BRENTWOOD BOROUGH COUNCIL

LOCAL WILDLIFE SITE REVIEW 2012

FINAL

December 2012

ANNEX REPORT 1

LOCAL WILDLIFE SITE SELECTION CRITERIA

Produced by the Essex Local Wildlife Sites Partnership

Published by Essex Wildlife Trust

Second Edition June 2009

Revised January 2010

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ACKNOWLEDGEMENTS

These selection criteria have resulted from the input of a number of people and organisations throughout Essex. The work of the original Wildlife Site review panel[1] was particularly important and led to the production of the County's first selection criteria by Adrian Knowles, working for the Essex Wildlife Trust's consultancy, EECOS. These were the starting point for the current document, which has been developed in light of consultation and feedback from a wide range of people. The following made particularly important contributions:

- Andrew May, Conservation Manager, Essex Wildlife Trust
- Charlie Williams, Conservation Officer, Natural England
- Darren Tansley, Water for Wildlife Officer, Essex Wildlife Trust
- EECOS staff, notably Neil Harvey, Colin Austin and Pat Hatch
- Emma Simmonds, Countryside and Ecology Officer, Essex County Council
- Jerry Bowdrey, Curator (Natural History), Colchester Museums
- John Thorogood & Alan Shearring, Essex Birdwatching Society
- Leonie Alpin, Principal Planning Officer, Basildon District Council
- Mark Iley, Biodiversity Project Officer, Essex Biodiversity Project
- Matthew Winslow, Planning Officer, Basildon District Council
- Peter Harvey, Consultant Entomologist, and County Recorder for a number of invertebrate groups within the Essex Field Club
- Will Akast, Technical Officer Fisheries, Recreation and Biodiversity, Environment Agency

In addition, financial support towards the cost of publication was provided by the Environment Agency. Finally, we would like to thank Robert Hutchinson, Ursula Broughton and Genevieve Broad whose help was invaluable in preparing the final document for publication.

Luke Bristow

Wildlife Sites Officer, Essex Wildlife Trust, April 2008

Second Edition edited by Adrian Knowles, EECOS, June 2009

Minor corrections and amendments made January 2010

1 The panel met for a series of meetings between 1998 - 1999

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1 INTRODUCTION

1.1 Essex is one of the most populous counties in England, and surrounding the busy towns much of the countryside is now under arable cultivation. Despite this, it remains important for wildlife. In particular, it has one of the largest coastlines of any county stretching to over 300 miles, much of which supports internationally important numbers of over-wintering wildfowl and wading birds.

1.2 Our largest river, the Backwater Estuary, is recognised by WWF as one of the top five marine biodiversity hotspots in the UK. Away from the coast there are several large forests of national and international significance, most notably Epping Forest and Hatfield Forest, with numerous ancient veteran trees. Furthermore, the oxlip woods of the north-west are among the best preserved and bio-diverse in eastern England. Similarly, south Essex is home to a significant proportion of the UK's ancient Hornbeam woods. Finally, the Thames valley supports unique and rich assemblages of invertebrates.

1.3 A considerable proportion of this important resource is protected by statutory national and international designation. However, much has no such legal protection and their continued survival is ensured largely as a result of their recognition as 'non-statutory' wildlife sites within the local planning system.

1.4 The publication of *'Local Sites: Guidance on their Identification, Selection and Management'* by the Government's Department for Environment, Food and Rural Affairs (Defra) in 2006 demonstrated the need to review the existing protocols and selection criteria used to identify non-statutorily protected Wildlife Sites within the county. This presented an opportunity to consult widely with the 'biodiversity' and 'planning' communities who have typically been the principal users of the criteria, and to revise them in light of the new national guidance. This exercise was coordinated by the Essex Wildlife Site Project (EWSP) and supported by its Advisory Group.

1.5 Defra's guidance sets out the role and value of Local Sites, namely:

- *Local Site systems should select all areas of substantive nature conservation value;*
- *Local Sites networks should provide a comprehensive, rather than representative, suite of sites. This means that there should be a presumption that ALL sites meeting the selection criteria would be selected;*
- *Local Sites provide wildlife refuges for most of the UK's fauna and flora and through their connecting and buffering qualities, they complement other site networks;*
- *Local Sites have a significant role to play in meeting overall national biodiversity targets;*
- *Local Sites represent local character and distinctiveness; and*
- *Local Sites contribute to the quality of life and the well-being of the community, with many sites providing opportunities for research and education.*

1.6 Defra recommends the use of a standard name: 'Local Wildlife Site' (LoWS) for all non-statutory sites of biological interest, which is adopted in these criteria. Similarly, those sites of geological interest (which might previously have been referred to as Regionally Important Geological/Geomorphological sites, RIGS) can be referred to as Local Geological Sites. The use of the word 'Local' might seem to devalue sites previously referred to as being of 'County' importance. However, this change ensures consistency with national guidance and associated policy documents such as Planning Policy Statement 9[2] (PPS9), but does not alter their value which remains unchanged: '**LoWS are Wildlife Sites of County Importance**'.

