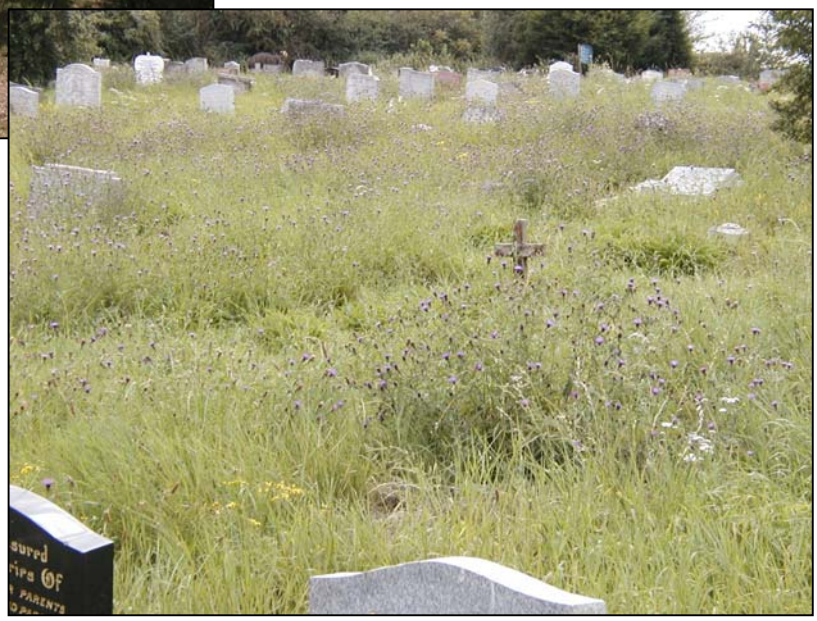


# NATURE CONSERVATION REFERENCE GUIDE FOR BASILDON DISTRICT

## A Review of Wildlife Sites

**ESSEX ECOLOGY SERVICES LTD.**

# IMPORTANT NOTES

## Nomenclature

The term "Site of Importance for Nature Conservation" (SINC) used in previous reports is here replaced by the currently generally accepted term of “Wildlife Site”.

## Rationale

It is hoped that this identification of important Wildlife Sites is not seen as a hindrance to the livelihood of those landowners affected, or an attempt to blindly influence the management of such sites. It is an attempt to describe the wildlife resource we have in the county as a whole, which has been preserved thus far as a result of the management by landowners and together we hope to be able to help landowners retain and enhance this biodiversity for the future.

## Public Access

Identification as a Wildlife Site within this report does not confer any right of public access to the site, above and beyond any Public Rights of Way that may exist. The vast majority of the Sites are in private ownership and this should be respected at all times.

## Land Ownership

It has always been the intention of the Essex Wildlife Trust to contact all landowners of Wildlife Sites, advising them of this identification and promoting nature conservation management of the site. To that end, the Essex Wildlife Trust has just appointed a Wildlife Sites Officer. While this lengthy undertaking is in progress it is requested that the Essex Wildlife Trust is contacted prior to any formal approach regarding any Site identified within this report.

## Boundaries

Whilst every attempt has been made to ensure accurate mapping of the site boundaries, the accompanying maps should be considered as being illustrative only. The Essex Wildlife Trust should be consulted over the precise boundary of all sites, should any dispute occur or precise determination be required.

## Planning

The information within this report should not be used as a bypass to the normal planning consultation process. It is inevitable that, with the passage of time, some Wildlife Sites will be lost or damaged to the extent that they are no longer considered as such. Similarly, new Sites may be identified and periodically added to the list for the borough. For these reasons, the Essex Wildlife Trust still wishes to be consulted on all planning proposals, regardless of whether or not they apparently affect a Site detailed within this report. This report will allow a greater understanding of the wildlife resources of the district/borough and will make the consultation process much faster and more cost-effective.

# INDEX

## 5. HABITAT SURVEY RESULTS

# BASILDON DISTRICT
# A RE-ASSESSMENT OF IMPORTANT WILDLIFE SITES

## 1. INTRODUCTION

### 1.1 General Introduction

This report has been produced by Essex Ecology Services Ltd. (EECOS), the survey and advisory company of the Essex Wildlife Trust, on behalf of Basildon District Council. It comprises the results of a general wildlife survey of the District, to evaluate the existing network of important wildlife sites as part of the ongoing Local Plan review process.

A previous survey report, produced in 1993, incorporated a basic land use survey with an exercise to identify the most important wildlife habitats present within the district. These important wildlife habitats were identified as "Sites of Importance for Nature Conservation" [SINC], with the results summarised in "Nature conservation – A Reference Guide". This present report covers a review of the advancements within the SINC system since this initial study. It also includes an update of the statutory obligations of local authorities, current nature conservation initiatives and an appraisal of the Site selection process. This is then followed by a discussion of the 2004 re-survey of the District and the identification of the current network of important Wildlife Sites.

### 1.2 Review Process

The basis for this re-assessment has been a complete Phase 1 Habitat Survey of the District. The detailed methodology of this survey is given in Chapter 2. Included within the general survey was especial consideration of the actual and potential "wildlife corridors" within the district as well as those landscape features which were felt to be a particular block to the free movement of species and individuals across the countryside. The applicable species and habitats now afforded attention via county or national Biodiversity Action Plans were also especially sought. Following on from the collection of revised site data via this field survey, a draft suite of Wildlife Sites was compiled and presented to the Basildon Countryside Forum, which comprises representatives from:

1. Planning/Countryside officers from Basildon District Council
2. English Nature
3. Essex Wildlife Trust/Basildon Natural History Society
4. The Essex Field Club
5. Essex Amphibian and Reptile Group

The revised site selection criteria (see Chapter 4, below) were developed in association with a parallel survey being undertaken within Chelmsford Borough, with an input from officers of this adjacent Local Authority. It is, however, intended that these criteria should be applicable throughout the county. A re-assessment of those Wildlife Sites within Castle Point used a "proto-type" version of these criteria in 2002.

In developing these revised criteria it is apparent that, for some groups such as invertebrates, the state of our knowledge concerning their distribution and ecological requirements is still quite limited, so that whilst criteria are now being put in place to select sites on the grounds of their invertebrate interest, the actual ability to do so is still at an early stage. However, development of the various Biodiversity initiatives across the county and the production of a

draft Essex Red Data List should help in focussing on the needs of these populations and identifying their key population localities. These data can then feed into subsequent Wildlife Site reviews, improving the effectiveness of their nature conservation role.

## 1.3 Limitations of the Survey

By its very nature, a Phase 1 Habitat Survey is a very "broad-brush" approach to collecting wildlife data. Generally, it does not allow for any site to be visited more than once nor can it be guaranteed that it is visited at the optimum time for the wildlife actually present. This is especially true for habitat mosaics, where a woodland component might be best surveyed in late April or early May, whilst a grassland component would be at its best in July or later. For a number of sites, this can be compensated for by one of two means:

1. Relying on the previous habitat survey data, which might have been gathered at a different time of year. Where possible, previous survey data were used to suggest the optimum time for a re-visit;
2. Using the knowledge of local naturalists who may have observed the site over many seasons, to broaden one's knowledge of the site.

The collection of data inevitably relies heavily upon accessing land and viewing sites from public rights of way, highways and areas of public open space. Where sites of potential interest were not accessible by such means, attempts were made to identify and contact the relevant landowner for permission to visit the site. In many cases the landowner could not be traced and in some instances the landowner then declined to give the necessary permission to enter onto the site. Tracing and contacting landowners is an extremely time-consuming process, so that inevitably there comes a time when the matter has to be dropped and one's judgement of the site has to rely on other factors. Where land uses could not be ascertained during the field survey, reference was made to aerial photographs of the district, taken in 2000. Some information on otherwise inaccessible sites (for whatever reason) has been gained from published papers, local naturalists or archive material.

This review of sites and the adoption of revised selection criteria introduces a stronger element of site adoption on the grounds of invertebrate, amphibian, mammalian and bird populations. For many of these groups our knowledge of their distribution and ecological requirements is limited, so that whilst criteria are now in place to help protect populations of nationally endangered or locally significant species, it may yet not be possible to identify sites accordingly. The adoption of Wildlife Sites for invertebrate populations, in particular, is still at a relatively embryonic stage.

# 2. SURVEY METHODOLOGY

## 2.1 General Techniques and Sources of Information

The field survey method has remained essentially the same as that used during the survey of 1993. During fieldwork sessions, the land use/habitat type for all land was recorded using standardised letter codes (see Appendix 1 and Section 2.3, below) laid down by the Nature Conservancy Council's Habitat Mapping Manual (Phase 1) (1990). Land beyond the seawall was not surveyed in detail, although the presence of saltmarsh on the seaward side of the wall was coded.

For most areas of known or potential wildlife value, detailed flora and fauna "target notes" have already been written during the previous survey, so the main emphasis during this present study was on checking whether or not the habitat quality and general species assemblages were still present. Notwithstanding this, many new target notes were also compiled for sites not previously covered and numerous sites were upgraded from brief target note to fully detailed target note status.

Land was generally surveyed from public highways and public rights of way or by gaining permission from the relevant landowner(s), to enter onto land not accessible from such vantage points. Additional site-specific information has been gleaned from records held by the Essex Wildlife Trust, English Nature and other conservation organisations, or from published sources, including publications of the Essex Field Club. Data have also been obtained from a number of local naturalists.

## 2.2 Detailed Methodology

a) 1:10000 scale Ordnance Survey maps were used to record land use (the same scale as the final maps to be produced). Prior to fieldwork, existing Sites of Importance for Nature Conservation (SINCs) and other known sites of suspected interest were highlighted on A3 or A4 photocopies of the base map, along with all public rights of way, in order to facilitate route-planning and assimilate existing knowledge.

b) The field survey maps were then transferred directly onto the final base maps during direct reference to aerial photographs of the area taken in 2000 and held by Essex County Council. This allowed for the accurate plotting of indeterminate or obscure boundaries and the correct positioning of static features not mapped on the Ordnance Survey base map. Whilst every effort was made to view land uses “on the ground”, it is inevitable that some areas were not accessible and these sections had to be assessed and mapped by direct reference to the 2000 aerial photographs. This does give rise to an element of potential inaccuracy, especially when trying to determine the degree of agricultural improvement of grasslands, but the fact that the aerial photographs are, for the first time, in colour has hopefully assisted with this assessment and kept errors to a minimum. As such the land use mapping should be, at worst and in an extremely small number of cases, the state of the countryside during the summer of 2000 and the number of places where subsequent changes may have taken place is hopefully very small. This is most likely to be the case with areas of housing (legal or otherwise e.g. Crays Hill), where land use boundaries change rapidly and quite significantly over time.

c) Sites for which descriptive “target notes" were written were highlighted on the base map by sequential numbers per square kilometre and should be referred to in association with the 1 Km square reference e.g. 8085/1 or 7886/4. It should be noted that this numbering system is based on the original county-wide survey and there are instances where the sequential numbering within a kilometre square swaps back and forth over a district boundary. Thus, whilst notes 1 and 3 may be mapped here as being within the district, note 2 may lie within another borough/district and will not show up on the accompanying land use maps.

d) The completed base maps were then used to calculate the extent and percentage of each of the habitat type within the study area. Plot areas were obtained by area measurement using a digital planimeter direct from the final base map (scale 1:10000). The areas of individual Wildlife Sites were taken from the Map Maker polygons draw from 1:10 000 OS raster mapping, which have been used to generate the Wildlife Site register presented here in Appendix 6.

e) The District was surveyed primarily between March and September, although a limited number of sites were re-visited at a later date to resolve specific queries.

## 2.3 Habitat Code Definitions

The Phase 1 survey procedure recognises over ninety different habitat categories, which encompass the entire range of habitat variability within Great Britain. The definitions given in the Nature Conservancy Council's Habitat Mapping Manual (Phase 1)(1990) are based on those used by the NCC for surveying SSSIs and are designed to be compatible with the National Vegetation Classification.

The definitions set out below are only for those main habitats that have been encountered during the Phase 1 survey and have been modified from the mapping manual so as to give maximum applicability to Essex. The relevant mapping codes are also stated, with a full list of codes given in Appendix 1. Some codes listed in Appendix 1 are deemed to be self-explanatory and are not discussed below.

### 2.3.1 Woodland and Scrub

Woodland

Vegetation dominated by trees (more than 5 metres high when mature) forming a distinct, although sometimes open, canopy is sub-divided into the following categories:

- Broadleaved Woodland (code BW): “natural woodland” with 10% or less canopy cover by conifers.
- Planted Broadleaved Woodland (code PBW): comprising mainly planted standard trees.
- Planted Mixed Woodland (code PMW): 11 - 90% of either broadleaved or coniferous species in the canopy.

PBW(OR) indicates an orchard. A wood is defined as "Planted" if the extent of planting amounts to 30% or more of the total tree canopy cover. An exceptionally open tree canopy, not deliberately designed as parkland, is coded as Scattered Broadleaved Woodland (SBW).

The following woodland types are included in the "semi-natural" rather than "planted" categories:

- Woods with planted standards in semi-natural coppice;
- Mature plantations (more than about 120 years old) of native species growing on sites where those species are native and where there are semi-natural woodland ground flora and shrub communities. Self-sown secondary stands of exotic species (e.g. Pine on heathland, or Sycamore);
- Willow carr (other than Grey Willow, which is classified as scrub) where the willows are more than 5 metres tall;
- Well-established Sweet Chestnut coppice;
- Woods which have been completely underplanted, but where the planted trees do not yet contribute to the canopy.

Parkland

Parkland is deemed to be woodland in which the tree canopy cover is less than 30%. It differs from Scattered Broadleaved Woodland in generally being a more deliberate arrangement in an amenity or highly landscaped area, rather than being closely allied to semi-natural broadleaved woodland. Two sub-divisions are recognised: coniferous park (code CP) and broadleaved park (code BP). The ground flora may have a "woodland" character or may be nearer to a grassland habitat, described elsewhere, and coded separately.

Scrub

Scrub is defined as vegetation dominated by locally native shrubs, usually less than 5 metres tall, occasionally with a few scattered trees. Two sub-divisions are recognised, dense scrub (code DS) and scattered scrub (code SS), which include the following communities:

- Gorse and Broom scrub;
- Stands of mature Hawthorn, Blackthorn or Grey Willow even if over 5 metres high;
- All Willow carr, except if over 5 metres tall and of species other than Grey Willow.

This category does not include stands of young trees or stump regrowth less than 5 metres high, where these represent more than 50% of the immature canopy cover. Usually, Scattered Scrub will be coded as occurring within another habitat e.g. an unimproved clay soil grassland (NG) with scattered bushes might be “NG/SS”.

2.3.2 Grassland and Marsh

This is a complex category of nine different habitat types. The sub-divisions are based on the general pH of the soil (acid, neutral or calcareous) and the degree of agricultural improvement (totally improved, species-poor semi-improved, species-rich semi-improved and unimproved/ insignificantly improved). Coastal grasslands are dealt with under coastal habitats in general.

Improved Grassland (code I)

Grasslands of this type can usually be distinguished by their bright colour and lush growth. The sward is species-poor, brought about by regular treatment with artificial fertilizers and/or herbicides which favours only a very few, competitive species of little wildlife interest. This is usually compounded by reseeding with such species, e.g. Perennial Ryegrass cultivars and Red Clover. Habitats classified under this heading would include intensively managed grazing

pasture and hay/silage grasslands. Fields of Ryegrass grown for seed or as obviously temporary leys are treated as arable land (code A).

Poor Semi-improved Grassland (code SI)

This is a new category, not used during previous surveys of the District. It is intermediate between highly improved agricultural grasslands, above, and the "semi-improved" but often quite floristically diverse swards below. It will usually have been derived from improved but permanent pasture, which tends to accumulate small quantities of common herbs and other grasses through natural seed colonisation. These herbs are often not associated with old grasslands but can be more opportunistic ruderals. The resulting sward can be quite "flowery" but its character does not closely resemble an old meadow that has undergone improvement, hence its separation from even the significantly improved "semi-improved" swards.

Some areas of longer-term set-aside land may now be classified as such, although short-term set-aside areas have been mapped as arable land.

Semi-improved Grassland - (acid soil code SAG, neutral soil code SNG)

Grasslands that have been only slightly modified by fertilizers, herbicides, high grazing pressure or drainage are included in this group. Species diversity is usually lower than the corresponding "unimproved" grassland type with species characteristic of the type being at much lower densities and partially replaced by more competitive species such as Ryegrass.

Unimproved Grassland

Such sites are often regularly grazed or mown but may be rank and neglected. Whilst they may receive farmyard manure treatment or manure direct from grazing livestock, the species complement will not have been significantly affected.

a) Acidic Grassland (code AG)

This habitat type occurs on sandy and gravelly, nutrient-poor soils with a pH of less than 5.5. Such grasslands are generally species-poor and are typified by the presence of Wavy Hair-grass, Heath Bedstraw, Sheep's Sorrel, Mat Grass and Common Bent-grass.

b) Neutral Grassland (code NG)

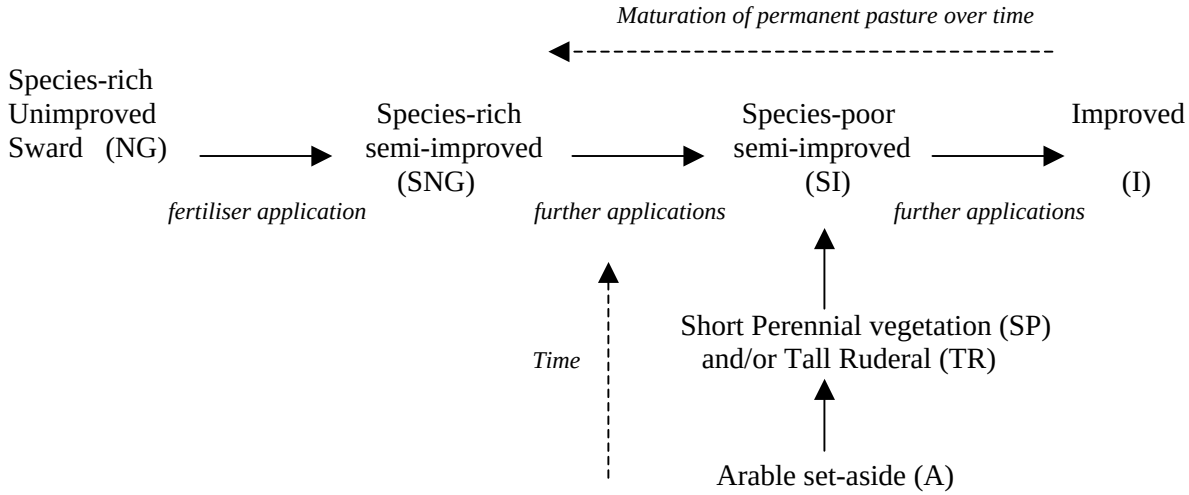
This category encompasses a wide range of communities occurring on neutral (pH 5.5 - 7.0) soils, which are often clayey or loamy and generally are more intensively managed than either acidic or calcareous grasslands. The following grass species are indicative of neutral conditions when occurring frequently: Meadow Foxtail, Sweet Vernal Grass, False Oat-grass, Crested Dog's-tail, Cock's-foot, Tufted Hair-grass, Tall Fescue, Meadow Fescue, Ryegrass and Rough Meadow-grass. The associated herbs are often very diverse, producing some of the most species-rich grasslands in the country.

Marshy Grassland (code MG)

Marshy grassland communities are diverse in nature, ranging from Purple Moor-grass communities to grasslands with a high proportion of rushes, sedges and/or Meadowsweet

and meadows supporting communities of species such as Marsh Marigold, Valerians and Hemp Agrimony where herbs rather than grasses predominate.

The relationship between grassland types and associated land uses can be summarised as follows, using neutral soils as an example, although a similar case would apply to acid grasslands:




2.3.3 Tall Herb and Fern

Tall Ruderal (code TR)

This category comprises stands of tall perennial species such as Rosebay Willowherb, Docks, Creeping Thistle and Nettle. It will usually be found in association with a grassland community e.g. "SNG/TR", but may be the main cover on areas of waste ground, highly disturbed open ground or in places with excessively high nutrient statuses.

2.3.4 Heathland

This group includes vegetation dominated by ericaceous shrubs of dwarf gorse communities (note: Common Gorse occurring as a large more or less continuous stand is considered under scrub). Heaths occur on generally well-drained, sandy and/or gravelly soils which grade into bog communities where the substrate is of thick (>0.5 metres) peat, essentially brought about by waterlogged conditions.

Dry Dwarf Shrub Heath (code DH)

This habitat type includes vegetation with greater than 25% cover of ericaceous or dwarf gorse species, such as Heather, Bell Heather and Dwarf Gorse. This habitat may form a mosaic with acidic grassland communities (code DGM).

Wet Dwarf Shrub Heath (code WH)

This category differs from dry heath in that Purple Moor-grass and Cross-leaved Heath are typically abundant, with Bog-mosses e.g. *Sphagnum compactum* and *Sphagnum tenellum* often present. This habitat may form a mosaic with acidic grassland communities.

2.3.5 Swamp and Marginal Vegetation

Communities within these categories are emergent from, or are frequently inundated by, freshwater, occurring over peaty or mineral soils. They differ from mires, flushes and springs and from marshy grasslands in having the water table distinctly above ground level for most of the year.

Swamp

Swamps are areas of emergent vegetation typical of the transition between open water and exposed land. Characteristic species include Greater Reedmace, Common Reed, Sea Club-rush, Reed Sweet-grass and Greater and/or Lesser Pond Sedge.

Two sub-divisions are recognised: Single-species Dominant Swamp (code SD) - generally occurring in deeper water and Tall Swamp Vegetation (code TS) - a mixed community of reed/sedge, generally occurring in shallower water.

2.3.6 Open Water

This category includes lakes (code L) and ponds (code Po, less than 0.25 ha), reservoirs (RES), flooded gravel pits, coastal borrow dykes (SWB), streams and rivers.

2.3.7 Saltmarsh

Two sub-divisions of this habitat type are recognised, either dense (code DSm) or scattered (code SSm) Saltmarsh, usually dominated by species such as Sea Purslane, Cord-grasses, Saltmarsh-grasses, Glassworts and Annual Seablite .

2.3.8 Miscellaneous

Arable (code A)

All land used for the growing of agricultural crops is included here, including Ryegrass monocultures grown as a seed crop but excluding horticultural land (which is coded as HOR) and allotments (code ALL). Temporary Ryegrass leys are also included here, as are short-term set-aside areas. Longer-term set-aside land may be classified as grassland (see illustration in Section 2.3.2, above).

Amenity Grassland (code AM)

These are intensively managed and regularly mown grasslands usually dominated by Ryegrass and with White Clover, Daisy, Greater Plantain and Dandelion although, since these grasslands are often reseeded the species composition can vary somewhat. Included within this category are sports-grounds, playing fields, golf courses, "lawns" surrounding large industrial/business premises and municipal parks. It should be recognised that, on occasions, this coding reflects a management regime rather than vegetation type, since species-rich grasslands, which might otherwise be labelled as “SNG”, might be subjected to regular mowing as part of an open space area.

Short Perennial (code SP)

Short perennial communities are those typical of urban derelict sites, quarries, railway ballast and new road cuttings, stony, well-drained substrates. Newly created set-aside areas may also conform to this vegetation type. Frequently occurring species include Greater Plantain, Creeping Buttercup, Black Medick, Coltsfoot, Creeping Cinquefoil and Melilots.

Introduced Shrub (code IS)

Such communities are of not locally native shrubs, whether planted or self-sown, such as species of Dogwood, Privet, Rhododendron and Snowberry.

Green Lane (code GL)

The term "green lane" is used to describe an ancient byway that has not been artificially surfaced, and represents some form of linear woodland, grassland or similar habitat.

Waste Ground/Bare Ground (code WG/BG)

"Waste ground" can include such areas as recent demolition sites and some forms of rank vegetation on rubbly/dumped ground. Waste Ground is, strictly speaking, a land use classification and the actual vegetation present can often still be coded separately e.g. “WG/TR”. The "bare ground" category is not used to describe recently ploughed arable land, but in circumstances where there is an apparently on-going change in land use of unknown nature (including recently ploughed grassland for which the after use is uncertain).

# 3. DEVELOPMENT OF WILDLIFE SITE POLICIES AND SELECTION CRITERIA

## 3.1 Framework for Local Nature Conservation Initiatives

The following section is a brief review of the legislation and government guidance on nature conservation issues, updating the information included in the previous SINC report.

Statutory site designation for nature conservation purposes has its basis in the 1949 National Parks and Access to the Countryside Act, which introduced the concept of Sites of Special Scientific Interest (SSSI) as well as National Nature Reserves (NNR). The need for habitat surveys and ultimately the desirability of being aware of the local network of important wildlife areas was identified as long ago as 1968. Section 11 of the Countryside Act 1968 advised Local Authorities,

> "to have regard to the desirability of conserving the natural beauty and amenity of the countryside", which embraces the conservation of flora and fauna. In particular, Paragraph 39 highlighted the advantage of having "a base of information, including thematic maps on wildlife and habitats, to inform and assist in the development of policies which take account of the needs of conservation..."

Still the single most important piece of recent wildlife legislation is The Wildlife and Countryside Act 1981, although it has undergone a number of significant amendments since its adoption, (e.g. the 1985 Wildlife and Countryside (Amendment) Act and most recently the Countryside and Rights of Way Act 2000 – the "CROW" Act). The 1981 Act made further provision for the protection of Sites of Special Scientific Interest (SSSI), which are among the most important wildlife habitats in the country. However, as discussed below, it was also widely recognised that there were a large number of sites of great value in the county and/or district context which had no legal protection but which contributed significantly to the diversity of habitat, flora and fauna in the countryside.

Over the last 20 years there has been a series of attempts to recognise and protect these "other" sites through the planning system. The first step in this direction came with the Department of the Environment's guidance to local authorities in DoE Circular 27/87: "Nature Conservation". In this, the Secretary of State said he was:

> "...anxious to ensure that conservation aspects, together with all other relevant factors, are given full consideration before planning policies are drawn up which would affect such sensitive areas (SSSIs or other types of protected areas). The inclusion in a development plan of land-use policies dealing with nature conservation can make a significant contribution to the achievement of this objective."

Circular 27/87 also recognised the role of other wildlife sites in forming buffers, wildlife corridors and links between populations of plants and animals. The importance of these connections between the statutorily designated sites cannot be over-emphasised. In Paragraph 6 it stated that:

> "...our natural wildlife heritage is not confined to the various statutorily designated sites and there is a continuous gradation of nature conservation interest throughout the countryside and in many urban areas."

Later, DoE Circular 1/92: "Planning Controls Over Sites of Special Scientific Interest" reinforced and extended the consultation required on proposals that either directly or indirectly affect SSSIs.

More recently, the national government has been influencing local planning policies (on all matters) through the publication of Planning Policy Guidance (PPG) notes. The most significant one here was PPG9 "Nature Conservation", issued October 1994. This cancelled DoE Circulars 27/87 and 1/92 quoted above. The aims of PPG9 were to:

- set out the Government's objectives for nature conservation, and the framework for safeguarding our natural heritage under domestic and international law;
- describe the key role of local planning authorities and English Nature;
- emphasise the importance of both designated sites and undesignated areas for nature conservation;
- advise on the treatment of nature conservation issues in development plans;
- state the development control criteria, particularly for Sites of Special Scientific Interest and sites with additional national and international designations;
- contribute to the implementation of the EC Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora ("the Habitats Directive");
- elaborate on mineral development and nature conservation, and on the development control implications of species protection.

Adapted from DoE (1994).

Nature conservation considerations were not restricted to PPG9, however, with further guidance given where it impinges upon countryside and agricultural economics and development (PPG7), development plans and sustainable development (PPG12), mitigation of transport proposals (PPG13), interactions with sport and recreation (PPG17), coastal planning (PPG20) and tourism (PPG21).

PPG9 advised that local authorities should identify relevant nature conservation interests in local plans and ensure that the protection and enhancement of those interests is properly provided for in development and land-use policies.

The latest significant piece of environmental legislation is the Countryside and Rights of Way (CROW) Act 2000. Campaigners were originally hoping to see some form of statutory protection for Wildlife Sites included in this Act and although this did not happen, there are sections that reinforce the need to conserve local biodiversity.

In September 2004 the Office of the Deputy Prime Minister (ODPM) issued a Consultation document detailing the proposed replacement of PPG9 with "Planning Policy Statement 9: Biodiversity and Geological Conservation" (PPS9), claiming that the broad policy objectives included therein are, "firmly based on the principles set out in '*Working with the grain of nature – a biodiversity strategy for England*', published by Defra in 2002.

Parallel to this, a consultation draft of a Circular was also published. The circular sets out administrative guidance on the application of the law relating to planning and nature conservation.

The draft PPS9 sets out policies that will need to be taken into account by local planning authorities in the preparation of local development documents and may also be material to decisions on individual planning applications. One serious flaw in this PPS9, identified by the Wildlife Trusts nationally and also the Association of Local Government Ecologists (ALGE) is that the draft PPS9 does not specifically mention Wildlife Sites by name. This could lead to developers objecting to any local authority policies on Wildlife Sites on the grounds that there is no mention of them in PPS9, implying that such policies are inconsistent with central government policy. This is clearly a very important issue.

The draft PPS9 does, however, promote in general terms the various biodiversity initiatives now established at national and local level. Referring to *Working with the grain of nature – a biodiversity strategy for England* (Defra, 2002) the draft PPS9 states that,

> "It [the Defra publication] includes the broad aim that planning, construction, development and regeneration should have minimal impacts on biodiversity and enhance it wherever possible".

By basing future Wildlife Site selection criteria strongly within the realm of protecting biodiversity, it should be possible to demonstrate that the Wildlife Site system is an integral and key part of delivering this broad aim and that, as such, Wildlife Sites have an irrefutable place within all local authority planning documents.

The vague notion of sites of "local importance" is referred to within the Key Principles of the National Planning Policies within the draft PPS9:

> "1. Regional planning bodies and local planning authorities should adhere to the following key principles to ensure the potential impacts of planning decisions on biodiversity and geological conservation are fully considered.
> (i) Plan policies and planning decisions should be based upon up-to-date information about the environmental characteristics of their areas. These characteristics should include the relevant biodiversity and geological resources of the area. In seeking to keep environmental characteristics under review local authorities should assess the potential to sustain and enhance those resources.
> (ii) Plan policies and planning decisions should seek to maintain, or enhance, or add to biodiversity and geological conservation interests. In taking decisions, local planning authorities should ensure that appropriate weight is attached to designated sites of international, national and local importance and the wider environment" (ODPM, 2004).

The issue of "appropriate" weight for sites that are deemed by the ODPM to be of "local importance" is also a matter of concern. Whilst Defra and even English Nature have previously favoured the term "Local Wildlife Sites" for the former SINC network, the use of the word "local" is generally resisted by the Wildlife Trusts. It implies that Wildlife Sites cannot be of national importance, which is often incorrect, and therefore enhances the idea that Wildlife Sites are only second or third tier sites in terms of nature conservation value. Thus, a developer might interpret the need to "ensure that appropriate weight" is given to local sites as the need to give them little if any attention, because they are of such lowly rank.

This "pecking order" for nature conservation sites is unfortunately further emphasised in the draft, when dealing with local development documents. Key Principle 4 states that,

> "When identifying designated sites of importance for biodiversity and geodiversity on the proposals map, clear distinctions should be made between the hierarchy of international, national, regional, and locally designated sites."

An interesting point to dwell on here is that the level at which sites are designated i.e. by the European Union, national government or local authority is **NOT always** directly correlated by the level of nature conservation importance of that site. Local authorities are still looking after sites of national importance that have not been recognised as SSSIs by central government. Such sites can be included within the Wildlife Site network but it should not be inferred that they are, by default, only of local importance.

Traditionally, the Wildlife Sites networks across the country have been lead or at least strongly influenced by county Wildlife Trusts. In recent years, however, the desires to see a national standard identified for such sites and calls to give greater statutory protection to Sites have led to English Nature and Defra now taking a more active interest in developing such systems. In April 2000 the DETR (now Defra) established a Local Sites Review Group (LSRG), with English Nature reporting its position in 2002, as cited above. The dialogue between Defra, English Nature and the Wildlife Trusts is still ongoing. However, much of the deliberations dominating these discussions relate to policy emphasis, funding and management of wildlife site systems, the processes by which sites should be designated and broad ecological and biodiversity principles rather than fine detail of selection criteria. It is believed that the selection criteria developed here will remain robust at the end of this national dialogue period.

International Responsibilities

Nationally and internationally important sites have a degree of statutory protection. Some designations arise from international agreements to which the British Government is a signatory, with two of the most important early agreements being those relating to Special Protection Areas (SPAs) and Ramsar sites. SPAs are defined under Article 4 of European Council Directive on Conservation of Wild Birds 79/409/EEC. Designation of the most important wetland sites is urged by the Ramsar Convention on Wetlands of International Importance.

In 1992 the United Nations Conference on Environment and Development ("The Earth Summit" or "Rio Summit") paved the way for global nature conservation measures with a mechanism that could allow for its translation down to the scale of individual nations, counties and even local authorities. Within the UK, this has resulted in the formulation of Biodiversity Action Plans (BAPs), an initiative that is of fundamental importance to the future of nature conservation in Essex. The BAP programme now underlies the philosophy behind the selection of Wildlife Sites in Essex and so is discussed in greater detail below.

One of the newest government initiatives, again cutting across all aspects of local government, is the introduction of "best value" indicators at both national and local levels. In order to assist local authorities with the task of determining appropriate Performance Indicators (PI), the Audit Commission and the Improvement and Development Agency are developing a library of "off the shelf" local PIs, including those for sustaining Biodiversity. Of relevance here are the following proposed PIs:

LIB/BAP5 Area of Sites of Importance for Nature Conservation (SINCs) lost due to land development.
LIB035 Percentage of authority designated as a conservation area.

The draft PPS9 document issued by the ODPM in September 2004 states in Key Principle 6 that,

> "The most important sites for biodiversity are those identified through international conventions and European Directives."

Whilst this may be true at a global level, it can be argued that it not true at a more local level, if one draws a distinction between "biodiversity" in the widest sense of the word i.e. the diversity of biological organisms and the more limited set of those species and habitats for which Biodiversity Action Plans have been or are being written. Most internationally designated sites in Essex are coastal mud-flats and marshes. These support very significant numbers of international migrant birds, such as Brent Goose, Dunlin, Redshank, Godwits and Wigeon. These birds are supported by an enormous biomass of mud invertebrates, but the number of species involved is quite small. An international site may be designated for the presence in large numbers of only a handful of birds, which feed on a few dozen invertebrate species – not a very "biodiverse" assemblage, compared to a large brownfield site that may support hundreds of invertebrate species and dozens of national rarities. A similar logic can be applied to ancient woods and many grassland habitats – they are all more diverse than mudflats. Some people would argue that because the brownfield site or ancient wood is more biodiverse than a mudflat, the Key Principle 6 quoted above does not hold true at a local or even national level. This does not, of course, mean to say that we should abandon our international responsibility to protect these migrant birds and their habitats, but it further illustrates the fact that true conservation of biodiversity comes through the protection of a sound Wildlife Site network, rather than a few representative SSSIs or international sites.

## 3.2 Background to the Development of Non-statutory Site Selection in Essex

Some local non-statutory site networks have been in existence for 20 years or more, largely based upon or at least initiated by Phase 1 Habitat Surveys. The first such habitat survey of Essex was carried out in mainly between 1990 and 1994 by the Essex Wildlife Trust as part of a county-wide wildlife assessment, based on the recognised Phase 1 Habitat Survey technique. This culminated in the production of 14 district/borough plans (printed as "Nature Conservation Reference Guides") that identified for each local authority a network of the most important wildlife areas under their control. The intention was that these Sites of Importance for Nature Conservation (SINC) should represent the minimum network of key wildlife areas that needed protection within the planning system and, equally, deserved priority attention for the promotion of positive management, with appropriate policies appearing in each Local Plan.

At that time there was little or no national guidance on the criteria that should be used to identify such sites and so a local selection process was developed, using key ecological criteria used in the evaluation of Sites of Special Scientific Interest (SSSI), based on Ratcliffe (1977) and the cumulative knowledge of local natural historians. Towards the end of this county-wide review (1995), however, the RSNC/Wildlife Trusts produced just such a document, with an update in 1997, with the recommendation to adopt the more widespread name of "Wildlife Site", (Wildlife Trusts, 1997).

During 1998 and 1999 a group of interested parties (hereafter referred to as the Essex Review Panel), including representatives from the Essex Wildlife Trust, English Nature, Essex County Council and other key organisations, held a series of meetings to seek a means of

strengthening, modernising and improving the selection process for Wildlife sites. This generated three Consultation Draft documents under the generic title "Wildlife Sites – A New Approach for Essex", No.2 being "Site Identification, Proposal and Adoption" and No. 3 entitled "Criteria for the selection of Wildlife Sites in Essex". Thereafter, this Review Panel suspended its deliberations, pending a report on Wildlife Site systems from Defra and English Nature at a national level.

In February 2002, English Nature produced a Draft Position Statement (20th February 2002) on "Local Sites" for the benefit of Defra. This statement recommends the adoption of the name "Local Wildlife Sites" but the Wildlife Trusts resisted this on the grounds that it can be perceived as demoting the value of such sites BELOW the "nationally important" SSSIs, which is felt to be an invalid interpretation (see below).

### 3.3 Issues Relating to SSSIs

A fundamental national inconsistency that is still being addressed is the issue of whether or not SSSIs should be included within Wildlife Sites registers. In Essex, they were identified as SINCs within the original suite of Sites identified in the early 1990's. SSSIs are, by their very definition, important wildlife sites and it is important to consider that Wildlife Sites are supportive of, rather than inferior to, SSSIs. As a result, some people argue that to distinguish between the two creates a hierarchy that is both misleading and open to attack by barristers seeking to undermine the importance of such "local" sites for development purposes. Indeed, taking a national perspective, some Wildlife Sites are, by English Nature's own admission, of a quality that would meet SSSI selection criteria, but they are not formally designated as such for legal, bureaucratic or administrative reasons rather than a lack of wildlife interest.

SSSI designation seeks only to protect a suite of the most important habitat types within any given area, rather than all such locations that might qualify for selection. Thus, only a handful of species rich Oak-Ash-Maple ancient woodlands might be identified as SSSIs, as being representative of that woodland type in a given region, even though there may be many other woods that are of comparable quality in the area. Thus, it can be argued that identification or otherwise of a site as an SSSI is not a reliable indicator of the relative wildlife value of a site.

English Nature (2002) admit to the crucial support given to SSSIs by Wildlife Site networks, stating that:

> "nature conservation objectives and the maintenance of the biological and geological richness cannot be delivered through a statutory sites system alone. Although SSSIs play a key role in maintaining biodiversity …many other sites support features and populations of species, which contribute to the overall distribution, and abundance of the nature conservation resource".

The Essex Wildlife Trust felt that all biological SSSIs should be included in the original SINC network for these reasons. The frequent labelling of SINCs as "second tier sites" was considered to be unfortunate since this emphasised the belief that they were inferior to SSSIs. There have existed situations where two sites have a similar biological interest but where one is designated as an SSSI and the other is not, by reason of difficulties in negotiation with the landowner or other bureaucracy. Both sites can be Wildlife Sites and it is argued that the Wildlife Site system is the only unified nature conservation designation that identifies all sites within any given area on their merits alone, regardless of administrative load, land ownership or economic factors.

English Nature's Position Statement on Local Sites to Defra in February 2002 also recommends that SSSIs should be excluded from Wildlife Site networks, largely on the grounds that this would be "overly bureaucratic, double 'labelling' and cause confusion". Some people might consider this statement to be a little rich, considering that much of the Essex coastal habitat, for example, is designated as an SSSI AND a Ramsar Site AND a Special Protection Area (SPA) **AND** as candidate Special Area for Conservation (SAC) **AND**, in places, a National Nature Reserve (NNR), with the boundaries of all these designations not always being the same.

A further problem is perceived with occasional but real instances where a SSSI was de-registered as such due to the critical deterioration of its character(s) of special importance. In many cases it could be argued that the site would still qualify as a SINC/WS but this would now require the site being added to the Site register and being labelled as such in the Local Plan. The failure to identify such Sites on a Local Plan map can be used as an attack on the site, claiming that the relevant Wildlife Site policies do not apply to the land if not explicitly illustrated as such. The problems of reviewing and updating a dynamic Wildlife Site system within a "static" five-year Local Plan remain relevant. The Essex Wildlife Trust recommends that Wildlife Site policies should include a statement that areas of land affected by such policies are identified on the Local Plan map AND will include supplementary Sites "that may, from time to time, may be identified and proposed by the Essex Wildlife Trust, in consultation with other nature conservation agencies and local experts".

Dialogue between Defra and the Wildlife Trusts has established the distinction between geological and biological selection of sites. Thus, it is generally agreed that a geological SSSI might be selected as a Wildlife Site on the grounds of its biological interest and conversely biological SSSIs might be selected as Regionally Important Geological Sites (RIGS). It has also been suggested that features of local importance within biological SSSIs that are not part of the notifiable features of the SSSI should also be compiled and added to the SSSI documentation and considered in future site management, provided that those actions do not compromise the notifiable features of interest.

The 1999 Consultation Reports produced by the Essex Review Panel proposed that SSSIs should remain within the Wildlife Site system, although this statement was made before the English Nature Draft Position Statement in 2002. However, it is apparent that national policy favours the exclusion of SSSIs from Wildlife Site systems and so this present study has followed that policy. The removal of these sites is the biggest single change to the network proposed here. SSSIs will still be identified separately on Local Plan maps, as has always been the case, given their statutory rather than advisory protection.

## 3.4 Biodiversity Action Plans

Since the production of the various Nature Conservation Reference Guides in the early 1990's, the concept of both national and local "Biodiversity Action Plans" (BAPs) (incorporating Species and Habitat Action Plans, SAPS and HAPs, respectively) has come to the fore. Stemming ultimately from the 1992 "Earth Summit" in Rio de Janeiro, this initiative aims to prevent declining populations of plants and animals and whole ecosystems from becoming endangered, acting before the situation has become critical.

The UK government has responded by producing a series of reports on the state of the nation's more endangered flora, fauna and habitats. The first such report identified "Priority"

species and habitats, where action was deemed to be most urgently required. Subsequently, other documents have addressed species from the broad range of habitats present across the UK.

The banner "think globally, act locally" can be justifiably scaled down to the country/county and even county/district level, with every local government body having a responsibility to conserve those special places under their control and to ensure that the "variety of life" within their administrative area receives appropriate protection and enhancement. This responsibility has long been recognised and the adoption of the original Sites of Importance for Nature Conservation (SINCs) within Essex showed a commitment to that principle. However, with the establishment of local BAP policies and targets, the challenges for both nature conservationists and local authorities alike remain an evolving and ever-demanding focus for effort. In 1999 the Essex Biodiversity Action Plan was produced (Thompson and McClean, 1999), as the local response to the challenge of ensuring the conservation of the county's flora and fauna.

Curiously, in 1999 the Essex Review Panel were of the opinion that BAP lists should NOT be used within the criteria for site selection because they are,

> "considered more a mechanism for assigning and targeting action rather than for aiding protection mechanisms at this level", and that….. "Local Authorities could use the Local Biodiversity Action Plans to assist in the identification of sites that are locally important that fall outside the Wildlife Site series".

However, it is now recognised that BAPs at both national and local levels should be at the heart of Wildlife Site systems and the Essex Biodiversity Project, through local forums, is one of the key partners in this current project. It is particularly relevant to those action plans where the prescribed "action" is to preserve, conserve or enhance known habitats of threatened species or the habitats themselves. The achievement of national and local BAPs was at the core of the pilot revision of Wildlife Sites within Castle Point and will be adopted here. English Nature's advice to Defra (English Nature, 2002) is that the selection of Wildlife Sites should be based on the national, regional and local Biodiversity Action Plan priorities. In reality, the philosophy underlying the original SINC designation process in 1991 was not greatly dissimilar to those of the BAP initiative, but the published action plans now provide a more organised and coherent framework with which to identify Wildlife Sites.

Some aspects of the BAP policies and targets, particularly relating to habitat BAPs can and should be built into local planning policies and guidelines and can be used to encourage the selection of some sites for priority attention for active management, protection through the planning system and possibly identification as Wildlife Sites. This observation is supported by Key Principle 9 of the Consultation draft PPS9 issued by the ODPM in September 2004. This states that,

> "Regional and local sites of biodiversity and geological interest (such as Regionally Important Geological Sites and Local Nature Reserves) [note the lack of reference to the SINC/Wildlife Site concept] have a fundamental role to play in meeting overall national biodiversity targets, contributing to the quality of life and the well being of the community and in supporting research and education. Criteria-based policies should be established in local development documents against which proposals for any development on or affecting such sites will be judged. These policies should be distinguished from those applied to nationally important sites".

This Principle, again, gives the impression that “local sites” cannot be of national interest or rather that ALL nationally important sites will already be designated as SSSIs and therefore given different weight when reckoning up the fate of a site.

The most obvious and generally accepted instance of this is the case for preserving general biodiversity is that of ancient woodland, which is the closest link with the natural vegetation that formerly clothed the non-maritime parts of the county. Thus, even in the original SINC reports, all viable ancient woodland fragments were identified as SINC sites.

Clearly, though, policies cannot always be specifically written to encompass all aspects of the BAP project. Equally, not all sites supporting BAP species or habitats can be identified to the point of being able to identify them as Wildlife Sites. Song Thrush is one of the local BAP species (and it is also on the RSPB’s “Red List” of birds of conservation concern), but it would be impractical to identify any site within which Song Thrush nests as a Wildlife Site and it would be impossible to draw a line on a map to delineate any “Song Thrush Wildlife Site” on the grounds that there is a good breeding population present. Recovery of Song Thrush numbers depends upon the habits of farmers and gardeners not obliterating snail populations with harmful chemicals and reducing other impacts upon this bird’s habitat and food requirements. Achievement of BAP targets is a way of life, not just a policy. All Local Authorities can contribute directly to the support of this BAP through its restrained usage of pesticides on Council land and through clauses written into landscaping contracts with outside companies.

## 3.5 Other Habitats

The previous sections discuss the justifiable need to promote good nature conservation management and appropriate protection for land or habitat types with some sort of formal designation, be it Local Nature Reserve, Priority BAP habitat or SSSI. However, there may be other pieces of semi-natural vegetation that contribute significantly to the natural assets of an area that have no such identification. These must be evaluated on their ecological merits alone, but with particular reference to how they can support the network of statutorily protected or BAP habitat sites.

Traditionally, the ecological value of a piece of land has been assessed using a key-point criterion system developed by D. Ratcliffe (1977; the “Ratcliffe Criteria”) for the Nature Conservancy Council. This system still underlies English Nature's rationale in the identification of SSSIs and the philosophy behind the designation of many of the other sites listed above. The ten key-points are listed below, along with explanatory comments. Of the ten, greater emphasis is placed upon the first seven when comparing the relative merits of Sites in this present study.

1. SIZE - A large site is generally of more value than a smaller one of the same habitat type. This minimises the impact of "edge disturbance" to the central core of the site and ensures that viable habitats for (especially animal) species are present. Ecological 'island theory' states that the larger the area, the more species of any given taxonomic group can be supported by that area. Consideration should be made of the total extent of the habitat within the district/borough and county, since even a very small site is of immense value if it represents a large proportion of that habitat type (See point 4 - Rarity).

There is likely to be a minimum size limit for some wildlife Sites, especially where the feature of importance is faunal rather than floral. Thus, whilst a meadow is shown to be used by a rare bumblebee, if it is not, alone, capable of supporting a viable population of that species, then selection might be withheld or at the very least one should consider establishing the whereabouts of alternative foraging areas and including them within the site, even if they might have otherwise qualified for selection. Equally, a patch of scrub used by a possibly speculative singing nightingale might not be considered if it is too small to support a viable breeding territory.

The significance of the size of a site can depend on a number of other factors, such as:

1. Extent of the habitat within Essex – The more common the resource, the greater the size requirement for consideration as a Wildlife Site. This can be moderated by
2. The fragmented nature of the habitat – The greater the fragmented nature of the habitat in Essex the smaller the size requirement
3. The ecological scale of the habitat e.g. woodlands would have a larger size requirement than a spring-line flush or mire.

2. DIVERSITY - This tends to be a function of size, geology and geomorphology, habitat type and location. In reality, there is a strict distinction between species diversity and species richness, with the latter generally applied in this situation. True species diversity indices take account of the relative abundances of the species present, not just the number of species present and is therefore much harder to determine accurately.

Any one site can have a more or less diverse assemblage of both species and habitats. Large sites with a wide variety of habitats are more desirable because of the greater species richness they confer. It should be noted that some habitats (e.g. hay meadows) are intrinsically more species-rich than others (e.g. reedbeds). However, see also point 6 - Typicalness.

Diversity should be assessed for both species and habitats. A relatively monotonous grassland sward with few other features might still be of great importance for the diversity of butterflies shown to feed and breed within the sward. Physical diversity is also an important consideration, so that variations in sward height can add to the intrinsic interest of a grassland, whilst woodland and scrub habitats are more important if they have a varied structure, with glades, rides, and understorey/canopy components.

Habitat diversity is an important consideration when it comes to selecting “mosaic” sites, although this issue is difficult to interpret into selection criteria, as there is a degree of subjectivity involved. It should be recognised that such mosaic sites, where two or more semi-natural habitats occur in an intimate combination may warrant selection even where individually one or more of the habitats may fail to qualify on single habitat or notable species grounds.

3. NATURALNESS - Within any particular habitat type, those sites least modified by Man are generally of greatest value. Whilst virtually all habitats in Britain have been influenced by Man's activities (e.g. a coppiced wood or long-grazed pasture), and as such are "semi-natural", the degree of modification can vary considerably within any one habitat type. The more "natural" a habitat is, the greater the difficulty of ever recreating its original richness and complexity if destroyed. The one important exception to this principle lies in the value of “brown field” or post-industrial land for invertebrate assemblages, where the often chaotic micro-topography ground substrate conditions and early successional vegetation conditions give rise to very high habitat diversity and hence invertebrate species-richness.

4. TYPICALNESS – There is a natural desirable to protect what is typical or highly representative of a particular area or habitat type, particularly in the light of the need to protect as wide a range of habitats and species as possible and to capture the "essence" of the county's natural heritage. This desire should be coupled with that of selecting the best representatives of each habitat.

These last two criteria can be applied by selecting sites that support habitats and species typical of an area. By selecting those habitats that are locally distinct, the system can accommodate the more commonplace features of our wildlife, which is important where a habitat or species is locally abundant but important in a national or international context. Within Essex a good example of these two points, coupled with diversity, is the case of former plotland areas. Where these former gardens and smallholdings have been abandoned, the mix of rough grassland and scrub with developing woodland but tinged with plants of more exotic origin is a habitat unique to south Essex and parts of north Kent.

5. RARITY - Rarity of species and/or habitat is deemed to be of primary importance. Such rarity may have been brought about by excessive loss or due to being on the edge of its range of distribution, or both. Extreme rarity of a single species may be reason enough to consider selecting all remaining habitats of that species as Wildlife Sites. The same may be said of rare habitat types themselves. Special consideration will be given to those species protected under the Wildlife and Countryside Act 1981, listed as being especially threatened within the relevant national Red Data Book or national BAPs. Rarity should also be considered at a county or local level, with the increased availability of county Red Data Books and local BAPs.

For habitats, rarity of “type” should be done with reference to the appropriate National Vegetation Classification (NVC) community where possible.

6. POSITION IN AN ECOLOGICAL UNIT - Sites attain a greater value if they are closely adjacent to other sites of ecological value. With regard to SSSIs English Nature have stated that protected sites should form an inter-dependent network providing for exchange of organisms, with this being a key part of the case for establishing such a network. "The spacing of related habitats should thus be on a scale that gives realistic opportunities for interchange by natural migration". The clustering of Sites is of great importance for the conservation of invertebrate “meta-populations”, where migration and immigration to and from a cluster of sites as individual site conditions wax and wane or provide seasonally varied resources is of great importance here.

This need for suitable ecological juxtaposition is central to the concept of "wildlife corridors". If the sites are immediately adjacent then the enhancement is all the more due to increased size and diversity (points 1 and 2) of the ecological unit. The importance of this factor could lead to the inclusion of land within a Wildlife Site that might not qualify on its own merits if, for example, it proves a link between two important sites through which key species might migrate or if it acts as a buffer surrounding a highly fragile site feature.

7. FRAGILITY - Some habitats/species are more vulnerable than others either to undesirable change or to impact of human activity: for example, a meadow can be irreversibly modified by a single application of herbicide. Grasslands are, however, more robust in the face of trampling than some heathland ecosystems. Any such fragile habitat may be highly fragmented and/or difficult to recreate once destroyed. Some fragile habitats represent mid-way stages of natural succession and require active management to retain their value.

Fragility of species populations should also be taken into account. Thus, invertebrate populations may be badly hit by one act of inappropriate management, even though the flora of the site does not change. Where very specific host-prey or plant-animal associations occur, the chance disturbance of one facet may have a profound impact upon the dependent species. Some breeding birds, especially coastal species – are very prone to disturbance and might thus also be included within this definition of "fragile".

8. RECORDED HISTORY - This adds to the intrinsic appeal of the site and gives weight to the ecological evidence concerning its antiquity. The longer the proven history of a site, the better it is likely to score in the above points since all habitats tend to accrue greater richness with time (i.e. continuity of existence and management). A comprehensive recorded history is advantageous for sites that have potential as educational reserves, although this last point is not considered valid as a Wildlife Site criterion. Detailed knowledge about an area helps to "bring the site alive" for environmental education purposes and this is of particular importance when trying to forge a bond between wildlife features and the increasingly isolated urban populations in Essex – a key feature of the Urban Habitats BAP.

