-term seasonal effect, since no wetland plants other than Great Willowherb (*Epilobium hirsutum*) can be seen.

UA44 (Fig 12. 2c) Bramble Scrub Adjacent to Old Engine Shed

12-C.7.51 xx

UA45 (Fig12.2c) Scrub Woodland on Northwest Side of Motorbike Training Area

12-C.7.52 This is similar to UA42. It comprises scrub woodland on a narrow bank and has a sparse ground layer dominated by Ivy, but it has a different mix of woody plants of which Ash and Sycamore are characteristic. It has a similar edge to UA42.

Apple

Ash

Prickly Ox-tongue

Buddleia

Japanese Cedar (*Cryptomeria japonica)*

Dandelion

Dog Rose

Field Horsetail

Field Maple (*Acer campestre*)

Great Willowherb

Hard Rush

Hawthorn

Hemp Agrimony

Hogweed

Holm Oak

Honeysuckle

Pendulous Sedge

Primrose

Ribwort Plantain

Rough Meadow-grass

Scots Pine (*Pinus sylvestris*)

Stinging Nettle

Sycamore

Wild Privet

Wood Brome (*Bromopsis ramosa*)

UA46 (Fig 12.2c) Bramble Bank to the Rear of Highfield Gardens

12-C.7.53 xx

UA47 (Fig 12.2c) North End of Motorbike Training Area

12-C.7.54 This is a small area where the construction of the hard surface for the Training Area has created wet, disturbed ground which has abundant Field Horsetail and Creeping Buttercup. Cleavers, Field Horsetail, Purple Toadflax and willowherbs are also present.

UA48 (Fig 12.2c, d) West Side of Cutting from Ninfield Road Bridge to Glover's Farm Bridge

12-C.7.55 This is largely dense secondary woodland with abundant Sycamore and Ash. The ground flora is dominated by Ivy where the canopy is closed. There are patches of W24 Bramble-Yorkshire Fog underscrub where it is open. Ferns, notably Male Fern and Hart's-tongue Fern (*Phyllitis scolopendrium*) are frequent and there is a small amount of Soft Shield-fern (*Polystichum setiferum*). The latter two are ancient woodland indicators, as is the Bluebell (*Hyacinthoides non scripta*) present but the banks are certainly not ancient woodland. Secondary woodland plants, however, predominate Spanish Bluebell (*Hyacinthoides hispanica*) is more frequent than the native species and the hybrid between them may be present.

12-C.7.56 There are eroded patches of ground behind the gardens abutting the railway and common ruderals and weeds can be found at the edges of these. Other species present include:

Ash

Bittersweet (*Solanum dulcamara*)

Blackthorn

Bugle (*Ajuga reptans*)

Cleavers

Cow Parsley

Cuckoo-pint (*Arum maculatum*)

Garlic Mustard

Hawthorn

Wood Avens

Hogweed

Horse Chestnut (*Aesculus hippocastanum*) seedlings

Japanese Knotweed

Lesser Celandine

Pedunculate Oak

Red Campion

Stinging Nettle

Sycamore

Wall Speedwell (*Veronica arvensis*)

Ivy

Male Fern

UA49 (Fig 12.2c, d) East Bank From Ninfield Road Bridge to Glover's Farm Bridge

12-C.7.57 This is very similar to the west side and has:

Blackcurrant

Dandelion

Germander speedwell

Rye-grass

Rough Meadow-grass

UA50 (Fig 12.2c, d) Flooded area North of Ninfield Road Bridge

12-C.7.58 This is a stagnant area with water and anaerobic silt about 150mm deep. The sparse vegetation consists of:

Field Horsetail

Bittersweet

Pendulous Sedge

Water Starwort (*Callitriche stagnalis*)

UA51 (Fig 12.2d) Secondary Woodland North of Glover's Farm Bridge

12-C.7.59 This is broadly similar to UA 48 and 49 with a similar pattern of ground flora dominated by Ivy in the shaded areas and Stinging Nettle and Bramble in the more open places. The principal species are:

Curled Dock

Hart's-tongue Fern

Ivy

Male Fern

Pendulous Sedge

Red Campion

Stinging Nettle

UA52 (Fig 12.2d) Bramble Scrub on East Side North of Glover's Farm Bridge

12-C.7.60 xx

UA53 (Fig 12.2d) Flooded Area North of Glover's Farm Bridge

12-C.7.61 This area has shallow standing water in winter that dries-out in summer. There are distinct single-species patches of:

Gipsywort (*Lycopus europaeus*)

Large Bitter-cress

Water Mint (*Mentha aquatica*)

UA54 (Fig.12.2.d) North End of Flooded Area North of Glover's Farm

12-C.7.62 This is a stand the OV24 Stinging Nettle-Cleavers community with the following associated plants:

Cock's-foot

Meadow Foxtail

Rough Meadow-grass

UA55 (Fig 12.2d) East Bank North of Glover's Farm Bridge

12-C.7.63 This is similar to UA 48. There is a small amount of Bracken on the top with Garlic Mustard and Red Campion. Down the slope there is more frequent Blackthorn at the edges and patches of Bramble, Rough Meadow-grass and Meadow Foxtail.