1.7 Another important change from previous criteria is the omission of Sites of Special Scientific Interest (SSSI), which are now deemed to be outside the LoWS system. There are valid arguments for and against this decision, but the stance taken is in line with Defra guidance. There is a danger of assuming that LoWS are therefore

2 Planning Policy Statement 9: Biodiversity and Geological Conservation, ODPM, August 2005

in some way “inferior” to SSSIs, but this attitude should be strongly resisted. It is accepted by Natural England that the SSSI network identifies only a representative selection of sites exhibiting any particular nature conservation feature, giving rise to the possibility of other SSSI-grade sites not actually being afforded SSSI designation because they merely duplicate that nature conservation interest. Such sites ought to be identified within the LoWS system and are arguably of national interest albeit lacking the formal designation as such. Other LoWS are recognised as being of lower quality than an adjacent SSSI but providing a valuable buffering or habitat extension role. Thus, the roles and importance of SSSIs and LoWS can be subject to great overlap and interdependence and LoWS should not be too lightly dismissed as “second tier” sites. Notwithstanding this, geological SSSIs will still be considered where they merit selection on nature conservation interest alone.

1.8 Formerly in Essex, Local Nature Reserves (LNRs) were automatically included within the LoWS network. LNRs embrace a wide range of nature conservation values and educational benefits, both of which are of importance to LoWS systems and it is expected that most LNRs will be identified as LoWS. However, this will be done with specific reference to the nature of the wildlife or education value of the site rather an automatic consequence of its designation as an LNR.

1.9 Despite the coverage of Local Geological Sites in the recent Defra guidance, no attempt has been made in this document to produce criteria to enable their selection. It was felt the current Essex Wildlife Sites Project did not have sufficient expertise or resources to address these sites adequately. This position will be reviewed should circumstances become more favourable in the future, with the hope that a complimentary document to this will be published to support the selection of ‘Local Geological Sites.’ The lead group considering sites of local geological importance in Essex is “GeoEssex” and they should be consulted in all matters relating to the conservation of geodiversity.

1.10 However, geologically interesting sites will be considered where they merit selection on nature conservation interest alone and there can be a degree of

overlap in this respect. Exposures of sandy deposits, be they in a quarry or a naturally eroding coastal cliff, can display features of geological interest and provide bare ground nesting and foraging habitat for a characteristic array of invertebrates. A natural river channel with meanders, riffles and pools with natural bank profiles is likely to be of some geomorphological interest in Essex and would provide a complex suite of riverine habitats that would be expected to support a good biodiversity as a result.

1.11 In addition to the Defra guidance, the importance of a robust set of criteria for identifying Local Wildlife Sites is further underlined in PPS9, with paragraph 9 stating that:

> *"…Criteria-based policies should be established in local development documents against which proposals for any development on, or affecting, such* (Local) *sites will be judged. These policies should be distinguished from those applied to nationally important sites."*

In this respect, the "nationally important sites" referred to are SSSI, although as explained above some LoWS might rightly also be viewed as being of comparable national interest.

1.12 Therefore, these selection criteria provide the basis for local authorities in Essex, with responsibility for publishing Local Development Documents, to develop such policies. Furthermore, protecting Local Wildlife Sites underpins the Biodiversity Action Plan (BAP) process, and is a key way in which local authorities can deliver their duty to biodiversity outlined under the Natural Environment and Rural Communities (NERC) Act 2006.

2 HISTORY OF ESSEX WILDLIFE SITE SELECTION CRITERIA

2.1 The first comprehensive register of Local Wildlife sites (referred to at the time as SINCs – Sites of Importance for Nature Conservation) stemmed from a county-wide Phase I survey completed by Essex Wildlife Trust in the early 1990s, commissioned by the then Nature Conservancy Council (Now Natural England) and the majority of the 14 Local Authorities within Essex, with support also being provided by Essex County Council. Selection was based largely on habitat quality, and relied quite heavily on the 'professional judgement' of those involved in the fieldwork. The selection of sites was made more rigorous with the development in 2004[3] of a new set of criteria building on work completed by the Essex Review Panel back in 1999. This was the starting point for the current document, which introduces a standardised protocol for survey and selection, together with new and revised criteria in light of changes in national planning and nature conservation policy, and our understanding of certain species and habitats. For example, the appreciation of the importance of derelict "brownfield" sites for wildlife has altered significantly in recent years.

2.2 The objective was to produce a more robust set of criteria that clearly illustrate the rationale behind each site's selection. To facilitate this, a program of consultation with key stakeholders[4] was initiated in 2006 by the Essex Wildlife Sites Project (EWSP) culminating in the production of the first edition of this document in 2008. The EWSP is coordinated by Essex Wildlife Trust with support from an Advisory Group consisting of representatives from the following organisations: Essex County Council, Environment Agency, Natural England, Biological Records Initiative in Essex, Essex Field Club, Essex Planning Officers Association Planning Policy Forum and the Essex Biodiversity Project. At the time of writing (March 2009) this group is being reorganised as the Essex Local wildlife Sites Partnership (ELWSP).

3 EECOS contract for Chelmsford Borough Council review of Local wildlife Sites within the borough

4 See Acknowledgements

3 PROTOCOL FOR SURVEY, EVALUATION AND SELECTION

3.1 The original suite of Local Wildlife Sites in Essex, referred to as Sites of Importance for Nature Conservation (SINCs), were identified as part of a county-wide Phase I habitat survey[5] undertaken between 1987 and 1994 by Essex Wildlife Trust. Subsequently, LoWS have typically been selected as part of borough, district or unitary authority 'reviews' commissioned by the relevant local authority. This section aims to ensure all future reviews in Essex follow a standard '5 step' approach (see **Box 1**) which is consistent with national guidance.