9. POTENTIAL VALUE - The conservation value of many sites is capable of being increased by appropriate management or natural change. This potential is most readily assessed in situations where a habitat has suffered deterioration but where the desirable species compliment is still largely present or can readily re-colonise. It is unlikely that any site would be selected by this criterion alone, but if a degraded habitat has the potential to be of substantive value or it is a representative of a high priority BAP habitat then selection could be appropriate.

10. INTRINSIC APPEAL - It is inevitable that some groups of organisms (e.g. birds) are more appealing than others (e.g. spiders) and in situations where public access is permissible this may bear some weight. However, since this point runs counter to many of the other criteria and is not directly concerned with measuring ecological value, its influence should be closely controlled.

A brief appraisal of these ten points will reveal that whilst some criteria are compatible or complementary (e.g. size with diversity, intrinsic appeal with diversity and rarity, and rarity with fragility), others are antagonistic (e.g. typicalness and rarity, potential value and naturalness, rarity or diversity). Thus any one site will not "score" highly in all ten criteria. However, proper consideration of all of these factors should lead to justifiable site selection. A large field of species-poor but clover-rich grassland (not itself of sufficient quality to be identified as a Wildlife Site), could be included as part of a mosaic if it forms part of the foraging habitat for a BAP bumblebee known to nest on adjacent rough and flower-rich grassland, with this latter area too small to support the species alone.

The way in which the criteria are "blended" together is still a subjective process. One might attempt to assign numerical values to qualities within each criterion and apply a formula to combine criteria. However, English Nature note that "little use has been made of scoring systems for habitats because of the complexities of treatment" and the difficulty in finding a standard approach which can be applied over a large region.

# 4. SITE SELECTION CRITERIA

## 4.1 Introduction

In recent years, there has been a tendency to define a Wildlife Site as,

> "a discrete area of land which is considered to be of significance for its wildlife features in at least a District/Borough/ Unitary Authority context".

At first this might seem to devalue the sites once thought of as being of "County" importance. However, it must be recognised that the intention is to conserve the natural range of variation and ecology of habitats throughout any given region. Thus, whilst the grasslands of a particular borough might be generally rather poorer than the county "average", on account of geology, previous land use, climate or other edaphic factors, they might still be selected if they are representative of semi-natural grasslands of that type within that part of the county.

More broadly, paragraph 18 of PPG9 stated that such sites should be "of substantive nature conservation value", without qualifying in detail how one determines what is and what is not "substantive". The proposed replacement PPS9 is, as highlighted above, even more vague about the nature of "locally important" sites.

The Wildlife Trusts (1997) state that Wildlife Sites, together with statutory sites, should be treated as the minimum wildlife resource of an area. Below this minimum level or threshold wildlife cannot recover to a sustainable level, so that this ultimately defines what Wildlife Sites should be. This concept of sustainability underpins the whole Biodiversity Action Plan process – it is trying to ensure that populations of declining species of flora and fauna are held at levels where their population dynamics are hopefully capable of returning to and thereafter maintaining long-term stability and to ensure that scarce or fragmented habitats are managed in an appropriate way to ensure they become or are maintained as viable ecological units, large enough to support the ecological requirements of its constituent species.

There is, however, one fundamental flaw in this position: our current knowledge of ecosystems is not sufficient to be able to determine what these threshold values are for any given species or habitat. Thus, we are unable to judge if a species or habitat has already dropped below the minimum threshold. In order to counter this problem it is therefore imperative that we stay on the "positive" side of the current situation, to not let any species or habitat slip further into danger of crossing this unknown divide. This "Precautionary Principle" was embodied by the Bergen Declaration on Sustainable Development in the UNECE Region, May 1990:

> "Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation."

This would lead one to conclude that ALL semi-natural habitat should be protected, since it is not known whether or not the smallest, most species-poor piece of land is still fundamentally important for the survival of a particular species, were we but to understand its ecology. In practical terms, however, such a stance is unworkable, so that one needs to derive a process for safeguarding a "reasonable" network of valuable wildlife sites, which might act as the fundamental basis for nature conservation efforts in any given area. This therefore requires a process to determine what is valuable enough to be recorded as a Wildlife Site.

## 4.2 Use of Numerical Thresholds

Some Wildlife Site selection criteria, used in other counties, include quite specific threshold values for site selection e.g.

"All ancient woods that support at least 10 ancient woodland indicator vascular plants"
"All species-rich grasslands over 1 hectare in extent"
"All species-rich grasslands that support at least 40 grasses and herbs AND are over 1 hectare in extent".

Criteria of this type are very easily understood by the layman and in theory easy to defend if placed under scrutiny at a public inquiry, but it is proposed that criteria of this type are resisted here for the following reasons. In the case of ancient woods, the underlying assumption is that the wood will be particularly rich in woodland beetles, fungi, spiders and all other forms of life, compared to an equal area of more recent woodland. It is this especial biodiversity of ancient woodlands that conservationists seek to protect, not just an interesting assemblage of flowering plants. An ancient wood with only 8 such plants is still likely to be very rich in other forms of life but would not be selected, just because of a quirk of the ground flora. Such a site could also come under critical attack if an alternative survey (carried out by a developer, for example) only found 8 rather than 10 indicator species – suddenly the site would be faced with de-selection, despite being, in real terms, as important as ever. Ancient woodland indicator species of vascular plant can be used to determine which woods are ancient and which are probably not, but cannot be used to determine which woods are of greater or lesser biological importance. This is particularly true for ancient woods on very dry, acid sandy soils, which tend to be floristically less species-rich than those on clay or loam soils. Similar arguments can be applied to resisting using "ancient meadow" indicators to select grassland sites.

Using strict size criteria is also open to devious attack if a would-be developer was to argue that the site was only 0.95 rather than 1.0 hectare or were to allow piecemeal erosion of a site until it falls below the required size and thus argues for its de-selection. Many habitats, particularly in Essex are so rare, fragmented and only surviving in small patches that even very small sites should be identified as Wildlife Sites, to heighten their profile, conserve what little is left and to focus efforts on perhaps habitat creation schemes on adjacent land in order to create a more viable unit. This highlights the occasional importance of "potential value" when assessing a site (see below).

Using a certain number of grasses and herbs to select grassland sites can come under attack from counter-claims that a different number of species is present and arguments about what constitutes "a grassland herb" rather than an incidental ruderal or woodland escapee.

The Wildlife Sites Handbook (Wildlife Trusts 1997) admits that,

> "Due to the nature of the process, assessing a site against criteria will nearly always involve elements of professional judgement".

The selection process in Essex has always relied quite heavily on this element of "professional judgement", with the widespread proviso that most of the very learned naturalists in a county are in fact "amateurs", although highly skilled in their field of knowledge. Such "judgements" were based on sound ecological principles such as the importance of ancient woodland, old unimproved meadows and the particular qualities of habitat mosaics. The original selection criteria were based on habitat quality and a number of

key ecological features to "test" the value of a site to determine whether or not it should be included in the network. This philosophy is continued here, based on the considered judgements that have led to various habitats and species being targeted for positive conservation effort within the Biodiversity Action Plan initiative.

## 4.3 Development of Revised Selection Criteria for Essex

The Essex Review Panel suggested in 1999 that the Essex system for selecting and adopting Wildlife Sites should ensure that the Site series achieves a number of key targets. Each of these is discussed in turn, culminating in one or more proposed Wildlife Site Statements (WSS) to act as a guide for the development of site selection criteria. It should be noted that the recommendations of this Review Panel are not always followed, as explained in the relevant sections.

### 4.3.1 The Network of Sites should include all SSSIs and nature conservation LNRs

This position concerning SSSIs goes against national English Nature advice and, in the absence of a finalised response from Defra, the national policy is adopted here even though it is felt that this position is flawed. The Review Panel documentation states that, "where there is evidence to suggest that the interest [of an SSSI] is no longer of a suitable quality any proposal should use the habitat or species criteria" in order to determine selection. This tends to remove the "automatic selection" banner, especially since a good many SSSIs have been identified by English Nature as being of, or close to, an "unfavourable condition" in a recent review.

There is perceived to be a value in including the identification of the SSSIs within a Wildlife Sites document for any given local authority, since they will have a need to identify these statutory sites in their local plan. This distinctly separate section could evaluate the species and habitats of the SSSI that are of significance and which would merit the Site being selected as a Wildlife Site especially where those other features are not the features of special importance that are used as the grounds for SSSI notification.

**WILDLIFE SITE STATEMENT 1 – The Wildlife Site network of Essex will not include land identified as a Site of Special Scientific Interest (SSSI) at the time of the relevant Wildlife Site review. It must be realised, however, that the Wildlife Site network is critical to the support of such SSSIs (and vice versa) and that the identification of a site as a Wildlife Sites rather than as an SSSI does not mean that the site is necessarily of inferior quality to a similar site that has been given SSSI status.**

**WILDLIFE SITE STATEMENT 2 – If part of all of an SSSI is de-notified, then it should be immediately assessed as a candidate Wildlife Site and, if appropriate, added to the relevant register of Wildlife Sites.**

**WILDLIFE SITE STATEMENT 3 – All SSSIs will be separately identified within a local authority Wildlife Site Handbook, along with an evaluation of those features of wildlife interest that do not form part of the reasons for notification as an SSSI. These features may support the eventual identification of the site as a Wildlife Site should all or part of it be de-notified as an SSSI.**

Local Nature Reserves do not receive the same level of legal protection as SSSIs. They are identified as a result of consultation between the landowner (often a local authority) and

English Nature and are recognised as having real nature conservation value, although that value may also extend into environmental education, wildlife-based recreational opportunities or their role in encouraging wildlife into otherwise poor-quality urban environments. It is likely that all such sites would qualify for selection through the criteria developed below for land not identified as LNRs and it is felt justifiable to require LNRs to take this route, rather than to receive automatic selection. This would make such sites more robust, defendable and strengthen the appearance of the whole system. It might also help to deter or "weed out" any sites that have been identified as an LNR using the more dubious criterion of "opportunity".

The 1999 Essex Consultation Draft document states that selection will not be automatic if, "there is evidence that the nature conservation interest, on which the site is designated, is not of suitable quality. In this case the site will need to fulfil another selection criteria" (sic). This implies an element of selection judgement as to whether it is up to scratch in the first place, in which case it seems more rational to subject ALL such sites to the selection criteria. It implies that a selection process to decide if an LNR is of "suitable quality", in which case it seems sensible for that selection process to be that used for all other land.

**WILDLIFE SITE STATEMENT 4 – Local Nature Reserves will be subjected to the standard species/habitat selection criteria rather than receive automatic selection.**

4.3.2 The system should support all sites with significant (as defined by the criteria) semi-natural habitats

This statement is in line with para. 18 of PPG9 in terms of identifying sites with significant wildlife value, but the key word is "all". It should be noted that this definition is usually restricted to sites selected on habitat criteria rather than species population criteria. The general opinion of the wildlife Trusts on the draft replacement PPS9 is that its stance on the role of wildlife Sites is even more vague, rather than clarifying and strengthening this position. Defra's Guidance Notes on Local Sites gives the opinion that,

> "The objective should be to select a series of sites that together provide representative coverage of the full range of the priority species, habitats and geological features of nature conservation interest".

The wildlife Trusts have noted the unhelpful use of the word "representative" within this statement, since one of the fundamental principles of the system is believed to be that ALL sites meeting the criteria will be selected.

**WILDLIFE SITE STATEMENT 5 – ALL sites that meet the standards set by a Habitat Selection Criterion will be identified as Wildlife Sites.**

4.3.3 The system should support populations of every Essex Red Data List species, although this does not mean that every population of an ERDL species is required to be adopted as a Wildlife Site

This is a key distinction from the policy of identifying all habitats of "substantive nature conservation value", although there is some justification in so doing. The population dynamics of fauna species, especially invertebrates, is markedly different to that of plants and vegetation types, with ephemeral populations from attempted range expansion and subsequent contraction blurring the picture of a species' true core range. There is felt to be some justification in restricting the Site selection process to sites where populations are felt to be actually or potentially stable in the medium term, rather than every site where a national Red

Data Book (RDB) species has been recorded. The antiquity of much invertebrate survey data further strengthens this point, in that only recent, reliable survey information should be used to identify Sites on species grounds.

The Essex Red Data List has been developed by Peter Harvey of the Essex Field Club for English Nature (Colchester Office) (viewable at essexfieldclub.org.uk). It comprises a draft listing of those especially rare, threatened or drastically declining species known to have been found in the county. Included within this list are all nationally rare RDB species, Nationally Scarce species and, where sufficient data is available, other species of lesser national significance that are rare or threatened in Essex. At present the breadth of detailed knowledge about specific groups within Essex is variable and the number of Nationally Scarce species can be large, so that the current ERDL is largely dominated by species with national designations. This causes problems with this third key feature in that some Nationally Scarce species are actually quite abundant within Essex and south-east England in general.

An example of this general problem is the plant Dittander. It is Nationally Scarce, but along the Essex coast it can be found growing on waste ground and out of cracks in the pavement – locations that clearly do not merit selection! This highlights one difficulty of using published data for determining the significance of a species, especially when published revisions may take decades to materialise. This over-reliance on nationally designated species being "imported" *en masse* into county RDLs is illustrated by the 940+ beetles currently on the draft Essex Red Data List. The logistics of identifying Wildlife Sites to protect all of these species, to say nothing of the 260 micro-moths, 150 larger moths, 230 aculeate hymenoptera and other numerous invertebrate is daunting, to say the least. It is also, perhaps, un-necessary, with a further refinement needed to especially select those species that are undergoing a significant decline or are exceptionally scarce, be it in a national or county context. Of course, many such species will already be found in SSSIs or other Wildlife Sites, such as ancient woods, species-rich meadows, heathlands, orchards or saline lagoons, so the task is perhaps one of identifying which species do not otherwise occur in a Wildlife Site and consider identifying only these locations. This is a gargantuan task and one that is likely to take many months of dedicated research and possibly years of additional survey work. For the current project there may be some value in focussing on the especially significant species, such as RDB and national BAP priority species and those species known to be especially threatened, in decline or poorly known.

Within this, different weighting or individual selection criteria will be needed to protect both large and stable meta-populations within the core of a species' range and also disjunct but no less stable populations on the periphery of the species' range within the county. For example, there may be less reason to identify all stag beetle locations in north-east Essex, where it is reasonably widespread (although always under threat) so that only the large, key centres of population might be identified here, whereas an unremarkable location in north-west Essex might nevertheless qualify for inclusion on account of it being outside or on the edge of the range of the beetle in Essex.

The principle that the key (for whatever reason) populations of all Essex Red Data List species should be identified is made difficult by the fact that site identification is likely to remain a piece-meal process across the county. The best population for a given ERDL species might subsequently prove to be in Epping Forest district, but if one is currently evaluating Chelmsford borough one is not to know that and, in any case, there is an argument that states that "protected" populations of these species should be spread throughout their natural range. Thus, for species other than birds and vascular plants, it would be more appropriate to select significant populations of these species from within each local authority.

The need for such a measure is perhaps not so great for birds and vascular plants, where the history, extent and reliability of recording is far more advanced than for any other group. For plants it should already be possible to identify the best-known populations of critical species across the county, even though new populations are being discovered all the time.

**WILDLIFE SITE STATEMENT 6 – The presence of Essex Red Data List species within a Site selected through other criteria shall be used to support the designation of that Site.**

**WILDLIFE SITE STATEMENT 7 – The Wildlife Site Review programme shall attempt to identify all ERDL species that do not have significant populations protected by SSSIs or other Wildlife Sites. Priority should be given to those species thought to be especially threatened or in decline, in Essex or nationally. Habitats of significant populations of these species should be considered as Wildlife Sites within each of the local authorities where it is known to occur. This does not mean to say that all such populations must be thus protected.**

The "significance" of any given population and habitat shall be determined by a suitably qualified authority on that species or species assemblage in conjunction with a local Wildlife Sites Forum. This consideration should have regard to the species' distribution in the county and take heed of the need to conserve both core meta-populations at the centre of the species' known distribution and also stable populations on the periphery of its known range, especially where they may form nuclei from which further expansion into suitable habitat might occur.

Clearly, even within this Statement, some species will be considered to be more "important" than others, especially when regarding the conservation agendas for nationally or internationally rare or threatened species. Thus criteria developed from this Statement need to reflect a range of situations e.g.

- The presence of a population of a nationally endangered Red Data Book (RDB1) species;
- The presence of one or more nationally rare those less immediately threatened Red Data Book (RDB2 and RDB3) species;
- The presence of Nationally Scarce species, some of which can be locally quite abundant where found;
- The presence of an Essex rarity, even though it is nationally not scarce;
- An unusually diversity assemblage of species, from within one species group, be they rare or common species;
- Populations of a scarce or protected species both at the core of its known distribution and also in smaller or more vulnerable satellite populations on the periphery of its known range.

Inherent within this are two types of selection criteria based on species rather than habitat quality: sites identified for the protection of a single (or a very few, specific) species and sites identified for a (usually faunal) species assemblage.

4.3.4 <u>The Site should contain the habitat requirements at the correct scale for the species on which the site is being selected</u>

This is a key point in protecting many species' populations. There is no point in identifying a site where a rare invertebrate has been recorded if that site does not actually support all of the

ecological requirements of that species e.g. a sufficiently large pollen or nectar supply throughout the year in order for it to complete its life cycle. This may lead to the designation of areas of peripheral vegetation that might not otherwise qualify for Wildlife Site selection in its own right, if it can supply additional habitat benefits for the species concerned.

Such a Statement is rather harder to apply to other groups, such as mammals and some birds. It may be desirable to protect the nesting location of a particularly scarce bird (e.g. Little Tern, Marsh Warbler, Goshawk or Little Egret) but it may be impractical to identify and protect all the land (or sea) on which those birds forage for food. Similar problems might be encountered with Otters, although not necessarily so with Water Voles, Dormouse, Harvest Mice or Water Shrew.

**WILDLIFE SITE STATEMENT 8 – A Wildlife Site identified on species grounds should contain the habitat requirements at the correct scale for the species concerned, with the limited exception of those species that range widely over the general countryside or coast as part of their normal foraging behaviour.**

From the preceding discussions, other Policies can be derived, in addition to those that stem from the Essex Review Panel targets:

**WILDLIFE SITE STATEMENT 9 – Habitats can be identified as Wildlife Sites if their identification as such contributes to the fulfilment of national or local Biodiversity Action Plan prescriptions, targets or policies. This does not mean to say that all such habitats must be identified e.g. the identification of ALL ancient or species-rich hedgerows is not deemed appropriate.**

**WILDLIFE SITE STATEMENT 10 – Other sites, not covered by criteria stemming from the previous Statements, can be identified as Wildlife Sites on the basis of their unique ecological characteristics. These habitat selection criteria shall give due consideration to the values and principles embodied in the "Ratcliffe Criteria", especially Rarity, Naturalness, Typicalness, Fragility, Size, Diversity and Position in an Ecological Unit. Potential Value might also be considered, especially for degraded BAP habitats.**

To these fundamental points one can add other Statements designed to strengthen and "legitimise" the procedure for identifying Wildlife sites:

**WILDLIFE SITE STATEMENT 11 – Before acceptance, each candidate Wildlife Site must be ratified by a Wildlife Sites Forum. These should be locally based, to include local natural history societies, Essex Wildlife Trust Local Group representatives, district/borough/unitary authority officers and the various natural history museums, but with county-based representations from the County Council, Essex Wildlife Trust, English Nature and the Essex Field Club, as well as the RSPB, Woodland Trust and other conservation organisations as appropriate, in order to maintain a comparability of standards across the system.**

**WILDLIFE SITE STATEMENT 12 – domestic gardens will not ordinarily be considered for selection. The only exception to this might be where the garden provides the very best or only site of an Essex Red Data List species.**

**WILDLIFE SITE STATEMENT 13 – Local Authorities should include a policy within their Local Plan to allow for the occasional addition or deletion of Wildlife Sites from their register within the lifetime of that Plan.**

## 4.4 Selection Criteria

These broad Statements can now be used to generate Habitat Selection Criteria (HCr) and Species Selection Criteria (SCr). The following criteria are phrased such that sites that satisfy the statement shall be "considered" for selection, noting the role in the Wildlife Sites Forum to ratify the Sites and also allowing for expert judgement to rule out sites, as discussed above. Where a criterion relates directly to one or more of the Statements identified above that Statement shall be identified in parentheses at the end of the criterion (e.g. WSS6 = Wildlife Site Statement 6).

### 4.4.1 Habitat Selection Criteria

Woodland

There is a general acceptance that ancient woodlands are of unique importance within the Essex countryside, being semi-natural vegetation directly derived from the truly natural climax community vegetation that would have covered most of the land prior to human intervention. Ancient woodland sites would be withheld from selection only if they have deteriorated to such an extent by extreme coniferisation, human disturbance or are of such a small size that they are thought unlikely to support viable populations of the woodland flora and fauna that make ancient woods unique in the English countryside. If de-selection is petitioned, the onus of responsibility will lie with the plaintiff to demonstrate through professional ecological survey that no such flora or fauna occurs at the site.

**HCr1 - All sites identified in the Essex Ancient Woodland Inventory compiled by English Nature HCr1(a), plus any other site considered to be ancient by reason of its indicative ground flora, documentary evidence or physical and/or geomorphological qualities shall be considered for selection HCr1(b) (WSS 9).**

Plant species deemed to be indicative of ancient woodland sites in Essex are listed in Appendix 2. For non-ancient woodland, including parkland, recent secondary woods, scrub and also hedgerows and green lanes, separate criteria apply:

**HCr2 - An area of non-ancient woodland (other than wet woodland) shall be considered for selection if it fulfils at least one of the following categories:**

**a) It lies immediately adjacent to an ancient woodland and has a diversity of age and/or species structure leading to a complex stratification of the tree and shrub canopies (WSS 9, 10: size, diversity, position in ecological unit).**

**b) The wood has a diverse age and species structure (including a limited extent of coniferous plantation) and preferably includes the presence of grassy rides, ponds or other open areas, as habitat diversification. The minimum allowable size class will have consideration for the relative abundance of wood in the surrounding countryside (WSS 10).**

**c) The wood forms part of a mosaic of good quality wildlife habitat in association with at least two other habitats (from: scrub, open water, heath, acid grassland, neutral grassland, calcareous grassland, marsh and swamp). The minimum allowable size class will have consideration for the relative abundance of semi-natural habitat in the surrounding countryside (WSS 10).**

**d) The wood is identifiable as a "priority" or "characteristic" National Vegetation Classification (NVC) community type for the Natural Area in which the site is located. Greater emphasis shall be given to "priority" woodland types (WSS 9, 10).**

For Essex, these woodland types are (priority types are in bold type):

**London Basin:**

**W5 *Alnus glutinosa – Carex paniculata* woodland**
**W7 *Alnus glutinosa – Fraxinus excelsior – Lysimachia nemorum* woodland**
W8 *Fraxinus excelsior – Acer campestre – Mercurialis perennis* woodland
W10 *Quercus robur – Pteridium aquilinum – Rubus fruticosus* woodland
**W14 *Fagus sylvatica – Rubus fruticosus* woodland**
**W15 *Fagus sylvatica – Deschampsia flexuosa* woodland**
**W16 *Quercus* spp. - *Betula* spp. - *Deschampsia flexuosa* woodland**

**East Anglian Plain:**

W2 *Salix cinerea – Betula pubescens – Phragmites australis* woodland
**W6 *Alnus glutinosa – Urtica dioica* woodland**
**W8 *Fraxinus excelsior – Acer campestre – Mercurialis perennis* woodland**
W10 *Quercus robur – Pteridium aquilinum – Rubus fruticosus* woodland

**East Anglian Chalk:**

W8 *Fraxinus excelsior – Acer campestre – Mercurialis perennis* woodland

**Suffolk Coast and Heaths:**

W10 *Quercus robur – Pteridium aquilinum – Rubus fruticosus* woodland

(see Rodwell, 1991 for explanations of these community types).

Parkland is a particular type of woodland mosaic in which species-rich grassland would also often have been an important component, sometimes more so than the "ancient woodland" component. Characteristic features of parkland include encircling ditches/banks (part of the park pale boundary), large, veteran trees that have grown in an open rather than restricted, woodland, setting and species-rich grassland. Veteran trees can be exceptionally important for invertebrates and, in rare cases, it may be sufficient reason to designate the site, even with the lack of any other parkland component (such trees might even be growing within an arable field).

**HCr3 - Areas of ancient parkland, preferably with veteran trees, and a semi-natural grassland ground flora should be considered for selection (WSS 10 and possibly 9).**

**HCr4 - Veteran parkland trees known to support significant dead wood or other invertebrate assemblages or epiphytic bryophytes or lichens may be selected even in the absence of other parkland features, such as a grassland ground cover. The stand should include a sufficient number of trees to give reasonable habitat conditions in the long term for the species of interest that are associated with the trees (WSS 7, 8, 10).**

Wet woodland is a national BAP habitat, often found in a mosaic of other habitats from open water to dry woodland, especially as willow scrub. Streamside or plateau Alder woodland may form more discrete units. As a scarce woodland type, all stands of wet Alder wood should be considered for selection, subject to considerations of size and physical aspects (a rectangular wood is more significant than a very narrow stream-side belt) and also the supporting ground flora. **This woodland type is covered by selection criterion HCr2(d).**

Stands of willow wood should be identified where they are known to support, either as breeding habitat or as significant foraging habitat, specialist woodland bird or invertebrate species or where they form significant components to mosaic sites. Such sites should aim to include and protect the source of the water that maintains the habitat in its condition. Particularly large stands of wet woodland could be identified as of right, without the supporting evidence of specialist woodland birds or invertebrates. This is partly covered by criterion HCr2d, but is further expanded here:

**HCr5 – All significant stands of Willow scrub woodland should be considered for selection. Selection should take into consideration the distribution of this woodland type in the county, size, associated fauna and the characteristic nature of the ground flora. Its place within a mosaic of vegetation types is also an important consideration (WSS 9).**

Scrub Communities

In Essex, scrub communities come in many forms, from strips of suckering Elm to dense blocks of Hawthorn and Blackthorn, coastal Shrubby Seablite and Broom communities and brakes of Gorse within heathland settings. The south of the county has a suite of very characteristic scrub types associated with former plotland housing, in which garden trees, shrubs and herbs form an integral part of the more natural scrub growth that is now overcoming the old gardens.

**HCr6 – Large areas of scrub shall be considered for selection if they fulfil at least one of the following categories:**

**a) Large areas of scrub known to support significant breeding populations of scrub-dependent birds, provide significant shelter or foraging habitat for migrant passerines (WSS 8, 10: size, naturalness, typicalness).**

Scrub-dependent birds include: Nightingale, Whitethroat, Lesser Whitethroat, Grasshopper Warbler, Dunnock, Bullfinch, Blackcap and Willow Warbler.

**b) Scrub that forms part of a mosaic of good quality wildlife habitat in association with at least two other habitats (from: woodland, open water, heath, acid grassland, neutral grassland, calcareous grassland, marsh and swamp). The minimum allowable size class will have consideration for the relative abundance of semi-natural habitat in the surrounding countryside and also the species diversity within the scrub block, with smaller blocks being permitted if they are species-rich (WSS 10).**

**c) Plotland scrub habitat in which the alien garden flora contributes positively to the wildlife value of the scrub, although the semi-natural component should be the dominant feature. Such scrub should include grassy rides and glades or form part of a mosaic with at least two other habitats (from: woodland, open water, heath, acid grassland, neutral grassland, calcareous grassland) (WSS 10: typicalness, diversity).**

Former plotland areas can have considerable value in terms of social history and landscape and such factors can be considered when selecting sites (WSS 10: intrinsic appeal), but this should not be the principle reason for selection.

**d) The scrub is identifiable as a "priority" community type for the Natural Area in which the site is located (WSS 10).**

These scrub types are:

London Basin: Elm scrub
Greater Thames Estuary: Mediterranean-type Shrubby Seablite/Broom scrub

Orchards

Orchard cultivation is on the decline in Essex, so that any orchard site still bearing fruit trees is quite likely to be over 50 years old, even if the current stand of trees is not that old. This BAP habitat is associated with a number of invertebrate BAP species and is also important for over-wintering birds where wind-fall fruit is left on the ground. Orchards with a species-rich ground flora are even rarer and should also be included as a priority. Many Essex Red Data List (ERDL) species may occur in such habitats.

**HCr7 - Orchards will be considered for selection if they contain large, old trees with good lichen cover and/or include unusual varieties of tree and/or support populations of associated BAP/ERDL species and/or have a ground flora that would satisfy selection as a grassland site. Size is also an important consideration, as is location within the county (WSS 9, possibly 7 and 10).**

**HCr8 - Large orchards shall be considered for selection if they regularly support significant over-wintering populations of Fieldfares, Redwings, Song and Mistle Thrushes or other migratory birds, or breeding populations of species such as Bullfinch (WSS 7, 10: rarity, size).**

Ancient and Species-rich Hedgerows and Green Lanes

Such features would not routinely be selected since there are still many hundreds of miles of such habitat in Essex, despite widespread uprooting in previous decades, and they are already protected by the Hedgerow Regulations 1997 against indiscriminate removal**.** Ancient hedges and green lanes may be selected if they form important woodland/scrub corridors connecting or closely juxtaposed to other, woodland Wildlife Sites as a means of highlighting the importance of such wildlife corridors. Special consideration shall be given to Suckering Elm hedges, these being especially characteristic of Essex farmland and allied to Elm scrub communities capable of selection via HCr6(d). There is already some level of protection given to the more significant lanes through the local authority Protected Lanes policy, although reasons for protection are occasionally more based on historical and landscape criteria, rather than just wildlife interest.

**HCr9 - A hedgerow or green lane shall be considered for selection if it fulfils one of the following categories:**

**a) It provides an appropriate corridor or habitat connectivity between or close to two or more other woodland or scrub Wildlife Sites (WSS 9, 10: position in an ecological unit).**

**b) It provides a significant extent of scrub or mosaic habitat in a part of the county otherwise deficient in such habitat (WSS 10: rarity).**
**c) It constitutes part of the "ghost" outline of a former ancient wood and retains some of the characteristic flora and/or fauna of an ancient wood (WSS 9, 10).**

Grasslands

Old, unimproved and species-rich grasslands (including fen-meadows and rush-pastures) are such a scarce resource that there should be a presumption if favour of selecting the majority of such habitat areas, especially where they comprise chalk grassland, chalky boulder clay or acid grassland sites. The role of road verges in conserving albeit small fragments of species-rich grassland within the wider countryside. The Essex View Panel documentation recommends using the English Nature Grassland Inventory of Essex (produced in 1995) as a source for "automatically" selecting lowland neutral meadow sites. This is resisted here, however, since the qualifying criterion for inclusion within the Inventory is that the site was deemed to be relatively species-rich in 1985/6 when the original survey was undertaken, so that Phase 2 quadrat data were recorded. There is clearly no justification in saying "this meadow will be a Wildlife Site in 2005 because it was species-rich nearly 20 years ago". Therefore, it is held that all sites must be selected on their current merits, although the Grassland Inventory should clearly be used as a focus for survey work.

Old, unimproved grasslands might be identified by the presence of "indicator" species (see Appendix 3) or by documentary, verbal or geomorphological evidence (e.g. presence of ridge and furrow or a landform that precludes ploughing). However, even quite recent grasslands can be selected if they support a diverse assemblage of flowering plants (both herbs and grasses), especially if they enhance invertebrate habitat (WSS 8), form part of a mosaic or are the only grasslands present within a significant part of the county.

**HCr10 - All old, largely unimproved grassland shall be considered for selection. Evidence for antiquity shall be taken from the presence of indicator plants, land-form or documentary indications. Reference should also be made to the "priority" National Vegetation classification (NVC) community type for the Natural Area in which the site is located, as well as size, location within the county, species diversity and fragility (WSS 9, 10).**

The "priority" grassland types for each Natural Area are as follows:

**London Basin:**

MG4 *Alopecurus pratensis – Sanguisorba officinalis* grassland
MG5a *Cynosurus cristatus – Centaurea nigra* grassland *Lathyrus pratensis* sub-community
MG5c *Cynosurus cristatus – Centaurea nigra* grassland *Danthonia decumbens* sub-community

**East Anglian Plain:**

MG4 *Alopecurus pratensis – Sanguisorba officinalis* grassland
MG5a *Cynosurus cristatus – Centaurea nigra* grassland *Lathyrus pratensis* sub-community
MG5b *Cynosurus cristatus – Centaurea nigra* grassland *Galium verum* sub-community
MG5c *Cynosurus cristatus – Centaurea nigra* grassland *Danthonia decumbens* sub-community
MG8 *Cynosurus cristatus – Caltha palustris* grassland

(see Rodwell, 1992 for explanations of these community types).

**HCr11 - Old, unimproved or semi-improved pastures or meadows that do not clearly fit criterion HCr10 (e.g. by reason of size or location) shall be considered for selection if they support a rich flora <u>or</u> a significant population of an ERDL species (flora or fauna) (WSS 7, 9, 10: rarity, fragility).**

**HCr12 - Semi-improved or improved grasslands shall be considered for selection if they significantly increase the key habitat for a site selected on species grounds, such that the grassland is deemed to be part of the essential foraging habitat of that species (WSS 8).**

**HCr13 – Floristically less interesting pieces of grassland shall be considered for selection if they form an integral part of a mosaic of good quality wildlife habitat in association with at least two other habitats (from: woodland, scrub, open water, heath, other grassland types, marsh or swamp). The minimum allowable size class for the mosaic will have consideration for the relative abundance of semi-natural habitat in the surrounding countryside (WSS 9, 10).**

Special consideration should be given to large tracts of river flood-plain grassland, especially those areas that are still subjected to seasonal inundation. Even where the sward has been significantly improved, so that the flora has no particular merit, the particular environmental conditions created can be of significance for invertebrate populations and some over-wintering waders (e.g. Snipe, Curlew and plovers). Because of their risk of flooding, many such remaining tracts of flood-plain grassland can be considered to be old, even though they may have lost their characteristic flora. Such areas have often been under a grazing regime throughout this period, which can lead to an esoteric though intrinsically important invertebrate community associated with animal dung. Continuity of grassland cover is, however, important for many invertebrate populations.

Such areas of flood-plain grassland can act as buffers for the associated river, reducing the impact of nutrient run-off compared to a river with arable cropping being practiced right up to the top of the bank. Large tracts of semi-natural vegetation along river valleys can also play a role in providing wildlife corridors, assisting in the dispersal of fauna through the open countryside.

**HCr14 - Significant areas of river flood-plain grassland should be considered for selection, especially those areas still subject to seasonal inundation. The role of such grasslands as wildlife corridors should also be considered (WSS8, 9, 10).**

The extreme rarity of chalk grassland (*sensu stricto*, not including chalky boulder clay sites) in Essex suggests that all sites supporting assemblages of chalk grassland species (see Appendix 4) should be considered for selection, hence:

**HCr15 – All areas of grassland supporting assemblages of species included in Appendix 4 should be considered for selection (WSS 9: national broad habitat, 10: rarity, fragility).**

Acid grasslands are here treated within “heathland” habitats.

Coastal Grazing Marsh

It is felt that there is some justification in assuming that all sites retaining characteristic field patterns and drainage systems that still have obvious ecological links to the adjacent estuarine habitats through movements of wildfowl and waders or tidal flow of brackish water over part of the site should be considered for selection. Many such sites are of importance because of their size, wetness or remoteness from disturbance and are of particular importance for over-wintering wildfowl and waders, as well as breeding species during the summer. As such, floristic diversity is not necessarily a key quality. Many important sites for Brent Geese are highly improved grassland swards, with the key qualities being sward height, size of field, close proximity of the open estuary and freedom from disturbance. Indeed, geese prefer grass that has received fertiliser applications since it is more nutritious. That said, many such sites will support characteristic assemblages of grazing marsh plants and animals and these may be worthy of conservation in their own right, even if use by wildfowl and waders is less significant, due to disturbance, small size of site or inappropriate management. The Essex Red Data List includes many brackish water invertebrates for which coastal grazing marshes are their typical habitat.

**HCr16 - All fragments of former coastal grazing marsh shall be considered for selection. Final selection should have consideration for size, diversity, the presence of anthills, low-ways and periodically inundated creeks, Essex Red Data List species and the degree of isolation from the associated estuary. The presence of a characteristic flora is desirable but is not essential, especially where the main focus of importance is over-wintering wildfowl and waders (WSS 9, 10).**

**HCr17 - All sites exhibiting an unrestricted upper saltmarsh to grassland transition should be considered for selection (WSS 9, 10: naturalness, rarity).**

Lowland Heathland

Such is the scarcity of this habitat type in Essex, it is felt that all land supporting stands of ericaceous vegetation should be identified, however sparse the cover of heather plants and however small the site. This habitat is taken to include good quality acid grassland, even if no ericaceous shrubs are present as well as the very limited extents of *Sphagnum* moss bogs and mires remaining in the county. The basis for identifying blocks of heathland within the county should be the joint English Nature/RSPB Lowland Heathland Inventory (1996) although it should be emphasised that small fragments, still worthy of inclusion, may have been overlooked in the Inventory.

Sites should still be included even if they have succumbed to scrub or Birch wood invasion if it is considered that the heathland could be restored with appropriate management and a characteristic ground flora still persists (WSS 10: potential value).

**HCr18 – All heathland sites listed on the English Nature Lowland Heathland Inventory for Essex should be considered for selection (WSS 9).**

**HCr19 - Any other site supporting characteristic heathland or acid grassland species and with the potential for restoration shall be considered for selection (WSS 9, 10).**

Brownfield Sites

This name has come to embrace a variety of derelict land, old mineral workings, post-industrial sites, silt lagoons, fly-ash dumps and other places largely created by human activity. They can be of immense important for individual species of flora and fauna as well as assemblages of species and, for this reason, one could argue for the selection of any given site through Species Selection Criteria, with several national BAP species favouring such sites. However, one can "set the scene" here by setting out certain habitat conditions that are favourable to the support of biodiversity in general on these sites.

Depending on the mode of formation and characteristics of the site, one or more ecological features may be significant e.g.:

- The presence of a large area of open water or the potential to become flooded, even seasonally
- The development of other semi-natural habitats such as acidic or chalk grassland, heath or scrub
- Freedom from excessive physical disturbance (although some disturbance can be beneficial in maintaining areas of bare ground or sparsely vegetated land, both being key micro-habitats within this broad habitat)
- Floristic diversity and abundance, even when composed of ruderals and other "weeds", although grassland species can often also thrive e.g. Bird's-foot Trefoil.
- Exposures of stable bare ground for nesting invertebrates
- The presence of one or more Essex Red Data List species.

**HCr20 – Brown Field sites will be considered for selection if they are known to support Essex Red Data List species and have the habitat qualities necessary to support those species. The site may include sections of land that might not otherwise qualify for selection, if they provide one or more of the ecological requirements of the notable species (WSS 8, 9 (potentially), 10).**

Reedbeds

All significant stands of more or less pure reed growth are included within this BAP habitat. Use by reed-specialist birds (e.g. Reed and Sedge Warbler, Cetti's Warbler and Bearded Tit) is desirable but not essential since the habitat is also important for a number of specialist invertebrates, notably some moths and solitary bees. Other swamp communities are discussed separately.

**HCr21 - All significant stands of Reed (*Phragmites australis)* will be considered for selection (WSS 9), either in their own right or as part of a larger mosaic of habitats. Selection should take into account overall size, the dimensions of the bed, with wider stands being better, and also the degree of human disturbance.**

**HCr22 – Smaller or thinner stands of reedbed shall be considered if they form part of a mosaic of other habitats, including open water, wet woodland, marsh and other swamp communities (WSS 10).**

Swamp and Tall-herb Fen

In Essex, most areas of tall-herb fen and swamp communities occur along the edges of rivers, ponds, lakes and other water bodies, rather than as extensive stands in their own right. Such

marginal vegetation would ordinarily be included within any open water or mosaic Wildlife Site. Any swamp vegetation or tall-herb fen is likely to be a scarce habitat, dependent upon quite precise environmental conditions to develop and often supporting scarce species. For some swamp types e.g. Sea Club-rush, Reedmace and Bulrush, the vegetation is characteristically species-poor and the main species is not scarce but the critical factor is the structure, providing habitat or cover for birds, living space for invertebrates and so on. Such areas are perhaps best dealt with as the necessary habitat for species selected via the Species Selection Criteria.

**HCr23 - Areas of species-rich swamp or fen, or such habitats supporting rare species or NVC community types shall be considered for selection. Usually such sites will include the associated water body or source of groundwater, if applicable.**

Freshwater Habitats

In general our knowledge of the invertebrates, fish and even flora of aquatic systems is even more limited than our breadth of terrestrial knowledge, making the identification of sections of river, canal or borrow dyke or individual lakes and ponds a more uncertain process. It is recommended that bodies of water should mainly be designated via Species Selection Criteria aimed at notable fish stocks (e.g. Bullhead, Barbel, Brook Lamprey), invertebrates (White-clawed Crayfish, White-legged Damselfly, Beautiful Demoiselle), flora (assemblages of *Potamogeton* pond-weeds) and other ERDL species. This section can set a standard for the designation however:

**HCr24 - Where a section of river, stream, canal or borrow dyke is designated via Species Selection Criteria, a minimum 500 metre section of that water course shall be designated (250 metres upstream and downstream of a positive sample site) or 250 metres upstream and downstream of the end points of a cluster of records from the same population (WSS8). The Wildlife Site shall be deemed to extend at least 2 metres away from the top of the bank into the adjacent habitat.**

**HCr25 - Where two designated sections of watercourse are separated by no more than 1000 metres of undesignated water, the intervening section may be included within one large Site, if it is deemed that the central section has the potential to be restored to good condition or realistically colonised by the species concerned (WSS 8, 10: potential value).**

**HCr26 - Where sections of lakes or ponds hold species or vegetation stands of interest, the whole water body shall be designated (WSS 8, 10).**

**HCr27 – Sections of river that support a suite of natural features, leading to a complex riverine habitat structure should be considered for selection. Such features should include a good diversity of emergent vegetation, floating aquatic plants, shallow "riffles" and deeper pools, a natural rather than hard engineered banks and a more or less meandering rather than canalised course (WSS 10: naturalness, rarity, size, diversity, fragility).**

Saline Lagoons

Within the broader definition of this habitat used in the Essex BAP, all tidal or semi-tidal brackish or saline lagoons and inundated borrow dykes will be considered for selection, provided they are free from gross pollution. Close proximity to other coastal land of nature

conservation value is also desirable. That said, many borrow dykes are already included within the boundaries of coastal SSSIs.

**HCr28 – Sections of borrow dyke and tidal or semi-tidal brackish or saline lagoons not lying within SSSIs should be considered for selection. Such sites should have some ecological link with the adjacent coastal habitats and be free from gross pollution (WSS 9, 10).**

Sand Dune and Shingle

These habitat types are scarce in Essex and a largely protected within the SSSI system. However, they are such fragile, rare, natural and, occasionally, diverse habitats that there should be a presumption in favour of selecting all remaining fragments except the extremely small or severely degraded examples. Most of the characteristic plants of these habitats are on the Essex Red Data List.

**HCr29 - All remaining fragments of sand dune and shingle habitat outside of SSSIs and exhibiting a characteristic land form and flora should be considered for selection (WSS 10).**

The following BAP habitats are not included within specific criteria, although the system allows for their characteristic species to allow for site selection through Species Selection criteria.

**Cereal Field Margins** are only likely to be selected if part of a whole-farm conservation network and shown to be supporting populations of associated BAP species (at local or national BAP level).

**Eel-grass Beds:** Wildlife Site status is usually restricted in Essex to terrestrial and freshwater habitats rather than inter-tidal habitats. Most if not all Eel-grass beds off the Essex coast are already covered by SSSI protection as well as international designations.

**Urban Habitats:** the BAP for this category is very broad, encompassing old countryside features encapsulated in towns by urban sprawl, newly "designed" green areas within urban development and also brown field and post-industrial sites. The unique soil/geology/landform and associated flora and fauna of post-industrial and brown field sites may merit selection automatically, but the role of a site within an urban environment is more likely to be a supportive rather than primary designation. Exceptions to this are likely to be important wildlife corridors within urban developments.

One last criterion might be considered with caution. This is the case of a site with several "near misses" i.e. one site might have an interesting suite of invertebrates but without any ERDL species being present, plus a good but not astounding flora and also a presumed role as a wildlife corridor between two better sites. There is some justification in including special cases within the selection process although over-reliance on this criterion could be seen as a weakness in the system. It is, though, ecologically more defendable than merely altering the other habitat criteria so that these sites then qualify:

**HCr30 – A site that comes close to qualifying on a number of other selection criteria can be considered for selection when the total sum of its wildlife interest is taken into account. The case for such selection must be argued by suitably qualified experts in those species and/or habitats involved (WSS 10).**

4.4.2 Species Selection Criteria

Wildlife Site Statement 7 sets the scene for this section, in presuming that at least one population of all ERDL species will be included within the Wildlife Site network, especially if not already present on an SSSI. The following criteria are included as a more detailed means of delivering that Statement. Under this category one can consider two sub-groups: Wildlife Sites identified for a single species and others identified to protect an assemblage of species. It is assumed that "assemblages of important plant species" will have been covered by a Habitat Selection Criterion, so that one is left with single plant species and both single and multiple species issues for fauna.

In all cases selection would be subject to the condition that the known habitat requirements e.g. nesting sites and food/prey foraging conditions are present in stable and viable quantities within the site boundary. Thus, for a species such as the national BAP bumblebee *Bombus sylvarum* it would not be sufficient to just find a specimen on a site. There would need to be an extensive flower-rich sward comprising species such as Bird's-foot Trefoil, Red Bartsia and Red or White Clover plus likely nesting habitat (thought to be rough grassland with hedgerows or bushes). Not all sites with singing Nightingales should be selected, but sites where breeding is proven to be taking place might be.

Previous deliberations of the Essex Wildlife Sited Review Panel suggested that a scoring system should be developed to help select which species assemblages should be proposed as Wildlife Sites. This scoring system does not yet exist and so a more subjective and yet still defendable selection process is used here in the interim. Wildlife Site Statement 7 proposed above states that only significant populations of Essex Red Data List species should be considered for protection. There is therefore a need to have a selection process to determine the key populations of single species or species assemblages. The following selection criteria are designed to identify sites where selection may be considered but eventual adoption as a Wildlife Site will depend on further consideration of the viability of the habitat available to support a stable population of the species OR the potential to bring surrounding land into a favourable condition (in which case that land should be included within the Wildlife Site). It will also be necessary to consider whether or not a potentially stable breeding colony exists (rather than just the transient occurrence of the species on a site) and the context of the population within its known range, both nationally and in the county.

Amphibians and Reptiles

There are five native amphibians in Essex: Common Frog, Common Toad, Palmate Newt, Smooth Newt and Great Crested Newt (national BAP species and protected fully by law). Some county selection criteria (e.g. Hampshire) propose the selection of any breeding site for Great Crested Newt, but this is felt to be an unworkable criterion in Essex on account of the number of Great Crested Newt ponds likely to occur in the county. One might even argue that in a system that excludes legally protected habitat (SSSIs), one should also exclude ALL Great Crested Newt ponds, since the legal protection given to Great Crested Newt ponds via both national and European legislation far outweighs any protective measures given to Wildlife Sites. However, it would appear to be normal policy within other county systems to include provision for Great Crested Newts and so this is followed here. It is recommended that the council should support the maintenance of a separate "alert map" of all Great Crested Newt ponds, in association with the Essex Amphibian and Reptile Group, so as to draw attention to the legal safeguards afforded to this species when planning or land use changes threaten ponds or associated habitats.

**SCr1 – Significant breeding populations of Great Crested Newts shall be considered for selection. Such sites should have a suitable flora for egg-laying and nursery areas and should include a core area of terrestrial habitat used outside the breeding season. Consideration shall be given to the proximity or otherwise of adjacent meta-populations and its location in the county (WSS 8, 9).**

Palmate Newts are arguably the scarcest herptile in Essex and are therefore worthy of more general protection:

**SCr2 – Any site (other than a garden pond) known to support a breeding population of Palmate Newts shall be considered for selection. Such sites should have a suitable flora for egg-laying and nursery areas and should include a core area of terrestrial habitat used outside the breeding season (WSS 7, 8, 12).**

There is also a value in protecting general amphibian diversity:

**SCr3 – Any site (other than a garden pond) with three or more species of breeding amphibian shall be considered for selection. Such sites should have a suitable flora for egg-laying and nursery areas and should include a core area of terrestrial habitat used outside the breeding season (WSS 7, 8, 12).**

There are four species of reptile in Essex: Adder, Grass Snake, Common (or Viviparous) Lizard and Slow-worm. They are all rather scarcer in the north of the county than the south and the ultimate selection of sites needs to reflect this variation.

**SCr4 – Any site supporting significant populations of three or more reptile species shall be considered for selection. Such sites should include sufficient terrestrial (and in the case of Grass Snake also aquatic) habitat to maintain viable populations of the species. The threshold for significance in the vice-county of north Essex shall be lower than that for south Essex (WSS 7,8).**

There is also a need to consider a more general contribution to overall biodiversity:

**SCr5 – The presence of two species of reptile and/or amphibian species can be used to further the case for selection in the instance of marginal sites that might not otherwise have been selected, under other criteria. Such sites should include sufficient terrestrial (and in the case of Grass Snake also aquatic) habitat to maintain viable populations of the species. The threshold for significance in the vice-county of north Essex shall be lower than that for south Essex (WSS 7, 8).**

## Mammals

### Bats

Bats are well protected by the 1981 Wildlife and Countryside Act (as amended) plus European legislation and Directives. This should ensure their conservation, making it an offence to disturb even the smallest of summer roost sites. The whereabouts of winter hibernation sites largely remains a mystery. However, there may be some value in having a criterion to identify and protect such hibernation sites.

**SCr6 – All colonial winter hibernation sites for any bats species in Essex (other than an occupied residential property, should this occur) shall be considered for selection as a Wildlife Site (WSS 7, 9).**

Dormouse

This is a national BAP species and one that is very scarce in Essex:

**SCr7 – All sites known to support breeding populations of Dormouse should be considered for selection. All woodland immediately contiguous with the known site should also be included if it supports habitat conditions thought to be favourable to Dormice (WSS 7, 8, 9).**

**SCr8 – All woodland close to a known Dormouse population, with appropriate habitat conditions and connected to the colony site with one or more hedgerows should be considered for selection, as should the connecting corridors (WSS 7, 8, 9).**

Otter

In recent years Otters have spread thinly across Essex from released captive-bred stock. A number of artificial Otter holts have been constructed in order to encourage them to settle. Whilst they range over sections of river that are too long to accurately identify, their holts are worthy of protection, in addition to any protection afforded by national legislation.

**SCr9 – Any Otter holt, natural or artificial, known to have been occupied within the last 5 years, plus the sections of river 200 metres either side of that holt and all semi-natural vegetation 20 metres behind that length of river bank shall be considered for selection (WSS 7, 9).**

## Birds

The basis for the conservation of bird species in Essex is taken to be the Essex Red Data List, which is itself largely based on the Red and Amber alert lists published by the RSPB, plus more detailed local knowledge from the Essex Birdwatching Society. However, many species included here are in need of conservation management and protection that stems from agricultural practices and other land management, rather than the protection of small, specific sites. Thus, whilst the Yellowhammer is a farmland bird in decline, it would be unfeasible to identify all hedgerows and scrub blocks where it breeds. However, Little Tern colonies, Hawfinch woodlands and heronries are more discrete units and could be considered for selection.

**SCr10 – Where significant breeding or over-wintering habitat of ERDL bird species can be reasonably identified as discrete areas, then they shall be considered for selection. Advice should be sought from the Essex Birdwatching Society and should include the recent stability of the breeding/over-wintering site rather than "one-off" year records.**

## Invertebrates

The Invertebrate Site Register for Essex is undoubtedly out of date and not exhaustive in its identification of important invertebrate habitat and it should be used as a focus for further research into invertebrate populations. The first step in most cases will be to determine whether or not the species listed within the Register are still present.

There has been some success in developing rational scoring systems for invertebrate populations (see Appendix 5) and these might be used to identify important assemblages of invertebrates.

**SCr11 – a site known or suspected to support a breeding assemblage of invertebrates with a Species Quality Index of at least 5 will be considered for selection (minimum sample of 60 species, 8 hours of field work) (WSS 10: Diversity, Rarity).**

Notwithstanding this, some species will be of such national rarity or local significance that they alone might qualify the site for selection:

**SCr12 – Significant populations of ERDL invertebrates or noteworthy assemblages of distinct taxa (e.g. dragonflies, butterflies) should be considered for selection. The interpretation of significance should take into account both the core populations at the centre of its range and also stable populations on the periphery, especially where colony expansion or colonisation of nearby habitat is likely (WSS 7).**

**Plants**

For the sake of simplicity, this category includes flowering plants, grasses etc., bryophytes, lichens and fungi.

**SCr13 – Significant populations of ERDL vascular plants, bryophytes, lichens and/or fungi should be considered for selection. The interpretation of significance should take into account both the core populations at the centre of its range and also stable populations on the periphery, especially where colony expansion or colonisation of nearby habitat is likely (WSS 7).**

**SCr14 – Particularly significant rare plant assemblages, other than those listed on the ERDL might also be considered if they form a significant proportion of the county's resource of that species.**

# 5. HABITAT SURVEY RESULTS

## 5.1 Introduction

The results of the habitat survey are presented on a series of 6 approximately 1:10 000 scale Ordnance Survey maps of the District. (Note: although the maps are labelled as being printed at a scale of 1:10 000, the scales of each sheet are actually approximately 1:10 400, with subtle differences even between the x and y axes of any one sheet and differences between sheets. These small differences have been taken into account when measuring the areas of the land uses). Table 1 provides a summary of the areas of all vegetation types and land uses mapped during the study. It should be remembered that this table will not allow a direct comparison with the corresponding table generated by the 1993 survey for grasslands, since this present survey has used an additional category (species-poor semi-improved, code SI), not used previously. A broad comparison between the two surveys is provided in Table 2. As with the previous survey, no attempt has been made to separate urban from arable land use.