Box 1 Local Wildlife Site Review '5 step' Process

1. Identification of potential sites for assessment:
   a. Consult EWSP 'potential' LoWS register;
   b. Complete local consultation.
2. Arranging access for survey
   a. Where possible, identify LoWS owners (e.g. land registry search);
   b. Strive to contact LoWS owners to arrange access for survey;
3. Site survey and assessment
   a. Field survey using standard EWSP monitoring form;
   b. Collate supporting data (e.g. biological records)
4. Site evaluation and selection
   a. Evaluate sites against selection criteria;
   b. Review candidate sites by Local Selection Panel;
   c. Endorsement by EWSP Advisory Group.
5. Notification
   a. Supply notification sheet to LoWS owners.

3.2 IDENTIFICATION OF POTENTIAL SITES FOR ASSESSMENT

3.2.1 The first step of any review should be to identify the sites to be visited during the field survey period. The Essex Wildlife Sites Project maintains a continually updated register of potential sites across the county, and this, together with the existing register of LoWS, should form the starting point of any review. It is also

5 Joint Nature Conservation Committee, (1993) Handbook for Phase 1 survey – a technique for environmental audit.

recommended that consultation is sought with local authorities, local people and organisations with an interest in nature conservation, to identify additional potential sites. This is best achieved through the various local wildlife/biodiversity groups and forums that meet in many of the local authority areas.

3.2.2 In some instances, reviews of LoWS may form part of a wider more detailed habitat study such as a Phase 1 habitat survey. In these cases further 'potential' sites may be discovered during the field survey period. None-the-less, the following process should still apply.

3.3 ARRANGING ACCESS FOR SURVEY

3.3.1 The Defra guidance states:

> *"Site owners should, whenever possible, be contacted and asked for access permission to survey and monitor sites. This initial engagement will provide an ideal opportunity to discuss the implications of the survey and potential site selection and offer an opportunity for the site owner to raise any issues."*

3.3.2 In light of this, the Essex Wildlife Sites Project view contacting landowners to arrange survey access as vitally important. When commissioning LoWS reviews, local authorities should ensure that sufficient resources and time are allocated for this important task. The Essex Local Wildlife Sites Partnership holds LoWS ownership details for some sites, but at the time of publication it is far from comprehensive. As a result, a land registry search may prove a particularly useful approach to adopt. Whilst not all land is registered, it does provide a legitimate context in which to write to landowners. Additional information on landownership is also likely to be gathered as part of the local consultation described in Para. 3.2.1. Furthermore, there is likely to be some merit in contacting organisations representative of particular groups of landowners, e.g. the National Farmers Union (NFU).

3.3.3 Contacting all landowners prior to survey may not always be practical or possible, but it is important to demonstrate that a reasonable effort has been

made. Local planning authorities may be able to provide legal 'Notices of Entry' to ecological surveyors, for the purpose of surveying, consistent with their powers under s.324 and s.325 of the Town and Country Planning Act (1990).

3.4 SITE SURVEY AND ASSESSMENT

3.4.1 Once a list of potential LoWS has been identified and reasonable effort has been made to contact the owners of each site, field survey work should be undertaken by a suitably experienced and competent ecologist. The survey period should be planned, where possible, to ensure that different habitats are surveyed during the appropriate season. For site assessments to be ecologically meaningful, they must be undertaken at the right time of year[6]. It is recommended that site assessments utilise the current version of the 'Local Wildlife Site Monitoring Form'[7].

3.4.2 Collating additional data, such as biological records, is an important part of the assessment process, and will greatly improve the evaluation of each potential LoWS. Where records collected from a third party are used to support the selection of a site the source, methodology and date of survey should be clearly documented.

3.5 SITE EVALUATION AND SELECTION

3.5.1 The Defra guidance states:

"Once criteria have been agreed and documented, potential sites should be evaluated against them. All sites that meet those criteria should be selected."

3.5.2 The first step in the site evaluation and selection process is to evaluate all the sites against the selection criteria, based upon the information collected as part of the survey and assessment process. The next step is to draw up a shortlist of 'candidate sites' that appear to meet one or more criteria. This should be

6 For guidance see the Common Standards Monitoring section of the JNCC website viewable at: www.jncc.gov.uk

7 Copies can be downloaded from: http://www.essexbiodiversity.org.uk/

undertaken by a suitably experienced and competent ecologist, preferably with a good understanding of the county's flora and fauna.

3.5.3 The shortlist of candidate sites should then be presented for ratification to a Local Selection Panel for review; the panel should comprise representatives from the following organisations: local natural history societies, Essex Wildlife Trust local groups, local authority officers, statutory nature conservation agencies, non-statutory nature conservation organisations and natural history museums. The final list should then be submitted to the Essex Local Wildlife Sites Partnership for endorsement in order to maintain a comparability of standards across the county. If the Partnership considers that the guidance provided in the current version of the selection criteria have not been applied correctly the list will be returned to the Local Selection Panel for further review.

3.6 **NOTIFICATION**

3.6.1 Once the final list of LoWS has been endorsed, each site owner, where known, should be provided with a notification sheet which explains the reasons behind selection, and illustrates the boundary of the LoWS on an appropriate Ordnance Survey base map. An example of a standard notification sheet is reproduced in **Appendix 7**.

3.6.2 Where access to the site has not been formally granted, sites should still be notified where it can be clearly demonstrated the site meets one or more selection criteria based upon survey information collected either from a public footpath, observed from neighbouring land where access permission has been granted or under the powers of a Notice of Entry (see Section 3.3.3, above). The following reasons for failure to gain access apply (assuming that Notices of Entry do not exist): a landowner has refused access for survey; the landowner of a site cannot be identified, despite reasonable efforts to ascertain their details; or it is hazardous to enter a site. Where this is the case, it should be clearly indicated upon the notification sheet.

3.6.3 Upon completion of a review, a copy of each notification sheet should be supplied to the ELWSP, who will then update the county register and endeavour to circulate the updated register to all relevant statutory and non-statutory organisations.

4 HABITAT SELECTION CRITERIA

4.1 INTRODUCTION

4.1.1 Drawing on the Defra (2006) guidance, there are a number of key principles which should be adopted by any Local Wildlife Sites system, providing the bedrock upon which precise selection criteria can be based. These are:

1. That biological SSSIs shall be excluded from LoWS systems. Throughout the ensuing site selection criteria, it is assumed that only land outside the biological SSSI network is being considered for LoWS selection. Should a piece of land be de-designated as an SSSI it is recommended that it be immediately assessed for inclusion within the LoWS network. Geological SSSIs can be considered as LoWS in respect of their nature conservation interest.
2. That the sites should play a key role in delivering the objectives of national and local (at county or local authority level) Biodiversity Action Plans.
3. The suite of sites should represent local character and distinctiveness, embracing the range of variation of any given habitat type within the area in which the LoWS system will be operating (in this case, across Essex).
4. That the resultant suite of sites, when viewed alongside SSSIs, should embrace the full range of important species and habitats for the target area covered by the LoWS Partnership at a level necessary to maintain the nature conservation interest of the area. In other words, all populations and habitat ecosystems should be sustainable within the LoWS/SSSI network.
5. All sites that meet the criteria should be selected, with such sites displaying substantive nature conservation interest. The key to determining a successful site selection process is to define what is “substantive” across a broad range of habitats and species, encompassing many and varying degrees of interest. This needs to consider the relative conservation merits of a locally rare example of a nationally more common habitat or species assemblage against a local abundance of a nationally scarce or rare resource; the value of a small population on the edge of its range against a large population at the core of a species’ distribution.
6. The key qualities of habitats or species assemblages should be assessed in terms of the following factors: size or extent, diversity, naturalness, rarity or

exceptional quality, fragility, typicalness, recorded history and cultural associations, connectivity within the landscape, educational or recreational value. Clearly, no one site will embrace all these features and several (e.g. rarity and typicalness, fragility and opportunities for learning) are antagonistic. It should be stressed also that for many Sites public access would be quite inappropriate, if in private ownership, and LoWS status should not be taken to imply public access to a piece of land.

7. The selection process should not completely do away with ecological experience and sound judgement, reducing the process to a mere mechanical, rule-based approach.

4.2 WOODLAND, SCRUB AND RELATED HABITATS

4.2.1 According to the National and Regional Inventory of Woodland and Trees (Forestry Commission, 2001 and 2002) Essex supports less woodland cover[8] than both the national and regional average. In 2001/2 our county supported 5.3% woodland cover, compared to an average of 7.3% in the East of England (Bedfordshire 6.2%, Cambridgeshire 3.6%, Hertfordshire 9.5%, Norfolk 9.8% and Suffolk 8.3%) and 8.4% across England as a whole. However, woodland cover in Essex is now expanding, perhaps largely due to small-scale farm and roadside planting schemes, and has increased by 27% between 1980 and 2001/2.

4.2.2 A wide range of woodland and scrub habitats are found in the county, including ancient semi-natural woodland, plantation woodland (including those on ancient woodland sites), woody scrub, pasture woodland, parkland and orchards. Remnant woodland features may also occur outside of woodland habitats and are often of high ecological interest, for example individual veteran trees and ancient species-rich hedgerows. This rich and varied woodland resource requires a holistic approach to its conservation to ensure that the full range of woodland habitats and their associated biological diversity are retained and protected within the LoWS network. This will require criteria that select both ancient and

8 Defined as land with a minimum area of 0.1ha under stands of trees with, or with the potential to achieve, tree cover of more than 20%. Areas of open space integral to the woodland are also included. Orchards and urban woodland between 0.1 and 2ha are excluded. Scrubby vegetation is not included as a separate category.

recent woodland stands, areas of scrub where little wood remains and woods that form part of a mosaic of habitats where the key quality is the complex inter-relationship between two or more habitat types.

4.2.3 There are three key components to the selection of woodland LoWS in Essex:

1. The recognition of ancient woodlands as the closest surviving links to the truly natural vegetation of the vast majority of the county, even though such sites have invariably been modified by centuries of management and incidental influence by Man. In reality, ancient woodlands are but a sub-set of the national Priority BAP woodland habitats (below) but they are universally recognised as being of unique importance.

2. The conservation of the range of national Priority BAP Habitat woodland types to be found in Essex. The woodland BAP Priority Habitats to be found in Essex are: Lowland Mixed Deciduous Woodland (which will encompass the majority of Essex's ancient woods), Lowland Beech and Yew Woodland (such Beech woods are rare in Essex and Yew woods non-existent) and Wet Woodland.

3. The role that woodlands, along with hedgerows, play in terms of providing habitat connectivity in what may otherwise be a wildlife unfriendly arable landscape.

Woodlands that are a component of a mosaic of different habitat types, with no one clearly dominant habitat are treated separately under a "mosaic" criterion.