## 5.2 Land Use Statistics

Comparison of data from 1993 and 2004 shows various changes, some of which are undoubtedly real, whilst others fall within the probable bounds of mapping and measuring accuracy errors.

Some of the major habitat types are analysed in Table 2, with the following accompanying notes:

1. There has been a net increase of arable/urban land of 156.1 ha, with a corresponding loss of other, general more wildlife-friendly habitats of all types. This statistic encompasses a lot of changes, including the "internal loss" of arable land being built upon (with no net change in the statistics). However, given that much arable land has in recent years been turned over to some form of set-aside vegetation, which would now be recorded in one of the species-poor grassland categories, this net increase in arable/urban has been brought about by an even more significant increase in urban development. This has been most significant around Wickford, where large areas of former scrub and rough grassland to the south of the town have succumbed to a house building programme that is still ongoing. The next most significant loss of habitat is due to industrial development to the north and north-east of the town centre, adjacent to the A127 corridor.
2. Curiously, there has been a significant increase in the amount of "semi-natural" woodland i.e. woodland not obviously derived from planting schemes. Whilst some of this may be down to greater mapping "resolution", with the more accurate base-maps allowing for smaller parcels of land to be plotted, another significant factor is probably that of natural succession, with areas recorded as scrub in 1993 having developed a more complex canopy/sub-canopy structure over the last 12 years and therefore changing land use category.
   If one takes "woodland" as being all semi-natural and planted stands, but excluding scrub, parkland and orchards, then the woodland cover of Basildon represents 584.7 ha or only 5.3% of the total area. This compares with an average across England of 8.4% (2001 Defra statistics). The component of this woodland that is regarded as being ancient is also very low (see Section 5.6, below).
3. There has been a modest increase in the extent of planted woodland. This is most prevalent as landscaped screening around developments such as Noak Bridge, the result of

## TABLE 1

## LAND USE WITHIN BASILDON DISTRICT 2005

| LAND USE TYPE | | Area (ha) | Sub-total Area | % of Total |
|---|---|---|---|---|
| Arable/Urban | | | 6793.5 | 61.5 |
| Grassland | | | | |
| | Unimproved Neutral (NG) | 23.1 | | 0.2 |
| | Semi-improved Neutral (SNG) | 383.3 | | 3.5 |
| | Semi-improved Acid (SAG) | 0.4 | | 0.004 |
| | Poor Semi-improved (SI) | 952.3 | | 8.6 |
| | Improved Grassland (I) | 924.8 | | 8.4 |
| | Amenity Grassland (AM) | 720.7 | | 6.5 |
| | Marshy Grassland (MG) | 2.9 | | 0.03 |
| | Inundation Grassland (IG) | 12.9 | 3020.4 | 0.1 |
| Woodland and Scrub | | | | |
| | Broadleaf Woodland (BW) | 498.8 | | 4.5 |
| | Broadleaf/Coniferous Parkland (BP/CP) | 107.6 | | 1.0 |
| | Planted Broadleaf Woodland (PBW) | 80.7 | | 0.7 |
| | Planted Mixed Woodland (PMW) | 4.1 | | 0.04 |
| | Planted Coniferous Woodland (PCW) | 1.1 | | 0.01 |
| | Felled Broadleaf Woodland (FB) | 0.5 | | 0.005 |
| | Scattered/Dense Scrub (SS/DS) | 160.1 | | 1.5 |
| | Orchard (PBW(OR)) | 1.0 | 853.9 | 0.01 |
| Tall Ruderal | | 49.8 | 49.8 | 0.5 |
| Short Perennial | | 2.2 | 2.2 | 0.02 |
| Allotment/Horticulture | | 6.2 | 6.2 | 0.1 |
| Caravan Site | | 3.5 | 3.5 | 0.03 |
| Churchyard | | 7.5 | 7.5 | 0.1 |
| Cemetery | | 11.7 | 11.7 | 0.1 |
| Lake/Reservoir | | 49.3 | 49.3 | 0.4 |
| Swamp | | 23.8 | 23.8 | 0.2 |
| Refuse Tip | | 148.2 | 148.2 | 1.3 |
| Waste/Bare Ground | | 54.7 | 54.7 | 0.5 |
| Saltmarsh | | 13.3 | 13.3 | 0.1 |
| **TOTAL Area of Semi-natural Habitats** | | 4244.5 | | 38.5 |
| **TOTAL District Area (ha)** | | | 11038.0 | |

## TABLE 2

## COMPARISON BETWEEN 1993 AND 2004 SURVEYS

See discussion in Section 5.2 for the Notes. All figures are in hectares.

| Land Use | Extent in 1993 | Extent in 2005 | Change | Notes |
|---|---|---|---|---|
| Arable/Urban | 6637.4 | 6793.5 | +156.1 | 1 |
| Semi-natural Woodland | 388.1 | 498.8 | +110.7 | 2 |
| Planted Woodland | 68.0 | 85.9 | +17.9 | 3 |
| Scrub | 281.2 | 160.1 | -121.1 | 4 |
| Amenity Grassland | 710.1 | 720.7 | +10.6 | 5 |
| Total Other Grassland | 2424.9 | 2299.7 | -125.2 | 6 |
| Neutral soil grassland | 2420.8 | 2283.5 | -137.3 | 6 |
| Lake/Reservoir | 30.0 | 49.3 | +19.3 | 7 |
| Waste/Bare/Refuse Tip | 362.6 | 202.9 | -159.7 | 8 |
| Tall Ruderal | 69.7 | 49.8 | -19.9 | 9 |
| Allotment/horticulture | 20.9 | 6.2 | 14.7 | 10 |
| Total Non-Arable/Urban | 4400.6 | 4244.5 | -156.1 | |

3. continued.....
   habitat creation schemes around the finished sections of Pitsea landfill and perhaps greater mapping accuracy across Vange Hill golf course.
4. As mentioned in notes 1 and 2, above, scrub habitats have been one of the major casualties over the last 10-12 years. It has been lost through the natural succession to woodland habitat and also due to the residential development of former plotland grassland and scrub. This has been most prevalent on the south side of Wickford. A third loss, more difficult to quantify, is the "tidying up" of scattered scrub within pastures, which has become apparent in many of the former plotland units to the west of Wickford. This loss of scrub is a worrying trend, since it is an important habitat in its own right, not just an unwelcome accompaniment to rough grassland or an understorey to woodland.
5. The slight increase in amenity grassland is probably the result of increased greensward amongst new housing areas and, again, the better mapping accuracy that modern maps afford.
6. The loss of grassland within the District is of even greater concern than the loss of scrub, with a decrease of 125 ha within all grasslands other than amenity swards. The situation amongst "neutral soil" grasslands (taken as all Improved, Poor Semi-improved, Semi-improved and unimproved categories) is even worse, at a loss of 137 ha. Given that there has been some recruitment into this category by the conversion of arable land to long-term set-aside, the loss of older grassland must be even more extreme. Whilst the various agricultural schemes are encouraging the creation of grassland habitats, the District is seemingly losing its old sites, with a danger that if the trend continues there will soon be few grasslands over 30 years old.

7. The large increase in the extent of open water habitats is largely down to schemes such as the creation of Wick country park south of Wickford.
8. The significant drop in the extent of the various forms of "waste ground" is probably due to the initial habitat creation schemes around the periphery of Pitsea landfill, with grassland and planted broadleaf woodland replacing former bare ground.
9. The loss of Tall Ruderal vegetation, such as nettle-beds, docks, thistles, willowherb and the like, is another sign of the tendency to "tidy up" areas showing signs of "going wild". These may be scruffy looking areas, but they can be highly attractive to wildlife, especially insects. This net loss is all the greater when one considers that a large swathe of this habitat type currently occupies Wick Country Park, which was arable land at the time of the previous survey.
10. Although a small habitat by extent, the loss of allotments on a dramatic scale should be of some concern. This decline indicates social changes, with a lack of interest in gardening and fresh food produce resulting in a general lack of exposure to the countryside. Also, such areas can be important urban wildlife havens, especially for declining species like Slow-worm, some butterflies and garden birds.

## 5.3 General Discussion

In some respects, Basildon District represents a microcosm of the whole county, roughly divided into three zones by the A127 and A13. To the north is a largely rural landscape; centrally and to the north-east there is an essentially urban zone; and to the south and south-east are extensive coastal marshes.

These three very different zones present different wildlife opportunities and challenges. The relatively rural character of the northern zone is now under threat from the rapid and significant expansion of Wickford, which has, as indicated above, seen the loss of large quantities of former plotland grassland and scrub habitat. As is typical of such habitat, very few plots taken in isolation were likely to be of particular note, but their value comes in forming sometimes large tracks of semi-natural vegetation in a complex juxtaposition that can be exploited by a large variety of wildlife. Similar areas are suffering more piecemeal loss around North Benfleet, where individual plots are being "sanitised", with run-down houses being replaced by modern dwellings, rough grassland and scrub being replaced by intensively grazed pasture and larger blocks of solid scrub being cleared to recreate grass and scrub mosaics. A similar process in ongoing around Crays Hill, with the added problem that some of the work and development is being undertaken outside of the planning framework.

Within the central urban zone there are often scarce few areas of significant semi-natural vegetation of any type. In this context, the myriad scraps of amenity grassland and planted trees that pepper the housing estates of Fryern's, Barstable, Felmore and Chalvedon take on an unexpected importance. How much the potential of these small wildlife "pocket parks" can be realised depends upon the level of abuse directed at the trees and other features by a youthful population that has become almost totally divorced from the countryside and wildlife around them. The more accurate mapping of these small areas in this present survey has revealed the existence of over 105 ha of such "parkland": a greater extent than all the planted woodlands across the whole District and one fifth the size of all semi-natural broadleaf woodland.

To the south-east, the District still supports some very significant areas of coastal grazing marsh. The issues relating to such sites are very much broader and touch climate change (less rainfall and the gradual drying out of the terrestrial aquifers and sea level rises that put

pressure on the seawalls), European farming economics and the relative attractiveness of hay cutting and sheep grazing.

Inappropriate management continues to be as big a threat to wildlife sites as is development. Over-intensive grazing can severely limit the wildlife value of the most flower-rich site, as can grazing or cutting at the wrong time of year. With the tendency to replace grazing with mowing for "conservation management", a quite different management pressure is exerted upon the sward and the species of interest may not be able to cope with these changes. The mower cuts all, whereas occasional grazing livestock avoid certain plants, thereby maintaining a more diverse sward and habitat opportunities for grasshoppers and spiders, that are now too often removed by the tractor and flail.

## 5.4 Identification of Wildlife Sites

The selection criteria outlined in Chapter 4, above, have been used to re-assess the original suite of SINCs and also to evaluate other sites not previously selected, to generate a revised register of Wildlife Sites for Basildon District. Appendix 6 provides the register of these Wildlife Sites, with boundary maps and summary descriptions for each site, along with the criteria under which each site has been selected. The Sites are listed in Appendix 7, with a location overview provided in Map 1.

The suite of Sites has been amended from those identified in the report in 1993 for the following reasons:

1. Some sites have been de-selected on account of their decreased nature conservation value or failure to satisfactorily meet the revised selection criteria;
2. A few new, modified or previously overlooked sites have been identified and added to the register;
3. SSSIs have been removed from the system, as explained above;
4. Some sites have been amalgamated where they lie next to each other, so that whereas formerly an ancient woodland and an immediately adjacent section of recent woodland would have been identified as separate SINCs, they are now identified as one unified site.

A major change is that areas designated as Sites of Special Scientific Interest SSSI, included in the previous survey, are now no longer included in the Wildlife Site network. With regards to Basildon District, this removes: Norsey Wood (W12), Basildon Meadows (G4), Pitsea Marsh (M12) and Vange Marsh (G6) (the old SINC identification numbers are given in brackets). For reference, these SSSI citations are included within Appendix 8 of this report.

Site numbering has also changed. Previously, sites were roughly grouped into habitat categories of Woodland, Grassland, Mosaic, Freshwater, Coastal or Heathland, with an appropriate letter code and sequential number. Given that this process was repeated across the 14 boroughs/districts in Essex, this means that the county had 14 "W1" SINCs i.e. the first woodland site in each local authority area. In order to make the county-wide system less complicated, a new system is being introduced whereby each site has a borough/district and number code, with all Basildon Sites now being prefixed "Ba" and with no indication of the habitat(s) present on the site.

In addition to the those sites selected as Wildlife Sites, there are a few others which though not meeting the selection criteria in full, nevertheless only just missed out. The main reason

for this hinges mostly on the lack of data. Future survey work may indeed result in a site then fulfilling the selection criteria.

Deletions

A few sites have been withdrawn as Wildlife Sites. These are:

- FW1 – pond, Ford Research and Engineering Centre. When originally identified, this was one of the very few modern locations for the Scarce Emerald Damselfly, a Red Data Book species thought to have become extinct in the country. Since then, this species has spread somewhat, although it is still nationally threatened, and it is present in some strong populations in brackish ditch systems throughout coastal Essex. Also, the pond in question has undergone some recent engineering works to enlarge it and there has been no survey work to ascertain whether or not this species is still present. Even if still present, this is likely to be a small, more isolated population for which Wildlife Site identification was thought to be inappropriate at present.
- W21 – Shotgate Thickets (part of), is no longer part of an Essex Wildlife Trust reserve and, even if it were, is not of sufficient wildlife interest to merit identification as a Wildlife Site. Its previous SINC status lay purely in it being and EWT reserve, with its selection being "automatic".

Additions

A number of new sites have added to the Wildlife Site register. These are:

Ba17 – Queens Park Country Park
Ba20 – Norsey Meadow
Ba24 – Dry Street Pastures
Ba27 – Noak Bridge Reserve
Ba29 - Gloucester Park Meadow
Ba32 – Bells Hill Meadow
Ba34 – All Saints Churchyard, Vange
Ba41 – Pitsea Mount
Ba43 – "Untidy Industries" Site
Ba45 - Bowers Gifford Grasslands

Amendments

Several former SINCs have been significantly revised, affected by both additions and deletions of land. These are:

- SINC M7, Langdon Nature Reserve has absorbed SINCs M2, M5 and several small parcels of land not formerly included within any Site, to become Ba21, Langdon Complex. It should be stressed that this Site is no longer identical to the Essex Wildlife Trust's Langdon nature reserve.
- SINC M11, Basildon Golf Course Earthworks has been merged with W17 Basildon Golf Course Wood, and also greatly extended onto land not previously identified.
- G9, Bowers and Vange Creek Marshes has been greatly extended, with some land lost to lagoon development. It now comprises Site Ba37. The flooded land may subsequently warrant identification, when further knowledge about its wildlife is obtained. Over-wintering wildfowl and waders are likely to be important features here. The eastern part of this site has been separated to form a new site Ba46.

- G7, Wickford Meadows, River Crouch has been greatly extended along the river corridor.

Several other Sites have been subjected to more modest amendments.

The 1993 report identified some 810.3 hectares of land as SINC (including SSSIs). This included some 182.5 hectares of SSSI land, giving a total of 627.8 hectares of non-SSSI SINC. This present study has culminated with the selection of some 920.3 hectares as Wildlife Site land, an increase of 292.5 hectares. The main reason for this increase is our greater appreciation of the invertebrate and reptile populations within the District and also their ecological requirements. This has seen the inclusion for the first time of several extensive areas of land specifically for invertebrate conservation, such as the great expansion to form Ba35 Vange Hill, Ba39 Pitsea Landfill and Ba43 "Untidy Industries" Site.

## 5.5 Discussion of Wildlife Sites

It is, perhaps, a small note of encouragement that there are several additions to the Wildlife Site network and only two deletions on the grounds that their wildlife value is in doubt. However, it must be borne in mind that many of the new sites, and indeed some extensions to existing sites, are now included due to more diverse and far-reaching selection criteria. Many of these new areas quite probably had their current wildlife value in 1993, but neither the state of our knowledge about those sites nor the selection criteria were sufficient to appreciate them. It would therefore be dangerous to deduce from the increased number of Wildlife Sites that the wildlife attractiveness of the Basildon countryside is improving.

That said, there has been no loss of SINC habitat due to development, thus far. However, a few sites now identified as Wildlife Sites are felt to be under threat of development over all or part of their extent. Those particularly threatened are: Ba23 St Nicholas Church Complex; Ba24 Dry Street Pastures; and Ba43 Burnt Mills.

However, a lack of management or, conversely, over-zealous management can both pose a far bigger threat to the integrity of important Wildlife Sites than the more immediate impacts of development threat. The following section briefly appraises the management issues for each Site:

**Ba1. Blind Lane** – track surfacing and excessive "traffic" pressure. Initiatives to improve the hedgerows along the surfaced section of Blind Lane leading southwards could yield one long hedgerow corridor connecting with site Ba4.

**Ba2. Parkhill Wood Meadow** – type and intensity of grassland management; fertiliser application.

**Ba3. Bluntswall Wood** – neglect, especially if formerly coppiced. Resumption of any traditional coppice management should be considered.

**Ba4. St. Margarets Wood and Lane** – track surfacing and excessive "traffic" pressure. See also, comments for Ba1, above.

**Ba5. Round Wood** – neglect, especially if formerly coppiced. Resumption of any traditional coppice management should be considered.

**Ba6. Botneyhill Wood** – neglect, especially if formerly coppiced. Resumption of any traditional coppice management should be considered.

**Ba7. Gravelpit Wood** – neglect, especially if formerly coppiced. Resumption of any traditional coppice management should be considered.

**Ba8. Little Burstead Common** – fly-tipping; recreational pressures; neglect.

**Ba9. The Wilderness** – "erosion" of margins due to surrounding golf course management; neglect.

**Ba10. Queens Park Meadow -** type and intensity of grassland management; fertiliser application; drying out of damp areas and scrub growth.

**Ba11. Poles Wood** – neglect, especially if formerly coppiced. Resumption of any traditional coppice management should be considered.

**Ba12. Frith Wood** – neglect, especially if current coppice management lapses; recreational pressure from adjacent housing.

**Ba13. Buckwyn's Wood –** conversion of former plotland units into pasture or "gardening". Some management to increase structural diversity of the wood would be beneficial.

**Ba14. Laindon Common** – loss of remaining areas of acid grassland to scrub woodland growth; nutrient build-up in poor, acid grassland component; recreational pressures. Some reversion of scrub margins to grassland would be beneficial.

**Ba15. Langdon Hills Recreation Ground** – over-zealous mowing; fertiliser application or leaching from surrounding land; picking of wildflowers by public. The floristic interest may spread if more of the sward were to be left unmown.

**Ba16. Little Burstead Woods** – conversion of semi-natural woodland to garden would be a negative impact.

**Ba17. Queen's Park Country Park** – loss of flower-rich grassland to excessive scrub growth and growth of planted trees. Conversion of plantations to a more open "parkland" landscape is recommended. Inappropriate management of grassland, such as mowing at the height of summer would also have a negative impact upon the invertebrate populations. Visitor pressure and high levels of dog-walking may impact upon ground-nesting birds.

**Ba18. Mill Meadows LNR** – scrub growth over flower-rich grassland; variations in grazing intensity and use of worming agents in livestock; visitor pressure; drying out of damp ground conditions.

**Ba19. Coombe Wood Extensions –** visitor pressure; Sycamore invasion.

**Ba20. Norsey Meadow** – scrub growth**;** inappropriate management of grassland, such as mowing at the height of summer would have a negative impact upon the invertebrate populations. Small-scale cutting of grassland patches may increase grassland habitat diversity.

**Ba21. Langdon Complex –** visitor pressure**;** inappropriate management of grassland, such as mowing at the height of summer would have a negative impact upon the invertebrate populations. Success of grazing project will influence recovery or growth of some butterfly populations.

**Ba22. Westley Heights** – visitor pressure.

**Ba23. St. Nicholas Church Complex** – threatened by development; water table issues may impact upon the two ponds, as might invasion of alien aquatic flora; visitor pressure. In the long-term, scrub growth may become an issue, if the threat of development does not come to fruition.

**Ba24. Dry Street Pastures** – threatened by development; grazing intensity and other grassland management methods could impact upon the flora and fauna.

**Ba25. Forty Acre Plantation** – neglect, especially if coppicing ceases; invasion of Sycamore.

**Ba26. "Kennels Wood"** – management should aim to maximise scrub woodland structure diversity.

**Ba27. Noak Bridge Reserve** – water table management and pollution; invasion of alien aquatic flora; scrub expansion; visitor pressure.

**Ba28. Moses' Spring/Barrenleys/Claypitshills Woods** – neglect, especially if formerly coppiced. Resumption of any traditional coppice management should be considered.

**Ba29. Gloucester Park Meadow** – the extent of good quality grassland could be enlarged if the mowing regime on adjacent amenity sward were to be scaled down; visitor pressure. Type and intensity of grassland management; fertiliser application, inappropriate management of grassland, such as mowing at the height of summer would have a negative impact upon the invertebrate populations.

**Ba30. Hawkesbury Manor -** inappropriate management of grassland, such as mowing at the height of summer would also have a negative impact upon the invertebrate populations; scrub growth.

**Ba31. Parsonage Farm Green Lane** – track surfacing and excessive "traffic" pressure would have negative impacts. The sections of more recent hedge need time to mature.

**Ba32. Bells Hill Meadow** - inappropriate management of grassland, such as mowing or grazing at the height of summer would have a negative impact upon the invertebrate populations; scrub growth.

**Ba33. Crays Hall Meadow** – recreational disturbance or change of land use. The type and intensity of grassland management; fertiliser application will influence the sward.

**Ba34. All Saints Churchyard, Vange –** it is believed that burials no longer take place, or are at least very infrequent. Inappropriate management of grassland, such as mowing at the height of summer would have a negative impact upon the invertebrate populations. The sward is currently being managed far less intensively than when surveyed in the early 1990s.

**Ba35. Vange Hill** – changes in golf course lay-out and extent of rough versus fairway grassland could have an impact. Excessive scrub growth will be a long-term management issue.

**Ba36. Nuttons Wood** – neglect, especially if formerly coppiced; pressure from surrounding land-uses.

**Ba37. Vange Creek Marshes** – changes to grazing intensity, duration and livestock type could influence sward characteristics in both positive and negative ways. In the longer term, coastal defence policies and groundwater regimes may also cause irreversible changes.

**Ba38. Noke Wood** – pressure from surrounding land uses; neglect, especially if formerly coppiced. A resumption of any traditional coppicing may be beneficial in diversifying the woodland habitat structure.

**Ba39. Pitsea Landfill** – no immediate impacts are foreseen, although future scrub growth and any future grassland management or changes of land use e.g. use as an open space, could compromise the current wildlife value. Grassland succession and the gradual change in soil nutrient status to create a more rank, species-poor sward would also be detrimental.

**Ba40. Nevendon Bushes** – recreational pressure and vandalism.

**Ba41. Pitsea Mount –** scrub growth; inappropriate management of grassland, such as mowing at the height of summer would have a negative impact upon the invertebrate populations.

**Ba42. Wickford Meadows** - type and intensity of grassland management will influence the sward characteristics; recreational pressure and in the long-term the pressure for urban expansion may threaten the site.

**Ba43. "Untidy Industries" Site** – maintenance of nutrient-poor, sparsely vegetated ground and a mosaic of herbage will be key to maintaining the invertebrate interest of this site.

**Ba44. Burnt Mills –** threatened by development. Maintenance of a species-rich sward will be important for invertebrate populations. Amphibian populations will be susceptible to groundwater regime changes, disturbance to breeding pools and the natural succession and infill of those pools.

**Ba45. Bowers Gifford Grasslands** - inappropriate management of grassland, such as mowing at the height of summer would have a negative impact upon the invertebrate populations as well as flora characteristics. The type and intensity of grassland management and fertiliser applications could also influence the site**.**

**Ba46. Bowers Marshes** - changes to grazing intensity, duration and livestock type could influence sward characteristics in both positive and negative ways. In the longer term, coastal defence policies and groundwater regimes may also cause irreversible changes. Habitat schemes such as the creation of wetland scrapes may see a net benefit to wildlife.

## 5.6 BAP Resources Within Basildon District

A detailed discussion of the biodiversity issues relating to the District is beyond the scope of this report. However, a few guiding thoughts on the key species and habitats is presented below, derived from this "stock-take" of the current state of the District's wildlife.

### Habitats

The following Essex BAP habitats can be found within Basildon District:

Ancient and Species-rich Hedgerows and Green Lanes

Essex is surprisingly well-endowed with green lanes, although Basildon does not fare so well. Three significant areas have been identified here as Wildlife Sites (Ba1 Blind Lane, Ba4 St. Margarets Wood and Lane and Ba31 Parsonage Farm Green Lane) in recognition of their roles as wildlife corridors in the open countryside and also as habitat for ancient woodland flora and fauna. The Manor Way within the Bowers Marshes (Ba46) site doubtless provides an area of scrub shelter for birds on the marshes from cold winter winds, as well as providing scrub habitat for invertebrates. Many of the old plotland roads within the Langdon Complex (Ba21), effectively act as green lanes and woodland rides within the matrix of semi-natural habitats. Other lanes, such as Rushbottom Lane no doubt perform similar corridor functions but are less floristically interesting. Scope surely exists within the rather open "Noak Hill to Wickford Plain" to plant and create many more miles of lane associated with existing public rights of way, thereby increasing the scrub woodland habitat in a part of the District largely lacking in Wildlife Sites.

Older hedgerows in general are more difficult to pin-point with certainty, with the many straight field divisions around North Benfleet and Bowers Gifford indicating more recent partitions. In general, the older landscape of the north of the District contains many irregular field boundaries, which are a sign of ancient hedges.

Ancient Woodland

This habitat is poorly represented in the District, with a very marked skew in its distribution. South of the A127 there are only three sites: Nevendon Bushes (forming most of Site Ba40), Lince Wood (within the Langdon Complex Ba21) and Coombe Wood Extensions (Ba19). The majority of the area's ancient woods lie in the old landscape around Billericay and Little Burstead, with the Norsey Wood SSSI clearly being the "jewel in the crown". The loss of ancient woodland to housing development is still a recent memory for this area, with the loss of the large Millhill Wood to the Queen's Park area of Billericay. The boundary stream forming the southern part of Queens Park Country Park (Ba17) is the old northern boundary of this wood, with, it is to be hoped, some of the ancient woodland flora and fauna surviving in this narrow corridor.

Cereal Field Margins

Across the county, Countryside Stewardship schemes aimed at encouraging grass headlands are contributing to a softening of the interface between arable land and bounding hedgerows. Another important zone for a suite of specialised scarce plants is the narrow zone at the edge of the cultivated land where herbicide sprays may not achieve 100 percent coverage. In such areas, arable weeds may be able to proliferate. No specific areas of this very specialised flora were identified during this survey, but relic flora may well still occur in the District.

Coastal Grazing Marsh

Significant areas of this habitat still remain broadly intact in the south-east of the District and are identified within the Vange Creek Marshes (Ba37) and Bowers Marshes (Ba46) Sites, plus the Pitsea Marsh and Vange Marsh SSSIs. Even then, however, not all areas of these marshes retain any sign of the old irregular creek patterns that are characteristic of the best, unimproved grazing marsh. Most sites here have a relatively even and level sward between the drainage ditches, indicating some level of former ploughing either during a war-time arable phase or to improve the grass harvesting process.

Nevertheless, the remaining marshes form part of a highly significant complex of coastal habitats, including West Canvey Marshes in Castle Point and Fobbing and Corringham Marshes in Thurrock, encircling the growing "hill" of the current Pitsea landfill site.

Lowland Heathland

There are no true examples of this habitat type in Basildon. The acid soil ground conditions of Norsey wood support typical woodland species of sandy soils and there are a very few remnant pockets of *Sphagnum* bog-mosses, but it does not support the significant stands of Heather (*Calluna vulgaris*) to be found in similar woods to the east, such as Hadleigh Great Wood, although it does occur very sparingly.

No un-improved acid grassland was recorded and only one block of "Semi-improved Acid Grassland" was recorded in the whole District, this being a small remnant to be found on the northern end of Laindon Common (Ba14). This must be deemed to be under threat from both scrub encroachment and also possible "adoption" by the adjacent houses and being mown regularly as an extension to the associated gardens. Habitat management to increase the extent of this grassland habitat, even at the expense of some of the common's woodland should be seen as a high priority.

The scope for habitat creation schemes elsewhere is perhaps rather limited. The only significant outcrops of suitable geology lie largely under Billericay (hence the Norsey Wood flora) and towards Little Burstead (hence the Laindon Common flora).

Old Orchards

Orchards *per se* are virtually non-existent in the District: only one such area has been mapped as such in this current survey of the District, although many small stands of 3-4 trees or so may remain, especially within the curtilage of residential properties. This one site is on the London Road between Crays Hill and Wickford, near Woolshots Farm and it is not thought to be of any significance, either for its habitat quality nor antiquity of trees or varieties of fruit to be found there.

However, there could be considerable interest in the genetic diversity of the numerous fruit trees to be found scattered throughout the old plotland areas of the District. The Langdon Complex (Ba21) is obviously a key area here, but other sites may also be of interest: Site BA41 (Pitsea Mount) supports an enormous pear tree close to its northern border by the fly-over.

Reedbeds

This is not a common habitat in the District. The most significant single block of Reed growth is probably that in Pitseahall Fleet within Wat Tyler Country Park. However, there is a very significant cumulative quantity of Reed within the ditches of the Bowers Marshes Site (Ba46), with one significant stand along a main fleet 600 metres to the south of Great

Mussels, and significant but more fragmented stands in the fields to the north-west of the Manor Way.

Saline Lagoons

True saline lagoons are a rare habitat type that require very specific environmental conditions to develop. Similar habitat conditions are provided by some of the tidal brackish borrow dykes behind seawalls, such as those that border East Haven Creek at the eastern end of Bowers Marshes (Ba46). The wetland complex to the east of Vange Wharf might also provide suitable conditions, although the tidal flow may be too extreme for true lagoon conditions to develop.

Urban Habitats

The first notion of the urban sprawl of Basildon new town is that it is an immense wedge that has been driven between the farming countryside to the north and the coastal marshes and hills to the south, with a real challenge for wildlife attempting to traverse it. Re-engaging the urban population dwelling here with countryside and wildlife issues will be an important but challenging task.

A number of the Wildlife Sites are truly urban, giving the local population a taste of the countryside and encouraging wildlife to populate gardens and parks. These urban Sites are: Ba21 (Langdon Complex), Ba29 (Gloucester Park Meadow), Ba35 Vange Hill and Ba40 (Nevendon Bushes). Besides these important Sites, numerous other parks and green spaces are dotted throughout the urban zone, with Northlands Park, the wider environs of Gloucester Park and Victoria Road Park adjacent to the Ford Research Centre at Dunton being the most significant.

## Species

The following section is a brief appraisal of the BAP species that are likely to be of some significance to Basildon. The number of Species Action plans for Essex is currently very limited, so the summary below includes those Essex SAPs and also key species from the National Priority BAP report. This discussion is based upon the general knowledge of these species in Essex rather than drawing on specific survey data from the present study.

Brown Hare

In Essex, Brown Hares remain reasonably common and widespread, although they have come under increasing pressure from Hare coursing (both legal and illegal) in recent years. The recent changing to hunting legislation may help to improve this situation, but the species still requires a diverse farming landscape in which to thrive. Dobson (1999) illustrates a very poor picture of Basildon and south Essex in general, with very few records. The older landscape with smaller fields and mix of arable and pastureland in the northwest is likely to be the best habitat for this species, along with the more open arable landscape between Vange and Fobbing.

Dormouse

This species is only known from Norsey Wood SSSI and Forty Acre Plantation (Ba25) within Basildon. The ecological link between these two sites is tenuous and some thought might be given to the imaginative use of aerial rope-bridges and additional planting to help link these two sites together. Their presence in the Barrenleys complex of woods (Ba28) and the corresponding woodland on the other side of the railway line in Chelmsford cannot be ruled out and should be the target of additional survey work.

Pipistrelle Bats
This is likely to be a common bat across Essex during the breeding season, but very little is known about where they go in the winter.

Water Vole
Recent surveys suggest that this species is undergoing a dramatic decline, with the issue of predation by Mink severely restricting the Water Vole's ability to maintain viable populations in many former strongholds. The Essex Wildlife Trust database has very few records for Basildon, with the Bowers Marshes (Ba46) appearing to be an important stronghold for this species.

Grey Partridge
There are very few breeding records, mainly in the extreme south of the District (Dennis, 1996). The encouragement of field headlands under Stewardship schemes and the rise in organic farming ought to aid this species, but conservation needs to be at a "whole farm" level or higher.

Skylark
The distribution map in Dennis (1996) shows a deceptive picture: whilst Skylarks may well be widely distributed in the county, their density has greatly declined. Reasons for this include the tendency to sow cereal crops in autumn, previous use of harmful insecticides and lack of suitable nesting habitat. Large areas of tall grassland, such as can be found across Bowers Marshes (Ba46) ought to be good breeding habitat but success will be linked to the seasonal timing of hay and silage cuts and disturbance.

Song Thrush
A similar story to that of Skylark, although with a greater reliance on gardens and sub-urban habitats as well as farmland.

Great Crested Newt
Records indicate that Basildon is an important area for this species, including many urban (and threatened) sites within Basildon new town itself.

Hornet Robberfly
Although not known to have been recorded from the District, known sites lie not far away in Thurrock so its colonisation of, or discovery within, the District should not be ruled out. Its success depends upon the supply of larval food items, thought to be large dung beetle larvae and so this is linked in with the degree of use of worming agents within livestock, since these residual chemicals in dung tends to kill dung beetle larvae.

Shrill Carder Bee (*Bombus sylvarum*)
This is a key species for Basildon District, with a large meta-population currently present in the marshland complex encircling Pitsea landfill. Its dependence upon large expanses of suitable foraging habitat mean that large-scale thinking and habitat management will be desirable to ensure the survival and spread of this species.

It has been recorded from the following Wildlife sites during this present study:

Ba30. Hawkesbury Manor
Ba32. Bells Hill Meadow
Ba35. Vange Hill
Ba39. Pitsea Landfill

Ba43. "Untidy Industries" Site
Ba46. Bowers Marshes

Black Poplar
Although the Essex BAP (Thompson and McClean, 1999) "ticks" Basildon as a location for this scarce tree (also known as Water Poplar), an interim database of confirmed locations produced by Dr Ken Adams in 2003 has no records for the District. It is possible, however, that a solitary tree remains, such as along one of the quieter reaches of the River Crouch.

## 5.7 Wildlife Corridors

The following section is a brief account of the issues relating to the identification and development of wildlife corridors within the District. In reality, this is an extremely complex issue, which depends upon the scale at which one is studying the countryside and also the type of species one is trying to encourage to move from point "A" to point "B" along that corridor. For example, the type of corridor needed to encourage Brown Hares into the central part of the District is at a landscape scale, whilst that needed to encourage the mixing of the Dormouse populations of Norsey Wood and Forty Acre Plantation might just be a complex of aerial bridges barely 100 metres long. A "corridor" for newt dispersal might end up as a channelled underpass under a trunk road. The A13 is unlikely to be a barrier to dispersal for birds moving across the District from the southern marshes into the town, but it doubtless provides a far more perilous barrier to other flying species, such as the Marbled White butterfly, where air turbulence from passing traffic and the danger of impact will be a very significant mortality factor.

Landscape Corridors
The human infrastructure of the District provides several barriers as well as corridor opportunities to wildlife "attempting" to disperse across the District (it should be remembered that such dispersal is often an unintended population expansion or other uncontrolled dispersal event, rather than an innate migration or purposeful behavioural activity). Curiously, all these barriers/corridors operate in an east/west direction. They comprise (from north to south):

- Railway line between Billericay and Wickford
- A127
- Railway line through Basildon and Benfleet
- A13
- Railway line to Tilbury through Pitsea station

These potential corridor-cum-barriers are illustrated in Map 2 (black lines). As indicated above, these features might act as barriers to north-south dispersal for some species, but not for others. Furthermore, they might actually function as useful corridors that aid the dispersal of some species in an east-west direction. Many motorway travellers will have noticed Kestrels hovering over the rough grass embankments of the road, hunting for the small mammals that find such areas of rough grassland good habitat. Thus, appropriate road verges on this scale could be aiding the dispersal of mammals and other species across the countryside, with the proviso that "they go where the road goes". It will be a matter of individual species requirements and conservation desires to determine whether or not there is a net gain or loss from this dual corridor/barrier role.

Other, more natural landscape corridor features can also be identified (Map 2, red lines). In reality, our knowledge of what makes a suitable corridor for a species may be (a) entirely wrong, and (b) quite unsuitable for another species. Some species do not need corridors at all, or barely so. These factors can be illustrated with the following examples:

- The dispersal of Great Crested Newts across large areas of countryside is likely to need more or less continuous tracts of suitable habitat and winter hibernation sites. Thus, they are unlikely to routinely march across open wheat fields, but they could well disperse along a ditch/hedge line, especially if there are permanent grass margins associated with each hedge.
- This network of relatively narrow grass margins may not be suitable habitat to encourage the dispersal of some invertebrates, that need large tracts of good-quality foraging grassland. Improvements to the hedge line may be necessary for it to become a viable corridor route for Dormice, resulting in a far wider, thicker and (for the farmer seeking to maximise field cropping) less attractive land use.
- Species such as Skylark and Grey Partridge that are highly mobile hardly need corridors of habitat to colonise new areas. Their requirement is to have the right habitat at a landscape scale. A similar case is true for Brown Hares, although they will need a little more coaxing into the new area with connected bands of hare-friendly farmland.
- Many species of invertebrate that live in meta-populations i.e. clusters of individual populations that may wax and wane over the years and may exhibit regular immigration and emigration between units of the cluster. These species may not need bands of contiguous habitat in order to expand, but can colonise a more "stepping stone" landscape, provided that the "steps" provide sufficient quality and quantity of the requirement habitat.

It is recognised that for many species, both the common place and those more immediately threatened BAP species, dispersal through the countryside from core areas or local strongholds into the wider environs of the countryside from which they have been lost will require the concept of corridors, "sources" and "sinks" to be explored much more fully. However, the most prudent way of implementing this is felt to be not the act of just linking up areas of known semi-natural habitat with lines on a map, but to develop individual Species Corridor Plans as part of the BAP strategy. Added value may be gained where one or more corridor requirements overlap.

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# APPENDIX 1
# LANDUSE/HABITAT CLASSIFICATION CODES

| | |
|---|---|
| A | Arable |
| AG | Unimproved Acid Grassland |
| ALL | Allotments |
| AM | Amenity Grassland |
| BG | Bare Ground |
| BP | Broadleaved Parkland |
| BW | Broadleaved Woodland |
| CHU | Churchyard or Cemetery |
| CS | Caravan Site |
| DGM | Dry acid grassland/heath mosaic |
| DH | Dry Heath |
| DS | Dense Scrub |
| DSm | Dense Saltmarsh |
| GL | Green Lane |
| HOR | Horticulture |
| I | Improved Grassland |
| IS | Introduced Shrubs (ornamental planting) |
| L | Lake |
| MG | Marshy Grassland |
| NG | Unimproved Neutral Grassland |
| PBW | Planted Broadleaved Woodland |
| PBW(OR) | Orchard |
| Po | Pond |
| RES | Reservoir |
| SAG | Semi-improved Acid Grassland |
| SD | Single-species Dominant Swamp |
| SG | Coastal Grassland |
| SI | Poor Semi-improved Grassland |
| SNG | Semi-improved Neutral Grassland |
| SP | Short Perennial vegetation |
| SS | Scattered Scrub |
| SSm | Scattered Saltmarsh |
| SWB | Saline Water Body |
| TR | Tall Ruderal |
| TS | Tall Swamp (mixed species) |
| WG | Waste Ground |
| WH | Wet Heath |

## APPENDIX 2
## SPECIES INDICATIVE OF ANCIENT WOODLAND IN ESSEX

| | | |
|---|---|---|
| Wood Anemone | | Anemone nemorosa |
| Woodruff | * | Galium odoratum |
| Nettle-leaved Bellflower | * | Campanula trachelium |
| Smooth-stalked Sedge | * | Carex laevigata |
| Pale Sedge | * | Carex pallescens |
| Pendulous Sedge | | Carex pendula |
| Remote Sedge | | Carex remota |
| Thin-spiked Wood Sedge | * | Carex strigosa |
| Pignut | | Conopodium majus |
| Lily of the Valley | * | Convallaria majalis |
| Climbing Fumitory | | Corydalis claviculata |
| Midland Hawthorn | * | Crataegus laevigata |
| Scaly Male Fern | | Dryopteris pseudomas |
| Broad-leaved Helleborine | * | Epipactis helleborine |
| Purple Helleborine | * | Epipactis purpurata |
| Spindle Tree | | Euonymus europaeus |
| Wood Spurge | * | Euphorbia amygdaloides |
| Yellow Archangel | | Galeobdolon luteum |
| Bluebell | | Hyacinthoides non-scripta |
| Hairy St. John's-wort | | Hypericum hirsutum |
| Bitter Vetchling | * | Lathyrus montanus |
| Hairy Woodrush | * | Luzula pilosa |
| Great Woodrush | * | Luzula sylvatica |
| Yellow Pimpernel | | Lysimachia nemorum |
| Common Cow-wheat | | Melampyrum pratense |
| Wood Melick | | Melica uniflora |
| Dog's Mercury | | Mercurialis perennis |
| Wood Millet | | Milium effusum |
| Three-veined Sandwort | | Moehringia trinervia |
| Bird's Nest Orchid | | Neottia nidus-avis |
| Early Purple Orchid | | Orchis mascula |
| Wood Sorrel | | Oxalis acetosella |
| Herb Paris | * | Paris quadrifolia |
| Water Purslane | * | Peplis portula |
| Greater Butterfly Orchid | | Platanthera chlorantha |
| Oxlip | * | Primula elatior |
| Primrose | | Primula vulgaris |
| Sessile Oak | | Quercus petraea |
| Goldilocks Buttercup | | Ranunculus auricomus |
| Butcher's Broom | * | Ruscus aculeatus |
| Orpine | | Sedum telephium |
| Wild service Tree | * | Sorbus torminalis |
| Small-leaved Lime | * | Tilia cordata |
| Early Dog Violet | | Viola reichenbachiana |

[Sources: Rackham (1986) Table 4, p.50 - species with an "indicator value" of 4 are marked "*" above, those with a value of 1 are not included here; Rackham (1980) Tables 5.1 and 5.2 - species with an affinity with ancient woodland which is described as "strong", "very strong" or "strict" are marked "*" above, those with an affinity below "moderate" are excluded here, as are plants which are extremely rare in Essex.]

**APPENDIX 3**
**SPECIES INDICATIVE OF OLD, UNIMPROVED NEUTRAL/ACID GRASSLAND AND MARSH IN ESSEX**

Key:
"*" denotes plants which seldom occur outside unimproved grasslands/marshes or are particularly indicative of a long period of traditional grassland management. "M" denotes species indicative of old, unimproved marshes "A" denotes species indicative of unimproved acidic grassland

| | | |
|---|---|---|
| Sneezewort | * | Achillea ptarmica |
| Quaking Grass | * | Briza media |
| Meadow Brome | | Bromus commutatus |
| Smooth Brome | | Bromus racemosus |
| Marsh Marigold | M | Caltha palustris |
| Harebell | A | Campanula rotundifolia |
| Lady's Smock | | Cardamine pratensis |
| Tufted Sedge | | Carex acuta |
| Ribbed Sedge | A | Carex binervis |
| Spring Sedge | | Carex caryophyllea |
| Straight-beaked Sedge | | Carex demissa |
| Distant Sedge | | Carex distans |
| Soft Brown Sedge | | Carex disticha |
| Star Sedge | | Carex echinata |
| Black Sedge | | Carex nigra |
| Carnation Sedge | | Carex panicea |
| Greater Tussock Sedge | | Carex paniculata |
| Bladder Sedge | | Carex vesicaria |
| Pignut | | Conopodium majus |
| Early Marsh Orchid | | Dactylorhiza incarnata |
| Southern Marsh Orchid | | Dactylorhiza praetermissa |
| Heath Grass | A | Danthonia decumbens |
| Water Horsetail | | Equisetum fluviatile |
| Fen Bedstraw | | Galium uliginosum |
| Lady's Bedstraw | | Galium verum |
| Dyer's Greenweed | | Genista tinctoria |
| Glaucous Sweet-grass | | Glyceria declinata |
| Round-fruited Rush | | Juncus compressus |
| Heath Rush | A | Juncus squarrosus |
| Blunt-flowered Rush | M | Juncus subnodulosus |
| Grass Vetchling | | Lathyrus nissolia |
| Ragged Robin | M | Lychnis flos-cuculi |
| Creeping Jenny | | Lysimachia nummularia |
| Purple Moor-grass | A | Molinea caerulea |
| Tubular Water-dropwort | M | Oenanthe fistulosa |
| Adder's Tongue Fern | | Ophioglossum vulgatum |
| Green-winged Orchid | * | Orchis morio |
| Lousewort | | Pedicularis sylvatica |
| Trailing Tormentil | | Potentilla anglica |
| Tormentil | A | Potentilla erecta |
| Salad Burnet | | Poterium sanguisorba |
| Cowslip | | Primula veris |
| Yellow Rattle | * | Rhinanthus minor |

| | | |
|---|---|---|
| Meadow Saxifrage | * | Saxifraga granulata |
| Lesser Skullcap | M | Scutellaria minor |
| Marsh Ragwort | | Senecio aquaticus |
| Pepper Saxifrage | * | Silaum silaus |
| Autumn Lady's-tresses | * | Spiranthes spiralis |
| Betony | | Stachys officinalis |
| Bog Stitchwort | | Stellaria alsine |
| Meadow Rue | | Thalictrum flavum |
| Wild Thyme | | Thymus polytrichus |
| Sulphur Clover | | Trifolium ochroleucon |
| Subterranean Clover | | Trifolium subterraneum |
| Marsh Arrowgrass | | Triglochin palustris |
| Marsh Valerian | | Valeriana dioica |
| Pink Water Speedwell | | Veronica catenata |

## APPENDIX 4
## INDICATIVE CHALK GRASSLAND PLANTS

Note: Some of these species can also be found within unimproved chalky boulder clay or exception neutral soil meadows. This appendix is intended to be applied when considering sites on a solid chalk substrate.

| | |
|---|---|
| Pyramidal Orchid | Anacamptis pyramidalis |
| Wild Liquorice | Astragalus glycyphyllos |
| Quaking Grass | Briza media |
| Clustered Bellflower | Campanula glomerata |
| Carline Thistle | Carlina vulgaris |
| Great Knapweed | Centaurea scabiosa |
| Stemless Thistle | Cirsium acaule |
| Woolly Thistle | Cirsium eriophorum |
| Basil-thyme | Clinopodium acinos |
| Crosswort | Cruciata laevipes |
| Autumn Gentian | Gentianella amarella |
| Rock-rose | Helianthemum nummularium |
| Meadow Oat-grass | Helictotrichon pratense |
| Ploughman's Spikenard | Inula conyzae |
| Catmint | Nepeta cataria |
| Knapweed Broomrape | Orobanche elatior |
| Salad Burnet | Sanguisorba minor ssp. minor |
| Small Scabious | Scabiosa columbaria |
| Wild Thyme | Thymus polytrichus |

## APPENDIX 5
## INVERTEBRATE SPECIES QUALITY AND SITE ASSESSMENT

Species rarity and the degree to which they are endangered are generally assessed by analysing the number of national 10km grid squares in which they occur. This is slightly altered for the case of the most endangered species, which are recorded in national Red Data Books (e.g. Shirt, 1987). Here, the listing as RDB1 (Endangered), RDB2 (Vulnerable) and RDB3 (Rare) is more strictly an assessment of how threatened or endangered the species is in Britain, rather than how scarce it is in terms of counting spots on maps. Nevertheless, all Red Data Books are found in very few locations. The definitions of the three categories are as follows (adapted from Shirt, 1987):

**RDB 1** Species in danger of extinction and whose survival is unlikely if the causal factors continue operating. These include:

- Species known from only a single locality since 1970;
- Species restricted to habitats that are especially vulnerable;
- Species that have shown a rapid and continuous decline in the last twenty years and are now estimated to exist in five or fewer localities;
- Species believed extinct but which would need protection if re-discovered.

**RDB 2** Species believed likely to move into the RDB1 category in the near future if the causal factors continue operating. These include:

- Species declining throughout their range;
- Species in vulnerable habitats;
- Species whose populations are low.

**RDB 3** Species with small populations that are not at present endangered (RDB1) or vulnerable (RDB2) but which are at risk. These include:

- Species that are estimated to occur in fifteen or fewer localities.

In addition to these categories, there is a fourth, more general category:

**RDB K** Species suspected to fall within the RDB categories but which are at present insufficiently known to enable placement.

Species that are now known to occur more widely or that are now not so threatened have been termed "RDB4" "out of danger", although these would not then be considered to be Red Data Book species.

Below these particularly threatened and "rare" species, two other scarcity categories are generally recognised: "Nationally Scarce" and "Local". The concept of "Nationally Scarce" (originally called Nationally Notable) species was introduced in Ball (1986). This status, based on the number of 10 kilometre squares of the Great Britain grid system in which a species occurs, is sometimes divided into two bands for some species. Band "Na" comprises species occurring in 16 to 30 10-kilometre squares of the National Grid System whilst band "Nb" comprises species found in 31 to 100 10-kilometre squares.

The concept of "Local" is less well defined, but comprises species of distinctly limited or restricted distribution, with such limitations being brought about by climate controls,

dependency on a scarce habitat type, host (in the case of parasitic species) or similar ecological factor.

Thus, one might now assess the quality of a site by adding up the number of Red Data Book (RDB), Nationally Scarce and Local species, although one again runs into difficulties. Is a site with one RDB species more or less important than a site with 10 Nationally Scarce species? In order to try and get round this problem, Ball (1986) proposed an "Invertebrate Index", with points for a species assemblage awarded on the following basis:

| | |
|---|---|
| RDB species (regardless of whether grade 1,2,3 or K) | 100 points per species |
| Nationally Scarce (Na) | 50 points per species |
| Nationally Scarce (Nb) | 40 points per species |
| Local | 20 points per species |
| Common species | 0 points |

The sum of these points for any one site thus generates an Invertebrate Index.

A further refinement has been to take account of the amount of recording effort for a site, using the assumption that more recording effort will, up to a point, yield more species, both common and rare. A site that is being extensively surveyed will tend to accumulate a higher and higher Index, as occasional discoveries of Local, Nationally Scarce and even RDB species pushes the score up. However, this would make it appear to be more valuable than a less well-visited site, with fewer "scoring" species amongst a smaller overall tally. A fairer system, then, is to consider what is effectively the "average Invertebrate Index score" per species i.e. divide the Invertebrate Index by the total number of species recorded. This is the Species Quality Index (SQI) and is widely used to generate a means of comparing one site with another. Any site with an SQI value of 10 or over is likely to be of national significance, with regionally important sites perhaps scoring between 5 and 7.