Ancient Woodland

4.2.4 Ancient woodland sites are generally accepted to have been in existence since 1600 AD, with woodland having its origins after this date being termed "recent". Some such areas of ancient woodland are "primary" in that they have been under continuous woodland cover since the end of the last ice-age. The remainder are "secondary" and may have come about by the "tumbling down" of abandoned farmland or, in a few cases, deliberate planting. Secondary woodland can thus be either ancient or recent. This long continuity of woodland cover has

resulted in an irreplaceable resource, which is typically associated with diverse and characteristic assemblages of higher plants, breeding birds, invertebrates, bryophytes, lichens and fungi.

4.2.5 All ancient woodland sites greater than 2ha in size are listed in the national Ancient Woodland Inventory, generally produced by the Nature Conservancy Council and its subsequent organisations. However, the inventory excludes small woodland areas, so there remains potential for new candidate LoWS to be identified in the future, based on field work. It should be noted that several errors in the current Essex Ancient Woodland Inventory have been detected and others probably remain to be found, so that the use of the Inventory alone is not recommended as a means of determining the extent of ancient woodlands in the county. These errors include woods thought to be ancient and larger than two hectares but have been omitted from the Inventory and also areas of land highlighted as being ancient woodland that are clearly not, as shown by old Ordnance Survey maps. Therefore, reference should also be made to field survey results, old Ordnance Survey maps and other archive material (such as parish tithe maps) to accurately determine the extent of such woodland.

4.2.6 Specialist ecological survey can be used to investigate the quality of suspected ancient woodlands, in particular through an assessment of the presence and number of Ancient Woodland Indicator (AWI) plant species (see **Appendix 3** for a list of AWI in Essex), and a survey of remnant historic woodland features, such as wood banks and landmark trees.

4.2.7 Intact semi-natural stands of ancient woodland are usually easily recognised, even though they may embrace a wide range of canopy variation. Nearly all Essex ancient woods will fall into one of two National Vegetation Classification (NVC) categories (see Section 4.2.10, below), which comprise the Lowland Mixed Deciduous Woodland UK Priority Habitat. Some of the others will be Alder woods that can be included within the Wet Woodland UK BAP Priority Habitat. A very few might comprise scarcer woodland canopy types, such as Wych Elm,

suckering Elms and variable quantities of Sessile Oak, all of which should be recognised within the LoWS system.

However, many ancient sites have been replanted and may not, at least on preliminary inspection, appear to be of ancient origin. Although the biodiversity interest of replanted ancient woods may have deteriorated, significant ecological interest may remain. It is often possible to restore and enhance the biodiversity interest of replanted woods through the implementation of sensitive woodland restoration and management.

Recent Woodland

4.2.8 Although recent woodlands (including recent plantations) are often of lower ecological interest than ancient sites, they can provide important refuge habitat for a range of plant and animal species. The ecological value associated with secondary woodlands will be a result of a number of factors, including their origin (i.e. natural regeneration or plantation), age, size, species composition, management, structure, juxtaposition with other, possibly ancient, woods and general surrounding land use. For example, recent woodland developed through natural colonisation is likely to comprise locally characteristic species and be of greater value to local wildlife, while those of plantation origin may comprise non-native species of limited value to associated wildlife. Woodlands managed solely for conservation objectives and are subject to limited human disturbance are also likely to be of greater value than urban, intensively managed woodlands used primarily for recreation. All of these variables will have a bearing on whether or not a piece of recent woodland or plantation has “substantive nature conservation interest” and thus influence whether or not the site is worthy of inclusion within the LoWS network.

4.2.9 Recent woodlands may also provide important landscape ecology functions. This may include, for example, acting as disturbance buffers and wildlife corridors around and between other valuable habitats, or an area that forms a component part of a more complex landscape mosaic. In light of the current increase in

woodland cover, new and recently developed woodland stands may provide important long-term opportunities for future woodland conservation in Essex.

4.2.10 In order to make sense of this almost complete continuum of woodland types and associated wildlife values, woodlands (including plantations) need a complex set of criteria and these are now based on the UK BAP Priority Habitat types. For Essex, the Lowland Mixed Deciduous Woodland Priority Habitat type is defined as comprising woodlands that fall within the National Vegetation Classification (NVC) types W8 (*Fraxinus excelsior – Acer campestre – Mercurialis perennis* woodland) and W10 (*Quercus robur – Pteridium aquilinum – Rubus fruticosus* woodland)[9].

Habitat Criterion 1 (HC1) – Ancient Woodland Sites

"All sites considered to be ancient woodland shall be eligible for selection".

Guidance

Information on the location of such woods can be gained from the Essex Ancient Woodland Inventory, but their true extent should be determined through field evidence (the presence of Ancient Woodland Indicator plant species, and/or possessing remnant ancient woodland features, such as external ditch and bank systems) and/or documentary evidence, such as old Ordnance Survey maps or other historical documents and maps.

Replanted ancient woodland sites will only be excluded if the intensity and duration of that replanting has totally and seemingly irreversibly effaced all the ecological\interest of the site. This is likely to only apply to conifer plantations.

Habitat Criterion 2 (HC2) – Lowland Mixed Deciduous Woodland on Non-ancient Sites

9 British Plant Communities Volume 1. J.S. Rodwell (ed). 1991, C.U.P.

"All significant areas of non-ancient Lowland Mixed Deciduous Woodland will be eligible for selection".