# APPENDIX 6

# WILDLIFE SITES REGISTER

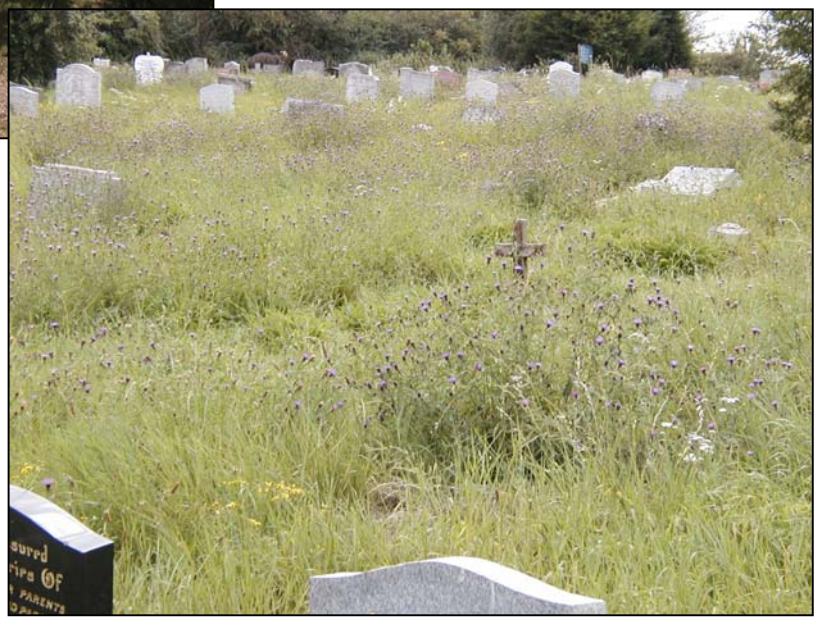
## APPENDIX 7
## SUMMARY TABLE OF WILDLIFE SITES

| Code | Site Name | Area (ha) | Grid Reference |
|---|---|---|---|
| Ba1. | Blind Lane | 0.3 | TQ 647931 |
| Ba2. | Parkhill Wood Meadow | 4.0 | TQ 651912 |
| Ba3. | Bluntswall Wood | 9.4 | TQ 652937 |
| Ba4. | St. Margarets Wood and Lane | 2.0 | TQ 653913 |
| Ba5. | Round Wood | 1.3 | TQ 653953 |
| Ba6. | Botneyhill Wood | 1.4 | TQ 657918 |
| Ba7. | Gravelpit Wood | 2.1 | TQ 659902 |
| Ba8. | Little Burstead Common | 4.0 | TQ 660923 |
| Ba9. | The Wilderness | 0.6 | TQ 665925 |
| Ba10. | Queens Park Meadow | 4.0 | TQ 666965 |
| Ba11. | Poles Wood | 1.1 | TQ 668905 |
| Ba12. | Frith Wood | 6.3 | TQ 669932 |
| Ba13. | Buckwyn's Wood | 11.3 | TQ 669969 |
| Ba14. | Laindon Common | 10.0 | TQ 671928 |
| Ba15. | Langdon Hills Recreation Ground | 2.4 | TQ 673875 |
| Ba16. | Little Burstead Woods | 8.2 | TQ 674921 |
| Ba17. | Queen’s Park Country Park | 24.1 | TQ 674966 |
| Ba18. | Mill Meadows LNR | 29.8 | TQ 680941 |
| Ba19. | Coombe Wood Extensions | 1.1 | TQ 682864 |
| Ba20. | Norsey Meadow | 6.1 | TQ 682951 |
| Ba21. | Langdon Complex | 213.1 | TQ 683874 |
| Ba22. | Westley Heights | 15.7 | TQ 684867 |
| Ba23. | St. Nicholas Church Complex | 11.9 | TQ 688896 |
| Ba24. | Dry Street Pastures | 20.8 | TQ 693874 |
| Ba25. | Forty Acre Plantation | 3.1 | TQ 693964 |
| Ba26. | "Kennels Wood" | 4.7 | TQ 694859 |
| Ba27. | Noak Bridge Reserve | 7.7 | TQ 700905 |
| Ba28. | Moses' Spring/Barrenleys/Claypitshills Woods | 24.4 | TQ 701944 |
| Ba29. | Gloucester Park Meadow | 4.1 | TQ 703893 |
| Ba30. | Hawkesbury Manor | 3.6 | TQ 705867 |
| Ba31. | Parsonage Farm Green Lane | 2.1 | TQ 705934 |
| Ba32. | Bells Hill Meadow | 1.5 | TQ 707868 |
| Ba33. | Crays Hall Meadow | 1.4 | TQ 711929 |
| Ba34. | All Saints Churchyard, Vange | 1.1 | TQ 715867 |
| Ba35. | Vange Hill | 19.6 | TQ 719874 |
| Ba36. | Nuttons Wood | 1.9 | TQ 719917 |
| Ba37. | Vange Creek Marshes | 106.1 | TQ 730860 |
| Ba38. | Noke Wood | 4.3 | TQ 730915 |
| Ba39. | Pitsea Landfill | 39.0 | TQ 732865 |
| Ba40. | Nevendon Bushes | 6.2 | TQ 736899 |
| Ba41. | Pitsea Mount | 3.3 | TQ 738877 |
| Ba42. | Wickford Meadows | 9.1 | TQ 740938 |
| Ba43. | “Untidy Industries” Site | 7.3 | TQ 741874 |
| Ba44. | Burnt Mills | 11.5 | TQ 743908 |

| | | | |
|---|---|---|---|
| Ba45. | Bowers Gifford Grasslands | 31.9 | TQ 747875 |
| Ba46. | Bowers Marshes | 235.4 | TQ 750860 |

# APPENDIX 8

# CITATIONS FOR SSSIs IN BASILDON DISTRICT



# NATURE CONSERVATION REFERENCE GUIDE FOR BASILDON DISTRICT

## APPENDICES

**ESSEX ECOLOGY SERVICES LTD.**

**APPENDIX 1**
**LANDUSE/HABITAT CLASSIFICATION CODES**

| | |
|---|---|
| A | Arable |
| AG | Unimproved Acid Grassland |
| ALL | Allotments |
| AM | Amenity Grassland |
| BG | Bare Ground |
| BP | Broadleaved Parkland |
| BW | Broadleaved Woodland |
| CHU | Churchyard or Cemetery |
| CS | Caravan Site |
| DGM | Dry acid grassland/heath mosaic |
| DH | Dry Heath |
| DS | Dense Scrub |
| DSm | Dense Saltmarsh |
| GL | Green Lane |
| HOR | Horticulture |
| I | Improved Grassland |
| IS | Introduced Shrubs (ornamental planting) |
| L | Lake |
| MG | Marshy Grassland |
| NG | Unimproved Neutral Grassland |
| PBW | Planted Broadleaved Woodland |
| PBW(OR) | Orchard |
| Po | Pond |
| RES | Reservoir |
| SAG | Semi-improved Acid Grassland |
| SD | Single-species Dominant Swamp |
| SG | Coastal Grassland |
| SI | Poor Semi-improved Grassland |
| SNG | Semi-improved Neutral Grassland |
| SP | Short Perennial vegetation |
| SS | Scattered Scrub |
| SSm | Scattered Saltmarsh |
| SWB | Saline Water Body |
| TR | Tall Ruderal |
| TS | Tall Swamp (mixed species) |
| WG | Waste Ground |
| WH | Wet Heath |

## APPENDIX 2
## SPECIES INDICATIVE OF ANCIENT WOODLAND IN ESSEX

| | | |
|---|---|---|
| Wood Anemone | | Anemone nemorosa |
| Woodruff | * | Galium odoratum |
| Nettle-leaved Bellflower | * | Campanula trachelium |
| Smooth-stalked Sedge | * | Carex laevigata |
| Pale Sedge | * | Carex pallescens |
| Pendulous Sedge | | Carex pendula |
| Remote Sedge | | Carex remota |
| Thin-spiked Wood Sedge | * | Carex strigosa |
| Pignut | | Conopodium majus |
| Lily of the Valley | * | Convallaria majalis |
| Climbing Fumitory | | Corydalis claviculata |
| Midland Hawthorn | * | Crataegus laevigata |
| Scaly Male Fern | | Dryopteris pseudomas |
| Broad-leaved Helleborine | * | Epipactis helleborine |
| Purple Helleborine | * | Epipactis purpurata |
| Spindle Tree | | Euonymus europaeus |
| Wood Spurge | * | Euphorbia amygdaloides |
| Yellow Archangel | | Galeobdolon luteum |
| Bluebell | | Hyacinthoides non-scripta |
| Hairy St. John's-wort | | Hypericum hirsutum |
| Bitter Vetchling | * | Lathyrus montanus |
| Hairy Woodrush | * | Luzula pilosa |
| Great Woodrush | * | Luzula sylvatica |
| Yellow Pimpernel | | Lysimachia nemorum |
| Common Cow-wheat | | Melampyrum pratense |
| Wood Melick | | Melica uniflora |
| Dog's Mercury | | Mercurialis perennis |
| Wood Millet | | Milium effusum |
| Three-veined Sandwort | | Moehringia trinervia |
| Bird's Nest Orchid | | Neottia nidus-avis |
| Early Purple Orchid | | Orchis mascula |
| Wood Sorrel | | Oxalis acetosella |
| Herb Paris | * | Paris quadrifolia |
| Water Purslane | * | Peplis portula |
| Greater Butterfly Orchid | | Platanthera chlorantha |
| Oxlip | * | Primula elatior |
| Primrose | | Primula vulgaris |
| Sessile Oak | | Quercus petraea |
| Goldilocks Buttercup | | Ranunculus auricomus |
| Butcher's Broom | * | Ruscus aculeatus |
| Orpine | | Sedum telephium |
| Wild service Tree | * | Sorbus torminalis |
| Small-leaved Lime | * | Tilia cordata |
| Early Dog Violet | | Viola reichenbachiana |

[Sources: Rackham (1986) Table 4, p.50 - species with an "indicator value" of 4 are marked "*" above, those with a value of 1 are not included here; Rackham (1980) Tables 5.1 and 5.2 - species with an affinity with ancient woodland which is described as "strong", "very strong" or "strict" are marked "*" above, those with an affinity below "moderate" are excluded here, as are plants which are extremely rare in Essex.]

**APPENDIX 3**
**SPECIES INDICATIVE OF OLD, UNIMPROVED NEUTRAL/ACID GRASSLAND AND MARSH IN ESSEX**

Key:
"*" denotes plants which seldom occur outside unimproved grasslands/marshes or are particularly indicative of a long period of traditional grassland management. "M" denotes species indicative of old, unimproved marshes "A" denotes species indicative of unimproved acidic grassland

| | | |
|---|---|---|
| Sneezewort | * | Achillea ptarmica |
| Quaking Grass | * | Briza media |
| Meadow Brome | | Bromus commutatus |
| Smooth Brome | | Bromus racemosus |
| Marsh Marigold | M | Caltha palustris |
| Harebell | A | Campanula rotundifolia |
| Lady's Smock | | Cardamine pratensis |
| Tufted Sedge | | Carex acuta |
| Ribbed Sedge | A | Carex binervis |
| Spring Sedge | | Carex caryophyllea |
| Straight-beaked Sedge | | Carex demissa |
| Distant Sedge | | Carex distans |
| Soft Brown Sedge | | Carex disticha |
| Star Sedge | | Carex echinata |
| Black Sedge | | Carex nigra |
| Carnation Sedge | | Carex panicea |
| Greater Tussock Sedge | | Carex paniculata |
| Bladder Sedge | | Carex vesicaria |
| Pignut | | Conopodium majus |
| Early Marsh Orchid | | Dactylorhiza incarnata |
| Southern Marsh Orchid | | Dactylorhiza praetermissa |
| Heath Grass | A | Danthonia decumbens |
| Water Horsetail | | Equisetum fluviatile |
| Fen Bedstraw | | Galium uliginosum |
| Lady's Bedstraw | | Galium verum |
| Dyer's Greenweed | | Genista tinctoria |
| Glaucous Sweet-grass | | Glyceria declinata |
| Round-fruited Rush | | Juncus compressus |
| Heath Rush | A | Juncus squarrosus |
| Blunt-flowered Rush | M | Juncus subnodulosus |
| Grass Vetchling | | Lathyrus nissolia |
| Ragged Robin | M | Lychnis flos-cuculi |
| Creeping Jenny | | Lysimachia nummularia |
| Purple Moor-grass | A | Molinea caerulea |
| Tubular Water-dropwort | M | Oenanthe fistulosa |
| Adder's Tongue Fern | | Ophioglossum vulgatum |
| Green-winged Orchid | * | Orchis morio |
| Lousewort | | Pedicularis sylvatica |
| Trailing Tormentil | | Potentilla anglica |
| Tormentil | A | Potentilla erecta |
| Salad Burnet | | Poterium sanguisorba |
| Cowslip | | Primula veris |
| Yellow Rattle | * | Rhinanthus minor |

| | | |
|---|---|---|
| Meadow Saxifrage | * | Saxifraga granulata |
| Lesser Skullcap | M | Scutellaria minor |
| Marsh Ragwort | | Senecio aquaticus |
| Pepper Saxifrage | * | Silaum silaus |
| Autumn Lady's-tresses | * | Spiranthes spiralis |
| Betony | | Stachys officinalis |
| Bog Stitchwort | | Stellaria alsine |
| Meadow Rue | | Thalictrum flavum |
| Wild Thyme | | Thymus polytrichus |
| Sulphur Clover | | Trifolium ochroleucon |
| Subterranean Clover | | Trifolium subterraneum |
| Marsh Arrowgrass | | Triglochin palustris |
| Marsh Valerian | | Valeriana dioica |
| Pink Water Speedwell | | Veronica catenata |

## APPENDIX 4
## INDICATIVE CHALK GRASSLAND PLANTS

Note: Some of these species can also be found within unimproved chalky boulder clay or exception neutral soil meadows. This appendix is intended to be applied when considering sites on a solid chalk substrate.

| | |
|---|---|
| Pyramidal Orchid | Anacamptis pyramidalis |
| Wild Liquorice | Astragalus glycyphyllos |
| Quaking Grass | Briza media |
| Clustered Bellflower | Campanula glomerata |
| Carline Thistle | Carlina vulgaris |
| Great Knapweed | Centaurea scabiosa |
| Stemless Thistle | Cirsium acaule |
| Woolly Thistle | Cirsium eriophorum |
| Basil-thyme | Clinopodium acinos |
| Crosswort | Cruciata laevipes |
| Autumn Gentian | Gentianella amarella |
| Rock-rose | Helianthemum nummularium |
| Meadow Oat-grass | Helictotrichon pratense |
| Ploughman's Spikenard | Inula conyzae |
| Catmint | Nepeta cataria |
| Knapweed Broomrape | Orobanche elatior |
| Salad Burnet | Sanguisorba minor ssp. minor |
| Small Scabious | Scabiosa columbaria |
| Wild Thyme | Thymus polytrichus |

# APPENDIX 5
# INVERTEBRATE SPECIES QUALITY AND SITE ASSESSMENT

Species rarity and the degree to which they are endangered are generally assessed by analysing the number of national 10km grid squares in which they occur. This is slightly altered for the case of the most endangered species, which are recorded in national Red Data Books (e.g. Shirt, 1987). Here, the listing as RDB1 (Endangered), RDB2 (Vulnerable) and RDB3 (Rare) is more strictly an assessment of how threatened or endangered the species is in Britain, rather than how scarce it is in terms of counting spots on maps. Nevertheless, all Red Data Books are found in very few locations. The definitions of the three categories are as follows (adapted from Shirt, 1987):

**RDB 1** Species in danger of extinction and whose survival is unlikely if the causal factors continue operating. These include:

- Species known from only a single locality since 1970;
- Species restricted to habitats that are especially vulnerable;
- Species that have shown a rapid and continuous decline in the last twenty years and are now estimated to exist in five or fewer localities;
- Species believed extinct but which would need protection if re-discovered.

**RDB 2** Species believed likely to move into the RDB1 category in the near future if the causal factors continue operating. These include:

- Species declining throughout their range;
- Species in vulnerable habitats;
- Species whose populations are low.

**RDB 3** Species with small populations that are not at present endangered (RDB1) or vulnerable (RDB2) but which are at risk. These include:

- Species that are estimated to occur in fifteen or fewer localities.

In addition to these categories, there is a fourth, more general category:

**RDB K** Species suspected to fall within the RDB categories but which are at present insufficiently known to enable placement.

Species that are now known to occur more widely or that are now not so threatened have been termed "RDB4" "out of danger", although these would not then be considered to be Red Data Book species.

Below these particularly threatened and "rare" species, two other scarcity categories are generally recognised: "Nationally Scarce" and "Local". The concept of "Nationally Scarce" (originally called Nationally Notable) species was introduced in Ball (1986). This status, based on the number of 10 kilometre squares of the Great Britain grid system in which a species occurs, is sometimes divided into two bands for some species. Band "Na" comprises species occurring in 16 to 30 10-kilometre squares of the National Grid System whilst band "Nb" comprises species found in 31 to 100 10-kilometre squares.

The concept of "Local" is less well defined, but comprises species of distinctly limited or restricted distribution, with such limitations being brought about by climate controls, dependency on a scarce habitat type, host (in the case of parasitic species) or similar ecological factor.

Thus, one might now assess the quality of a site by adding up the number of Red Data Book (RDB), Nationally Scarce and Local species, although one again runs into difficulties. Is a site with one RDB species more or less important than a site with 10 Nationally Scarce species? In order to try and get round this problem, Ball (1986) proposed an "Invertebrate Index", with points for a species assemblage awarded on the following basis:

| | |
|---|---|
| RDB species (regardless of whether grade 1,2,3 or K) | 100 points per species |
| Nationally Scarce (Na) | 50 points per species |
| Nationally Scarce (Nb) | 40 points per species |
| Local | 20 points per species |
| Common species | 0 points |

The sum of these points for any one site thus generates an Invertebrate Index.

A further refinement has been to take account of the amount of recording effort for a site, using the assumption that more recording effort will, up to a point, yield more species, both common and rare. A site that is being extensively surveyed will tend to accumulate a higher and higher Index, as occasional discoveries of Local, Nationally Scarce and even RDB species pushes the score up. However, this would make it appear to be more valuable than a less well-visited site, with fewer "scoring" species amongst a smaller overall tally. A fairer system, then, is to consider what is effectively the "average Invertebrate Index score" per species i.e. divide the Invertebrate Index by the total number of species recorded. This is the Species Quality Index (SQI) and is widely used to generate a means of comparing one site with another. Any site with an SQI value of 10 or over is likely to be of national significance, with regionally important sites perhaps scoring between 5 and 7.

# APPENDIX 6

# WILDLIFE SITES REGISTER

**WILDLIFE SITES**
**BASILDON DISTRICT**

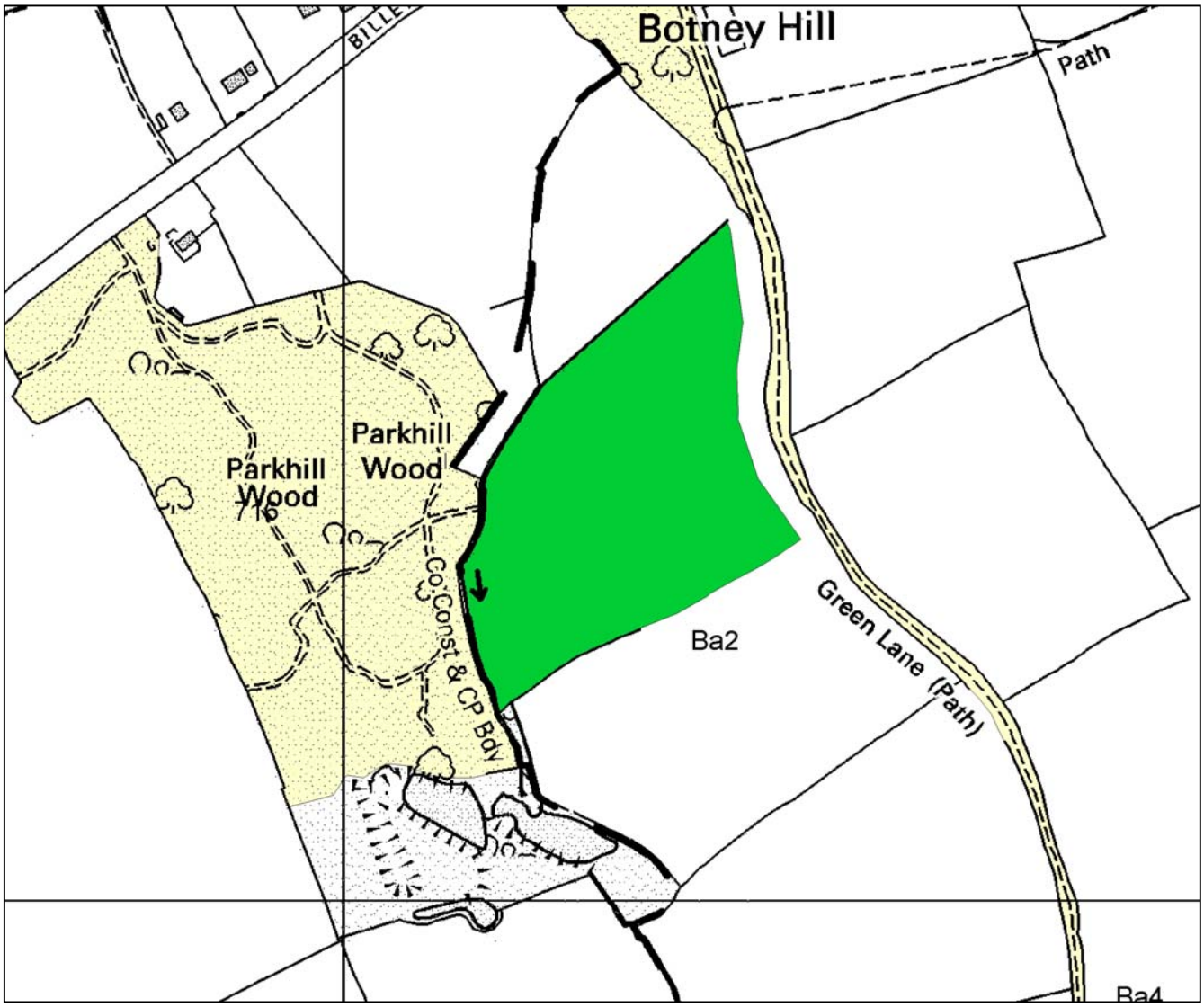
The following sites are the proposed Wildlife Sites for Basildon District. (Note: comments on species or habitat abundance such as "scarce in Essex" are purely descriptive and have not been defined from strict tetrad or 1 $km^2$ analysis).




## Ba1. Blind Lane (0.3 ha) TQ 647931

This site is part of a larger woodland/lane complex lying within Brentwood District. The wooded green lane has abundant Hornbeam (*Carpinus betulus*) coppice, prominent earth banks and Wild Service Tree (*Sorbus torminalis*), all indicating the lane's antiquity. A varied woodland ground flora includes Pendulous Sedge (*Carex pendula*).

**Selection Criteria:** HCr1(b), HCr9(a)

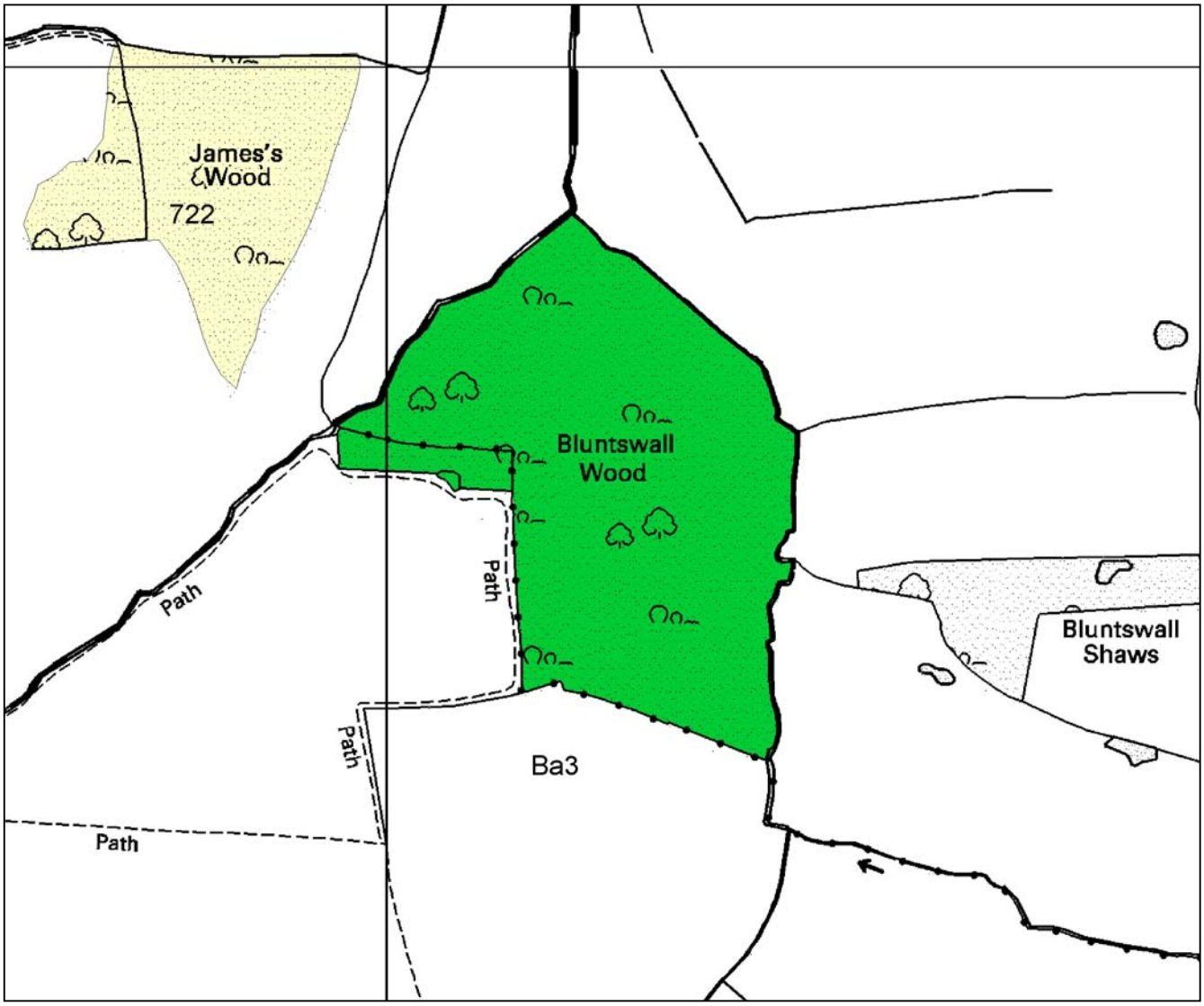





## Ba2. Parkhill Wood Meadow (4.0 ha) TQ 651912

This varied site grades from freely draining acid grassland on the eastern slopes to damp, neutral soil sward on the more level section adjacent to Parkhill Wood. The acid grassland sward is typified by Sweet Vernal Grass (*Anthoxanthum odoratum*), Sheep's Sorrel (*Rumex acetosella*) and Field Wood-rush (*Luzula campestris*), whilst the lusher sward down slope contains Marsh Foxtail (*Alopecurus geniculatus*), Lady's Smock (*Cardamine pratensis*) and Marsh Bedstraw (*Galium* palustre). Old anthills indicate a long continuity of grassland cover.

**Selection Criterion:** HCr10

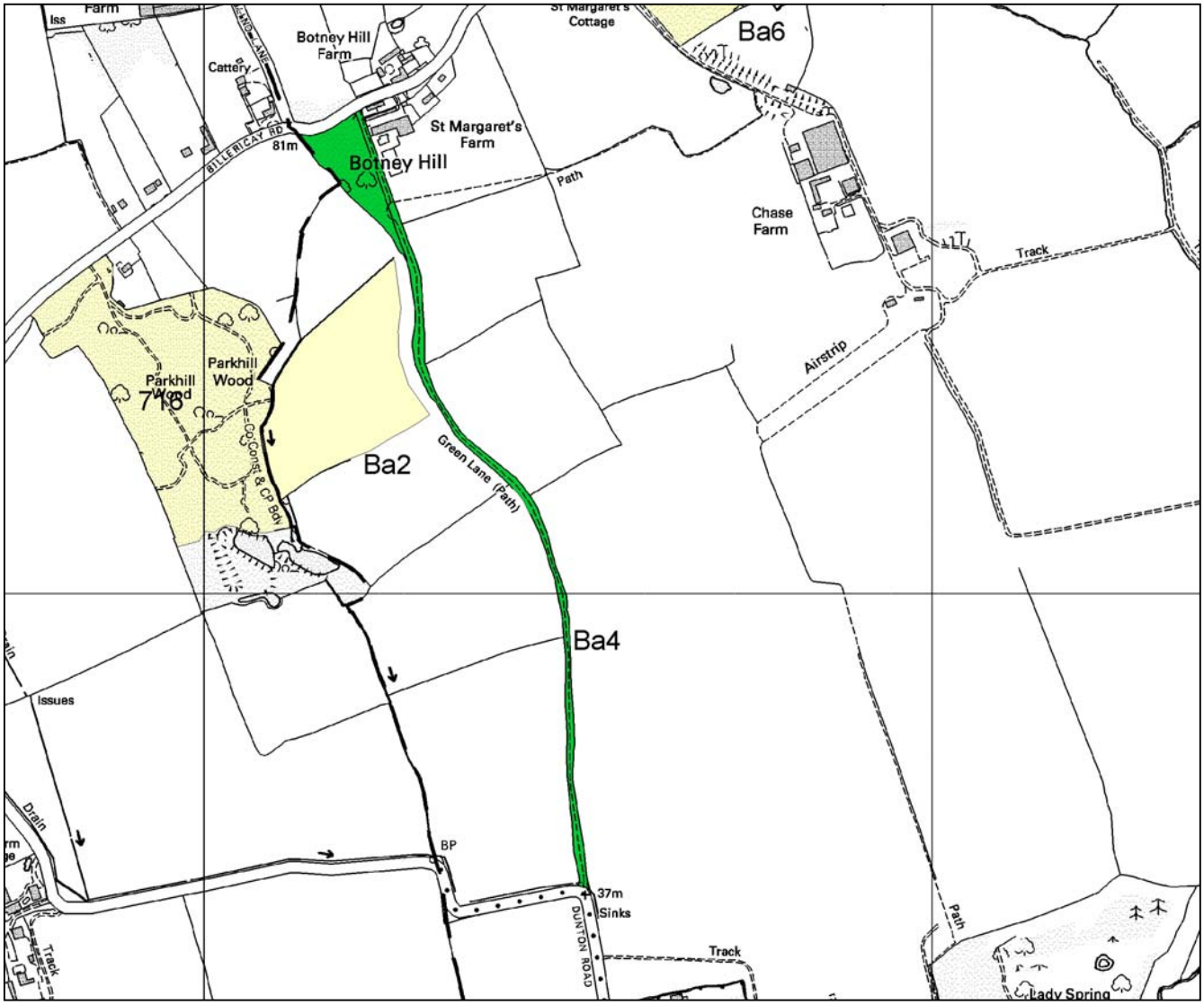





## Ba3. Bluntswall Wood (9.4 ha) TQ 652937

Bluntswall is an ancient wood dominated by Hornbeam (*Carpinus betulus*) coppice with occasional Pedunculate Oak (*Quercus robur*) standards. The dense Hornbeam canopy produces a somewhat species poor ground flora dominated by Bramble (*Rubus fruticosus*) and with abundant Bluebell (*Hyacinthoides non-scripta*) in the spring.

**Selection Criterion:** HCr1(a)

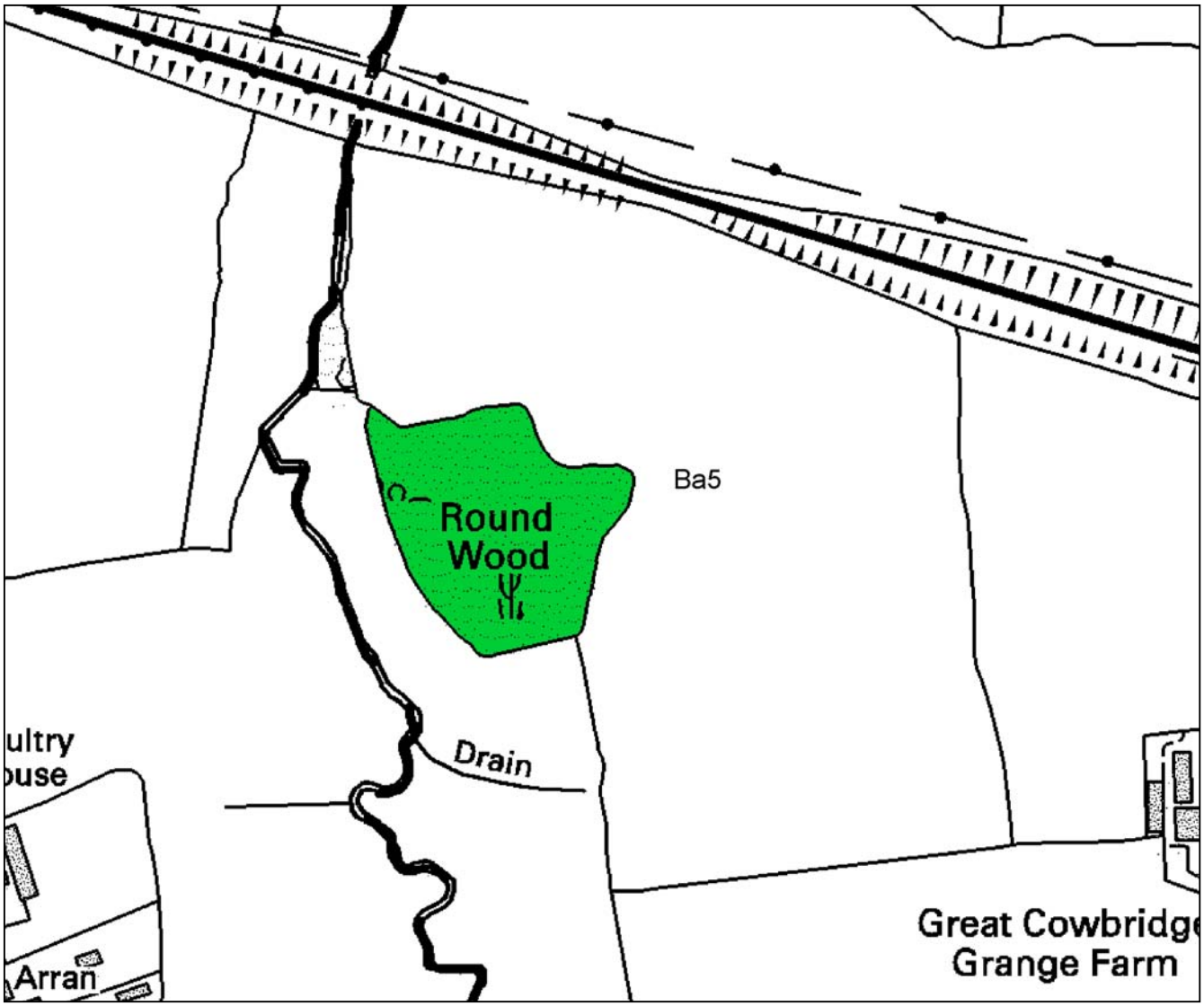





## Ba4. St. Margarets Wood and Lane (2.0 ha) TQ 653913

Comprising a wedge of woodland adjacent to a long green lane, this site forms a valuable wildlife corridor along the course of an ancient trackway. Hornbeam (*Carpinus betulus*) coppice dominates the canopy of the wood with frequent standards of Sweet Chestnut (*Castanea sativa*). Hedges of Hawthorn (*Crataegus monogyna*), Blackthorn (*Prunus spinosa*) and Field Maple (*Acer campestre*) with Pedunculate Oak (*Quercus robur*) standards bound the green lane's central grassy track, although this has been treated with a rough surfacing in places. Oak and Hornbeam pollards of some good size are present along the lane, whilst the presence of Spindle-tree (*Euonymus europaeus*) and Midland Hawthorn (*Crataegus laevigata*) testify to its ancient woodland status. A varied ground flora of grasses and herbs includes Greater Stitchwort (*Stellaria holostea*), Dog's Mercury (*Mercurialis perennis*), Hairy St. John's-wort (*Hypericum hirsutum*) and Wood Sage (*Teucrium scorodonia*). Bluebells (*Hyacinthoides non-scripta*) are abundant in the wooded triangle, with Three-veined Sandwort (*Moehringia trinervia*) also suggesting an ancient origin for this site.

**Selection Criteria:** HCr1(b), HCr9(a)

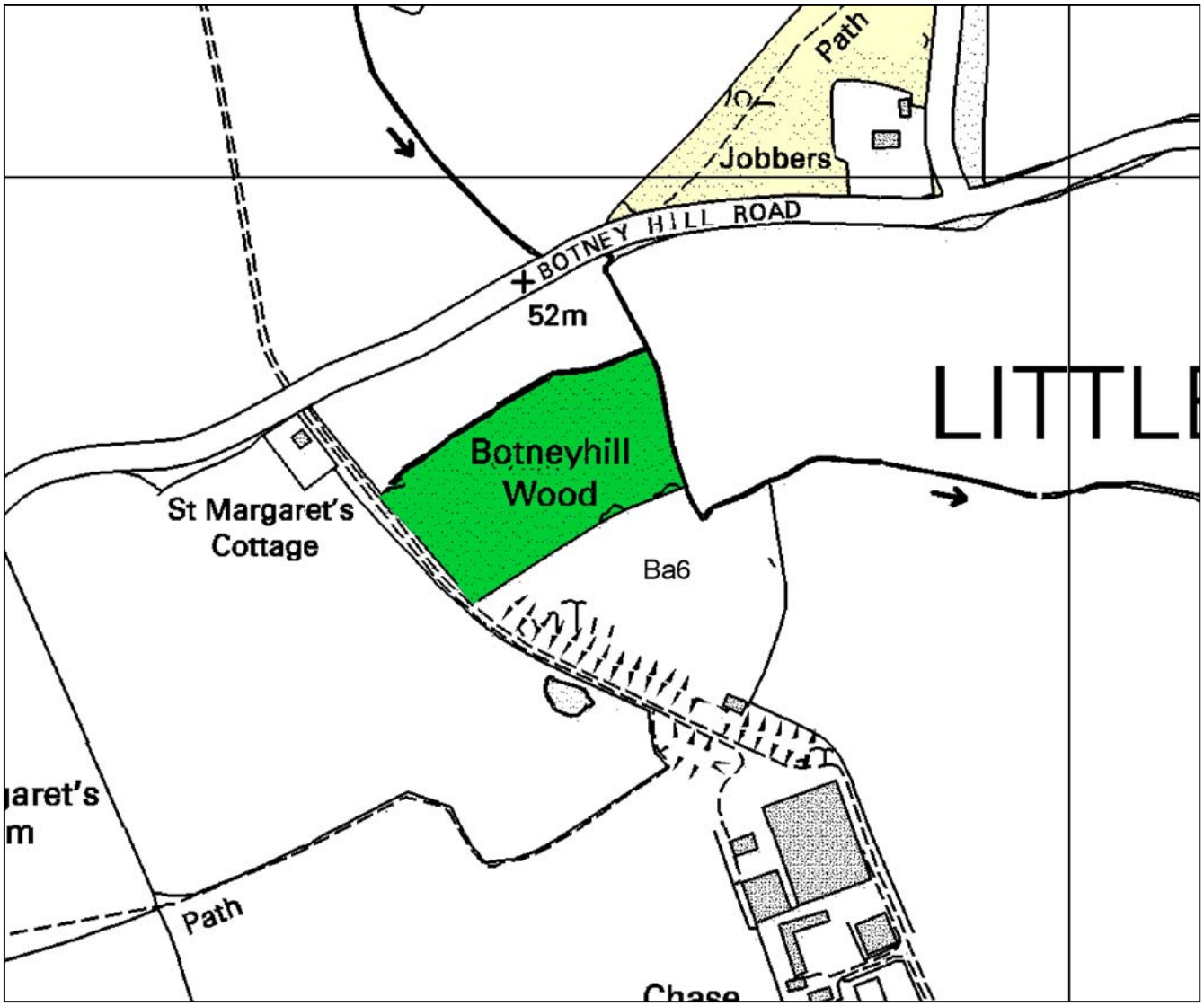





### Ba5. Round Wood (1.3 ha) TQ 653953

This small, possibly ancient wood comprises a canopy dominated by Hornbeam (*Carpinus betulus*) coppice with only a sparse sub-canopy beneath. The densely shaded ground flora is typified by Bramble (*Rubus fruticosus*) and Bluebell (*Hyacinthoides non-scripta*). A pond near the southern edge of the wood contains Cyperus Sedge (*Carex pseudocyperus*) and Floating Sweet-grass (*Glyceria fluitans*).

**Selection Criterion:** HCr1(b)

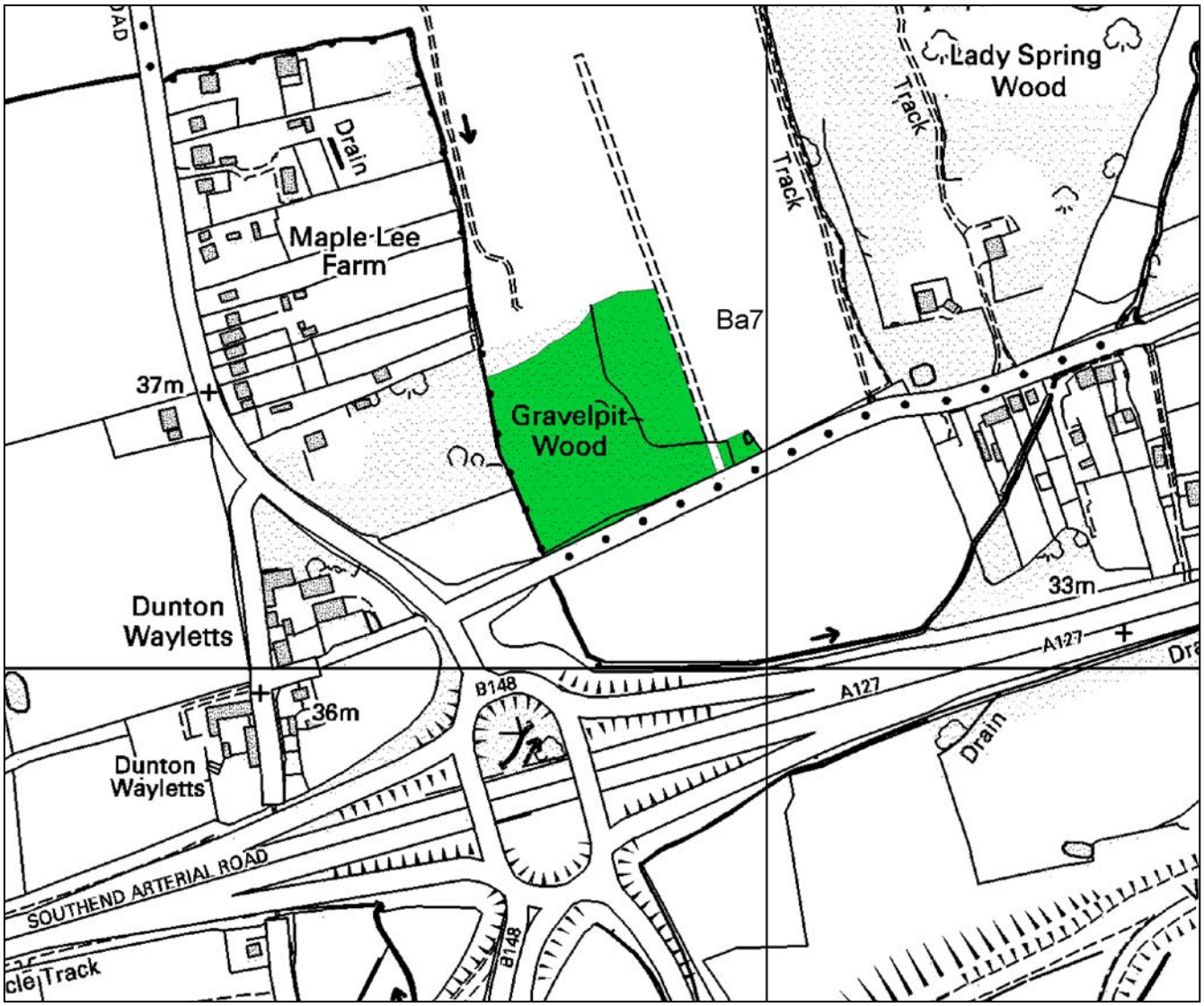





**Ba6. Botneyhill Wood (1.4 ha) TQ 657918**

Botneyhill Wood, possibly ancient woodland, comprises a canopy dominated by neglected Hornbeam (*Carpinus betulus*) coppice with occasional standards of Pedunculate Oak (*Quercus robur*) and Ash (*Fraxinus excelsior*). A somewhat sparse ground flora would be improved by the resumption of coppice management, although Bluebell (*Hyacinthoides non-scripta*) is present.

**Selection Criterion:** HCr1(b)

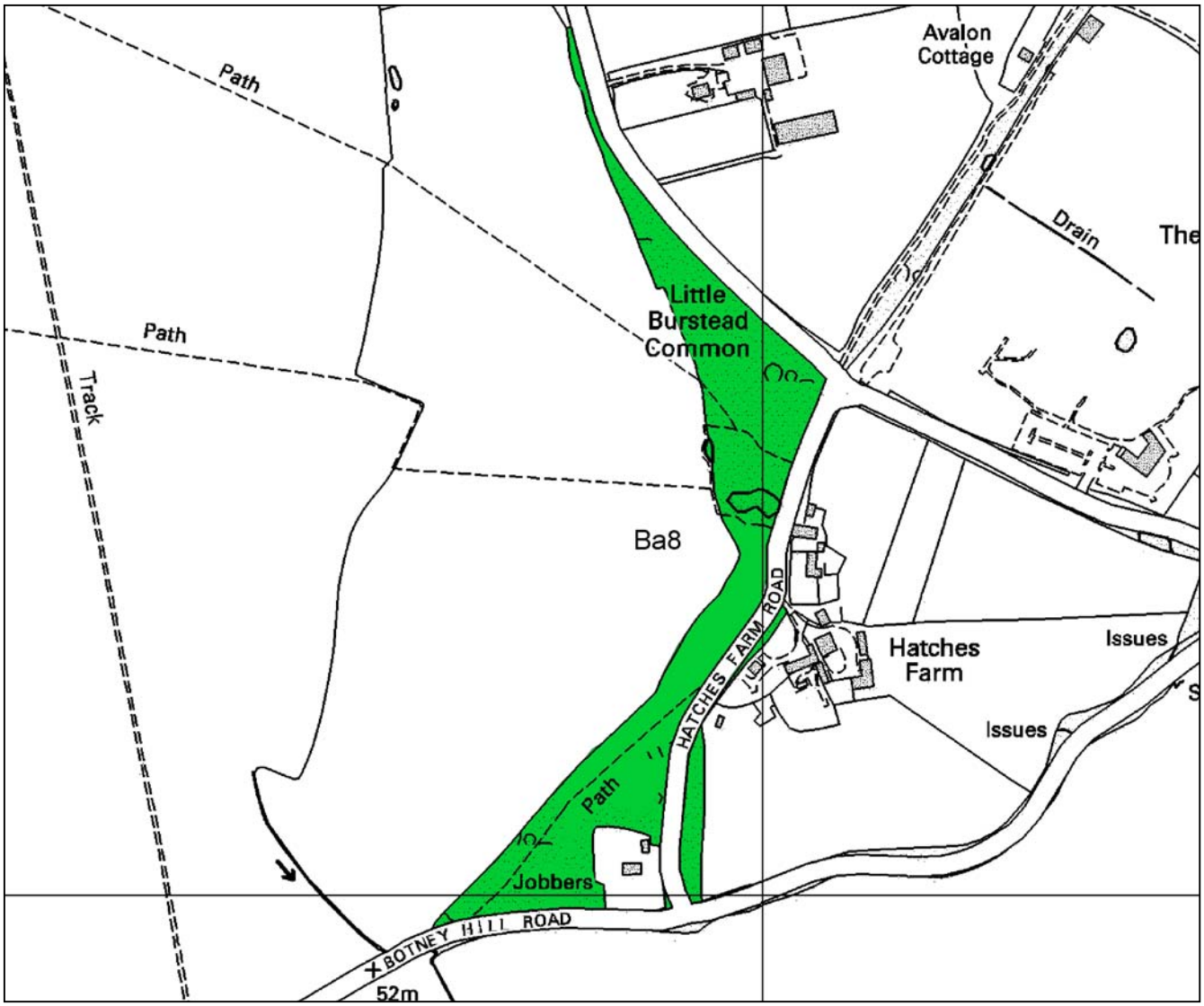





## Ba7. Gravelpit Wood (2.1 ha) TQ 659902

Coppiced Hornbeam (*Carpinus betulus*) with Pedunculate Oak (*Quercus robur*) standards typify the canopy of this old wood. A scattered shrub layer of Hawthorn (*Crataegus monogyna*) and Blackthorn (*Prunus spinosa*) shades a ground flora characterised by Bluebell (*Hyacinthoides non-scripta*), Creeping Soft-grass (*Holcus mollis*), Greater Stitchwort (*Stellaria holostea*) and Bramble (*Rubus fruticosus*). An access track through the adjacent field has caused some localised damage to the extreme eastern tip of this site since its original designation and there are also signs of paintball gaming activity.

**Selection Criterion:** HCr1(b)

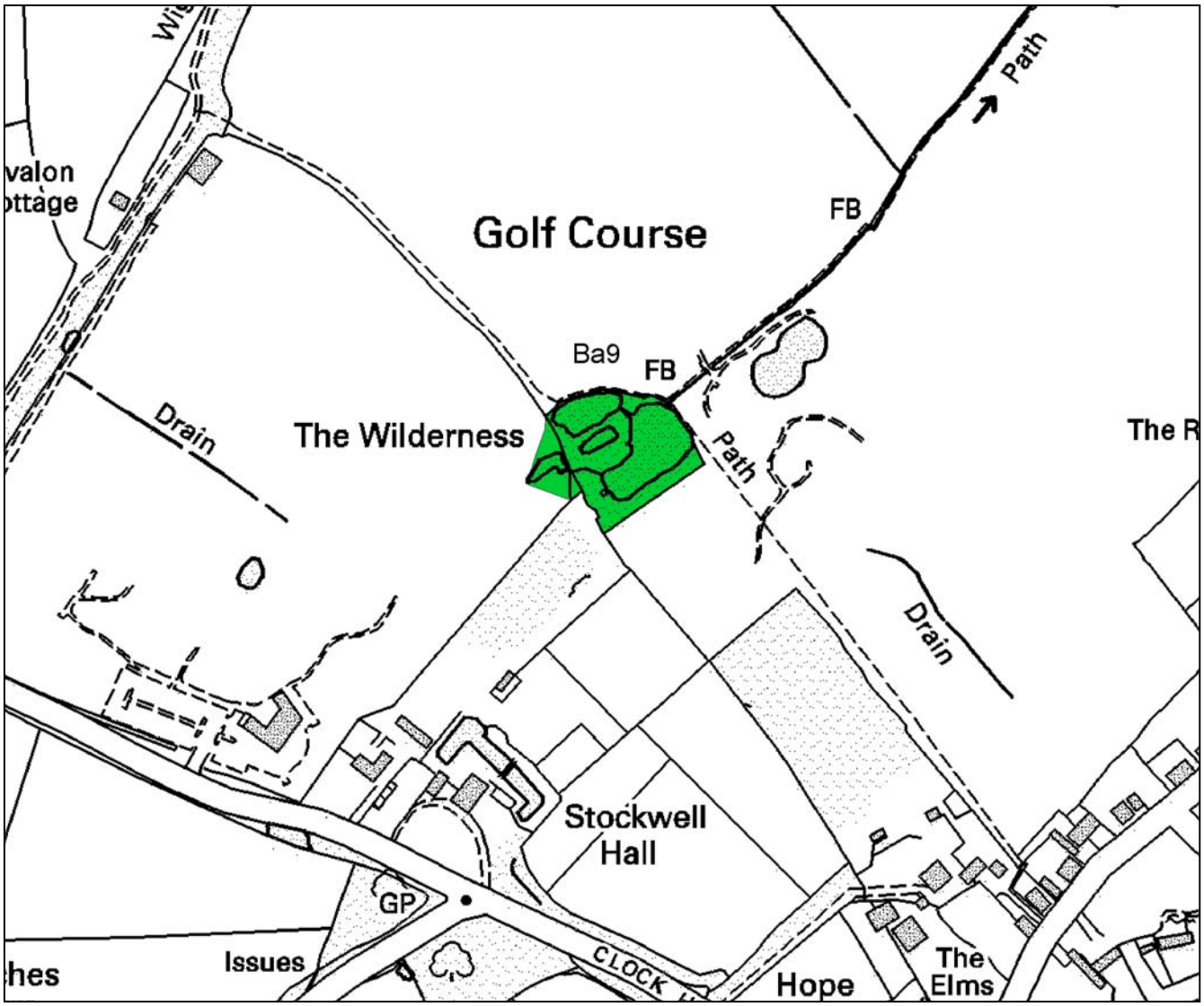





## Ba8. Little Burstead Common (4.0 ha) TQ 660923

Little Burstead Common is centrally located within a cluster of important sites stretching from Billericay into Brentwood District and, as such, is an integral part of a valuable wildlife corridor as well as being of interest in its own right. The site contains Pedunculate Oak (*Quercus robur*) and Birch (*Betula* spp.) woodland to the north and south, either side of semi-improved tall grassland, with a pond providing an additional habitat. Long-winged Conehead Bush-cricket was recorded in 2004, this being a Nationally Scarce (Na) and Essex Rare species. The Essex Red Data List hoverfly *Cheilosia griseiventris* has also been recorded.

**Selection Criteria:** HCr2(d), SCr12

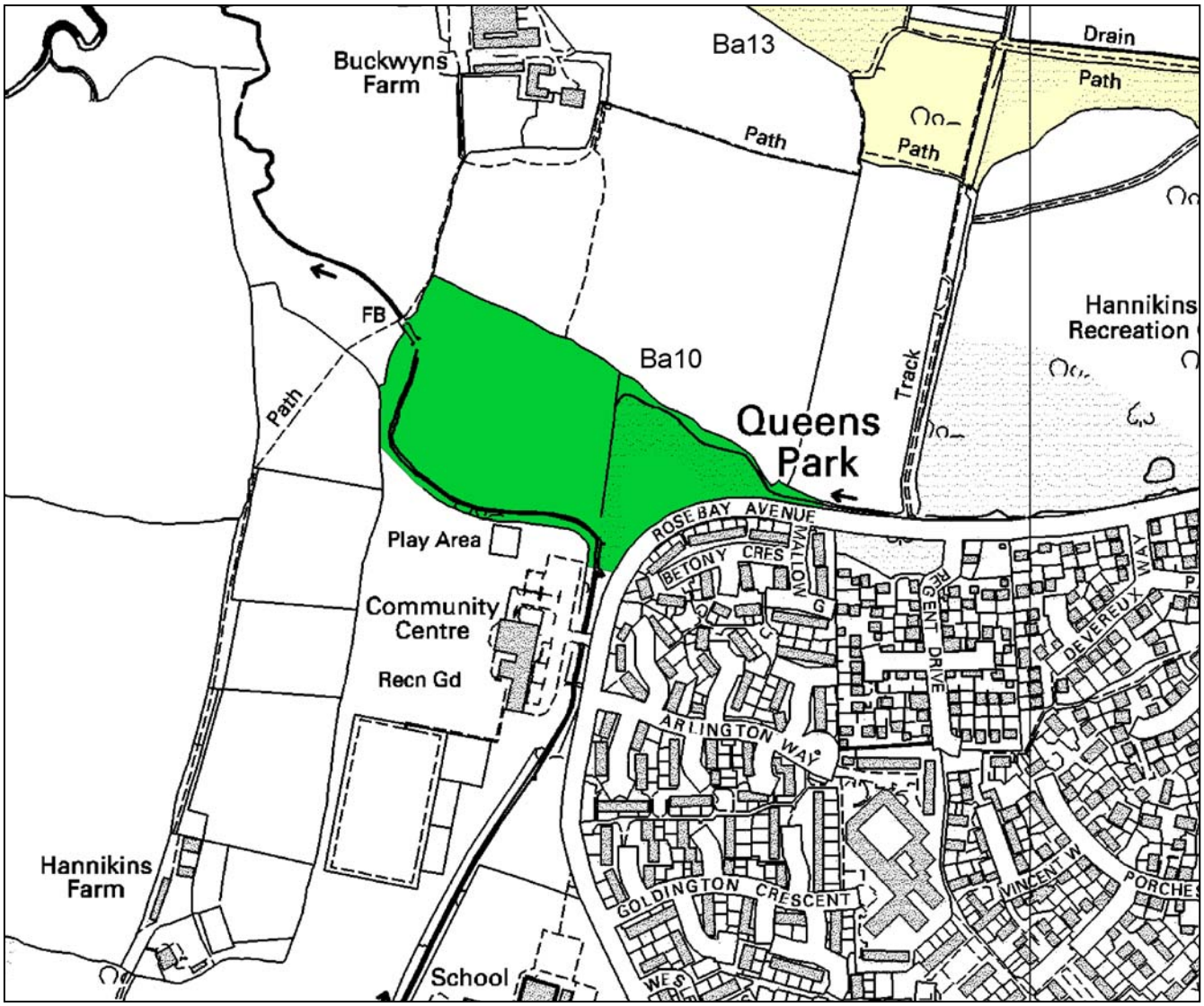





**Ba9. The Wilderness (0.6 ha) TQ 665925**

The Wilderness is a small Hornbeam (*Carpinus betulus*) and Pedunculate Oak (*Quercus robur*) wood surrounding a pond that supports a variety of aquatic and marginal species, such as Pendulous Sedge (*Carex pendula*), Remote Sedge (*Carex remota*) and Water Plantain (*Alisma plantago-aquatica*). Shallow in places and containing much leaf litter, the pond will need some clearance to prevent deterioration of this habitat. The woodland ground flora includes Bitter Vetch (*Lathyrus montanus*), Common Cow-wheat (*Melampyrum pratense*) and Wood Millet (*Milium effusum*), whilst the canopy also includes Wild Service Tree (*Sorbus torminalis*); all suggesting this is a small remnant of ancient wood.

**Selection Criterion:** HCr1(b)

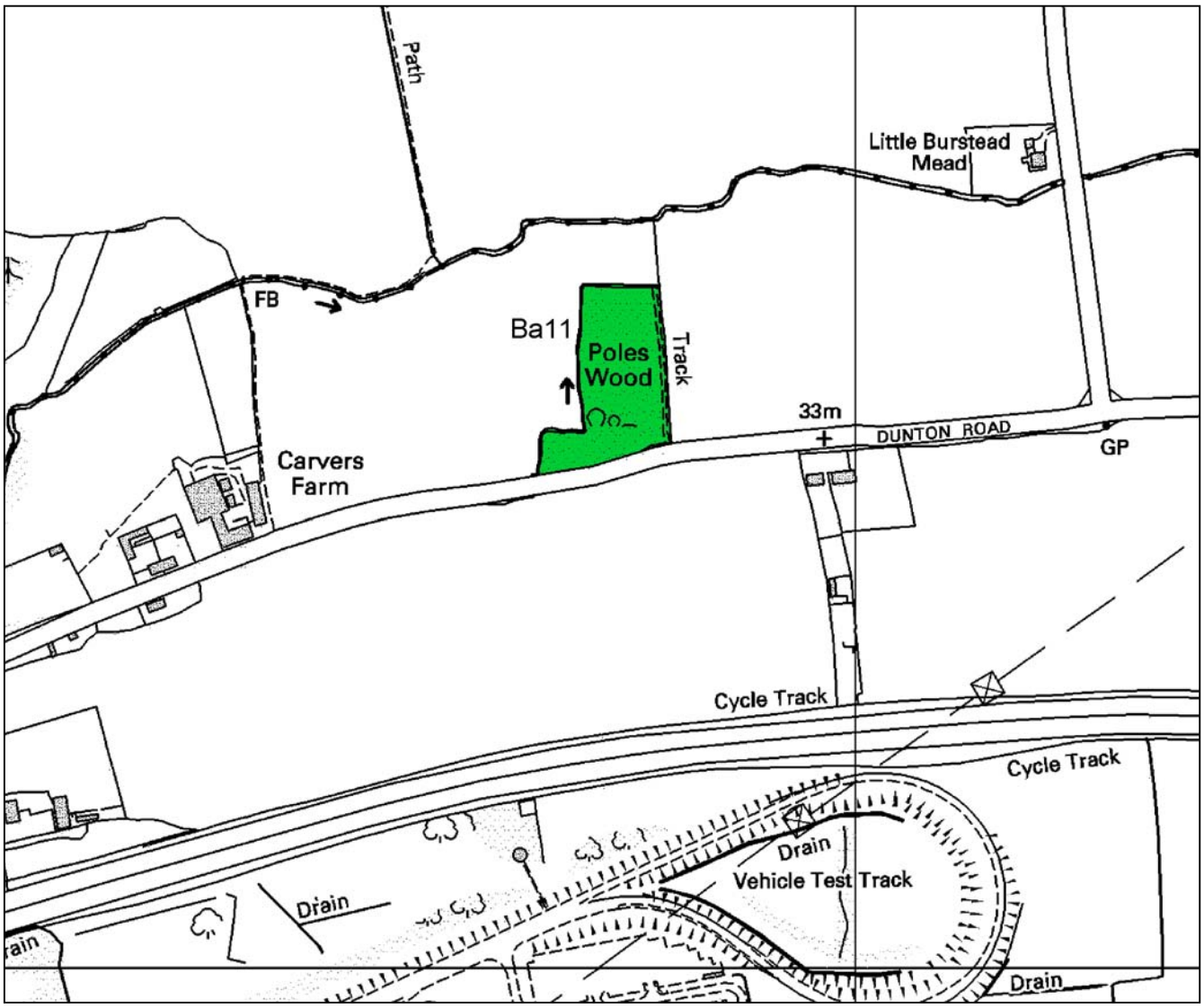





## Ba10. Queens Park Meadow (4.0 ha) TQ 666965

This site has a species-rich mix of herbs and grasses as areas of meadow, inundation grassland and marsh. Tufted Hair-grass (*Deschampsia cespitosa*), rushes (*Juncus* sp.) and Greater Pond Sedge (*Carex riparia*) vegetate the less well-drained central section, whilst species found in the drier sections include Lady's Bedstraw (*Galium verum*), Sneezewort (*Achillea ptarmica*), Pignut (*Conopodium majus*) and Sweet Vernal Grass (*Anthoxanthum odoratum*). A former pond in the centre of the meadow has largely been vegetated over but still provides a seasonal wetland habitat. The eastern triangle, bounded by large hedgerows, provides an area of unmanaged marsh and swamp habitat.

**Selection Criterion:** HCr10

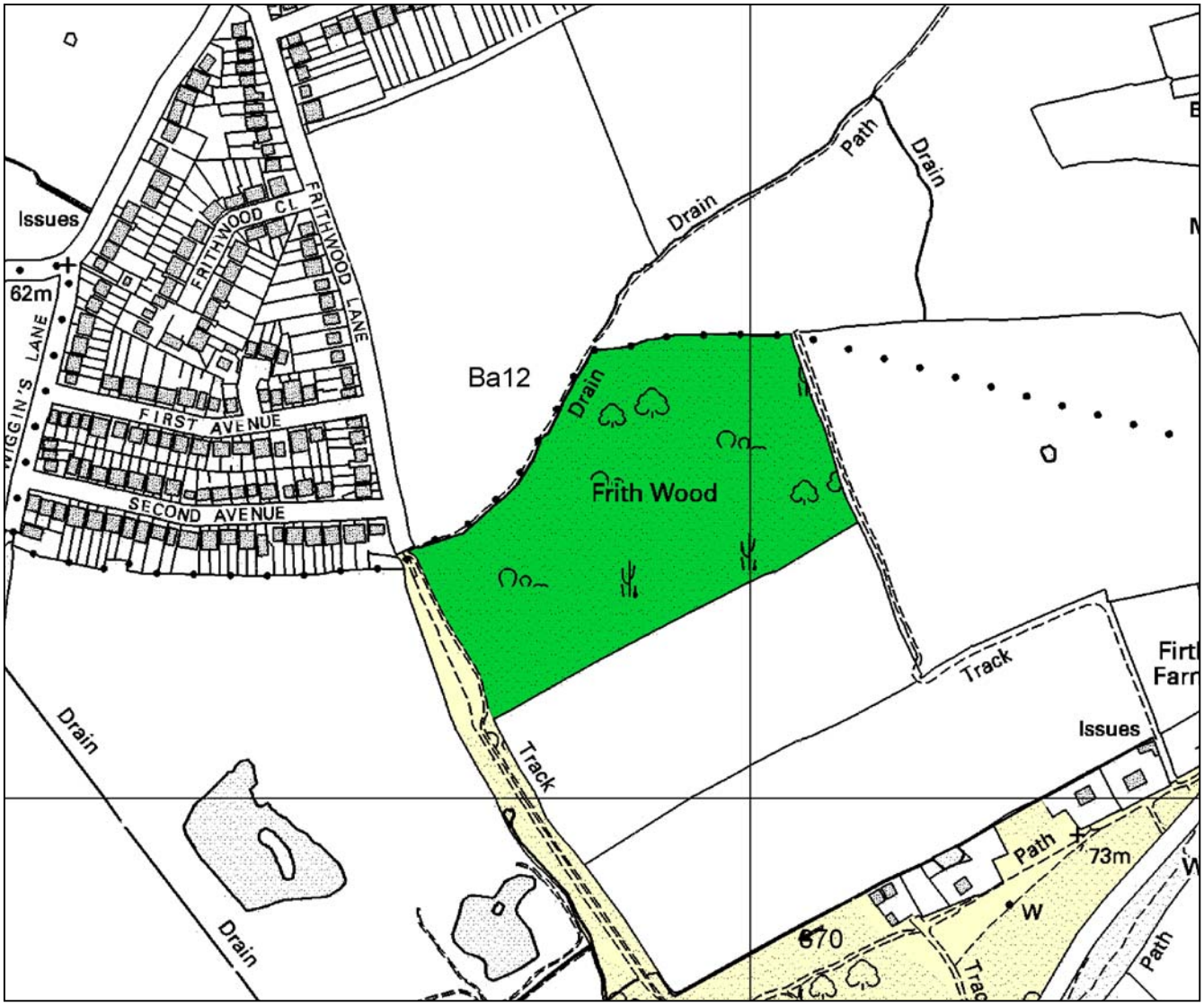





## Ba11. Poles Wood (1.1 ha) TQ 668905

This small broadleaved wood comprises Pedunculate Oak (*Quercus robur*) and Ash (*Fraxinus excelsior*) standards with coppiced Hornbeam (*Carpinus betulus*) and Hazel (*Corylus avellana*). Wild Service Tree (*Sorbus torminalis*) is also present. The ground flora typically comprises Bramble (*Rubus fruticosus*) and Creeping Soft-grass (*Holcus mollis*) with Bluebell (*Hyacinthoides non-scripta*), Three-veined Sandwort (*Moehringia trinervia*) and Wood Millet (*Milium effusum*) also present. A pond in the north-eastern corner of the wood provides an additional aquatic habitat. The Nationally Scarce hoverfly *Volucella inanis* was recorded from the edge of the wood.

**Selection Criteria:** HCr1(b), SCr12

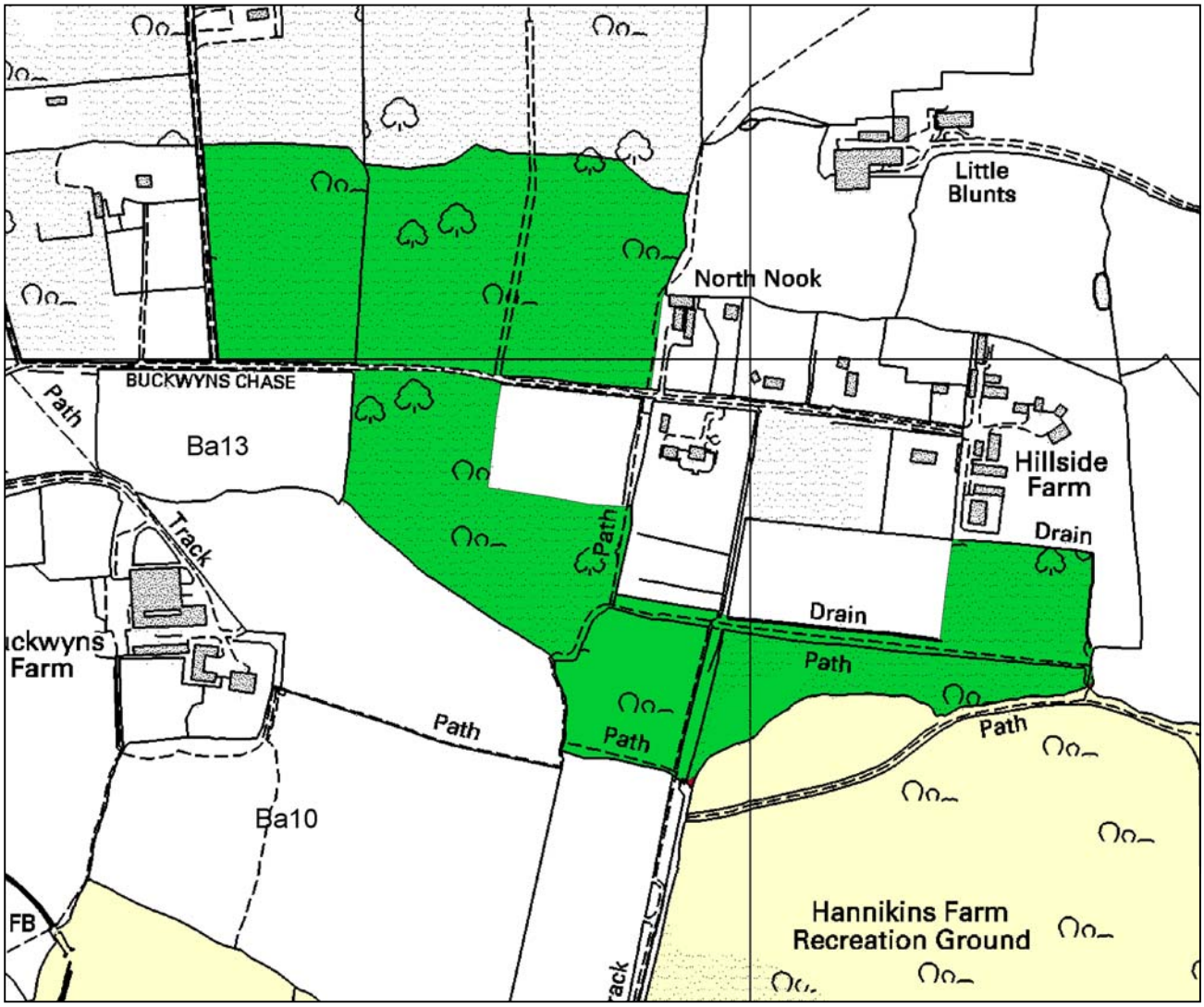





## Ba12. Frith Wood (6.3 ha) TQ 669932

Frith Wood is actively managed ancient woodland of Hornbeam (*Carpinus betulus*) and Sweet Chestnut (*Castanea sativa*) coppice with standards of Silver Birch (*Betula pendula*) and Pedunculate Oak (*Quercus robur*). Understorey species include Hawthorn (*Crataegus monogyna*), Elder (*Sambucus nigra*) and Hazel (*Corylus avellana*). The current coppicing regime allows for a varied and species rich flora with Bluebell (*Hyacinthoides non-scripta*), Wood Sorrel (*Oxalis acetosella*) and Wood Sage (*Teucrium scorodonia*) being prominent species. Sparrowhawks breed here.

This site forms part of a valuable chain of Sites, including Laindon Common immediately to the south.




**Selection Criterion:** HCr1(a)

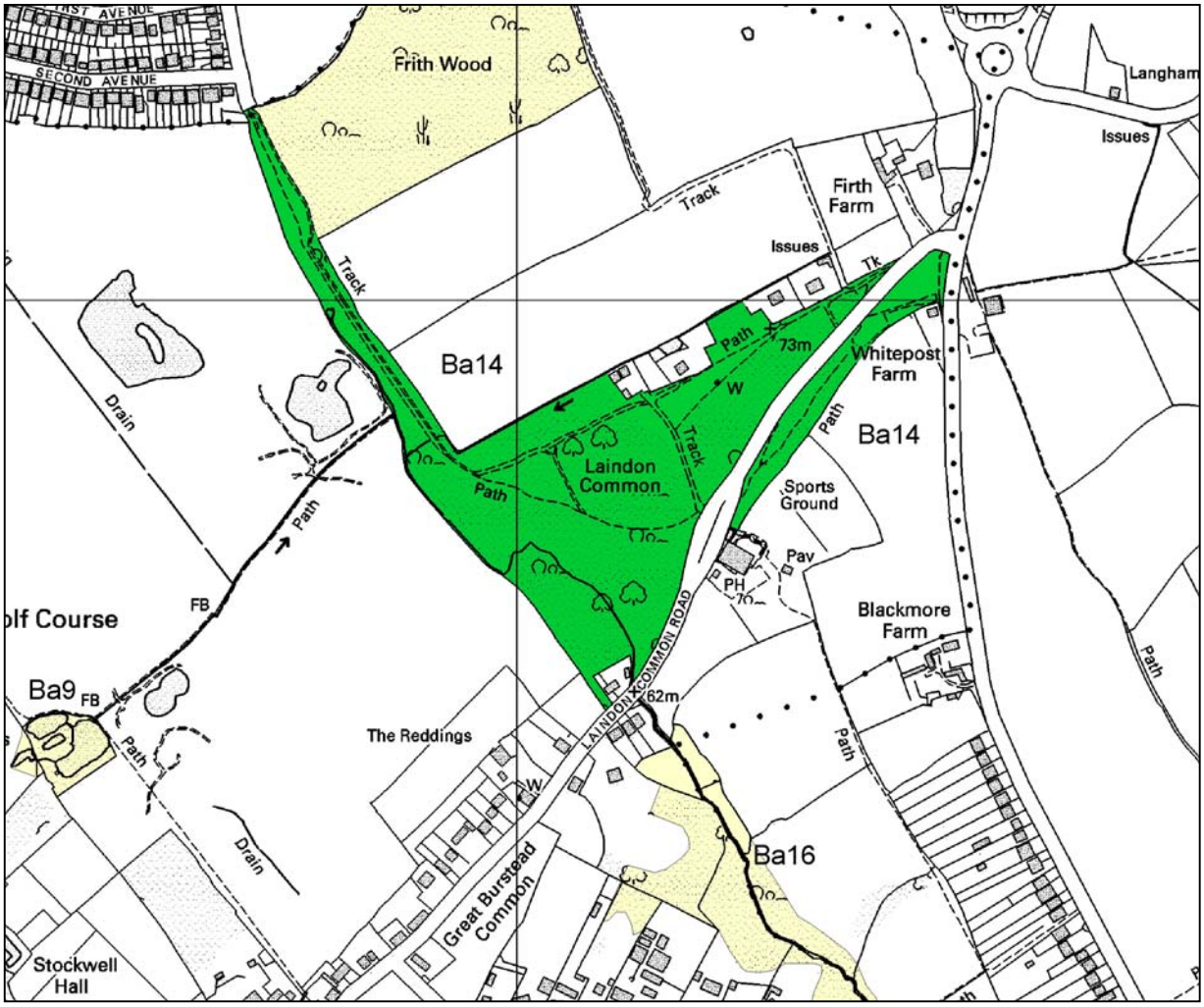


### Ba13. Buckwyn's Wood (11.3 ha) TQ 669969

This developing woodland has a canopy of Pedunculate Oak (*Quercus robur*) and Ash (*Fraxinus excelsior*) with a varied ground flora. An occasionally dense sub-canopy of Hawthorn (*Crataegus monogyna*) provides a good nesting habitat for birds as well as an invaluable autumnal food supply. The canopy of the wood also provides a roost for a number of Long-eared Owls. Some of the boundaries are likely to be formed from ancient hedgerow features and here ancient woodland indicator plants such as Wood Millet (*Milium effusum*), Three-veined Sandwort (*Moehringia trinervia*) and Bluebell (*Hyacinthoides non-scripta)* can be found. Elsewhere, the ground flora includes *Dryopteris* spp. ferns, Ground Ivy (*Glechoma hederacea*), Red Campion (*Silene dioica*), Hedge Garlic (*Alliaria petiolata*), Rough Meadow-grass (*Poa trivialis*), Wood False Brome (*Brachypodium sylvaticum*), Wood Avens (*Geum urbanum*) and Bramble (*Rubus fruticosus* agg.).

The habitats form a significant mosaic of semi-natural habitats when viewed in association with the adjacent Queens Park Country Park Wildlife Site.

**Selection Criteria:** HCr2(b), HCr2(c)



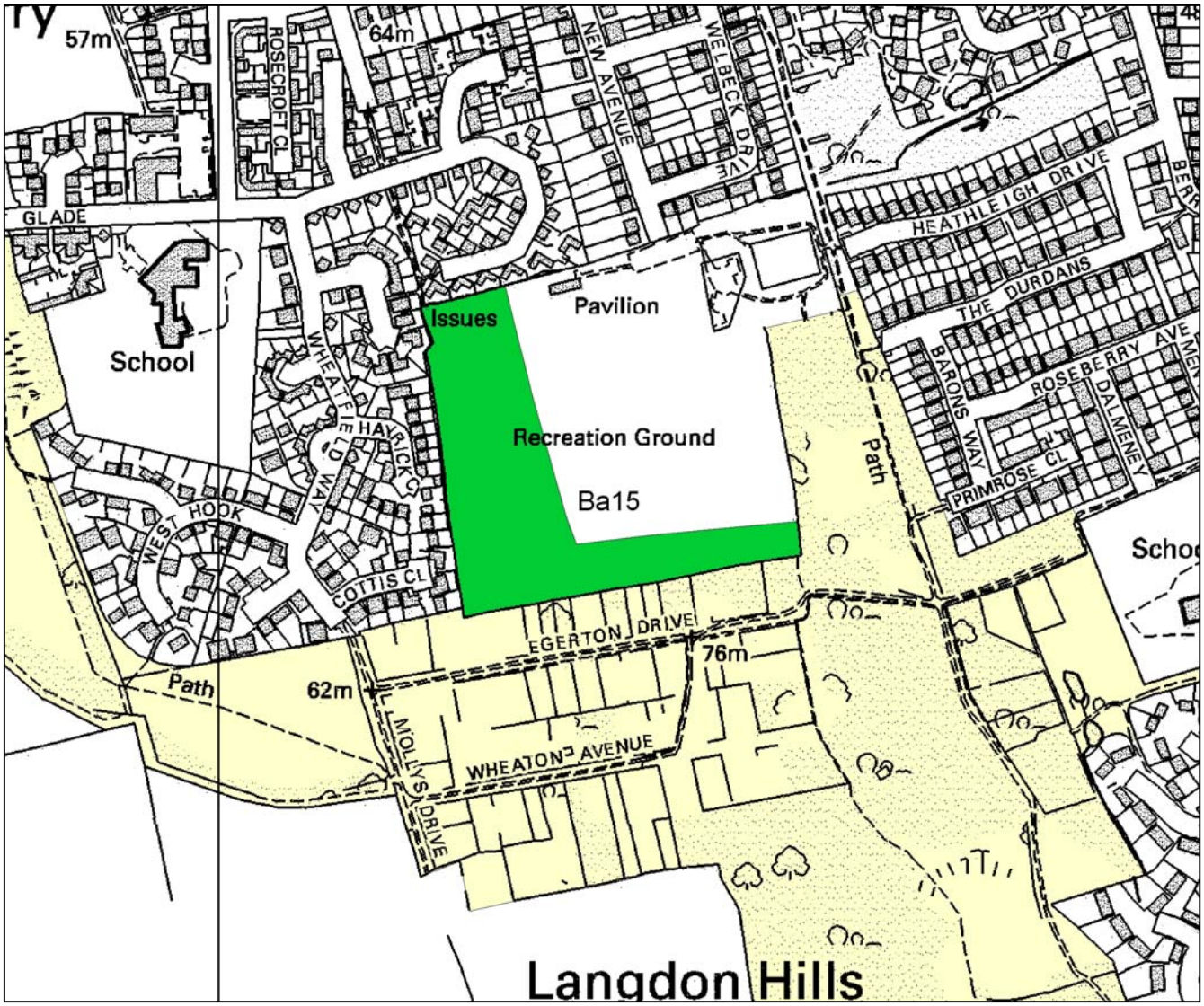



## Ba14. Laindon Common (10.0 ha) TQ 671928

Laindon Common supports ancient acid grassland, invading scrub and Silver Birch (*Betula pendula*) and Pedunculate Oak (*Quercus robur*) woodland. An acid soil throughout the common is reflected in the flora of all the habitat types. To the west the Oak wood has a flora characterised by Bracken (*Pteridium aquilinum*) and Bramble (*Rubus fruticosus*) with Common Bent-grass (*Agrostis capillaris*), Wood Melick (*Melica uniflora*) and Wood Sage (*Teucrium scorodonia*). The strip of woodland linking Laindon Common to Frith Wood provides an important wildlife corridor between the common and the ancient wood. To the east, between areas of Bramble and Gorse (*Ulex europaeus*) scrub, remnants of acid grassland include Common Bent-grass, Tufted Hair-grass (*Deschampsia cespitosa*), Tormentil (*Potentilla erecta*), Sneezewort (*Achillea ptarmica*) and Sheep's Sorrel (*Rumex acetosella*). One of the main conservation issues will be to strike a balance between the woodland interest and the conservation of this acid grassland flora, which might formerly have covered much of the site.

The Nationally Scarce ant *Lasius brunneus* (Nb) was recorded in 2004. This arboreal species is largely restricted to large Oaks, usually in open parkland surroundings, where it forms nests under the bark or in dead limbs of the tree.

**Selection Criteria:** HCr2(a), HCr2(b), HCr10, SCr12

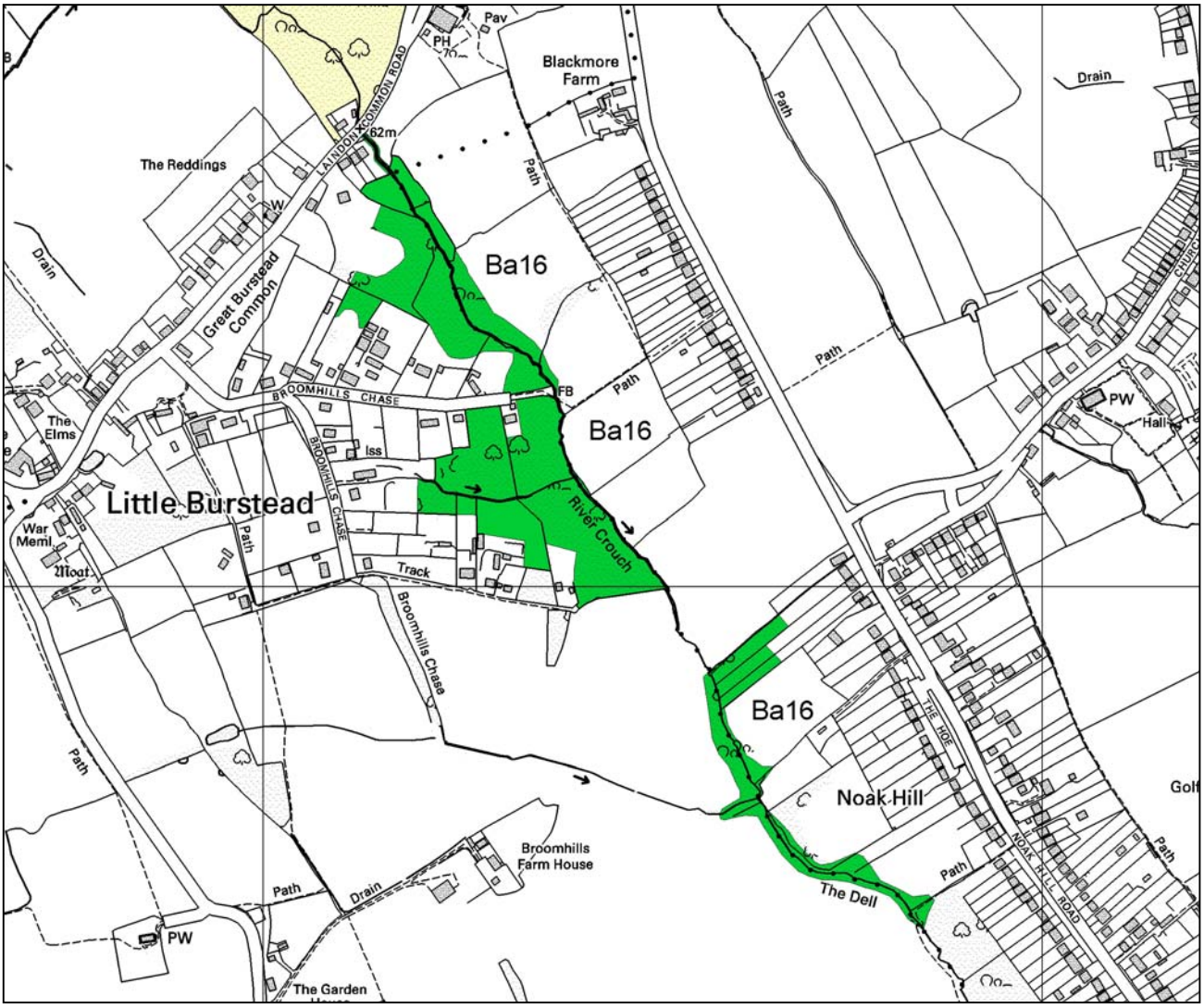





## Ba15. Langdon Hills Recreation Ground (2.4 ha) TQ 673875

Primarily used as a recreation ground, this grassland is a floristically rich site of particular note for one of the largest populations of Green-winged Orchid (*Orchis morio*) in Essex. Other species of note include Quaking Grass (*Briza media*), Field Wood-rush (*Luzula campestris*), Adder's-tongue Fern (*Ophioglossum vulgatum*) and Twayblade Orchid (*Listera ovata*). The survival of this species rich turf is dependent upon a sympathetic mowing regime. The Site is hard to define on the ground and on a map and, at certain times of year the sward is mown for amenity purposes, but the management is sympathetic to the orchid population. The mapped boundary encompasses the maximum extent of the orchid growth.

**Selection Criteria:** HCr11, SCr13



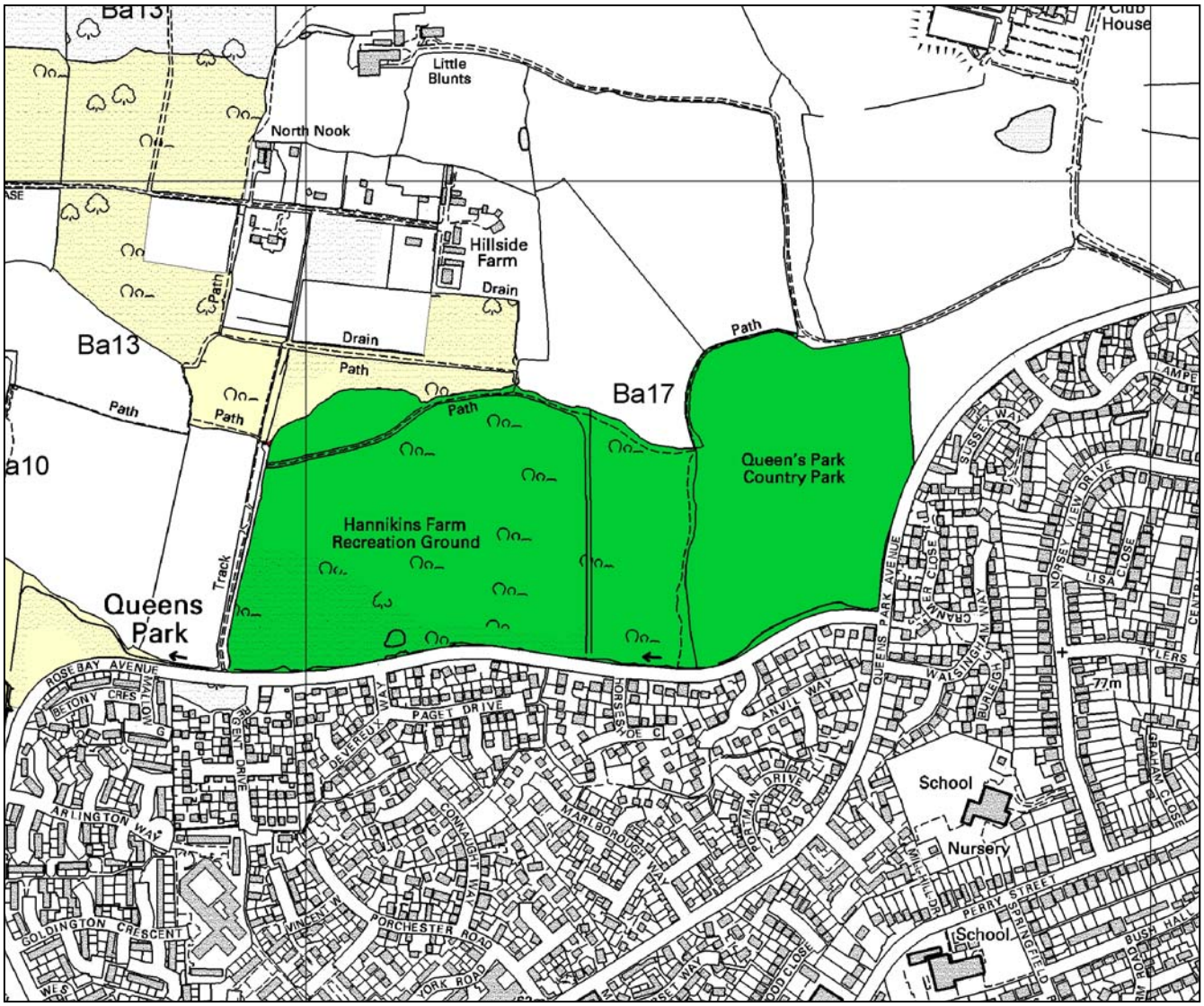



## Ba16. Little Burstead Woods (8.2 ha) TQ 674921

This Site comprises an unusual chain of three wet woodlands along the course of the infant River Crouch. The upper section lies on an east-facing slope in a small valley. The canopy is composed of Hornbeam (*Carpinus betulus*), Ash (*Fraxinus excelsior*), Sycamore (*Acer pseudoplatanus*) and Pedunculate Oak (*Quercus robur*). Beneath a sub-canopy of Hazel (*Corylus avellana*) and Field Maple (*Acer campestre*) a varied ground flora includes Wood Melick (*Melica uniflora*), Wood Millet (*Milium effusum*) and Bluebell (*Hyacinthoides non-scripta*).

A thinner band of trees lines the course of the river to the south, forming a useful woodland corridor between Little Burstead and Noak Bridge. Here, the canopy comprises mainly Pedunculate Oak, Hornbeam and Ash over a scrub layer of Hawthorn (*Crataegus monogyna*) and Elder (*Sambucus nigra*). The typical woodland ground flora includes Bluebell and Red Campion (*Silene dioica*).

**Selection Criteria:** HCr2(b), HCr2(d)

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## Ba17. Queen's Park Country Park (24.1 ha) TQ 674966

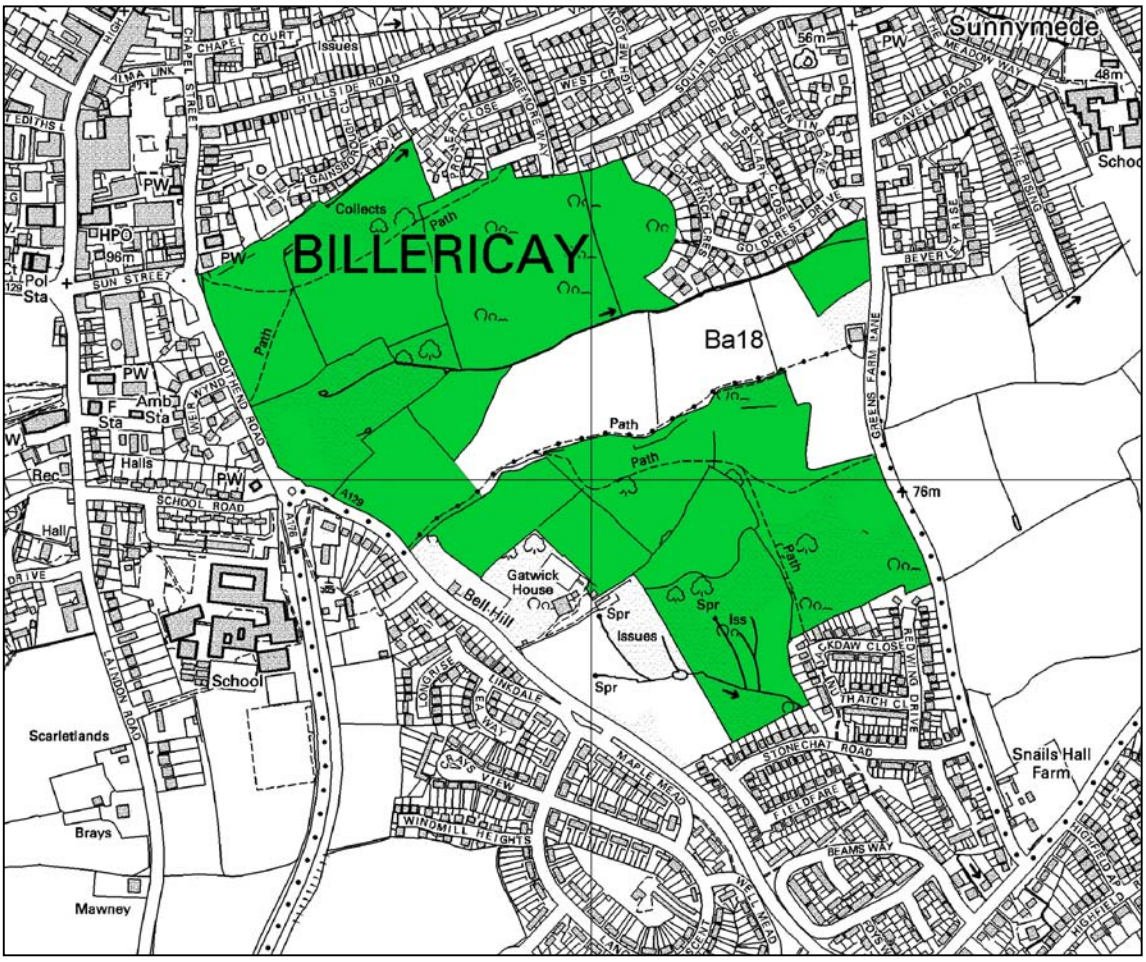
Although recently created, the scrub and grasslands of the country park are quickly maturing into a valuable mosaic of wildlife habitats, including flower-rich grassland, which are highly attractive to a good range of invertebrates. The western field is the main amenity recreation area, with the sward comprising a rough but managed sward, rich in legumes. The sward comprises a mix of Common Bent-grass (*Agrostis capillaris*), Meadow Foxtail (*Alopecurus pratensis*), Crested Dog's-tail (*Cynosurus cristatus*), Yorkshire Fog (*Holcus lanatus*), Ryegrass (*Lolium perenne*), Timothy-grass (*Phleum pratense* agg.) and Rough Meadow-grass (*Poa trivialis*). The most widespread herbs are Bird's-foot Trefoil (*Lotus corniculatus*), Buttercups (*Ranunculus* spp.), and both Red and White Clover (*Trifolium pratense and T. repens*). The smaller field to the north also supports Grass Vetchling (*Lathyrus nissolia*), Common Vetch (*Vicia sativa*) and Smooth Tare (*Vicia tetrasperma*). Management of the main field as rough amenity grassland should help maintain a flower-rich sward, with bumblebees being particularly attracted to the clovers. Species recorded so far include *Bombus vestalis, B. lapidarius, B. lucorum, B. pascuorum* and *B. terrestris*.

The central unit has a "wilder" feel to it, with a network of mown paths passing through abundant Bramble scrub, rough grassland and scattered trees. The coarser grassland sward is characterised by False Oat-grass (*Arrhenatherum elatius*), Hogweed (*Heracleum sphondylium*), Yorkshire Fog, Creeping Thistle (*Cirsium arvense*) and Stinging Nettle (*Urtica dioica*). This rougher vegetation supports Common Lizard and a good variety of butterflies, including Common Blue, Small Heath, Meadow Brown, Large Skipper and also Ringlet along the scrub wood/hedgerow margins. The path edges still support abundant clovers and other smaller herbs. Future management should aim to maintain the *status quo* in terms of balance of habitats present, and this will require some vigorous cyclical cutting of Bramble and Hawthorn to ensure that the grassland component is not lost by succession to scrub.

The eastern end of the site comprises four blocks of planted broadleaved woodland, separated by wide rides running east-west and north-east to south-west. The rides are, again, rich in clovers and attract many of the insects listed above. The rough grassland matrix of the planted areas comprise Bent-grasses (*Agrostis* spp.), False Oat-grass, Creeping Thistle, Cock's-foot Grass (*Dactylis glomerata*), Rough Meadow-grass, Meadow Buttercup (*Ranunculus acris*) and Smooth Tare. The planted trees are mainly Pedunculate Oak (*Quercus robur*), Ash (*Fraxinus excelsior*) and Hornbeam (*Carpinus betulus*). Again, despite the active tree planting, future management should aim to maintain a balance between developing wood, scrub and grassland ride habitats.

The south boundary of the Site comprises mature, possibly ancient, streamside woodland with mature planted broadleaved woodland adjacent. This may well be the former northern boundary of an ancient wood (Millhill Wood) lost to housing development to the south. The semi-natural woodland canopy is varied, consisting of Field Maple (*Acer campestre*), Downy Birch (*Betula pubescens*), Hornbeam, Ash, Aspen (*Populus tremula*), Goat Willow (*Salix caprea*) and some Alder (*Alnus glutinosa*). A dry pond hollow supports a stand of tall Crack Willow (*Salix fragilis*). The mature plantation mainly comprises Pedunculate Oak and Hazel (*Corylus avellana*). The understorey and ground flora includes Ramsons (*Allium ursinum*), Wood False Brome (*Brachypodium sylvaticum*), Pendulous Sedge (*Carex pendula*), Wood Millet (*Milium effusum*), Holly (*Ilex aquifolium*), Midland Hawthorn (*Crataegus laevigata*) and Bramble (*Rubus fruticosus* agg.). The wood margins and associated scrubby grassland also supports Speckled Wood butterfly. An invertebrate survey carried out during 2003 identified a total of 12 Essex Red Data List species, including several Nationally Scarce species. A managed balance between flower-rich grassland, taller unmanaged areas and limited scrub woodland growth will be needed in order to maintain the invertebrate interest of this site.

**Selection Criteria:** HCr6(b), HCr9(c), HCr13





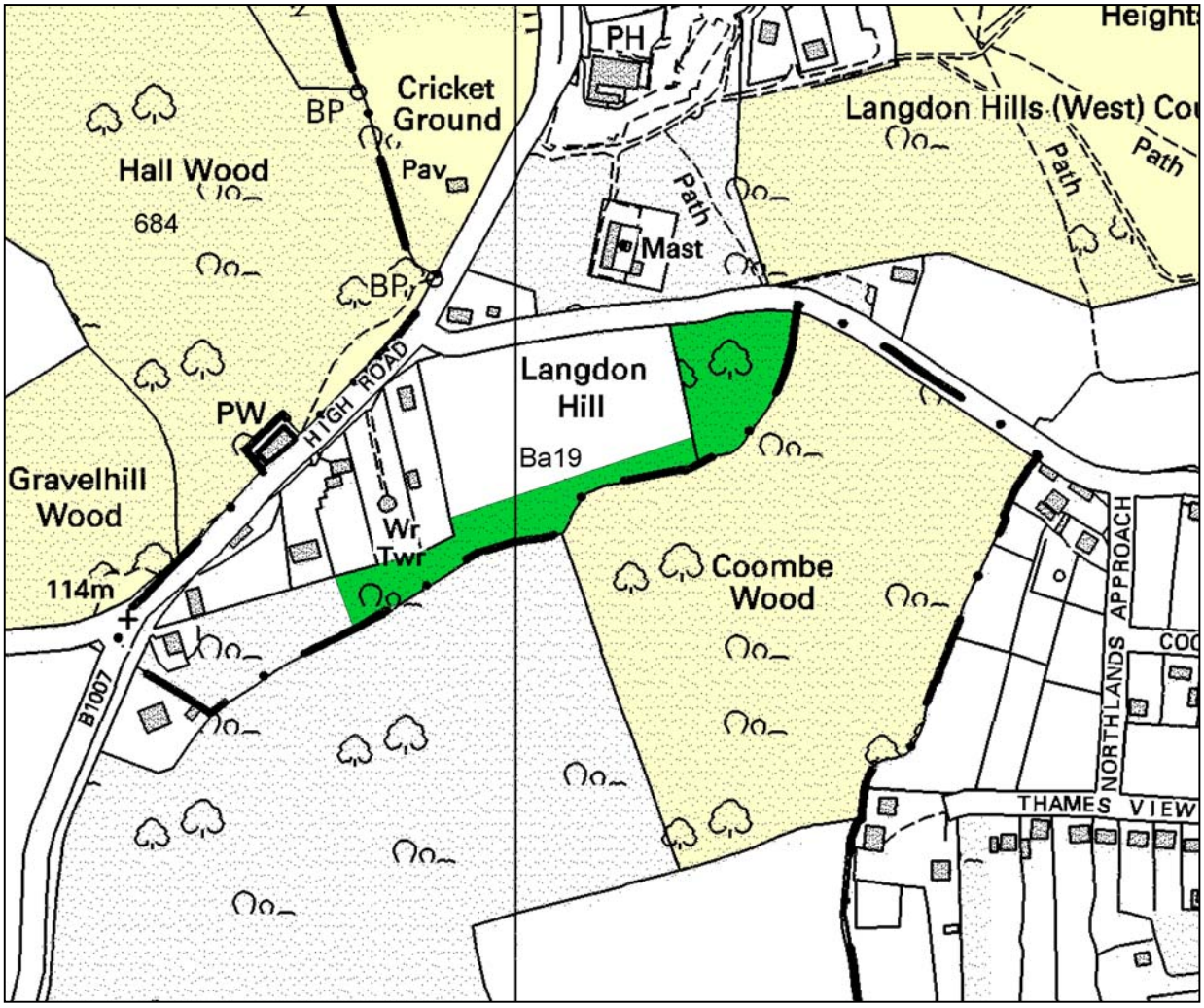

## Ba18. Mill Meadows LNR (29.8 ha) TQ 680941

This extensive site comprises that part of the Mill Meadows Local Nature Reserve that has not been declared an SSSI (see Mill Meadows, Billericay SSSI, below). It lies largely within a stream valley, comprising well-drained, acid soils on the higher ground and waterlogged neutral soils closer to the stream. The northern half of the site supports a large area of grassland with a network of overgrown hedges, patches of woodland and scrub. These fields contain a species-rich flora, which includes Sweet Vernal Grass (*Anthoxanthum odoratum*), Field Wood-rush (*Luzula campestris*) and Pignut (*Conopodium majus*).

Eastwards and to the south of the stream, poorly drained grassland includes three species of rush (*Juncus* spp.), Lady's Smock (*Cardamine pratensis*) and Common Spotted Orchid (*Dactylorhiza fuchsii*). Further to the south, acid grassland grades into scrub and then into secondary Pedunculate Oak (*Quercus robur*) woodland. The turf includes Common Bent-grass (*Agrostis capillaris*) and Harebell (*Campanula rotundifolia*). A few sections of mature wood contain a good woodland flora, with Bluebell (*Hyacinthoides non-scripta*) and Dog's Mercury (*Mercurialis perennis*) present.

Both Common Lizard and Slow-worm were recorded on an adjacent field (now lost to development), and it is likely that both these reptiles are also present on this site. The Essex Red Data List beetles *Apion affine* and *Cryptopleurum crenatum* have been recorded here.

**Selection Criteria:** HCr2(c), HCr6(b), HCr11, SCr12



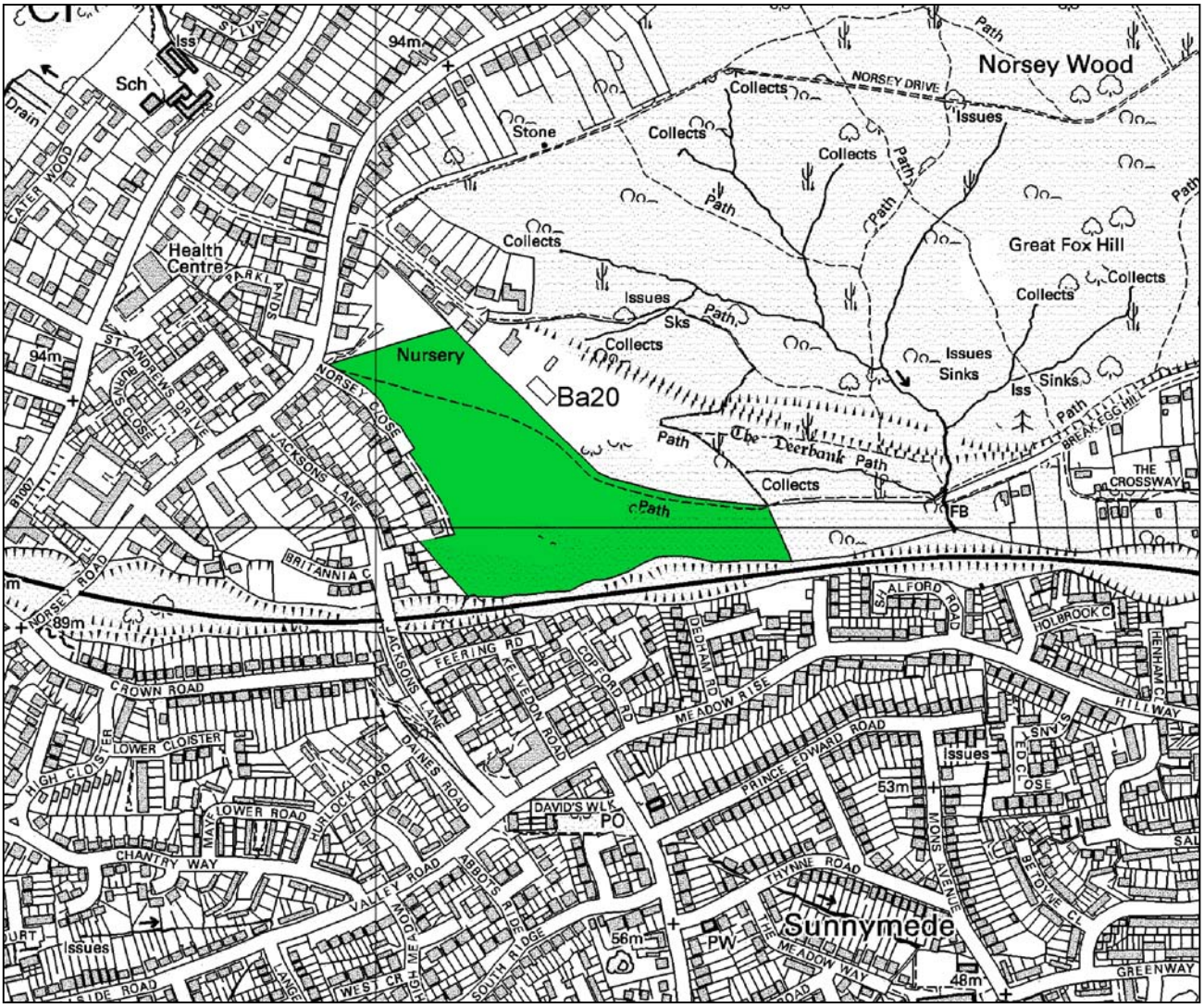



## Ba19. Coombe Wood Extensions (1.1 ha) TQ 682864

This Site comprises two sections of wood, forming an integral part of Coombe Wood (mainly in Thurrock Borough). The small triangular section of ancient woodland to the east of the playing field is a Pedunculate Oak (*Quercus robur*) wood with Ash (*Fraxinus excelsior*), Field Maple (*Acer campestre*) and coppiced Hazel (*Corylus avellana*). Wych Elm (*Ulmus glabra*) is also present. The ground flora is dominated by Bramble (*Rubus fruticosus*) and Bracken (*Pteridium aquilinum*) with frequent and locally abundant Bluebell (*Hyacinthoides non-scripta*). Dog's Mercury (*Mercurialis perennis*), Red Campion (*Silene dioica*), Greater Stitchwort (*Stellaria holostea*) and Lesser Celandine (*Ranunculus ficaria*) are also present more sparingly. Coombe Wood as a whole supports a strong population of Purple Hairstreak butterflies.