Guidance

In judging the significance of such areas of woodland, consideration will be given to:

- *Its proximity (or otherwise) to an area of ancient wood;*
- *The presence of a recognisable layered structure comprising ground flora, sub-canopy (or scrub understorey) and high canopy;*
- *The presence of canopy and understorey dominated by native[10] deciduous species;*
- *The presence of a diverse and typical woodland ground flora and/or notable woodland fauna populations;*
- *The abundance or lack of woodland habitat or any type within that part of the county.*

Where these qualities are in doubt, special consideration shall be given to woods that present opportunities for the development of public access, countryside education or research.

Where a wood that largely falls within the definition of this UK BAP Priority Habitat, but which includes stands of other woodland types (e.g. Elm stands or scrub), the whole wood will be eligible for inclusion within the LoWS system.

Habitat Criterion 3 (HC3) – Other Priority Habitat Woodland Types on Non-ancient Sites

"Any area of Lowland Beech and Yew woodland (e.g. NVC type W15) or Wet Woodland, as defined in the UK Biodiversity Action Plan Priority Habitat Descriptions, will be eligible for selection."

10 Native to Essex, not just to the UK

Wood Pasture and Parkland

4.2.11 Wood-pasture and parkland is typically the product of historic land management systems, including deer parks and common land. Although many losses have occurred, Essex supports many fine examples, and has one of the highest concentrations of medieval parks in England. Essentially, this habitat comprises open, variably spaced trees, with a ground layer of grazed or mown grassland, or more unusually a heath or woodland ground layer. Many historic sites support important concentrations of mature standard and pollard trees, including oak, horse chestnut and hornbeam. Aside from the presence and abundance of mature trees, these sites often support unimproved ground layer vegetation.

4.2.12 Although the majority of the ancient wood-pasture sites in the county carry existing wildlife designation, this is less often the case for areas of parkland, especially newly emparked areas that are occasionally created as recreational green spaces in association with new residential developments. Where new parklands are subject to ecologically sensitive landscape design and management planning, there is the potential for such sites to provide important habitat in the future, including sites that may warrant consideration for LoWS selection, although they would fall outside the scope of the relevant UK BAP.

The "Wood-pasture and Parkland" UK BAP embraces the following areas:

- Such areas derived from medieval forests and emparkments, wooded commons, parks and pastures with trees in them;
- Post 18th-Century parklands where they contain much older trees derived from an earlier landscape;
- Parkland or wood-pasture that has been converted to other land uses, including arable production, where surviving veteran trees are of nature conservation interest.

It excludes 19th Century or later parklands lacking in veteran trees. Notwithstanding this, the unique ecological value of more recent parkland environments can be considered within a LoWS network.

Habitat Criterion 4 (HC4) – Wood-pasture and Parkland

"Any remnant area of mature parkland and/or wood-pasture, preferably with veteran trees and/or a semi-natural ground flora will be eligible for selection, together with any more recent parkland sites that support inherent ecological interest and whose ecological value is not compromised by amenity use or other primary functions".

Guidance

Veteran trees are defined in Natural England publication IN13 – "Veteran Trees: A guide to good management" by three guiding principles:

• trees of biological, aesthetic or cultural interest because of their age;

• trees in the ancient stage of their life;

• trees that are old relative to others of the same species.

Trunk girth alone is not a reliable character (although perhaps a good, initial yardstick) because of variation across species and due to soils, geology and geographical locations.

Whilst it will be desirable to maintain active grazing in areas of wood-pasture and parkland, it is not a prerequisite for inclusion as a LoWS.

Woody Scrub

4.2.13 In Essex, scrub communities come in many forms, from strips of suckering elm to dense blocks of Hawthorn and Blackthorn, willow scrub in poorly drained sites, coastal Shrubby Seablite and Broom communities, and brakes of Common 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.

4.2.14 In many such habitats, the scrub can play an important integral role in the ecology of the site, providing windbreaks or alternative foraging habitat for

grassland invertebrates and nesting areas for many birds and invertebrates foraging elsewhere. Such mosaics can be critical to many invertebrates that have very differing habitat requirements throughout their lifecycle of larva and adult forms.

4.2.15 It should be noted, however, that whilst important in its own right in certain situations and in limited quantity, too much scrub may pose a threat to other more important open habitats, for example mixed scrub on unimproved grassland, birch scrub in heathland and willow scrub in wetlands and marshes. Consideration for selection in these cases should acknowledge the importance of maintaining or restoring the open habitat component of the site.

Habitat Criterion 5 (HC5) – Woody Scrub

"Stands of woody scrub that support exceptional diversity, uncommon shrub assemblages, and/or which provide a valuable component of a site's ecological value will be eligible for selection".

Veteran Trees

4.2.16 Although veteran trees are usually associated with other semi-natural and often historic landscapes, individual trees and groups of trees may be found as remnant features in otherwise modified landscapes, even in intensive arable situations. Aside from their landscape, cultural and inherent ecological interest, these trees may also provide important habitat for a range of mosses, lichens and invertebrates. Many species are entirely dependent on the habitats provided by old trees, in particular the long continuity of dead wood and associated micro-habitats. Other features such as splits and holes also provide habitat for hole nesting birds and tree roosting bats.

Habitat Criterion 6 (HC6) – Veteran Trees

"Veteran trees known or suspected to be of specific nature conservation interest, for example supporting significant invertebrate assemblages, and/or epiphytic bryophytes and lichens, will be eligible for selection, even in the absence of other associated semi-natural habitat. The tree or tree group should encompass a

sufficient area with appropriate habitat conditions for the associated species interest to be maintained".

Guidance

Veteran trees are defined in Natural England publication IN13 – "Veteran Trees: A guide to good management" by three guiding principles:

• trees of biological, aesthetic or cultural interest because of their age;

• trees in the ancient stage of their life;

• trees that are old relative to others of the same species.

Trunk girth alone is not a reliable character (although perhaps a good, initial yardstick) because of variation across species and due to soils, geology and geographical locations.

Given the often prominent landscape significance of such trees and cultural associations in town or village locations, this ecological\interest can be taken to include a social or cultural aspect that may provide a focus for more broad-based environmental education or appreciation.

Orchards

4.2.17 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 of that age. This Essex and National BAP habitat is associated with a number of notable invertebrate species and may also be important for over-wintering birds where windfall fruit is left on the ground. Orchards with a species-rich ground flora are even rarer and should be selected as a priority, as they often contain notable plant species.

Habitat Criterion 7 (HC7) – Old Orchards

"All traditional orchards will be eligible for selection, particularly those that have retained mature fruit trees."

Guidance

By "traditional" it is meant orchards with older, normal-sized trees (rather than the dwarf fruit tree varieties of now invariably planted when tree stocks are replenished) and/or with a more or less flower-rich grassland cover. Whilst grazing this grass sward would have formerly been quite typical it is today a very scarce practice and is not a prerequisite for inclusion as a LoWS.

Other positive attributes that will be used to guide site selection include the presence of locally characteristic or unusual traditional fruit varieties, trees with lichen cover and the presence of associated semi-natural habitats, such as species-rich grassland.

Hedgerows and Green Lanes

4.2.18 Despite widespread grubbing-out in previous decades, hedgerows should not be routinely selected since many thousands of kilometres remain, and the existing resource is protected by the Hedgerow Regulations (1997) against further indiscriminate removal. However, ancient hedges and green lanes and even well-established, species-rich hedges of more recent origin may be selected if they have a particular ecological significance. This might include a function as a wildlife corridor or providing scrub in an otherwise poor area for that habitat. Some hedgerows are remnant bank and ditch features of otherwise lost ancient woods.

Green lanes have some special value in being an often ancient blend of hedgerow or linear woodland habitats with internal strips of species-rich grassland. As such they are of conservation merit in their own right, but they again often provide opportunities for wildlife to disperse along them, providing a corridor function as well as intrinsically interesting habitats in their own right. Consideration should also be given to their use as thoroughfares, particularly close to residential areas, where they may provide one of the few opportunities for the local residents to experience nature first hand on a regular basis.

4.2.19 The UK BAP definition of a qualifying hedgerow is very broad, with single-species hedgerows included, whilst the current Essex BAP considers ancient/species-rich hedgerows i.e. are more stringent level of interest.

4.2.20 That said, special consideration should also be given to suckering elm hedges, these being especially characteristic of Essex farmland, especially in coastal districts. These are typically species-poor and mainly comprise Elm alone but are most likely to be very old if not ancient. Additional protection is also provided to the more significant lanes through the local authority 'Protected Lanes' policy. In this instance, reasons for protection are typically based on historical and landscape criteria, rather than wildlife interest.

Habitat Criterion 8 (HC8) – Hedgerows and Green Lanes

"Hedgerows and green lanes shall be eligible for selection if they are assessed as having significant ecological value in terms of:

- *their intrinsic flora and fauna*
- *a defined ecological function in the landscape"*

Hedgerow Guidance

Special consideration should be given to:

- *individual hedgerows that represent the 'ghost' outline of a former ancient wood provided they retain some of the characteristic flora and/or fauna of an ancient wood;*
- *other hedgerows supporting a suite of species indicative of ancient woodland conditions;*
- *hedgerow networks that support an unusually high density of very large or veteran standard trees;*
- *ancient and/or species-rich hedgerow networks forming a small field landscape that provide good quality scrub habitat, with due weighting given to the landscape and location in which the site occurs. Where the hedgerows enclose semi-natural vegetation, consideration should be*

given to including these habitats within the LoWS, even though they might not warrant LoWS status in isolation.

- *The role of any such hedgerow "matrix" as a wildlife corridor complex, assisting the dispersal of wildlife through the open countryside.*

Where the quality of a field network system of hedges is in doubt, the quantity of alternative scrub habitat in the adjacent landscape should be taken into account and where largely lacking, this should add weight to the acceptance of the site as a LoWS. This is most likely to apply in coastal zones or open, intensively arable landscapes with little if any other woodland or scrub cover.

Where a single hedgerow forms a viable link between two or more sites of nature conservation interest and would benefit the dispersal of identified key species, then that hedgerow can be included within a LoWS using the HC30 Wildlife Corridors criterion.

Green Lane Guidance

Special consideration should be given to ancient lanes that support flora and fauna typical of ancient woodlands and/or ancient, unimproved grasslands.

The role of such lanes as wildlife corridors should also be considered (overlapping with criterion HC30). Where a green lane's function as a wildlife corridor is in doubt, such as due to interruption by a potential wildlife barrier, or where its connectivity with other areas of wildlife value is less well defined, its role as a regularly used thoroughfare should add some weight to its inclusion. Such lanes provide good opportunities for countryside recreation and formal and informal wildlife learning experiences. Such lanes also have a cultural significance as survivors of the general countryside transport infrastructure that has escaped widening, straightening and having a metalled surface installed.