To the south of the playing field is a narrow strip of possibly ancient wood, partly stretching into a private garden (this section excluded from the Wildlife Site). It comprises an Oak-Ash woodland on relatively well-drained soils. The ground flora is characterised by Garlic Mustard (*Alliaria petiolata*), locally abundant Bluebell and Dog's Mercury, Red Campion and Stinging Nettle (*Urtica dioica*) amongst widespread Bramble.

**Selection Criteria:** HCr1(a), HCr1(b)

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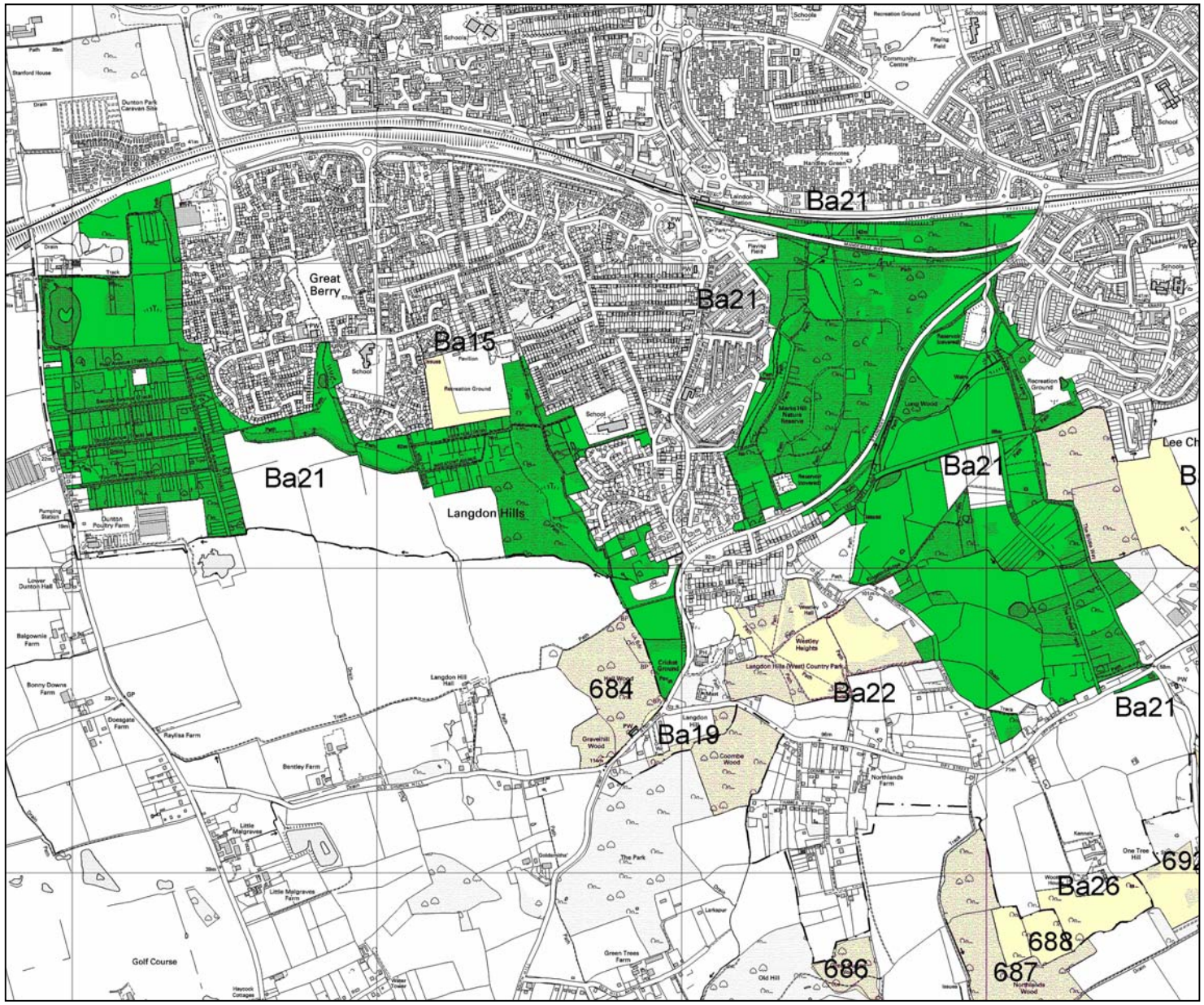
## Ba20. Norsey Meadow (6.1 ha) TQ 682951

This ancient grassland site comprises a mosaic of rough grassland, more flower-rich meadowland, with scattered trees and scrub. The most widespread grassland species are False Oat-grass (*Arrhenatherum elatius*), Black Knapweed (*Centaurea nigra*), Cock's-foot Grass (*Dactylis glomerata*), Hogweed (*Heracleum sphondylium*), Yorkshire Fog (*Holcus lanatus*), Yarrow (*Achillea millefolium*), Cow Parsley (*Anthriscus sylvestris*), Stinging Nettle (*Urtica dioica*) and an increasing quantity of Bramble (*Rubus fruticosus* agg.). Future management should aim to maintain a mosaic of shorter, flower-rich grassland, rough grassland and scrub for the benefit of the invertebrate populations.

Woodcock have been known to use this area, probably in association with the habitats present in the adjacent Norsey Wood. Harvest Mouse has also been recorded. During 2003 it received a small population of Common Lizards from a development site in Billericay.

**Selection Criterion:** HCr13



## Ba21. Langdon Complex (213.1 ha) TQ683874

**N.B. This Site is dominated by but is not identical to the Essex Wildlife Trust's Langdon Nature Reserve.** Land outside the reserve include an area of former plotland and a modern lake on the Lower Dunton road, a small parcel of land near Westley Heights and small plots around Willow Park.

At the western end of this Site is a section of land owned by Basildon district Council, adjacent to Lower Dunton Road. This amenity area provides a valuable habitat extension to the Essex Wildlife Trust's Langdon Hills Nature Reserve, comprising grassland, woodland, scrub and a lake. The northern and eastern margins comprise former plotland sections now reverting to secondary woodland. The canopy comprises a mix of mainly Field Maple (*Acer campestre*), Pedunculate Oak (*Quercus robur*) and Ash (*Fraxinus excelsior*) over an extensive scrubby understorey of Hawthorn (*Crataegus monogyna*), Blackthorn (*Prunus spinosa*) and Elder (*Sambucus nigra*). The ground flora here is characterised by the presence of Male Fern (*Dryopteris filix-mas*), Wood Avens (*Geum urbanum*), locally abundant Ivy (*Hedera helix*), Bramble (*Rubus fruticosus* agg.) and Red Campion (*Silene dioica*).

To the west this scrub grades into a section of rough grassland. The vegetation here comprises Common Bent-grass (*Agrostis capillaris*), False Oat-grass (*Arrhenatherum elatius*), Black Knapweed (*Centaurea nigra*), Wild Carrot (*Daucus carota*), clovers (*Trifolium* spp.) and Cock's-foot Grass (*Dactylis glomerata*), with some Pepper Saxifrage (*Silaum silaus*) and Agrimony (*Agrimonia eupatoria*). The recently excavated and landscaped lake is already providing a valuable habitat for invertebrates and birds with Common Terns nesting on the island. A central area of cattle pasture is floristically uninteresting but does provide foraging habitat for birds and invertebrates. Grizzled Skipper, a scarce Essex butterfly, has been recorded from these grasslands.

Langdon Reserve

This extensive reserve forms a rich wildlife habitat on the south-western fringe of Basildon town centre. The range of habitats includes ancient and recent woodland, herb rich meadows, scrubland and numerous ponds.

Ancient woodland of Pedunculate Oak (*Quercus robur*), Hornbeam (*Carpinus betulus*) and Ash (*Fraxinus excelsior*) with Wild Service Tree (*Sorbus torminalis*) occurs at Lince Wood, Great Berry and at Long Wood, Willow Park, whilst Marks Hill is another large area of mature woodland. The flora includes Bluebell (*Hyacinthoides non-scripta*), Primrose (*Primula vulgaris*) and Wood Anemone (*Anemone nemorosa*). Typifying the Dunton Plotlands, but occurring throughout the reserve, colonising scrub provides a valuable breeding habitat and food source for both migratory and resident birds.

Grasslands throughout the reserve have a good mix of grass and herb species with particularly rich sites supporting Common Spotted Orchid (*Dactylorhiza fuchsii*), Green-winged Orchid (*Orchis morio*) and Adder's-tongue Fern (*Ophioglossum vulgatum*). Of particular interest amongst the invertebrates is the occurrence of a locally rare cave spider. Numerous butterflies, dragonflies, damselflies and other insects are to be found throughout the reserve. The fauna includes Great Crested Newts, a very diverse butterfly assemblage that includes the Grizzled Skipper and numerous other notable invertebrates.

Small plots of land outside the ownership of the Essex Wildlife Trust form an integral part of the wildlife habitats present.

**Selection Criteria:** HCr1(a), HCr2(a), HCr2(c), HCr5, HCr6(c), HCr10, HCr11, HCr13, SCr1, SCr4, SCr12

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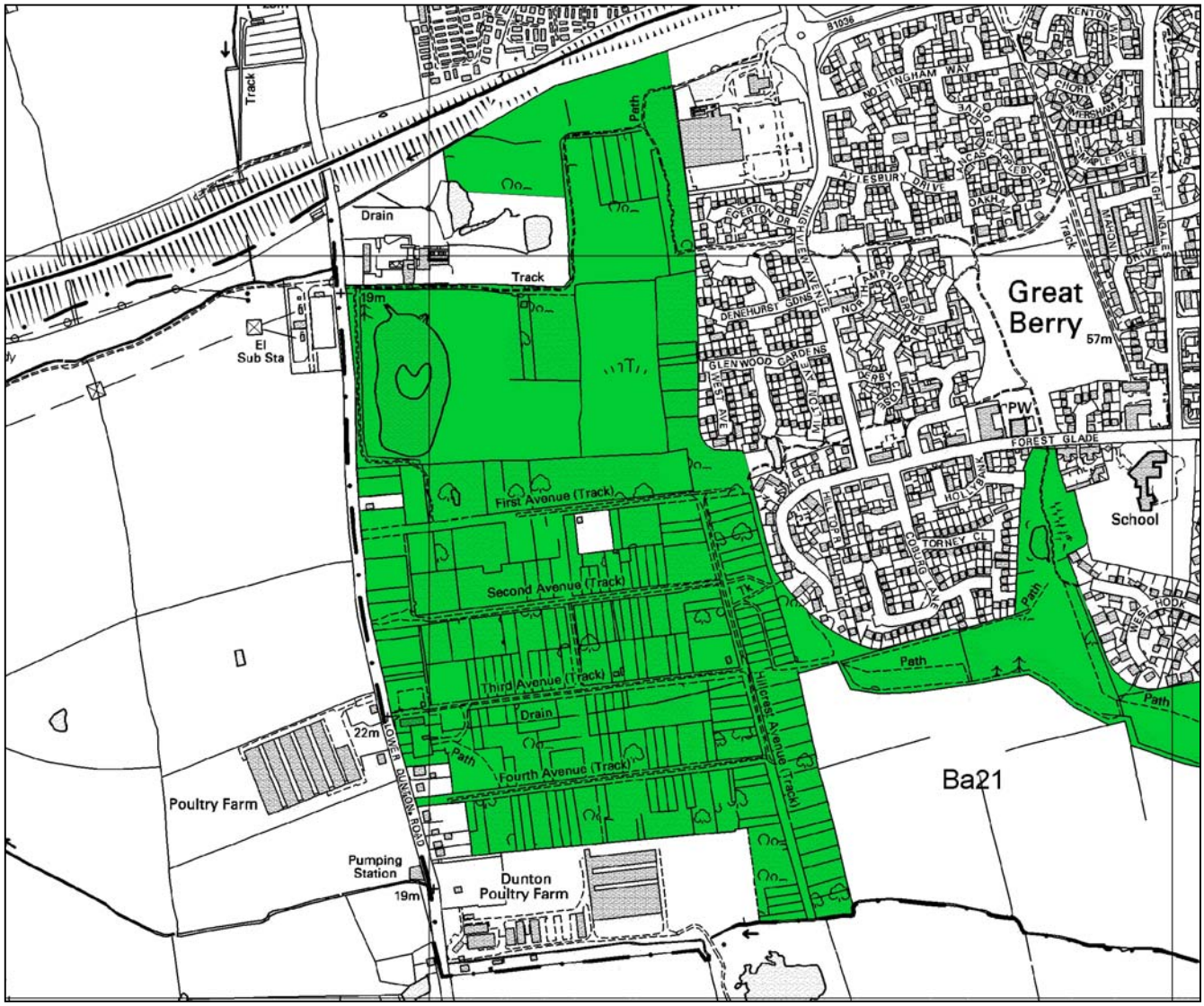

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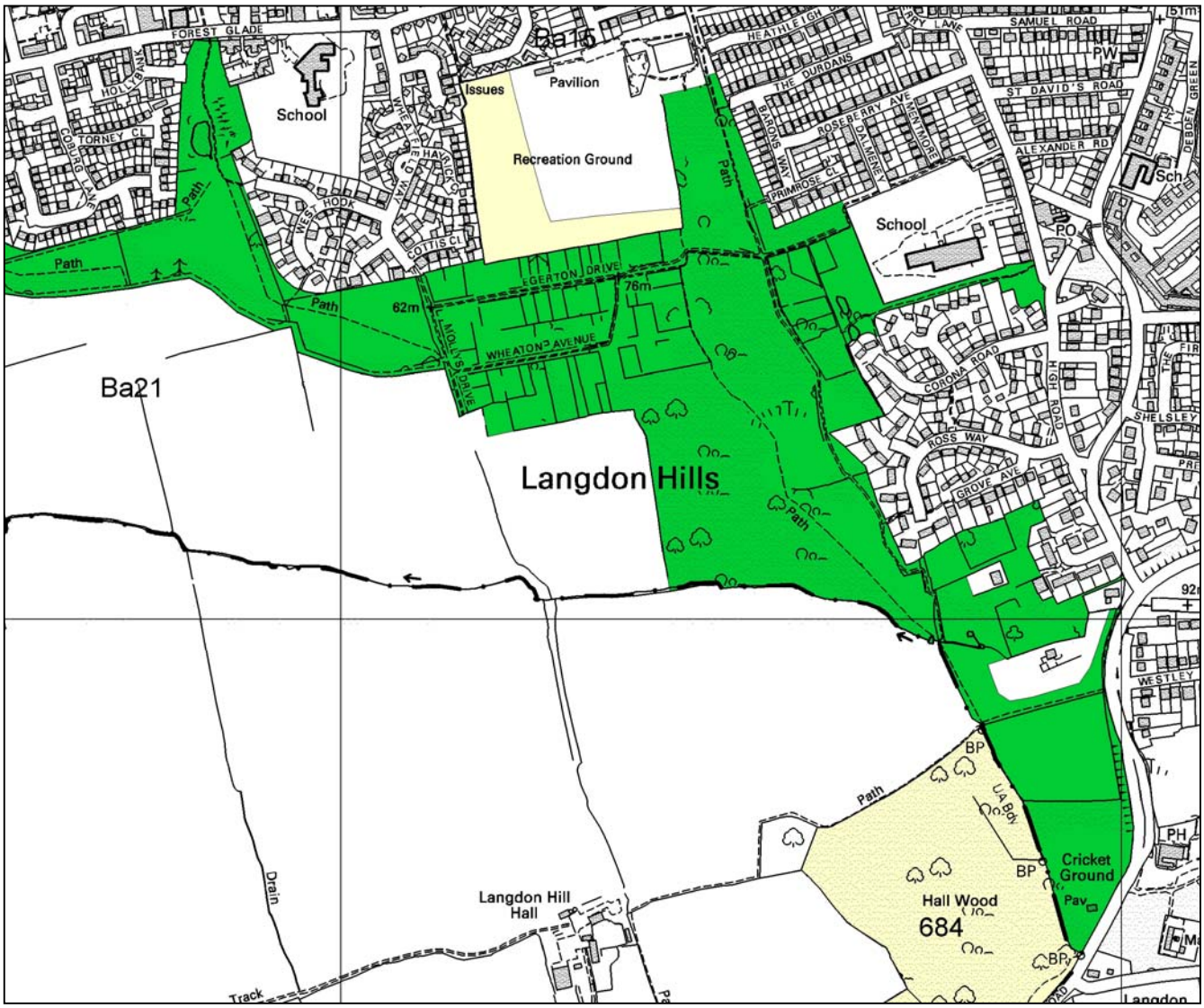

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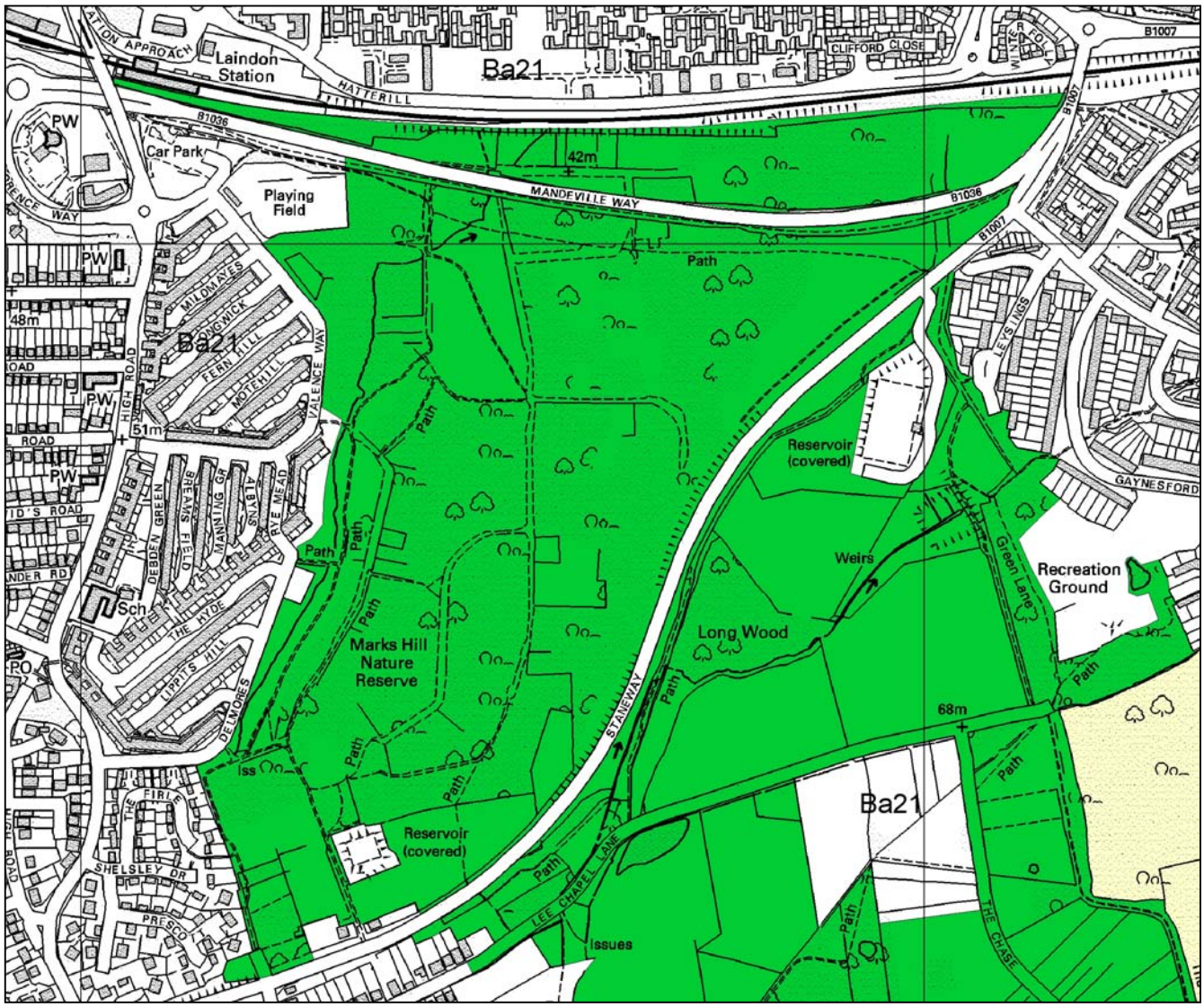

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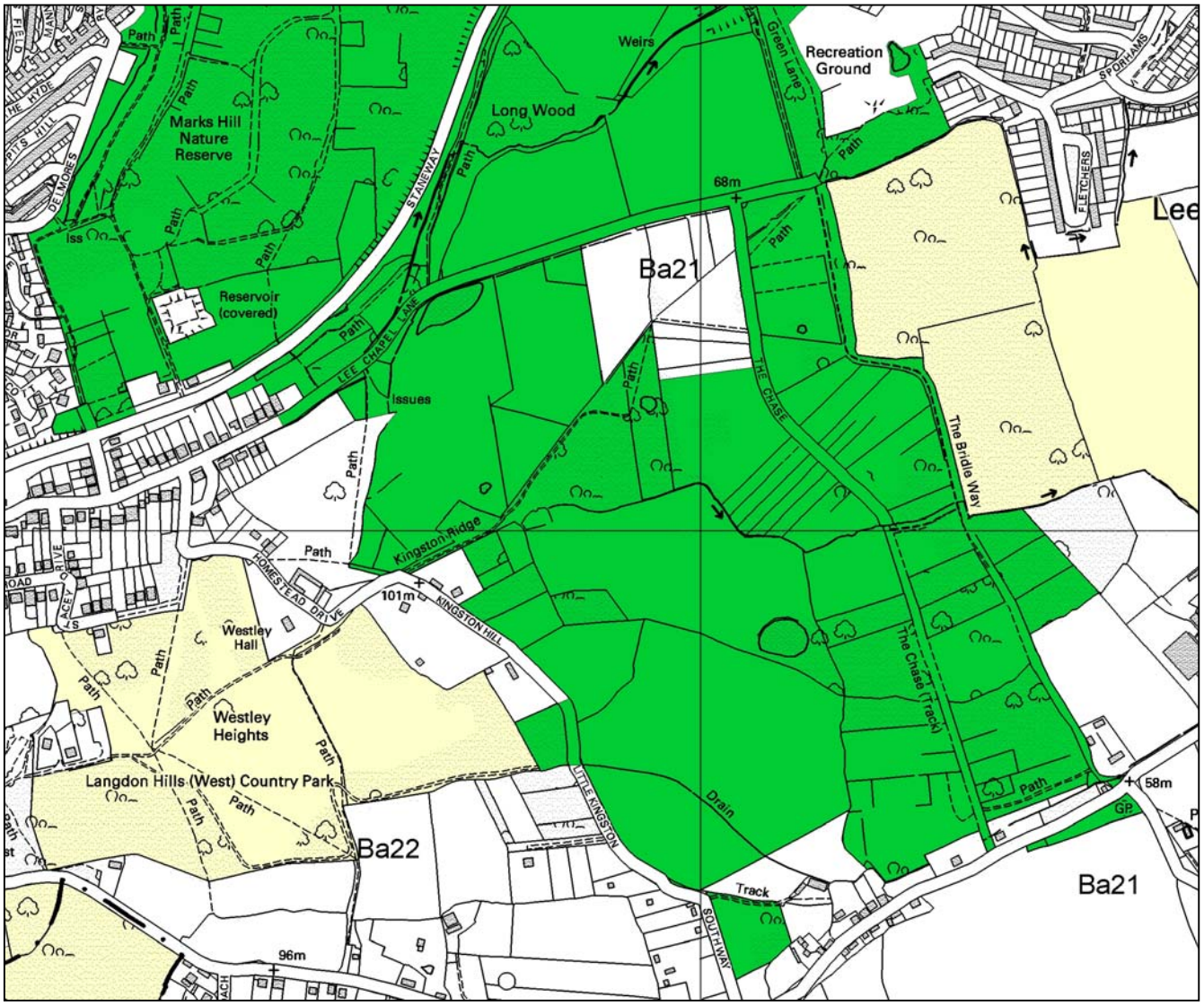

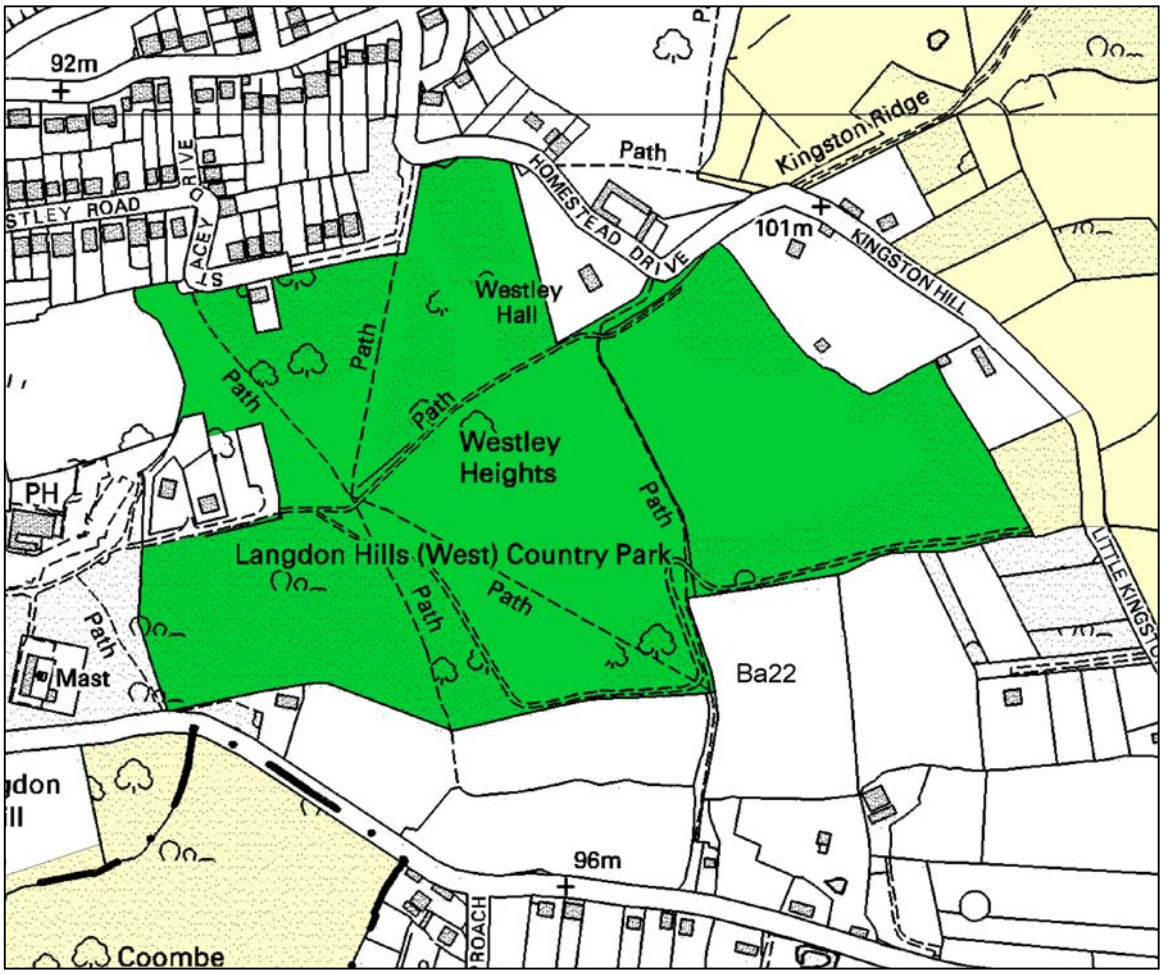


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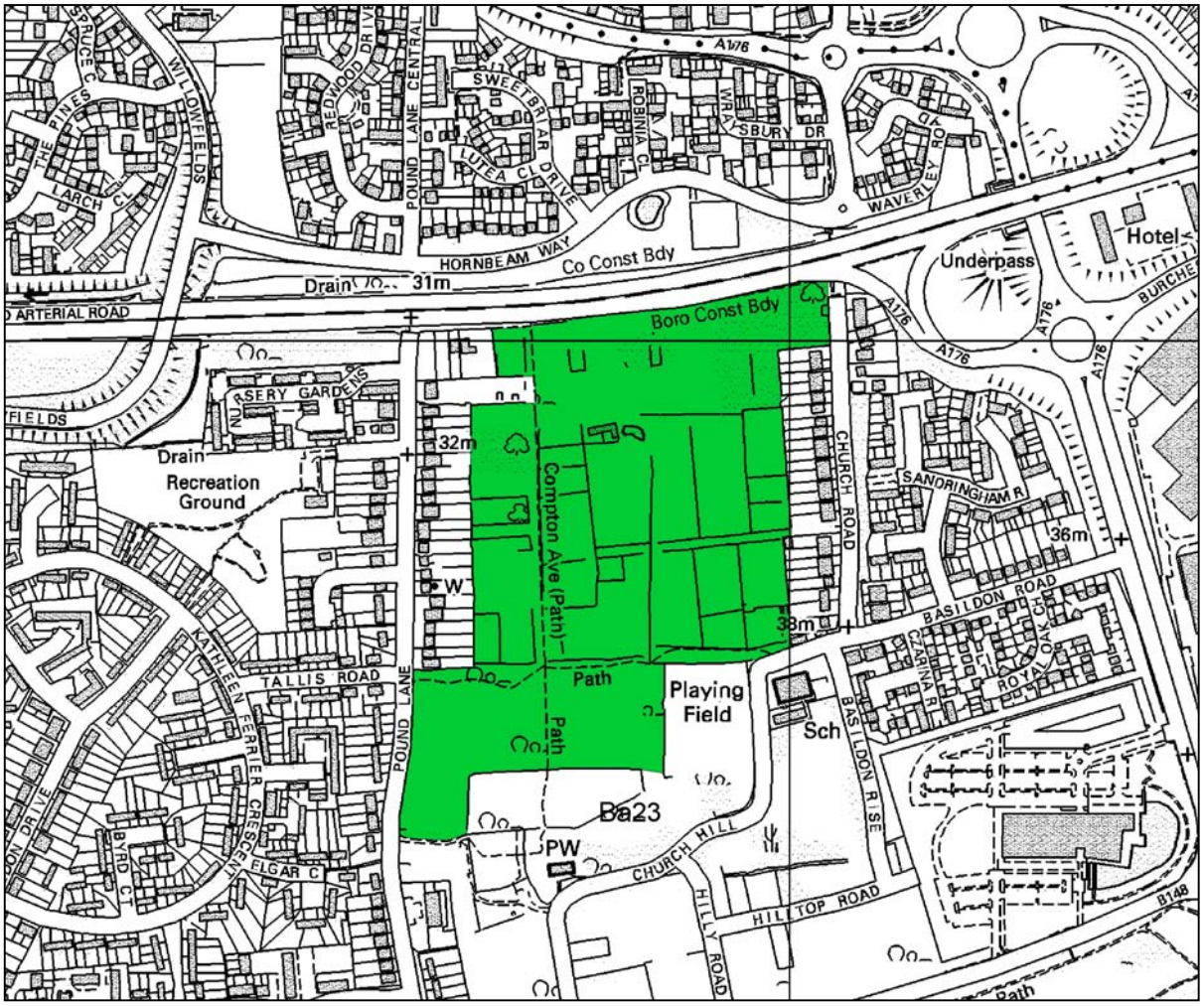
## Ba22. Westley Heights (15.7 ha) TQ 684867

Westley Heights combines well the recreation and wildlife objectives of the Langdon Hills country park with a mosaic of mown amenity land, rougher grassland and woodland. Whilst the wildlife value of the habitats varies, the site as a whole is included in recognition of its general wildlife interest and its potential for habitat enhancement for wildlife.

Pedunculate Oak (*Quercus robur*), Beech (*Fagus sylvatica*) and Ash (*Fraxinus excelsior*) characterise the mixed canopy within the scattered blocks of woodland, with Field Maple (*Acer campestre*), Alder (*Alnus glutinosa*), Silver Birch (*Betula pendula*), Hornbeam (*Carpinus betulus*), Hawthorn (*Crataegus monogyna*), Rowan (*Sorbus aucuparia*) and Elder (*Sambucus nigra*) also present. A typical woodland ground flora includes Wood Millet (*Milium effusum*) and Broad-leaved Helleborine (*Epipactis helleborine*). A mix of common grassland species typifies the turf throughout the park with a few patches of acidic grassland containing Sheep's Sorrel (*Rumex acetosella*). Some areas, currently mown regularly mown for amenity purposes, would be well suited to being less intensively managed as "wild flower meadows" providing a more varied and attractive habitat to butterflies and humans alike.

The site is seasonally well used by Redpolls and is often used by Hobby, catching chafer beetles.

**Selection Criteria:** HCr2(b), HCr2(c), HCr13



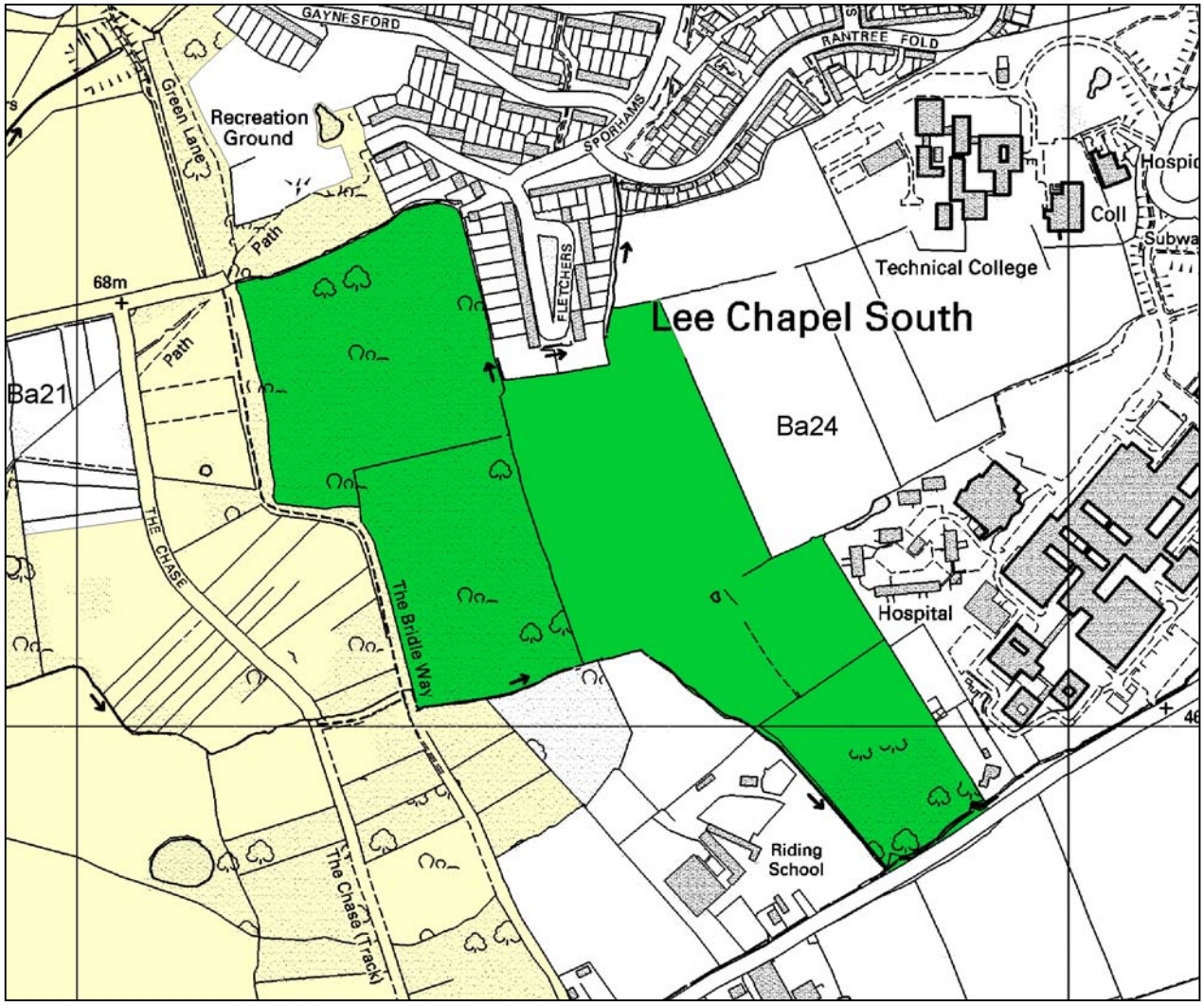



**Ba23. St. Nicholas Church Complex (11.9 ha) TQ 688896**

This Site is primarily designated in recognition of its reptile and amphibian populations, although the extent of relatively unimproved, unintensively managed grassland is also important. The site is known to support Great Crested and Smooth Newts, Slow-worm, Common Lizards and Adder, making it one of the more important herptile sites in the south of the county.

The tall, unmanaged grassland is typically dominated by Yorkshire Fog (*Holcus lanatus*) and Creeping Bent-grass (*Agrostis stolonifera*). To the north, scrubby meadows contains a more species-rich sward, which includes Tufted Hair-grass (*Deschampsia cespitosa*), Pepper Saxifrage (*Silaum silaus*), Grass Vetchling (*Lathyrus nissolia*) and Greater Bird's-foot Trefoil (*Lotus uliginosus*). A section of scrubby woodland to the east contains Hawthorn (*Crataegus monogyna*) and provides a valuable nesting and foraging habitat for birds. The habitats as a whole support a variety of birds, mammals and insects in a predominantly urban environment. The Nationally Scarce (Nb) and Essex Red Data List pyralid moth *Calamatropha paludella* occurs here near to a pond, where the larvae live within the leaves of Reedmace (*Typha latifolia*).

**Selection Criteria:** HCr11, SCr1, SCr3, SCr4

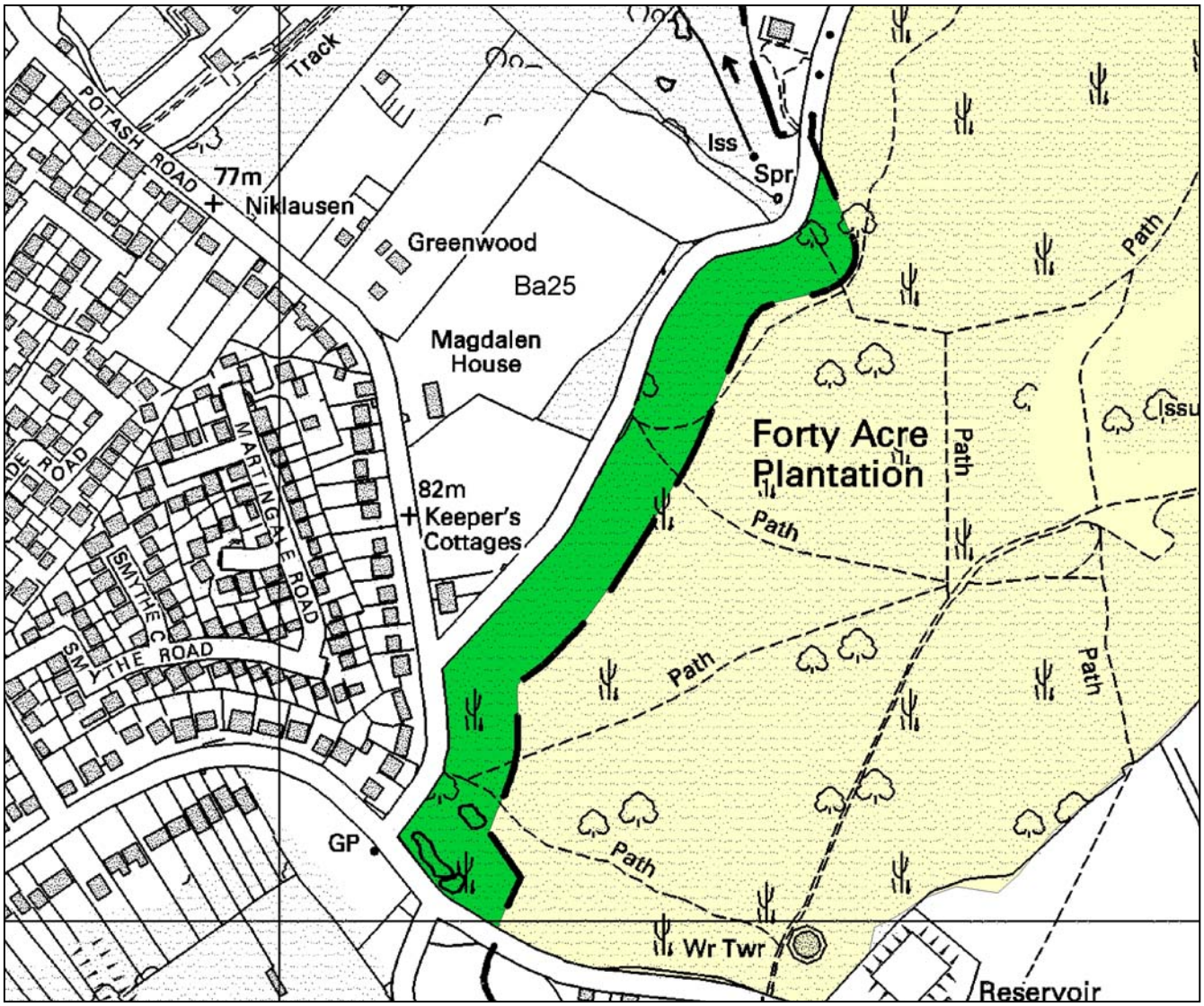





## Ba24. Dry Street Pastures (20.8 ha) TQ 693874

This site represents a series of flower-rich pastures and other grassland habitats stretching from The Chase south-eastwards to Basildon Hospital. Pyramidal Orchid (*Anacamptis pyramidalis*), Adder's-tongue Fern (*Ophioglossum vulgatum*), Green-winged Orchid (*Orchis morio*) and Yellow Rattle (*Rhinanthus minor*) have been recorded here. The invertebrate fauna includes several Nationally Scarce and at least one Nationally Rare (RDB) (and Essex Red Data List) invertebrates, including the Adonis Ladybird (*Hippodamia* variegata), the weevil *Ceutorhynchus campestris*, the flower-beetle *Olibrus millefolii*, the dung fly *Scathophaga scybalaria* and the Red Data Book fly *Myopites inulaedyssentericae.* Also present is the Grizzled Skipper – a scarce Essex butterfly, but one which forms a meta-population of some significance within the grasslands of this Site and the Langdon Complex (Ba21). Adder, Slow-worm, Common Lizard and Grass Snakes have been recorded. In addition, the sections immediately adjacent to the Langdon Complex Site might provide additional terrestrial habitat for the Great Crested Newts known to breed in several nearby ponds.

**Selection Criteria:** HCr10, SCr12, SCr4

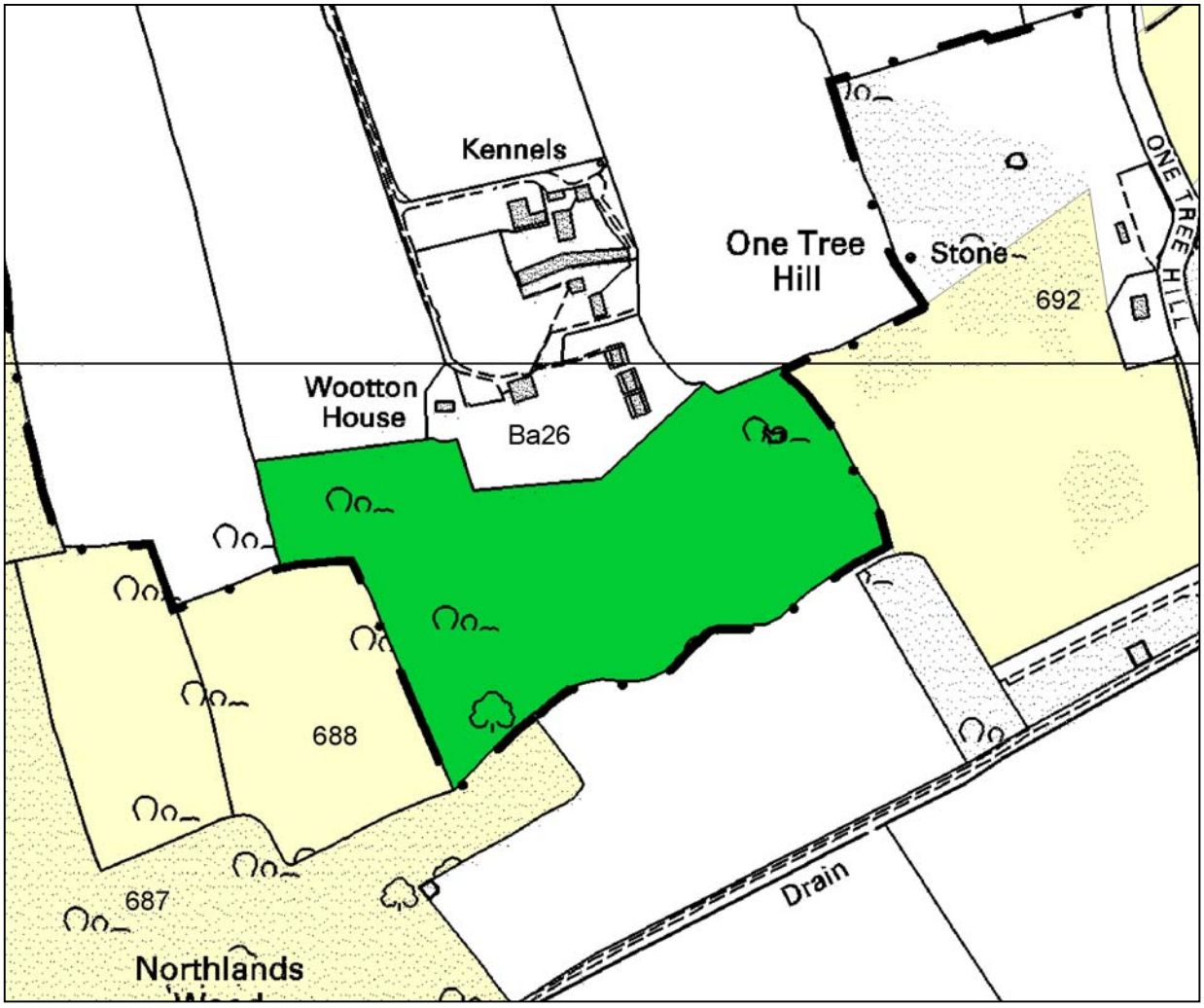





## Ba25. Forty Acre Plantation (3.1 ha) TQ 693964

Only the western edge of this ancient wood lies within Basildon District, the remainder being in Chelmsford Borough. This section comprises actively coppiced Sweet Chestnut (*Castanea sativa*) and Alder (*Alnus glutinosa*), with Pedunculate Oak (*Quercus robur*) and Silver Birch (*Betula pendula*) standards plus scattered Hornbeam (*Carpinus betulus*) on the boundary banks. Within a matrix of Bramble (*Rubus fruticosus*) and (*Pteridium aquilinum*), the ground flora includes occasional, but locally abundant, Bluebells (*Hyacinthoides non-scripta*) and Creeping Soft-grass (*Holcus mollis*), occasional Wood Sage (*Teucrium scorodonia*), locally abundant Wood Anemone (*Anemone nemorosa*), some Pendulous Sedge (*Carex pendula*), Remote Sedge (*Carex remota*) and also Great Wood-rush (*Luzula sylvatica*).

**Selection Criterion:** HCr1(a)

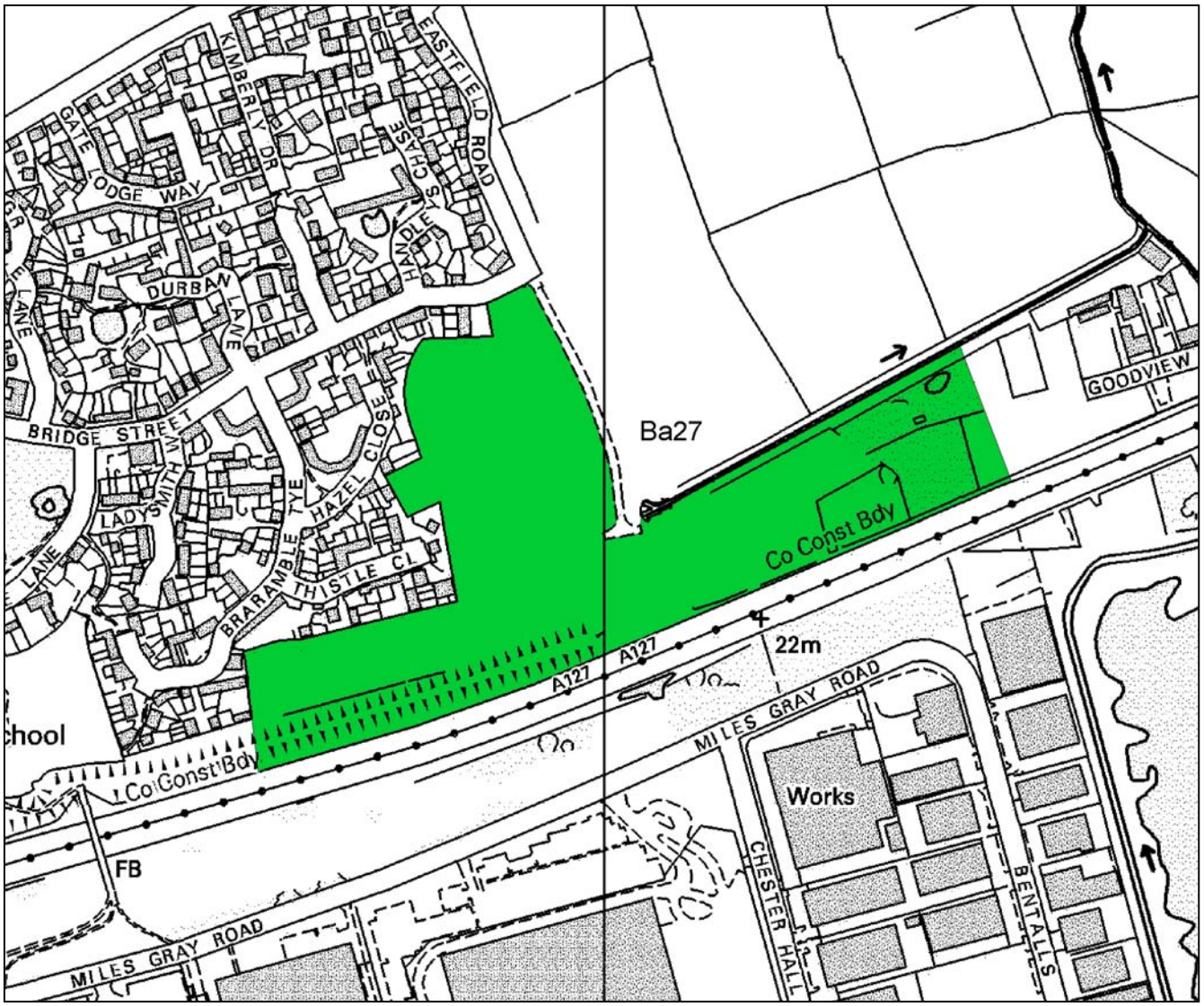





## Ba26. "Kennels Wood" (4.7 ha) TQ 694859

Forming part of the Country Park at One Tree Hill, this Hawthorn (*Crataegus monogyna*) and Blackthorn (*Prunus spinosa*) scrub wood has a relatively open canopy of Pedunculate Oak (*Quercus robur*) and Field Maple (*Acer campestre*) with occasional Hornbeam (*Carpinus betulus*) and Ash (*Fraxinus excelsior*). The increased invasion by Sycamore (*Acer pseudoplatanus*) on the northern margin may be of some management concern, although this tree can be significant for small birds, which feed on the sometimes abundant aphid load of this tree. The developing woodland flora includes Wood False Brome (*Brachypodium sylvaticum*), Hairy Brome (*Bromus ramosus*), Bluebell (*Hyacinthoides non-scripta*), Remote Sedge (*Carex remota*), Enchanter's Nightshade (*Circaea lutetiana*), Ground Ivy (*Glechoma hederacea*), Red Campion (*Silene dioica*), Wood Sage (*Teucrium scorodonia*) and Hedge Woundwort (*Stachys sylvatica*). Habitat diversity is supplemented by grassy rides that contain a good mix of grasses and herbs, in which Roesel's Bush-cricket can be found. Future management may be needed to preserve or enhance these grassy rides within the developing woodland matrix. Part of the site boundary is an ancient parish boundary earthbank.

**Selection Criterion:** HCr2(a)

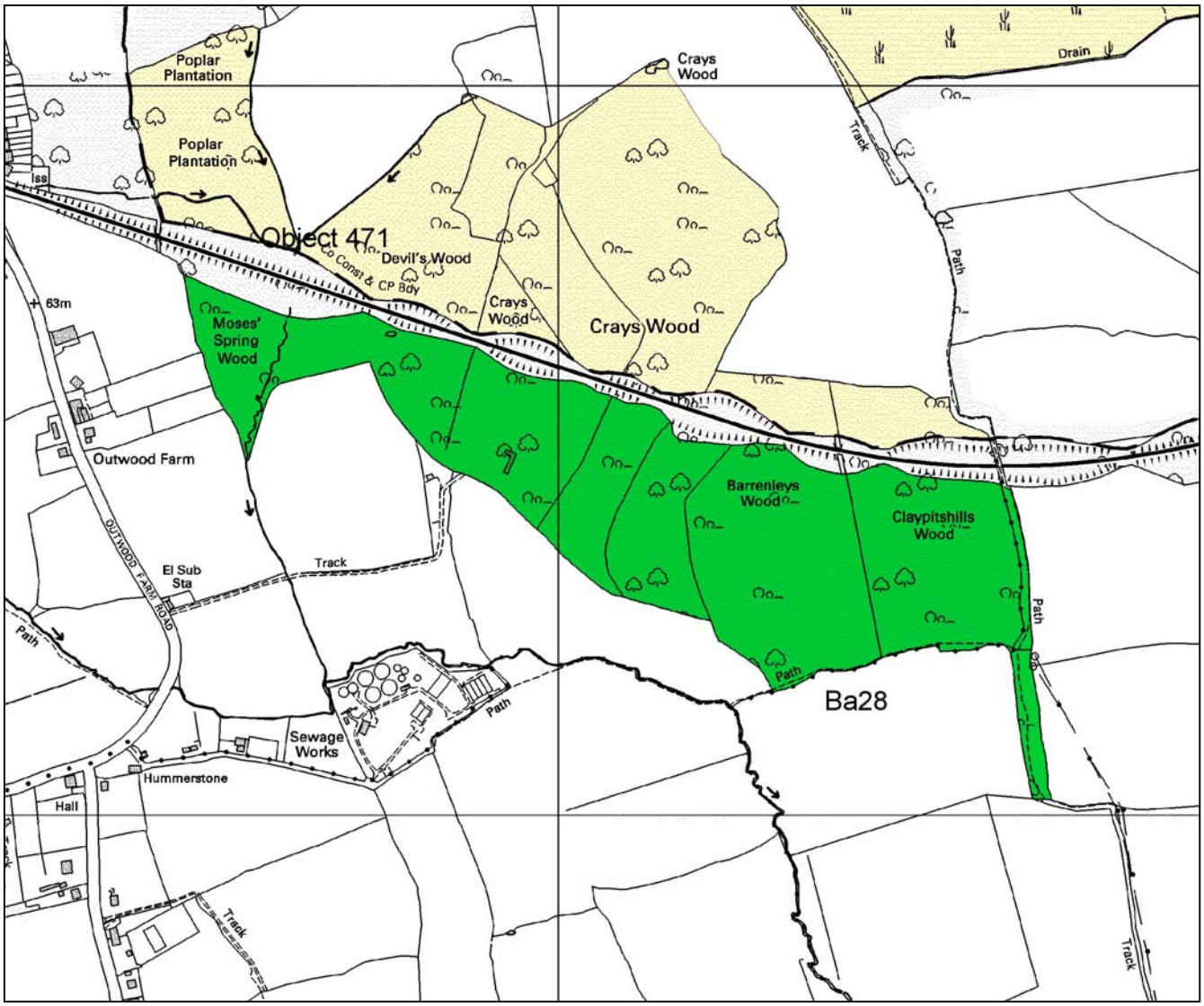





## Ba27. Noak Bridge Reserve (7.7 ha) TQ 700905

This site includes the Noak Bridge Nature Reserve, created as a receptor site for Great Crested Newts and other herptiles, including Adder, during the construction of adjacent housing.

**Selection Criterion:** SCr1

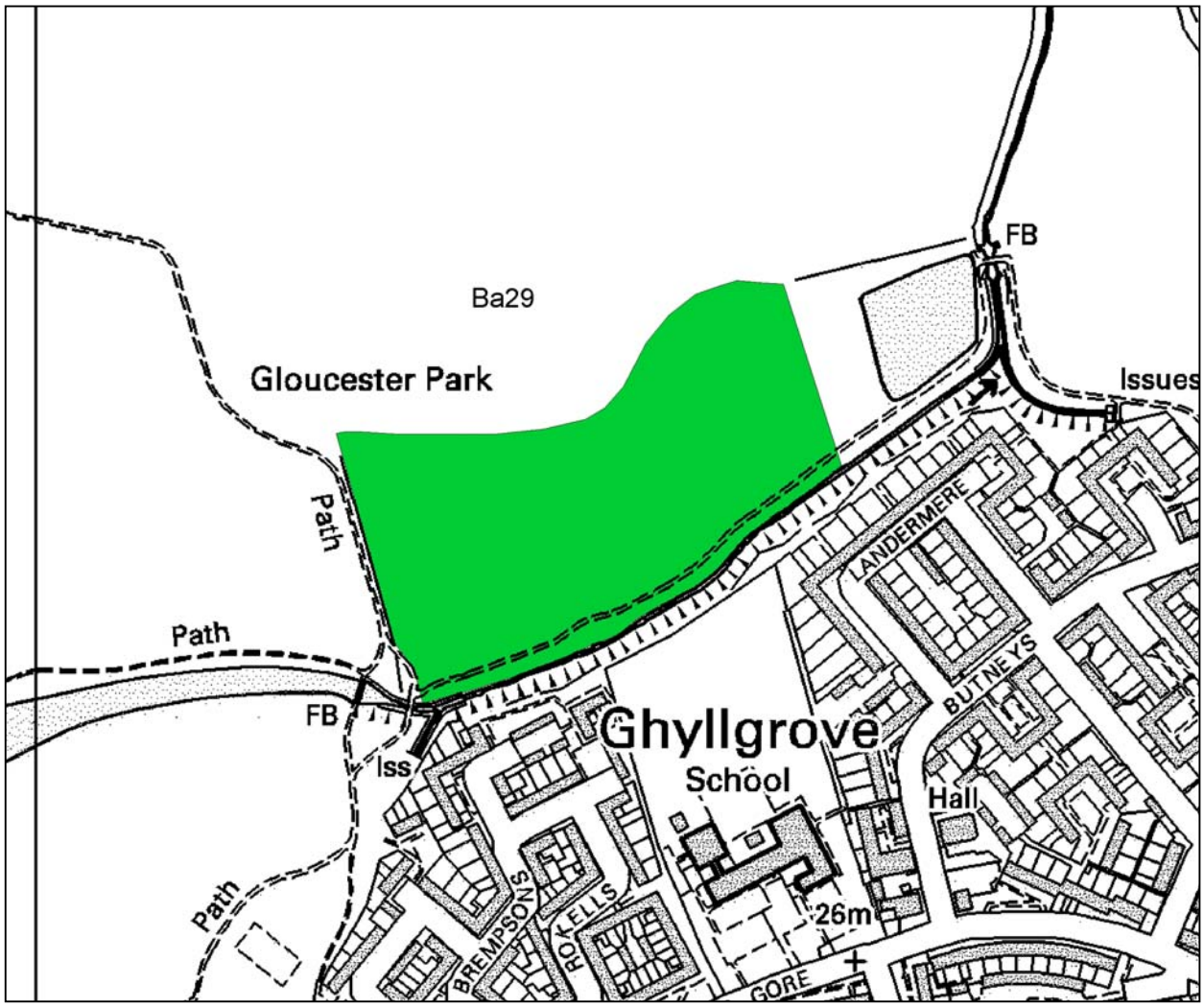





## Ba28. Moses' Spring/Barrenleys/Claypitshills Woods (24.4 ha) TQ 701944

This large, mainly ancient woodland complex, bounded to the north by a railway line, comprises a mixed canopy of overgrown Hornbeam (*Carpinus betulus*), Ash (*Fraxinus excelsior*), Field Maple (*Acer campestre*) and Hazel (*Corylus avellana*) coppice with standards of Pedunculate Oak (*Quercus robur*) and Ash. In the extreme north-east corner is a clone of Elm (*Ulmus* sp.) suckers and some Sycamore (*Acer pseudoplatanus*) invasion. The ground flora is typified by Bramble (*Rubus fruticosus*), Dog's Mercury (*Mercurialis perennis*), Moschatel (*Adoxa moschatellina*) and Bluebell (*Hyacinthoides non-scripta*). A stream skirting Moses Spring Wood and a remnant green lane extending south from Claypitshills Wood provide additional habitats to that of dense canopy woodland. A narrow section of the site, to the west of the Barrenleys compartment is recent secondary woodland, but its canopy and ecology is now intimately associated with that of the surrounding ancient woodland stands.

**Selection Criterion:** HCr1(a), HCr2(a)



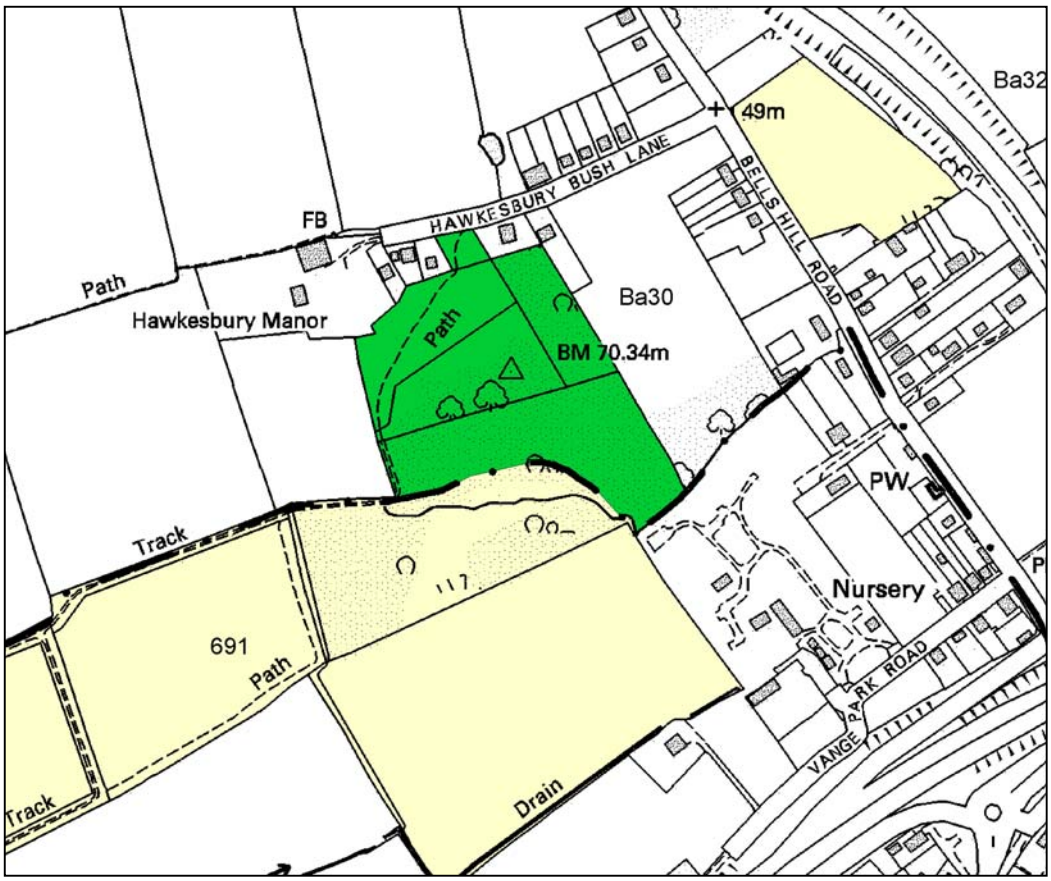



## Ba29. Gloucester Park Meadow (4.1 ha) TQ 703893

This area of grassland within Gloucester Park is managed to promote its floristic and invertebrate interest. The flower-rich sward is typified by the presence of Common Bent-grass (*Agrostis capillaris*), Meadow Foxtail (*Alopecurus pratensis*), Timothy-grass (*Phleum pratense agg.*) and Sweet Vernal Grass (*Anthoxanthum odoratum*), with abundant Black Knapweed (*Centaurea nigra*) and occasional Bird's-foot Trefoil (*Lotus corniculatus*), Wild Carrot (*Daucus carota*) and Meadow Buttercup (*Ranunculus acris*). Other species of note include Dyer's Greenweed (*Genista tinctoria*), Green-winged Orchid (*Orchis morio*) and Fairy Flax (*Linum catharticum*).

The invertebrate interest includes the Nationally Scarce (Na) Wasp Spider *Argiope bruennichi*, which has colonised the site despite its relative ecological isolation from other grassland Sites. This ecological position, within a well-used amenity area brings with it both potential impacts from disturbance but also an important role in providing the urban population of Basildon with a rich wildlife area, which might help convey an important environmental message through education opportunities.

**Selection Criteria:** HCr10, SCr12



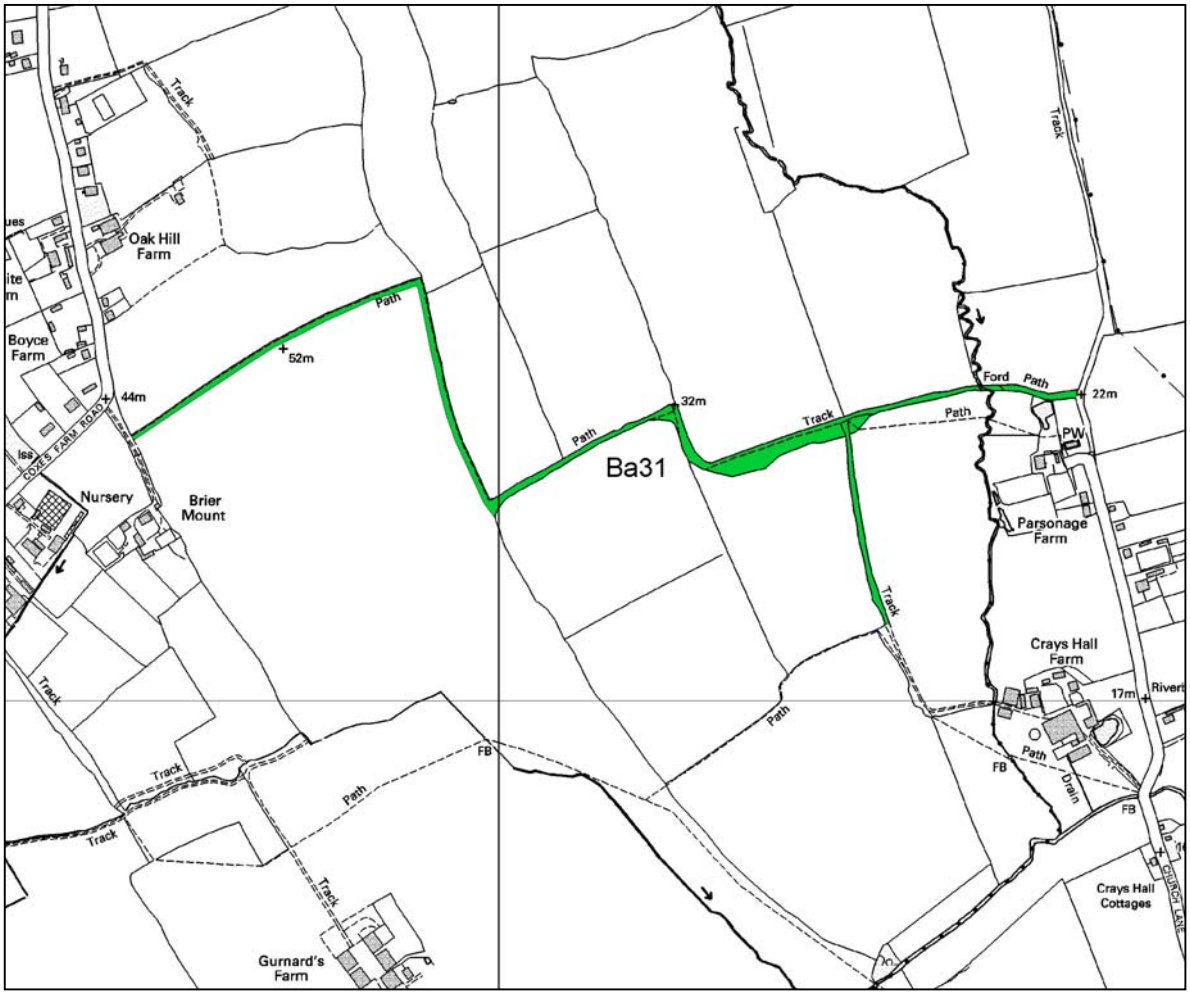



## Ba30. Hawkesbury Manor (3.6 ha) TQ 705867

This site comprises grassland, scrub and woodland habitats producing a rich assemblage of flora and fauna. The site's value is further enhanced by its location adjacent to part of the Basildon Meadows SSSI to the east and Thurrock District's Dry Street Hill Fields Wildlife Site to the south, effectively forming one large hillslope wildlife site of considerable importance.

The relatively unimproved grassland contains a diverse mix of herbs and grasses including Sweet Vernal Grass (*Anthoxanthum odoratum*), Meadow Foxtail (*Alopecurus pratensis*), Yellow Rattle (*Rhinanthus minor*) and Common Milkwort (*Polygala vulgaris*), the latter two species being of particular note. Green-winged Orchid (*Orchis morio*) has also been recorded. The encroaching Hawthorn (*Crataegus monogyna*) scrubland to the south also includes fragments of species rich grassland and grades into a small section of Pedunculate Oak (*Quercus robur*) and Ash (*Fraxinus excelsior*) woodland to the east. On the district boundary the scattered scrub includes fragments of grassland containing Corky-fruited Water-dropwort (*Oenanthe pimpinelloides*), a scarce plant in Essex. The site is known to support populations of two national Biodiversity Action Plan bumblebees: *Bombus sylvarum* and *B. humilis*, whilst the Site also qualifies under reptile selection criteria, supporting Adders, Slow-worm and Common Lizard. White-letter Hairstreak butterflies, associated with suckering Elm, and Glow-worm have also been recorded.

**Selection Criteria:** HCr10, SCr4, SCr12, SCr13



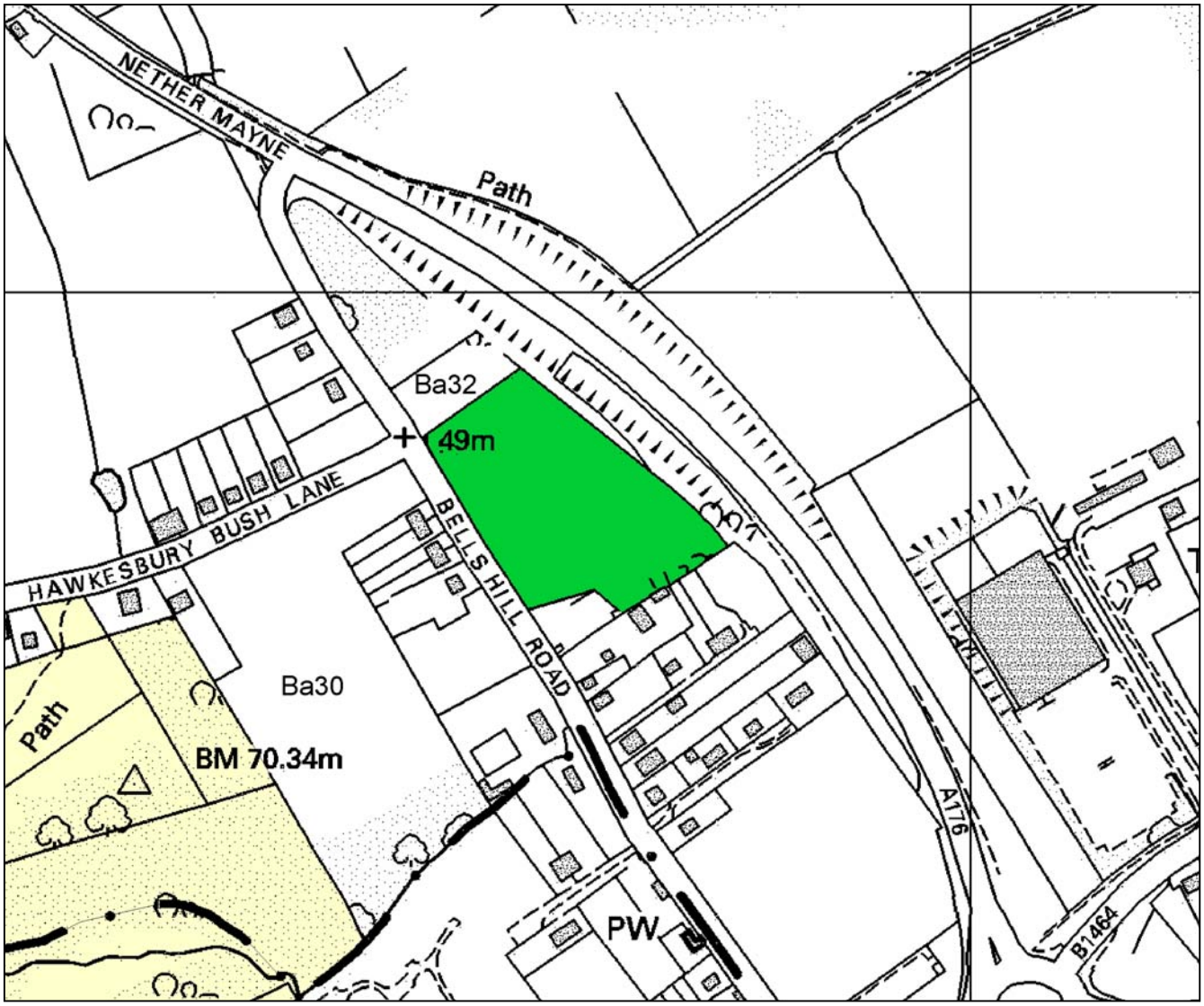



## Ba31. Parsonage Farm Green Lane (2.1 ha) TQ 705934

This Site has been extended from its original extent by the planting of a new hedge along the southern side of ancient field hedgerows. This new section of lane is added to the Wildlife Site. The varied hedges consist of Field Maple (*Acer campestre*), Alder (*Alnus glutinosa*, planted), Dogwood (*Cornus sanguinea*), Hawthorn (*Crataegus monogyna*), Midland Hawthorn (*Crataegus laevigata*), Holly (*Ilex aquifolium*), Willows (*Salix* spp.), Blackthorn (*Prunus spinosa*) and Elder (*Sambucus nigra*) with large Pedunculate Oak (*Quercus robur*) and Ash (*Fraxinus excelsior*) standards bound the grassy centre of this ancient green lane. A good ground flora includes Bluebell (*Hyacinthoides non-scripta*), Dog's Mercury (*Mercurialis perennis*), Butcher's Broom (*Ruscus aculeatus*), Three-veined Sandwort (*Moehringia trinervia*), Wood False Brome (*Brachypodium sylvaticum*), Remote Sedge (*Carex remota*), Creeping Soft-grass (*Holcus mollis*), Hairy St. John's-wort (*Hypericum hirsutum*), Wood Meadow-grass and Pendulous Sedge (*Carex pendula*).

In a poorly wooded part of the district, in the open farmland between Basildon, Billericay and Wickford, this site comprises a useful woodland habitat in its own right but could also act as a woodland wildlife corridor or "stepping stone" between the tree-lined River Crouch to the south and the large ancient woods of Billericay to the north.

**Selection Criterion:** HCr9(b)

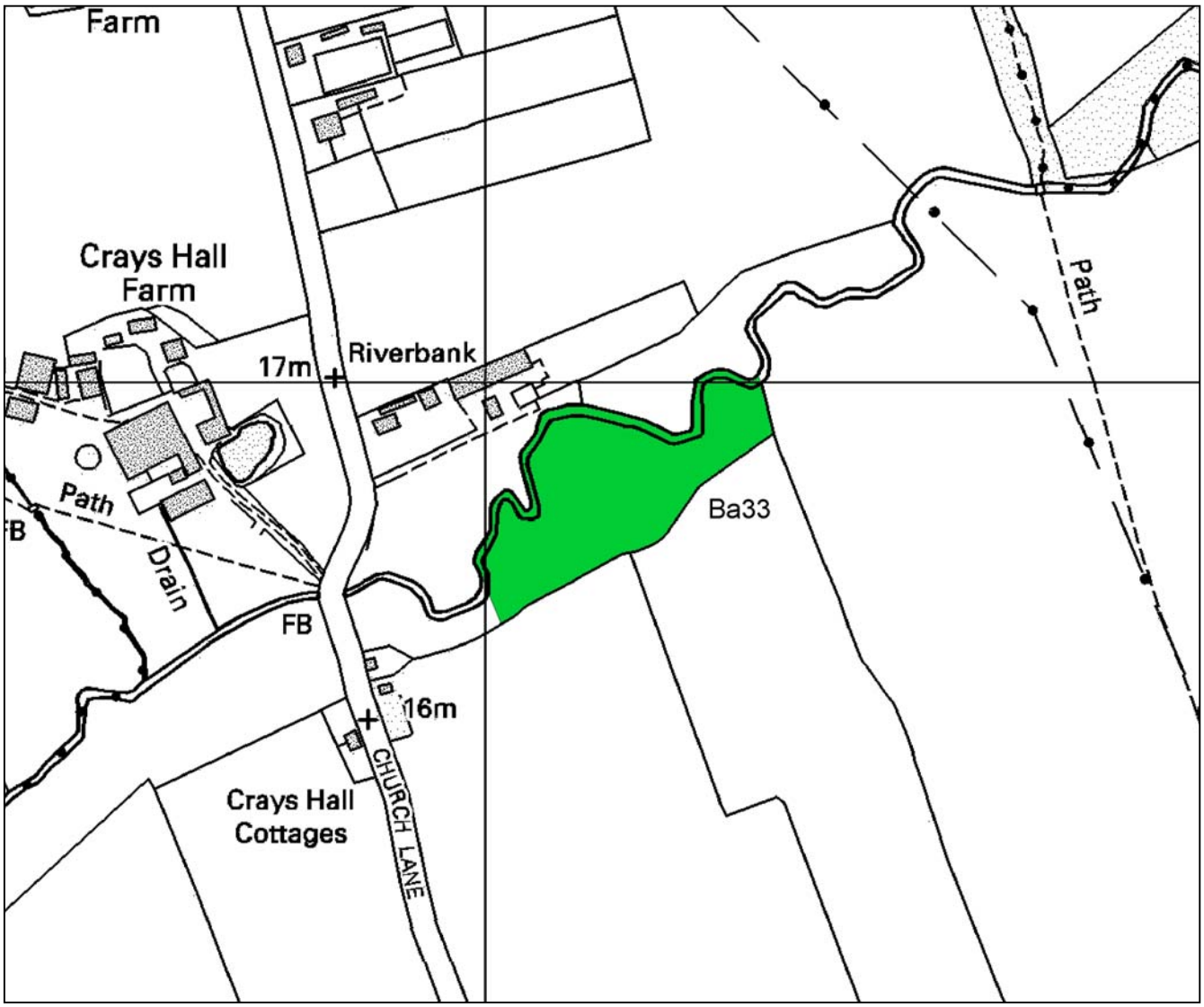





## Ba32. Bells Hill Meadow (1.5 ha) TQ 707868

This is an old grassland site, with a wealth of scarce plants and animals having been recorded here in recent times. The flower-rich sward is notable for Green-winged Orchids (*Orchis morio*), Adder's-tongue Fern (*Ophioglossum vulgatum*) and Deptford Pink (*Dianthus armeria*) amongst Black Knapweed (*Centaurea nigra*), Red Bartsia (*Odontites verna*) and Rough Hawkbit (*Leontodon hispidus*). Eight species of bumblebee have been recorded using the site, including the national Biodiversity Action Plan species *Bombus humilis* and *B. sylvarum*. Grass Snake, Common Lizard and Slow-worm have also been recorded. It is one of the meta-population sites for Grizzled Skipper butterfly, comprising a series of grasslands along the southern flank of the district.

**Selection Criteria:** HCr10, SCr4, SCr12

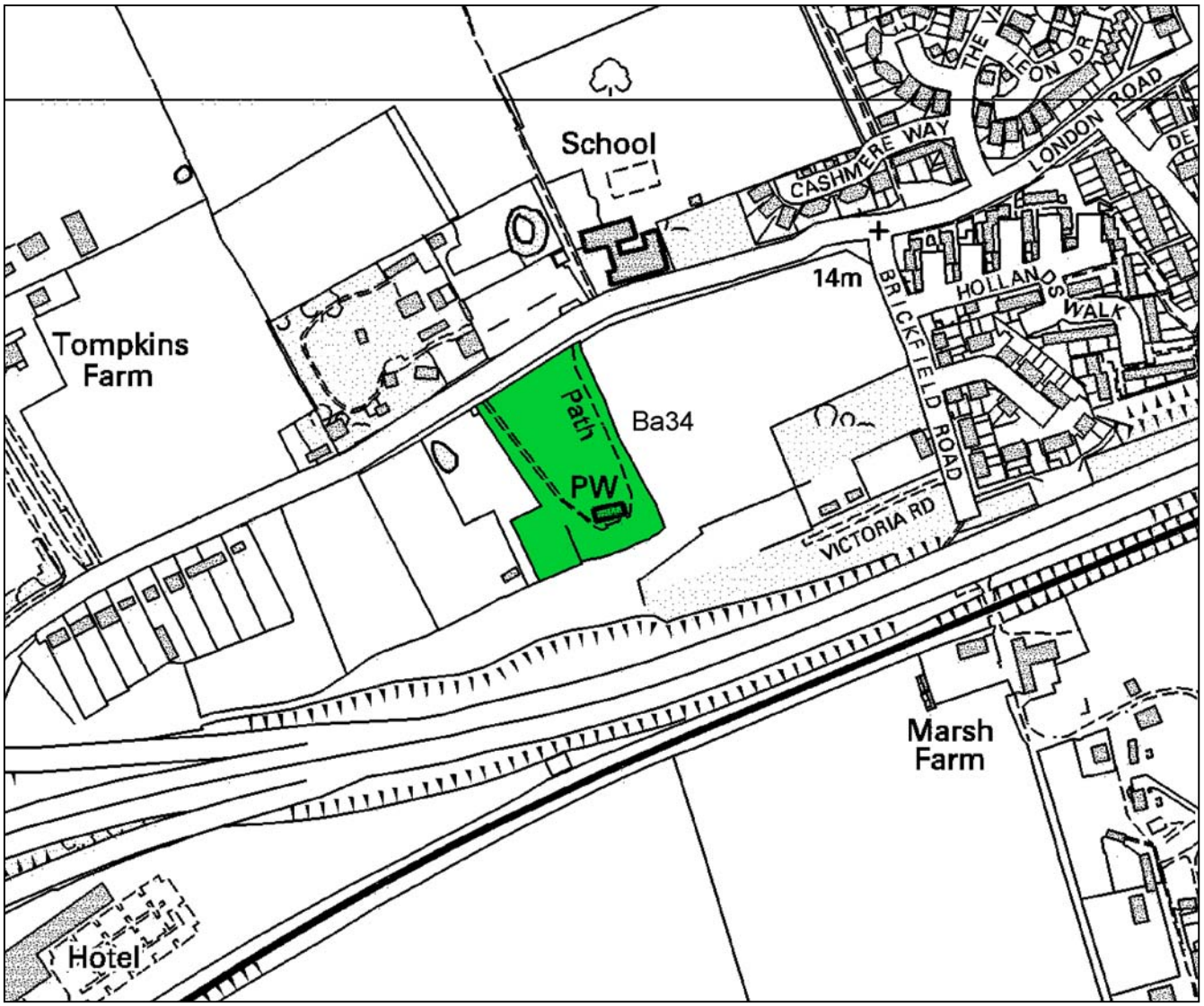





## Ba33. Crays Hall Meadow (1.4 ha) TQ 711929

This riverside meadow comprises a varied mix of grass species including Yorkshire Fog (*Holcus lanatus*), Creeping Bent-grass (*Agrostis stolonifera*), Meadow Barley (*Hordeum secalinum*) and Tufted Hair-grass (*Deschampsia cespitosa*). Amongst the herbs present are Black Knapweed (*Centaurea nigra*) and Pepper Saxifrage (*Silaum silaus*) the latter being generally indicative of unimproved grassland. This site represents one of the few remaining species-rich grasslands within the Crouch valley. Recent aerial photographs indicate some localised disturbance by tracked vehicles (motorbikes) but the site nevertheless appears to remain intact.

**Selection Criterion:** HCr10

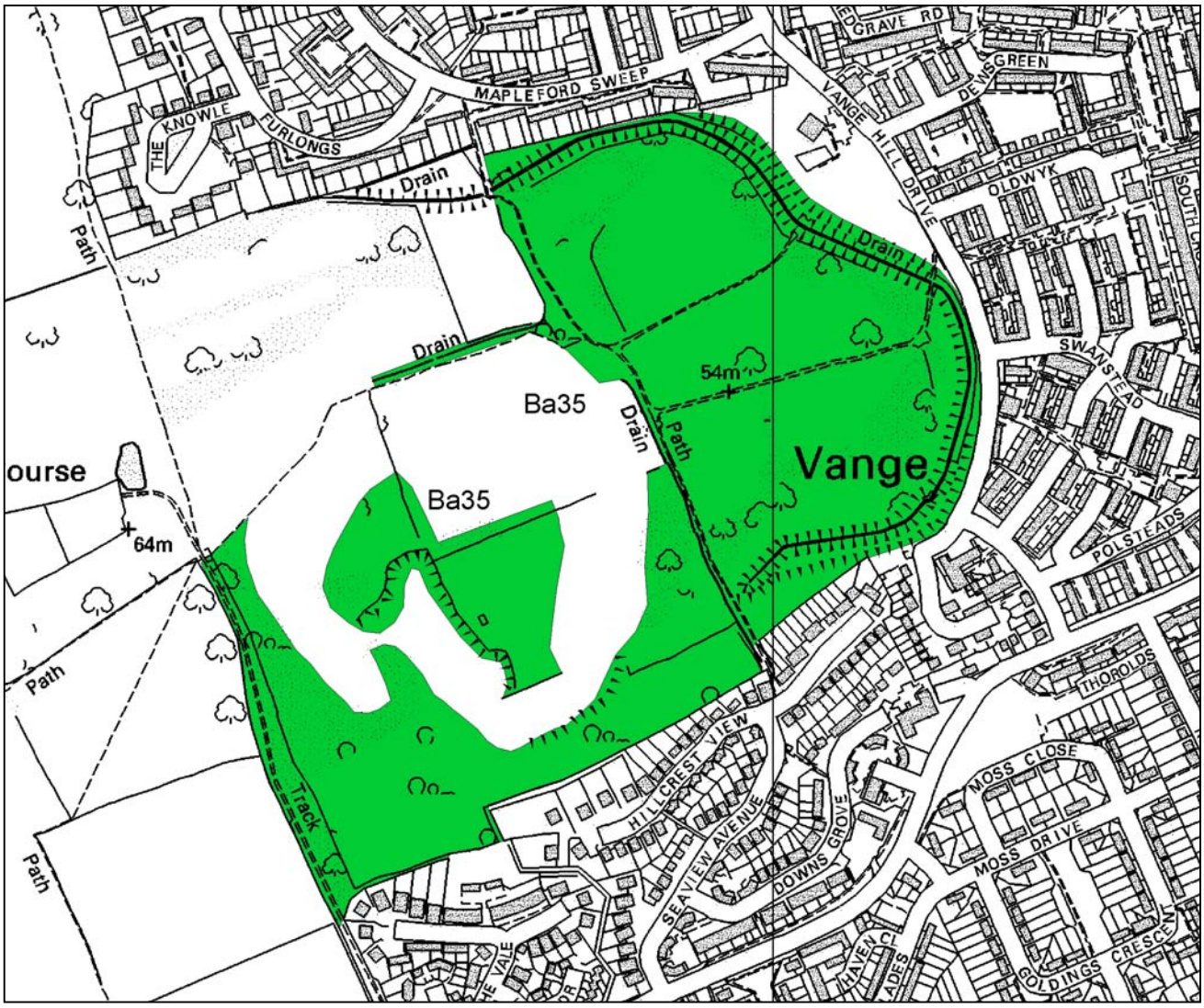





**Ba34. All Saints Churchyard, Vange (1.1 ha) TQ 715867**

The yard of this now redundant church supports a partially unmanaged flower-rich sward. The most widespread species are Yarrow (*Achillea millefolium*), Common Bent-grass (*Agrostis capillaris*), Black Knapweed (*Centaurea nigra*), False Oat-grass (*Arrhenatherum elatius*), Ribwort Plantain (*Plantago lanceolata*), Autumn Hawkbit (*Leontodon autumnalis*), Meadow Vetchling (*Lathyrus pratensis*) and clovers (*Trifolium* spp.). Lady's Bedstraw (*Galium verum*), Bird's-foot Trefoil (*Lotus corniculatus*), Agrimony (*Agrimonia eupatoria*), Yellow Oat-grass (*Trisetum flavescens*), Meadow Crane's-bill (*Geranium pratense*) and Ox-eye Daisy (*Leucanthemum vulgare*) are also present.

The site also supports Common Lizard, the Nationally Scarce (Na) Wasp Spider *Argiope bruennichi* and a good variety of grassland and hedgerow butterflies.




**Selection Criteria:** HCr10, SCr12



## Ba35. Vange Hill (19.6 ha) TQ 719874

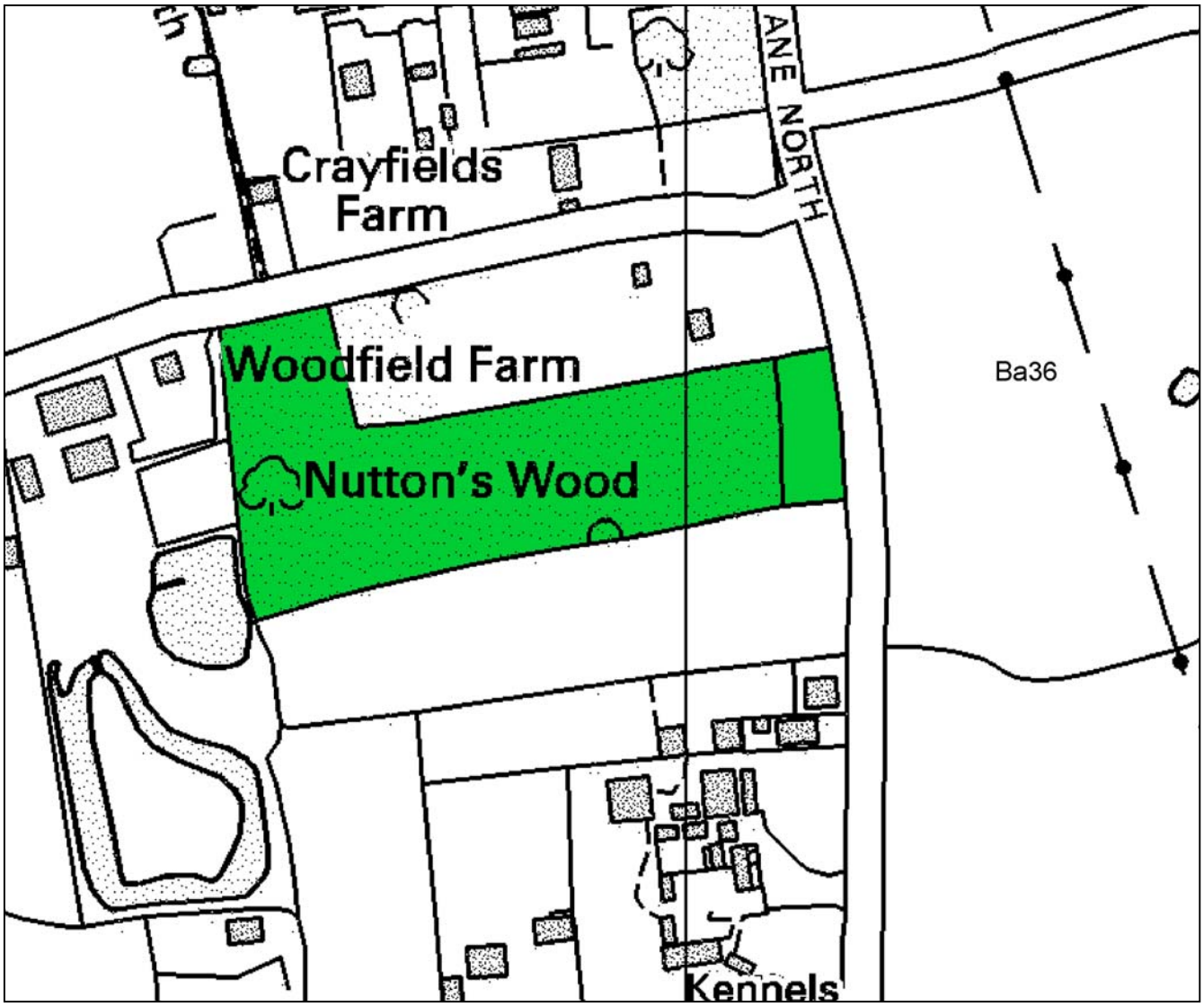
This Site combines two former SINCs (Basildon Golf Course Wood and Basildon Golf Course Earthworks) and extends into grassland areas not previously identified. The main block of wood lies to the west and comprises Pedunculate Oak (*Quercus robur*), English Elm (*Ulmus procera*), Hazel (*Corylus avellana*) and Hornbeam (*Carpinus betulus*). An often dense shrub layer of Hawthorn (*Crataegus monogyna*) provides good breeding/feeding habitat for birds. The ground flora includes Wood False Brome (*Brachypodium sylvaticum*), Red Campion (*Silene dioica*), Male Fern (*Dryopteris filix-mas*) and Wild Clematis (*Clematis vitalba*). An old

wooded track forms the western boundary. This site represents one of the few woods in the south-east of the district, at the edge of a golf course which, itself, has considerable wildlife value amongst an increasingly urban environment.

To the east of this are areas of species-rich grassland, including a series of semi-circular earthbanks and ditches. The grass sward is typified by the presence of Common Bent-grass (*Agrostis capillaris*), Yellow Oat-grass (*Trisetum flavescens*), Crested Dog's-tail (*Cynosurus cristatus*), Red Fescue (*Festuca rubra*), Timothy-grass (*Phleum pratense* agg.) and Rough Meadow-grass (*Poa trivialis*), with rougher areas being mainly False Oat-grass (*Arrhenatherum elatius*), Tall Fescue (*Festuca arundinacea*), Cock's-foot Grass (*Dactylis glomerata*) and Common Couch-grass (*Elymus repens*). Amongst this, the most abundant herbs are Black Knapweed (*Centaurea nigra*), Meadow Vetchling (*Lathyrus pratensis*), Red Bartsia (*Odontites verna*), Bristly Ox-tongue (*Picris echioides*), Hoary Ragwort (*Senecio erucifolius*) and Red Clover (*Trifolium pratense*). More notable herbs include Fairy Flax (*Linum catharticum*), Bythinian Vetch (*Vicia bythinica*), Pale Flax (*Linum bienne*), Kidney Vetch (*Anthyllis vulneraria*) and Grass Vetchling (*Lathyrus nissolia*). Some sections of the large ditches contain water and support both marginal and aquatic vegetation including rushes and sedges. Scattered trees and bushes, including an element of dead wood, provide additional habitat.

Unsurprisingly, this flower-rich and diverse habitat structure has been shown to support a very rich and important invertebrate fauna. Three national Biodiversity Action Plan species have been recorded to date: the bumblebees *Bombus sylvarum* and B. *humilis*, plus the fly *Dorycera gramineum*. The species assemblage includes five nationally threatened Red Data Book species, plus a further 25 Nationally Scarce species. The Essex Red Data List beetles *Zacladus exiguus*, *Mordellistena neuwaldeggiana* and *Meligethes umbrosus* are known to be present. Many of these species have quite specific and increasingly scarce habitat requirements, such as large expanses of flower-rich grassland with a nectar source available throughout the summer, areas of completely uncut grassland or dead wood nesting habitat. Adders, Common Lizard and Slow-worm have also been recorded.

**Selection Criteria:** HCr2(c), HCr6(d), SCr4, SCr12

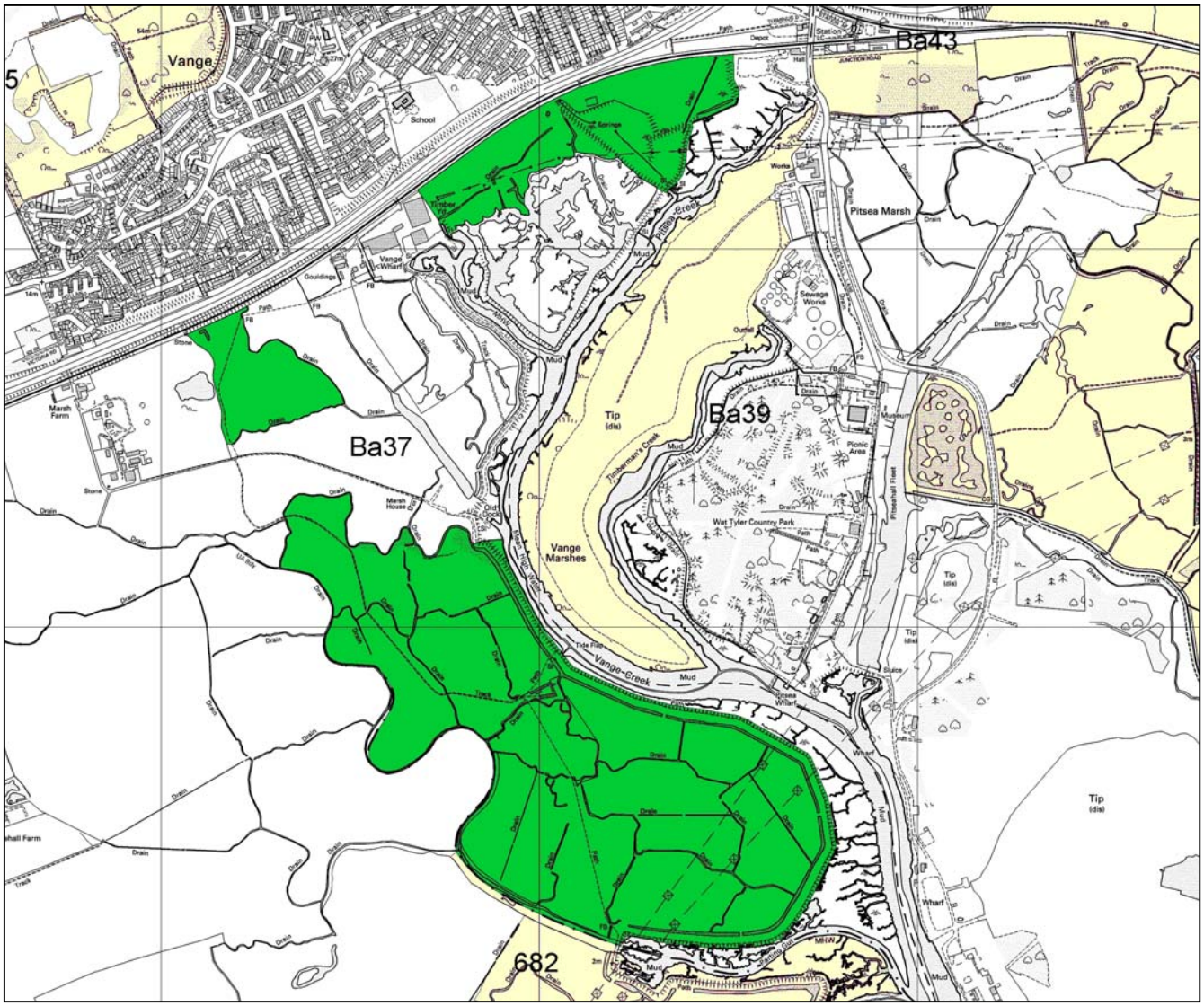





**Ba36. Nuttons Wood (1.9 ha) TQ 719917**

This Pedunculate Oak (Quercus robur)-dominated wood contains a sub-canopy of coppiced Hazel (Corylus avellana) and Hawthorn (Crataegus monogyna). Of particular interest are a number of Wild Service Trees (Sorbus *torminalis*), indicating the probable ancient origins of this wood. Bramble (*Rubus fruticosus*), Red Campion (*Silene dioica*) and Bluebell (*Hyacinthoides non-scripta*) typify the ground flora. The site includes a small section of more recent but very similar woodland at its eastern end.

**Selection Criteria:** HCr1(b), HCr2(a)






## Ba37. Vange Creek Marshes (106.1 ha) TQ 730860

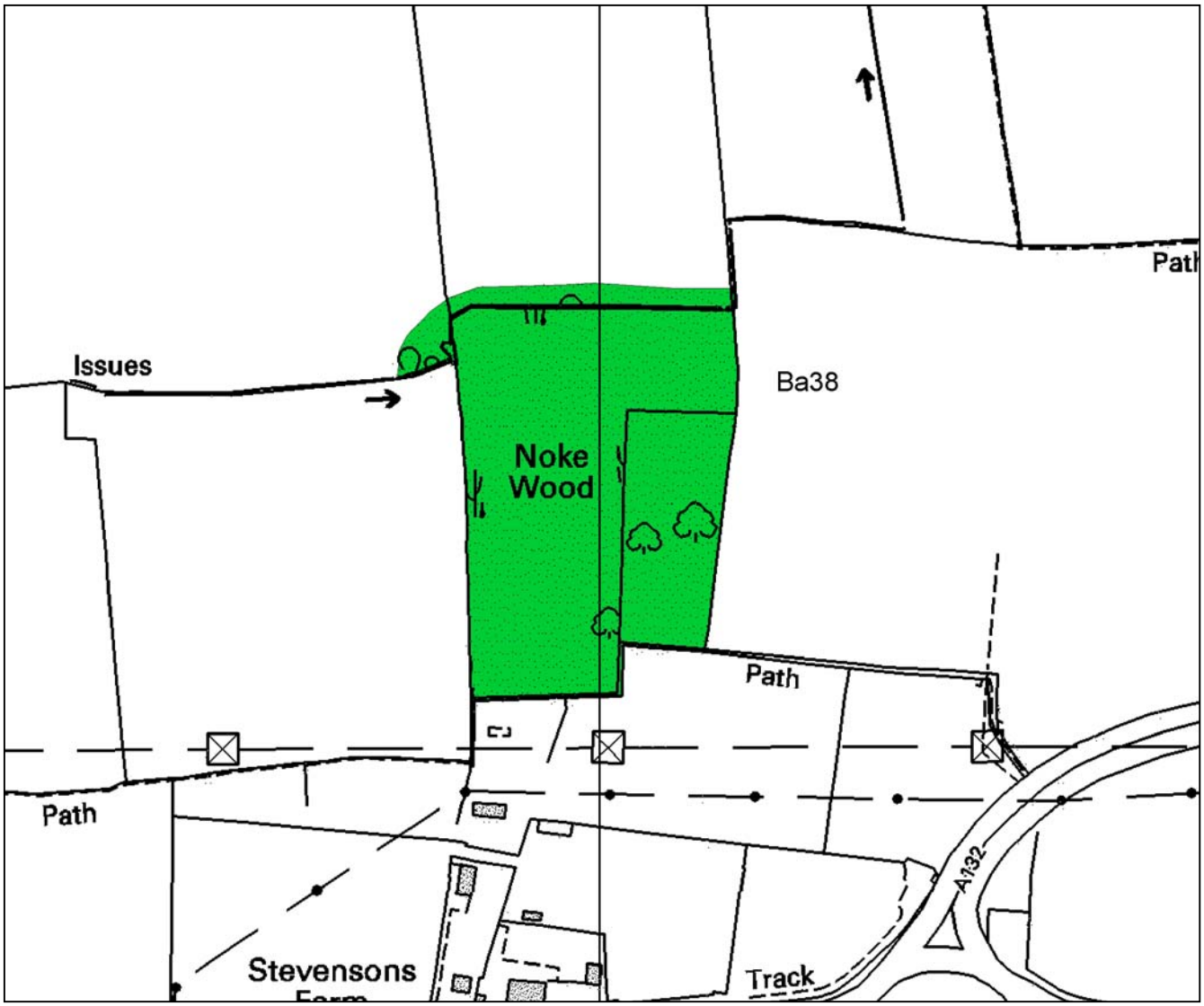
Lying on the alluvial flood plain of the Thames estuary, these two sections of grassland comprise remnant grazing-marsh with associated ditches, dykes and reedbeds supporting a diverse flora and fauna and providing a natural extension to the Vange and Fobbing Marshes SSSI. The section of grassland to the east of Vange Wharf has been modified since the Site's original identification as a SINC, by the creation of a complex of brackish to freshwater lagoons, cut by spits and bars of bare and poorly vegetated ground. This area is undoubtedly of value to coastal birds, but insufficient data does not allow for its designation at present. The remaining fragment of grassland here is very species-rich, with a sward of Common Bent-grass (*Agrostis capillaris*), Creeping Bent-grass (*A. stolonifera*), Crested Dog's-tail (*Cynosurus cristatus*), Meadow Barley (*Hordeum secalinum*) and Timothy-grass (*Phleum pratense* agg.). The herbage is very rich, with good quantities of Wild Carrot (*Daucus carota*), Black Knapweed (*Centaurea nigra*), Lady's Bedstraw (*Galium verum*), Autumn Hawkbit (*Leontodon autumnalis*), Narrow-leaved Bird's-foot Trefoil (*Lotus glaber*) and Hoary Ragwort (*Senecio erucifolius*).

Noteworthy plants such as Strawberry Clover (*Trifolium fragiferum*), Hairy Buttercup (*Ranunculus sardous*), Sea Clover (*Trifolium squamosum*), Slender Hare's-ear (*Bupleurum tenuissimum*) and Pepper Saxifrage (*Silaum silaus*) occur more sparingly. This flower-rich sward supports the national Biodiversity Action Plan bumblebees *Bombus humilis* and *B. sylvarum*, as well as the Nationally Scarce (Nb) bee *Melitta tricincta*. Overall, the invertebrate populations are likely to be very significant.

The second section of this Site lies to the south of Vange Wharf, beyond the SSSI grassland. At its northern end there is a damp area of rough grassland with scattered scrub. The vegetation is typified by the presence of Creeping Bent-grass (*Agrostis stolonifera*), Cock's-foot Grass (*Dactylis glomerata*), Common Couch (*Elymus repens*), Common Fleabane (*Pulicaria dysenterica*), Hoary Ragwort (*Senecio erucifolius*) and Stinging Nettle (*Urtica dioica*). This flower-rich, unintensively managed area is of value for invertebrates, such as grasshoppers, bush-crickets and orb-web spiders, that all require tall, structurally diverse grasslands to proliferate. A number of local and county scarce hoverflies have also been recorded.

The bulk of the site comprises grazing marsh to the south of Marsh House. The pastures comprise a mix of Meadow Barley, Crested Dog's-tail, Timothy-grass, Ryegrass (*Lolium perenne*) and Common Bent-grass. The seawall supports the nationally scarce Sea Barley (*Hordeum marinum*) and Slender Hare's-ear as well as Sea Wormwood (*Artemisia maritima*). Elsewhere, typical herbs include Yarrow (*Achillea millefolium*), Wild Carrot, Grass Vetchling (*Lathyrus nissolia*), Autumn Hawkbit, Strawberry Clover and Red Clover (*Trifolium pratense*). The ditches support locally abundant Reed (*Phragmites australis*). Again, the national BAP bumblebee *Bombus humilis* has been recorded here. Other, more typical invertebrates include the Nationally Scarce Ruddy Darter dragonfly plus Lesser Marsh Grasshopper and Roesel's Bush-cricket.

**Selection Criteria:** HCr16, SCr12

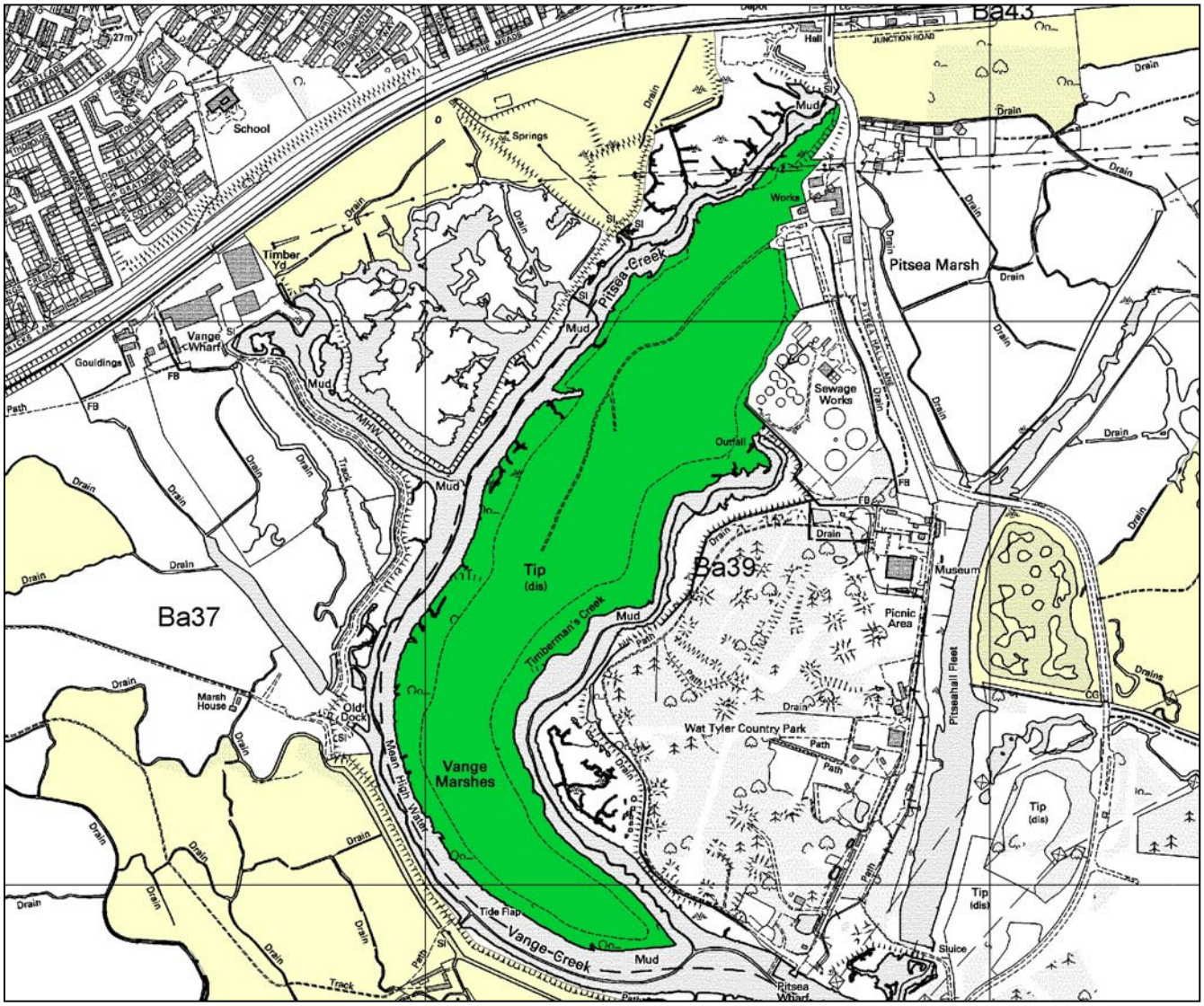





**Ba38. Noke Wood (4.3 ha) TQ 730915**

Noke Wood comprises both mature recent and possibly ancient woodland of predominantly Ash (*Fraxinus excelsior*) coppice and standards and coppiced Hazel (*Corylus avellana*). A stand of Wild Service Tree (*Sorbus torminalis*) is of note. An outstanding ground flora includes a rich mix of woodland species including Early Purple Orchid (*Orchis mascula*), Greater Butterfly Orchid (*Platanthera chlorantha*) and Common Spotted Orchid (*Dactylorhiza fuchsii*).

**Selection Criteria:** HCr1(b), HCr2(a)



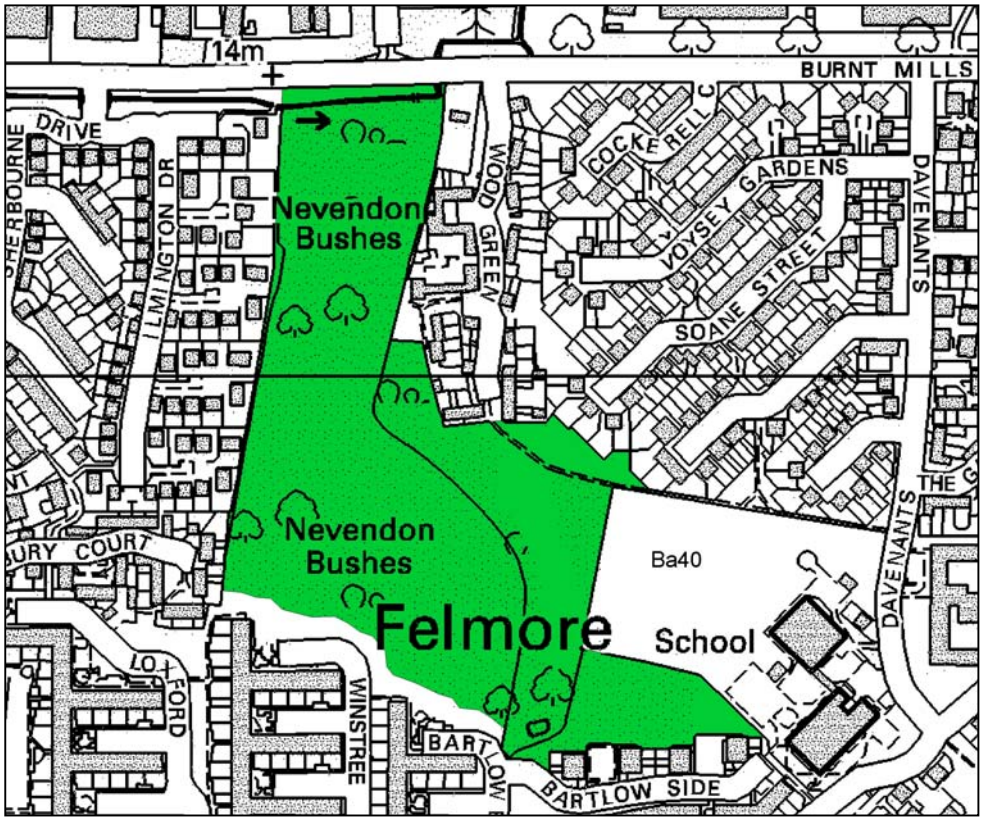



## Ba39. Pitsea Landfill (39.0 ha) TQ 732865

The area of rough grassland that has developed over this former landfill site now supports a very significant number of Common Lizards and Slow-worm, with Grass Snake and Adder also present.

The site also supports an interesting invertebrate fauna, including the Biodiversity Action Plan bumblebees *Bombus humilis* and *Bombus sylvarum.* Other notable (and Essex Red Data List) invertebrates include: the spiders *Singa hamata* and *Trachyzelotes pedestris* (both Nationally Scarce, Nb), the leaf beetle *Podagrica fuscipes* (Nationally Scarce, Na), the fly *Asiraca clavicornis* (Nb) and the Six-belted Clearwing Moth *Bembecia scopigera* (Nb).

**Selection Criteria:** HCr20, SCr4, SCr12



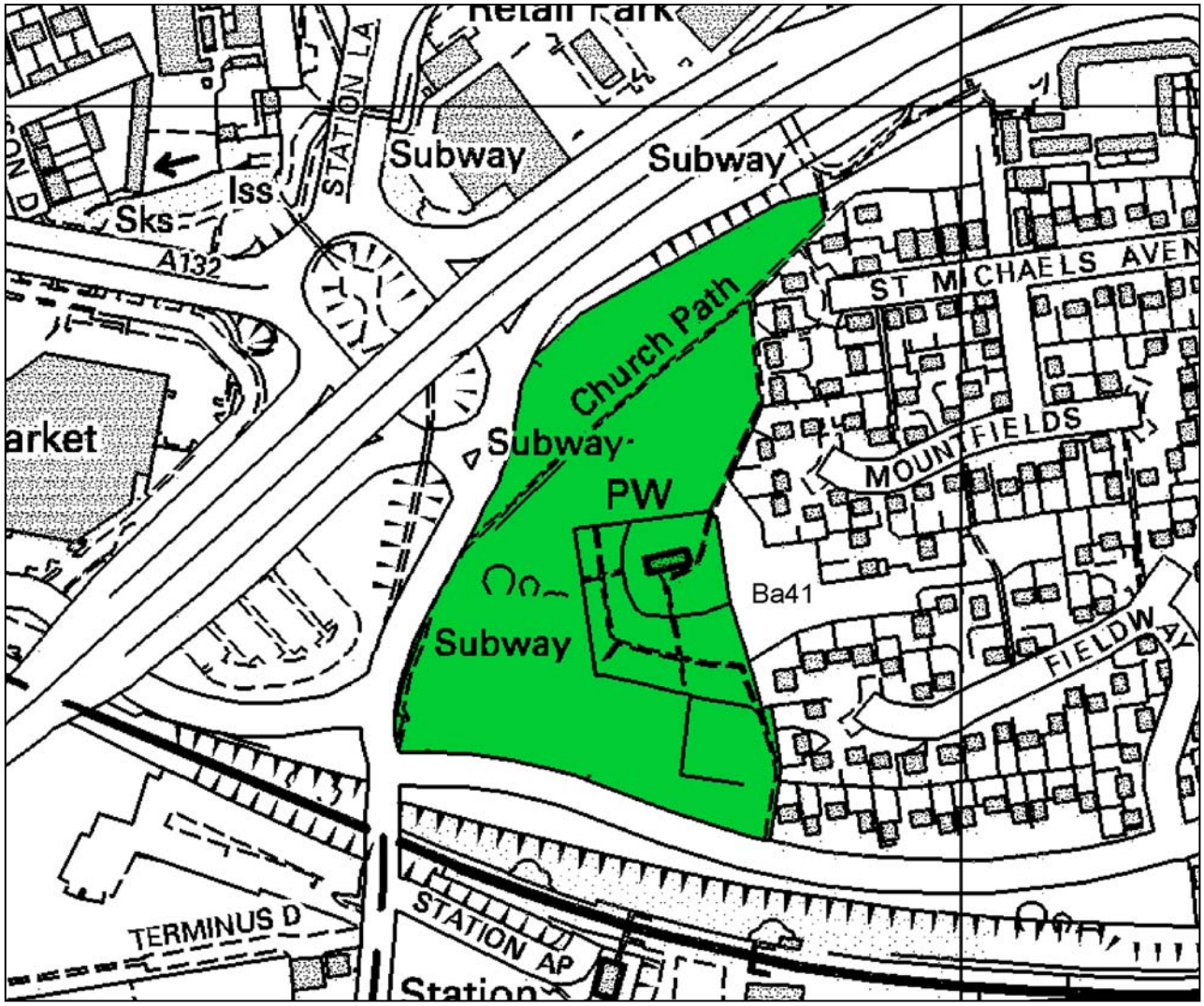



## Ba40. Nevendon Bushes (6.2 ha) TQ 736899

This site comprises the ancient Nevendon Bushes, plus an area of recent woodland and grassland on its eastern side, providing a valuable wildlife habitat in an urban environment. The majority of the woodland canopy comprises Ash (*Fraxinus excelsior*) and Field Maple (*Acer campestre*), with a greater quantity of Pedunculate Oak (*Quercus robur*) towards the east. The understorey comprises suckering Elm (*Ulmus* spp.) and a scattered shrub layer of Hawthorn (*Crataegus monogyna*), with Wild Service Tree (*Sorbus torminalis*) also present. The ground flora is dominated by Bramble (*Rubus fruticosus*) and Ivy (*Hedera helix*) but also includes Red Campion (*Silene dioica*), Wood Anemone (*Anemone nemorosa*), Wood Avens (*Geum urbanum*) and Wood False Brome (*Brachypodium sylvaticum*). A small pond adds to the habitat diversity, although this is becoming choked with the exotic *Hydrocotyle ranunculoides*, as well as the native Floating Sweet-grass (*Glyceria fluitans*).

The recent scrub and woodland extension to the east is variable in composition. At the south-eastern extremity, the canopy is very similar to that of the main wood, with Field Maple, Hawthorn, Ash and Pedunculate Oak over abundant Ivy, with some Wood Millet (*Milium effusum*), Giant Fescue (*Festuca gigantea*) and other woodland herbs. Blackthorn (*Prunus spinosa*) is locally abundant and this comprises the main shrub species to the north of the recent woodland extension. This advancing scrub is invading a former grassland site, with a central path now effectively forming a "woodland glade" or ride through the scrub wood. The remaining grassland is still flower-rich and includes Black Knapweed (*Centaurea nigra*), Tufted Hair-grass (*Deschampsia cespitosa*), Wild Carrot (*Daucus carota*), Meadow Vetchling (*Lathyrus pratensis*) and Red Bartsia (*Odontites verna*).

**Selection Criteria:** HCr1(a), HCr2(a), HCr6(b)





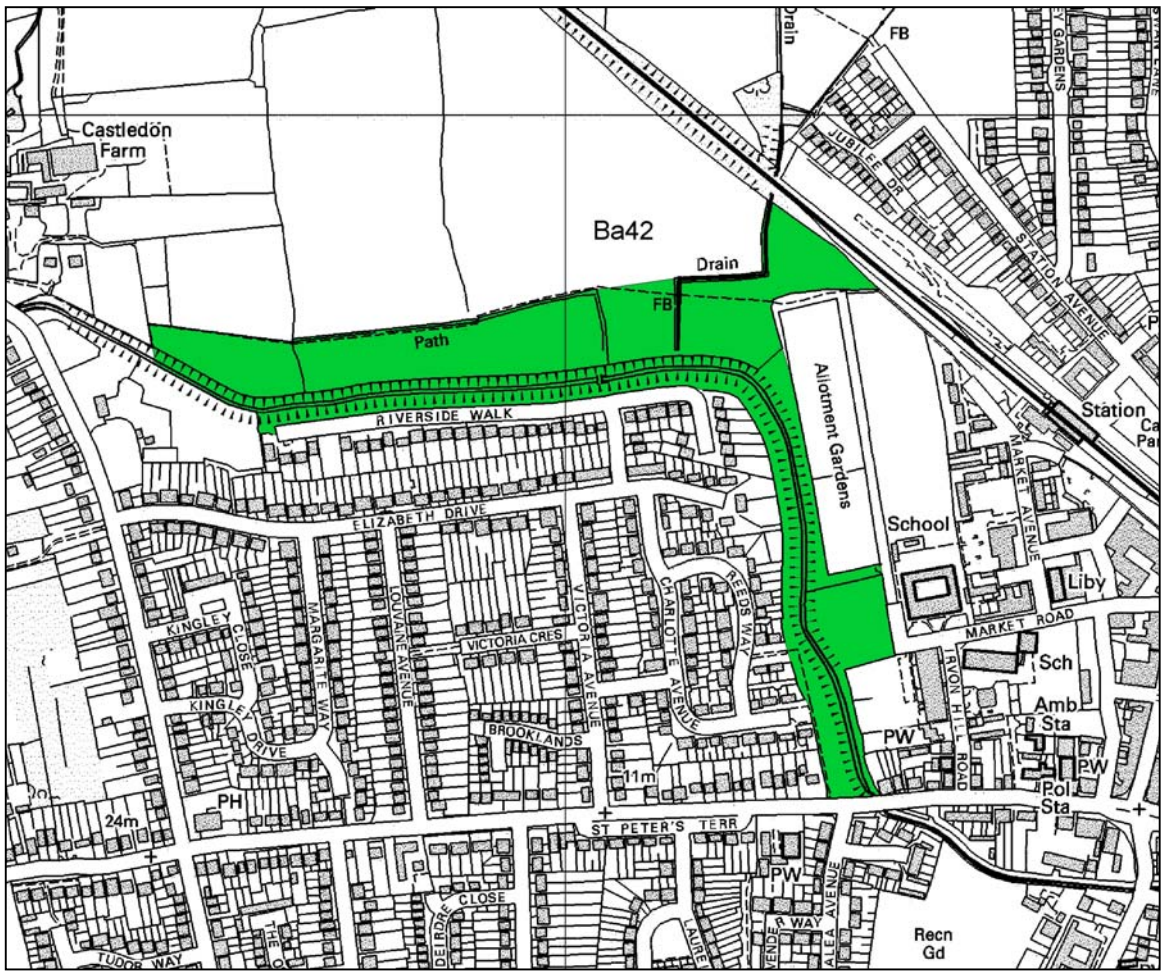

## Ba41. Pitsea Mount (3.3 ha) TQ 738877

This site comprises sections of former plotland habitat, featuring a wide variety of fruit trees, flower-rich grassland and a redundant churchyard. The grass sward is typified by the presence of Meadow Foxtail (*Alopecurus pratensis*), False Oat-grass (*Arrhenatherum elatius*), Crested Dog's-tail (*Cynosurus cristatus*), Meadow Barley (*Hordeum secalinum*), Meadow-grasses (*Poa* spp.) and Yorkshire Fog (*Holcus lanatus*), whilst herbs include Black Knapweed (*Centaurea nigra*), Lady's Bedstraw (*Galium verum*), Grass Vetchling (*Lathyrus nissolia*), Autumn Hawkbit (*Leontodon autumnalis*), Corky-fruited Water-dropwort (*Oenanthe pimpinelloides*), Ox-eye Daisy (*Leucanthemum vulgare*) and clovers (*Trifolium* spp.).

The site has a very important invertebrate fauna, including the national Biodiversity Action Plan bumblebee *Bombus humilis*, the Nationally Scarce (Na) digger wasp *Crossocerus binotatus* at only its second Essex site in

over a century, the national Biodiversity Action and Red Data Book (RDB2) hoverfly *Doros profuges* (its first Essex record for over 20 years) and the scarce Essex butterfly, the Marbled White.

**Selection Criteria:** HCr6(c), HCr11, SCr12

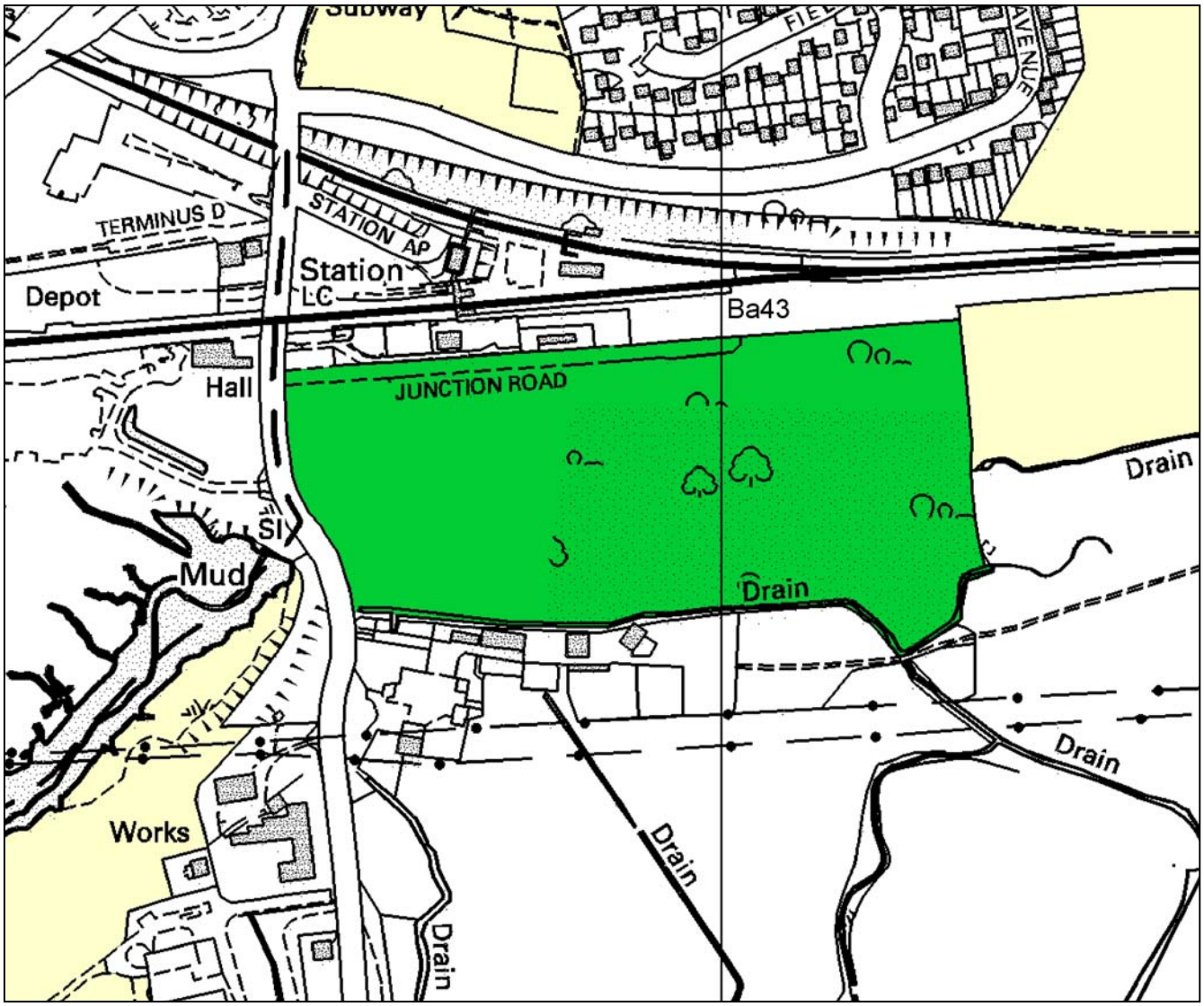





## Ba42. Wickford Meadows (9.1 ha) TQ 740938

This Site has been extended from its original size to incorporate a series of rough grasslands adjacent to the River Crouch, forming a significant areas of unintensively managed grasslands and a river corridor that helps bring wildlife into Wickford town centre. The site is also well-used by local residents as a walkway into the urban centre. A good mix of grass and herb species includes Tufted Hair-grass (*Deschampsia cespitosa*), Crested Dog's-tail (*Cynosurus cristatus*), Red Fescue (*Festuca rubra*), Yorkshire Fog (*Holcus lanatus*), Meadow Foxtail (*Alopecurus pratensis*), Lady's Smock (*Cardamine pratensis*), Black Knapweed (*Centaurea nigra*), Bird's-foot Trefoil (*Lotus corniculatus*), Bulbous Buttercup (*Ranunculus bulbosus*) and Burnet Saxifrage (*Pimpinella saxifraga*). A ruderal component in the vegetation helps to ensure that there is a long flowering season across the site, providing early spring nectar and pollen for insects such as the Tawny Mining Bee (*Andrena fulva*) and bumblebees such as *Bombus terrestris.* Common Lizard can be found in the rougher grassland areas. Together with the River Crouch and its marginal vegetation, which includes Branched Bur-reed (*Sparganium erectum*) and Reed Canary-grass (*Phalaris arundinacea*), this site provides a valuable habitat for insects, mammals and birds, being one of the few species-rich grasslands remaining along the River Crouch.

**Selection Criterion:** HCr30. Note: This category is a sum total of several “near misses” under HCr13, HCr14, SCr5. The role of the site as a wildlife corridor and a much-used human corridor in an urban environment is also relevant, citing the influence of the Urban Habitats Biodiversity Action Plan.

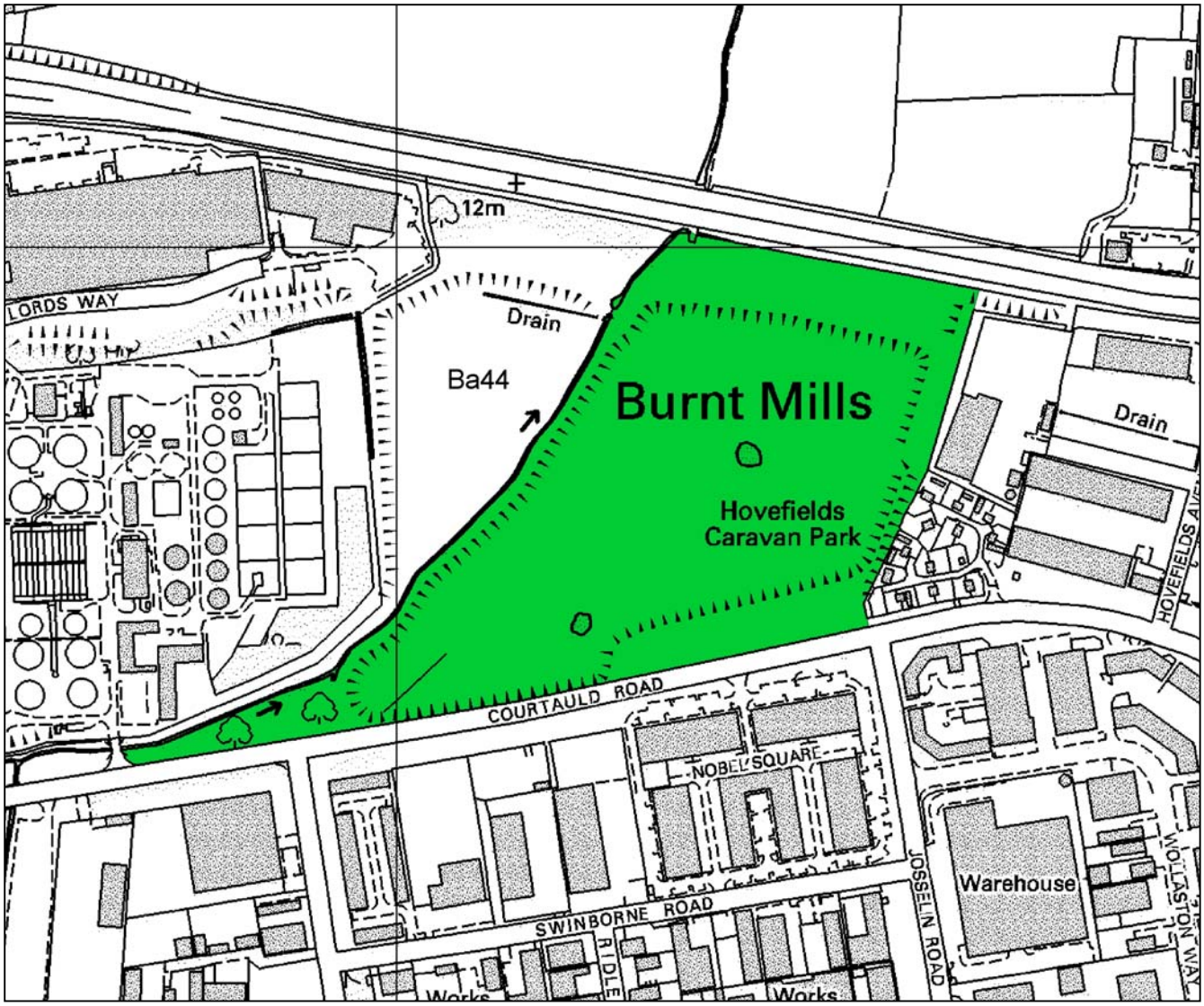





**Ba43. "Untidy Industries" Site (7.3 ha) TQ 741874**

This "brownfield" site amply demonstrates the ecological value of such land. Recent surveys have shown the presence of nine nationally threatened Red Data Book species, plus a further 41 Nationally Scarce species. This invertebrate assemblage is supported by the environmentally stressed but flower-rich disturbed ground at the western end of the site and also the rougher grassland and scrub towards the east. The two national Biodiversity Action Plan bumblebees *Bombus humilis* and *B. sylvarum* have been recorded. It is thought that the combination of large expanses of flower-rich grassland for foraging and rough grassland bordering scrub for nesting is vital for the survival of these species.

**Selection Criteria:** HCr20, SCr12

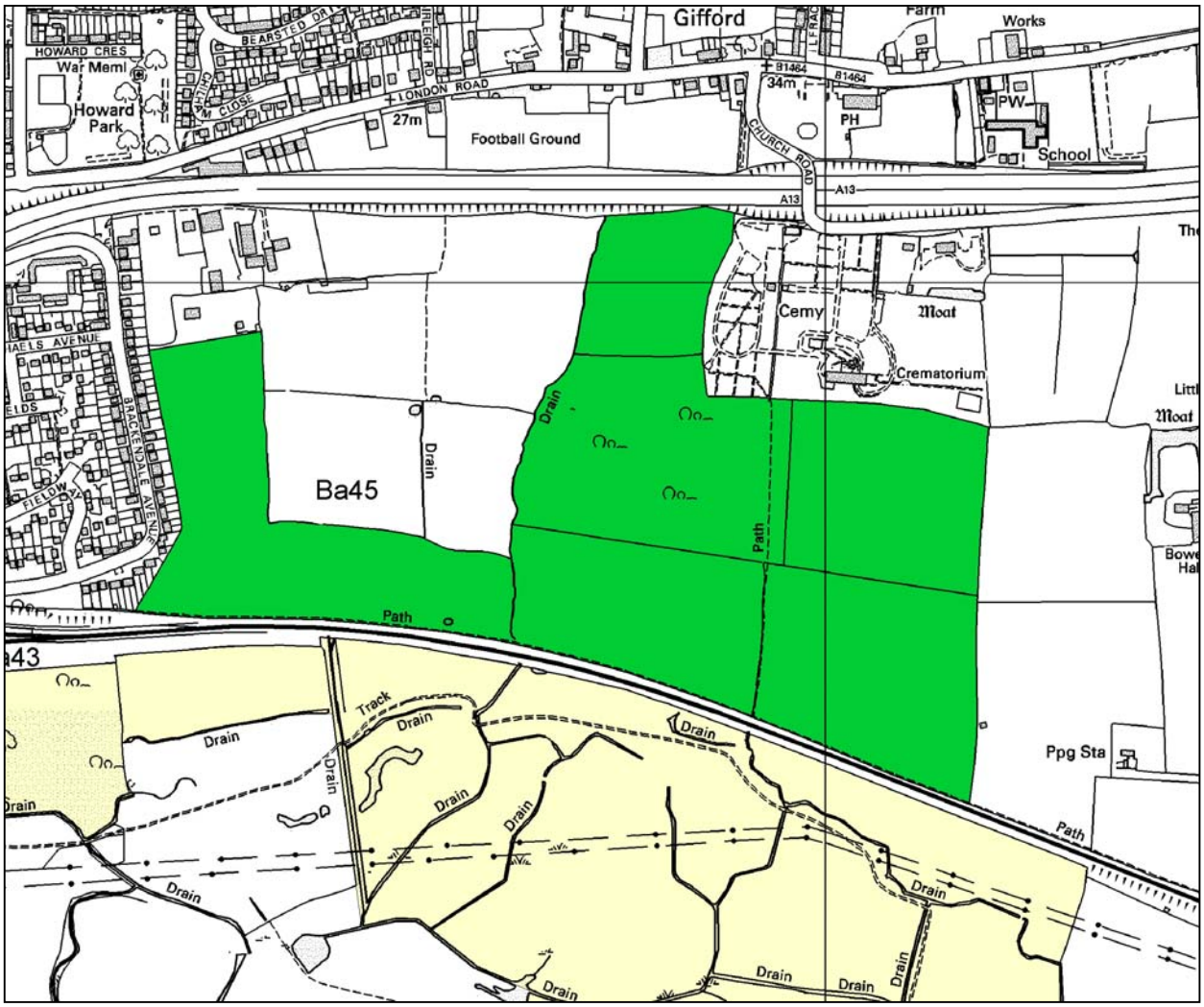





**Ba44. Burnt Mills (11.5 ha) TQ 743908**

This large, poorly drained site contains a good mix of wet grassland species, with a strip of marshy grassland beside the western boundary ditch being of particular interest. Here, Tufted Hair-grass (*Deschampsia cespitosa*), False Fox Sedge (*Carex otrubae*), Soft Rush (*Juncus effusus*) and Jointed Rush (*Juncus articulatus*) dominate the flora. The poor soil, possibly the result of topsoil removal, typifies the rest of the site and is reflected by a diverse mix of herbs, grasses and sedges including Glaucous Sedge (*Carex flacca*), Hairy Sedge (*Carex hirta*) and Pepper Saxifrage (*Silaum silaus*). The wetland habitats are important for its amphibian populations, whilst the flower-rich grassland is also thought to be of significance for its invertebrates. As an engineered flood pound area, its ecology can to an extent, be likened to that of older river flood plain grasslands.

**Selection Criteria:** HCr12, HCr13, HCr14 (of sorts), SCr1, SCr12



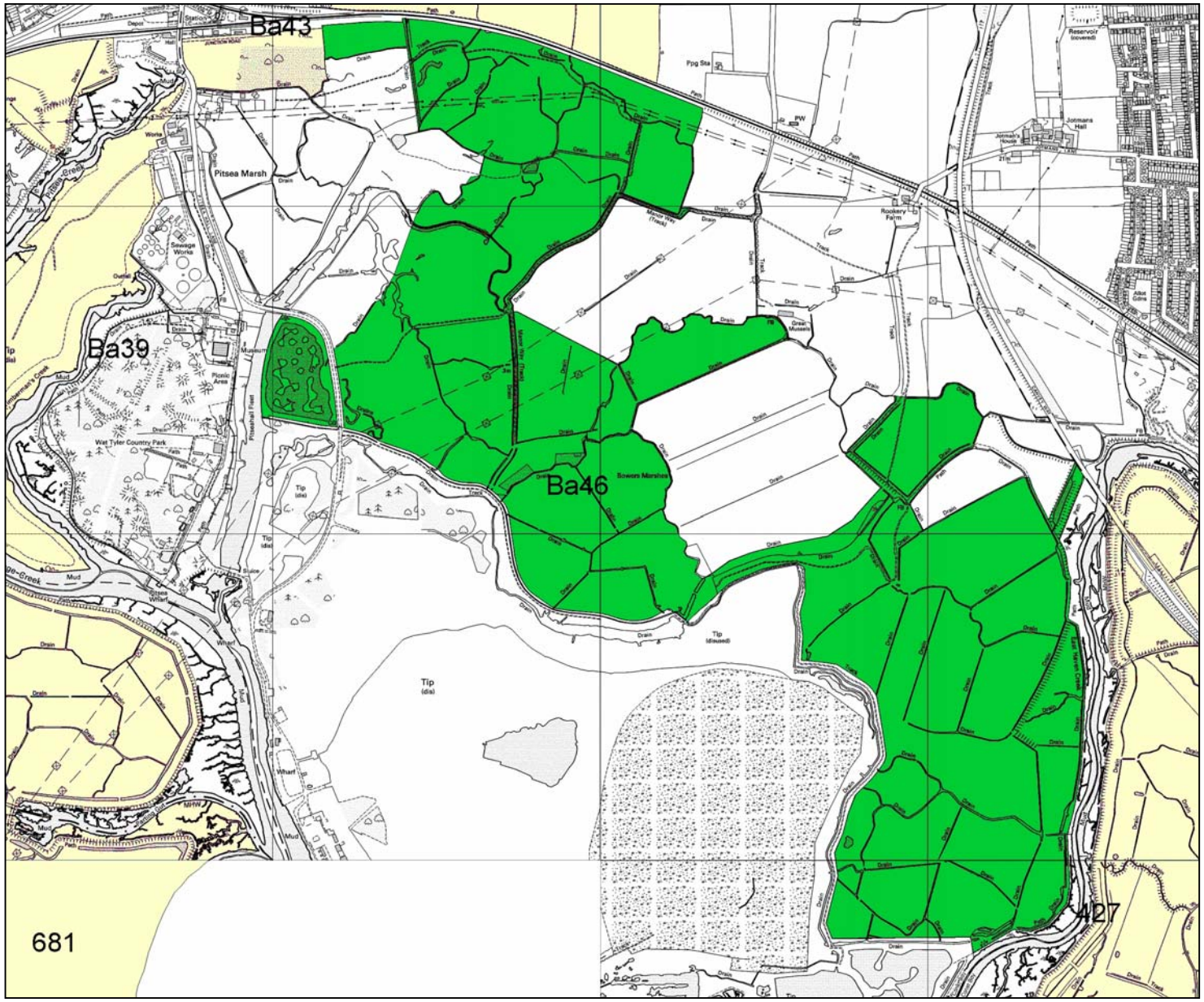



## Ba45. Bowers Gifford Grasslands (31.9 ha) TQ 747875

This series of unintensively managed hill-slope grasslands is flower-rich, is likely to support interesting invertebrate populations and, despite the intervening railway line, provides a semi-natural extension to the grasslands and marshes to the south. Its principal point of interest is the large population of Hairy Vetchling (*Lathyrus hirsutus*) spread across the lower slopes. Although there is no universal consensus on whether or not this plant is truly native to Britain, it has been known in south Essex for centuries and is clearly well at home on the dry grassy slopes of the north Thames estuary in Essex.

The sward elsewhere comprises a mixture of Creeping Bent-grass (*Agrostis stolonifera*), Crested Dog's-tail (*Cynosurus cristatus*), Meadow Barley (*Hordeum secalinum*), Timothy-grass (*Phleum pratense* agg.) and Meadow-grasses (*Poa* spp.). The herbs include unusually large quantities of Grass Vetchling (*Lathyrus nissolia*), plus Creeping Thistle (*Cirsium arvense*), Wild Carrot (*Daucus carota*), Autumn Hawkbit (*Leontodon autumnalis*), Red Bartsia (*Odontites verna*), Corn Parsley (*Petroselinum segetum*), Hairy Buttercup (*Ranunculus sardous*) and Common Fleabane (*Pulicaria dysenterica*).

Selection Criteria: **HCr11, SCr13**



Ba46. Bowers Marshes (235.4ha) TQ 750860

This Site incorporates the former Pitseahall Lake SINC. This lake has been excavated to encourage breeding and overwintering waders and has already attracted many species such as Redshank, Lapwing and Ringed Plovers. Its ecological value lies in its close proximity to the intertidal habitats of Vange Creek, the wetlands of Pitseahall Fleet and the grasslands that comprise the bulk of this site.

The grasslands in the northern unit, adjacent to the railway line, comprise a mosaic of grazing land, wet drains, Reed (*Phragmites australis*) beds and Sea Club-rush (*Scirpus maritimus*) swamp. The grassland sward is patchy in composition, with Common Couch-grass (*Elymus repens*), Ryegrass (*Lolium perenne*), Creeping Bent-grass (*Agrostis stolonifera*), Marsh Foxtail (*Alopecurus geniculatus*), Crested Dog's-tail (*Cynosurus cristatus*) and Meadow Barley (*Hordeum secalinum*) all attaining localised abundance. The herb layer is of note for the abundance of Red Bartsia (*Odontites verna*), which supports foraging bumblebees including *Bombus humilis* and *B. sylvarum*, both national Biodiversity Action Plan species. The Manor Way, an old trackway, is included within this part of the site. As well as providing additional foraging habitat for invertebrates and food and cover for birds, its form provides a useful windbreak for wintering birds on the open marshes. The weedy but flower-rich central track provides good feeding areas for small birds as well as attracting a variety of butterflies, including Small White, Common Blue and Small Tortoiseshell.

A total of 27 species of grass and over 65 species of herb has been recorded from the main body of marshes to the north of the landfill site. Species of note include the Nationally Scarce Stiff Saltmarsh-grass (*Puccinellia rupestris*), Hairy Buttercup (*Ranunculus sardous*), Narrow-leaved Bird's-foot Trefoil (*Lotus tenuis*) and plentiful Grass Vetchling (*Lathyrus nissolia*).

The ditch flora is also diverse, with Marsh Speedwell (*Veronica scutellata*) being of note, as a scarce Essex plant. Other species that are present and are characteristic of grazing marsh drains include Soft Hornwort (*Ceratophyllum submersum*), Fat Duckweed (*Lemna gibba*), Brackish Water-crowfoot (*Ranunculus baudotii*) and Fennel Pondweed (*Potamogeton pectinatus*). However, one of the most important features is the collective quantity of Reed (*Phragmites australis*), forming linear but extensive bands of reedbed, a biodiversity Action Plan habitat, which is of value for breeding birds and also a number of Reed-dependent invertebrates.

The ditch invertebrates themselves are of great importance, with several nationally threatened Red Data Book and Nationally Scarce species having been recorded. These include the beetles *Graptodytes bilineatus, Ochthebius pusillus, Enochrus halophilus* and *Limnoxenus niger*, the shore bug *Saldula opacula*, the midge *Dixella attica* and the Scarce Emerald Damselfly (*Lestes dryas*).

Other features of interest include the scattered population of Water Vole (a BAP species), Adder, Common Lizard and breeding Skylark.

Selection Criteria: **HCr16, HCr28, SCr10, SCr12**

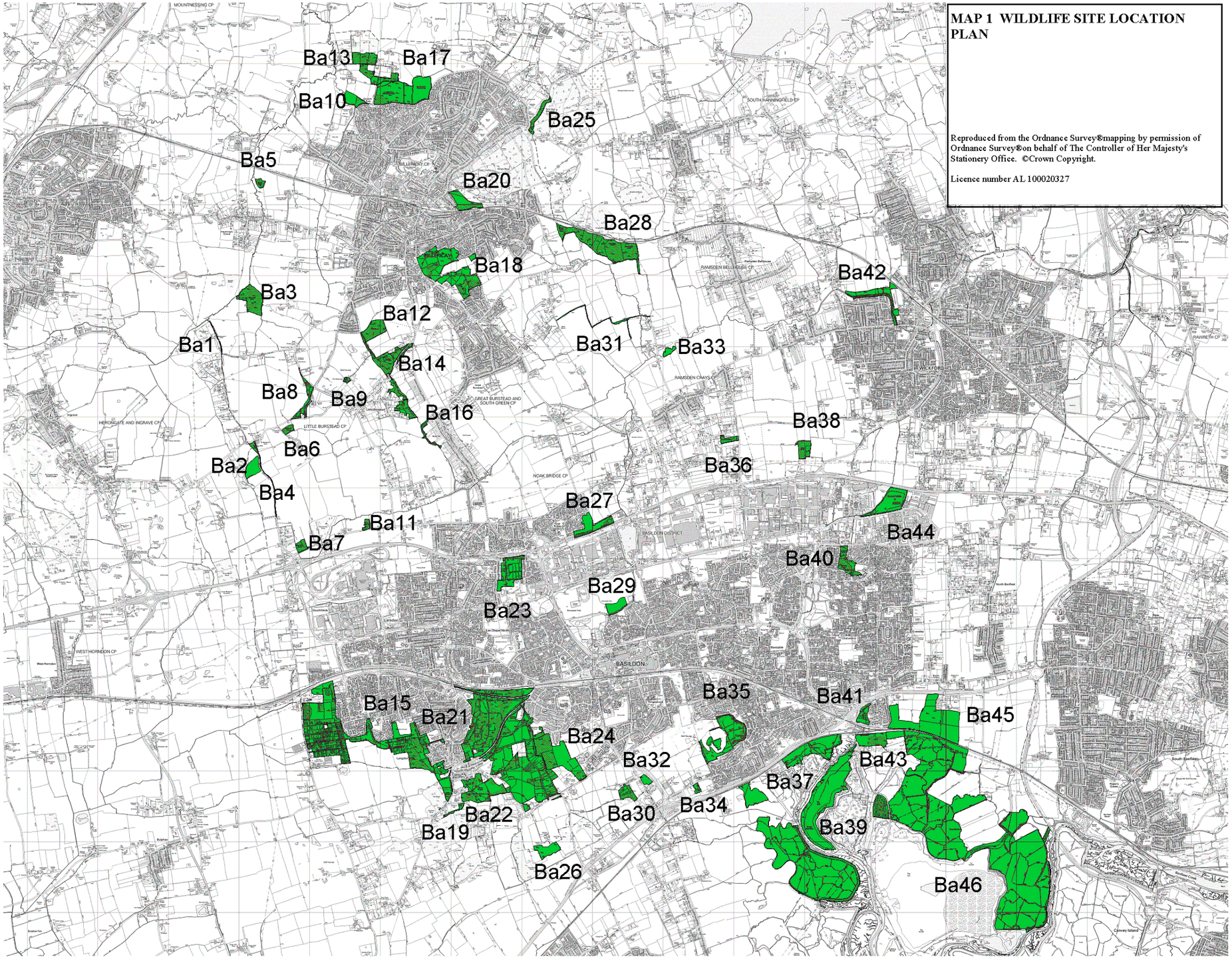
**APPENDIX 7**
**SUMMARY TABLE OF WILDLIFE SITES**

| Code Reference | Site Name | Area (ha) | Grid |
|---|---|---|---|
| Ba1. 647931 | Blind Lane | 0.3 | TQ |
| Ba2. 651912 | Parkhill Wood Meadow | 4.0 | TQ |
| Ba3. 652937 | Bluntswall Wood | 9.4 | TQ |
| Ba4. 653913 | St. Margarets Wood and Lane | 2.0 | TQ |
| Ba5. 653953 | Round Wood | 1.3 | TQ |
| Ba6. 657918 | Botneyhill Wood | 1.4 | TQ |
| Ba7. 659902 | Gravelpit Wood | 2.1 | TQ |
| Ba8. 660923 | Little Burstead Common | 4.0 | TQ |
| Ba9. 665925 | The Wilderness | 0.6 | TQ |
| Ba10. 666965 | Queens Park Meadow | 4.0 | TQ |
| Ba11. 668905 | Poles Wood | 1.1 | TQ |
| Ba12. 669932 | Frith Wood | 6.3 | TQ |
| Ba13. 669969 | Buckwyn's Wood | 11.3 | TQ |
| Ba14. 671928 | Laindon Common | 10.0 | TQ |
| Ba15. 673875 | Langdon Hills Recreation Ground | 2.4 | TQ |
| Ba16. 674921 | Little Burstead Woods | 8.2 | TQ |
| Ba17. 674966 | Queen’s Park Country Park | 24.1 | TQ |
| Ba18. 680941 | Mill Meadows LNR | 29.8 | TQ |
| Ba19. 682864 | Coombe Wood Extensions | 1.1 | TQ |
| Ba20. 682951 | Norsey Meadow | 6.1 | TQ |
| Ba21. 683874 | Langdon Complex | 213.1 | TQ |
| Ba22. 684867 | Westley Heights | 15.7 | TQ |

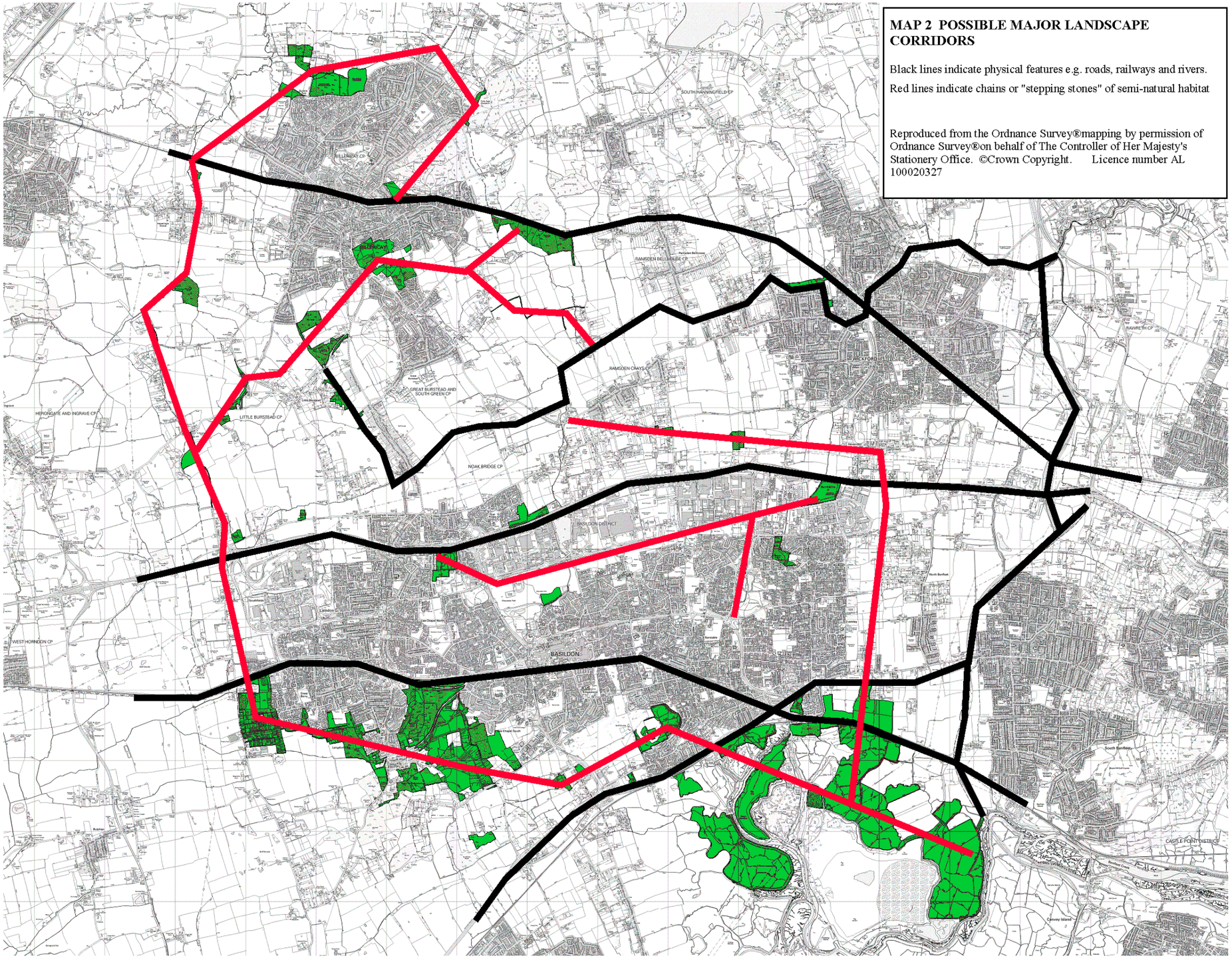
| | | | |
|---|---|---|---|
| Ba23. | St. Nicholas Church Complex | 11.9 | TQ 688896 |
| Ba24. | Dry Street Pastures | 20.8 | TQ 693874 |
| Ba25. | Forty Acre Plantation | 3.1 | TQ 693964 |
| Ba26. | "Kennels Wood" | 4.7 | TQ 694859 |
| Ba27. | Noak Bridge Reserve | 7.7 | TQ 700905 |
| Ba28. | Moses' Spring/Barrenleys/Claypitshills Woods | 24.4 | TQ 701944 |
| Ba29. | Gloucester Park Meadow | 4.1 | TQ 703893 |
| Ba30. | Hawkesbury Manor | 3.6 | TQ 705867 |
| Ba31. | Parsonage Farm Green Lane | 2.1 | TQ 705934 |
| Ba32. | Bells Hill Meadow | 1.5 | TQ 707868 |
| Ba33. | Crays Hall Meadow | 1.4 | TQ 711929 |
| Ba34. | All Saints Churchyard, Vange | 1.1 | TQ 715867 |
| Ba35. | Vange Hill | 19.6 | TQ 719874 |
| Ba36. | Nuttons Wood | 1.9 | TQ 719917 |
| Ba37. | Vange Creek Marshes | 106.1 | TQ 730860 |
| Ba38. | Noke Wood | 4.3 | TQ 730915 |
| Ba39. | Pitsea Landfill | 39.0 | TQ 732865 |
| Ba40. | Nevendon Bushes | 6.2 | TQ 736899 |
| Ba41. | Pitsea Mount | 3.3 | TQ 738877 |
| Ba42. | Wickford Meadows | 9.1 | TQ 740938 |
| Ba43. | “Untidy Industries” Site | 7.3 | TQ 741874 |
| Ba44. | Burnt Mills | 11.5 | TQ 743908 |
| Ba45. | Bowers Gifford Grasslands | 31.9 | TQ 747875 |
| Ba46. | Bowers Marshes | 235.4 | TQ 750860 |

# APPENDIX 8

# CITATIONS FOR SSSIs IN BASILDON DISTRICT




**MAP 1 WILDLIFE SITE LOCATION PLAN**




**MAP 2 POSSIBLE MAJOR LANDSCAPE CORRIDORS**

Black lines indicate physical features e.g. roads, railways and rivers.

Red lines indicate chains or "stepping stones" of semi-natural habitat