There can be some justification in considering some wider green lanes as linear woodland or grassland habitats or a mosaic of two or more such habitats and

such sites can be assessed under the corresponding habitat criteria, rather than those given above.

4.3 GRASSLAND

4.3.1 Although the majority of the permanent grassland found within the county is of an agriculturally improved character, areas of botanically rich grassland do remain and warrant specific protection. Such grasslands are of importance on a number of fronts, including the conservation of scarce plant species and vegetation types in their own right but also the conservation of the implied invertebrate interest that unimproved grasslands invariably retain. The following criteria include neutral and calcareous grasslands, floodplain and inundation pastures and meadows. The selection criterion for acid grassland is included under Heathland habitat (Section 4.4), with coastal grazing marsh dealt with under the Coastal Habitats (Section 4.7). Grasslands that form part of a mosaic of habitats are dealt with via a Mosaic Habitat criterion (see Section 4.8.5).

Neutral Grassland

4.3.2 Old, unimproved and species-rich grasslands (including floodplain and inundation pasture and meadow) are such a scarce resource that there should be a presumption in favour of selecting the majority of such habitats and they are embraced by a number of UK BAP Priority Habitats.

Lowland Meadows

4.3.3 The importance of old, unimproved grasslands is recognised within the UK BAP, with the Lowland Meadows Priority Habitat comprising good examples of grassland that conform to the NVC mesotrophic grassland type MG5 (*Cynosurus cristatus – Centaurea nigra* grassland). This vegetation is the classic “old hay meadow” of lowland England although it also survives within pastures (and mixed management swards) and this Priority BAP encompasses both mown and/or grazed swards.

4.3.4 It should be recognised that this grassland type covers quite a broad spectrum of species-rich grasslands on circum-neutral soils ranging from slightly acidic

through neutral to slightly base-rich (calcareous) substrates. Parts of Essex are underlain by chalky boulder clay, which can range from neutral to calcareous in nature and the more base-rich areas can support limited numbers of the chalk grassland plants listed in Appendix 5. Such grasslands, including road verges, are here treated within this broad category of lowland meadows, restricting the remit of criterion HC12 Lowland Calcareous Grasslands to those sites located on thin brown earth soils over solid chalk substrates.

4.3.5 The Essex Wildlife Site Review Panel documentation recommended using Natural England's Grassland Inventory[11] as a source for 'automatically' selecting such sites. This is resisted in these criteria, 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. Such sites may well have deteriorated significantly since that time and it is also unclear how any subsequent update would identify new sites. 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 can be identified by the presence of 'indicator' species (see **Appendix 4**) or by documentary, verbal or geomorphological evidence (e.g. presence of ridge and furrow or other landform indicating the site has not been ploughed for several centuries).

4.3.6 The role of road verges in conserving albeit small fragments of species-rich grassland within the wider countryside should also be recognised and this is recognised in the Lowland Meadows UK BAP description. 'Special Verges' identified by the Special Verges Project[12] will be considered for selection where they meet an appropriate grassland criterion. However, it must be realised that the fundamental purpose of the Special Verges Project is to control adverse highways management (verge cutting responsibilities) where it affects interesting plant species or communities. It is not an absolute nature conservation designation that identifies all top roadside grassland strips. Hence, some Special

11 Inventory of all UK BAP unimproved grassland types, produced in 1995 and at the time of publication being updated.

12 Project coordinated by Essex County Council, Essex Wildlife Trust, Essex Field Club and Local Natural History Museums.

Verges are not identified as LoWS because their flora is not of sufficient quality and, conversely, some very rich and important strips of roadside grassland may not be afforded Special Verge status if they are not threatened by adverse highways management or if they must be cut as a matter of high priority for road health and safety (e.g. line-of-sight considerations on bends or junctions).

Habitat Criterion 9 (HC9) – Lowland Meadows

"All old, largely unimproved grasslands identifiable as falling within the definition of the NVC MG5 Lowland Meadow vegetation type will be eligible for selection."

Guidance

Whilst the nominate species for this community are Black Knapweed and Crested Dog's-tail, this vegetation type embraces a wide supporting flora, including such rarities as Green-winged Orchid, Pepper-saxifrage, Lady's Smock and many other grasses and herbs. It embraces grasslands on circum-neutral soils, which can exhibit species more normally associated with unimproved acid or calcareous grassland. Reference to the underlying geology should help to place the grassland community in question within the right habitat category.

This criterion should include all grasslands that are in a deteriorated condition but which can be restored to this vegetation type.

Evidence for antiquity and a likely lack of significant agricultural improvement can be taken from the presence of indicator plants, land-form or documentary records. Where appropriate, reference should also be made to the size of the site and its location within the county, with special dispensation given to smaller or poor quality sites where little such grassland remains in that part of the county.

With the modern availability of "conservation" grassland seed mixes, it is now possible to create an MG5 sward out of a packet. Such swards should not be identified here, but might be included as a LoWS if it satisfies another grassland

criterion or if the grassland is known to support wildlife that satisfies species selection criteria.

Floodplain Grazing Marsh

4.3.7 Special consideration should be given to large tracts of river floodplain grassland, especially those still subjected to seasonal inundation. Few areas of such habitat in Essex attain the full definition of the Coastal and Floodplain Grazing Marsh BAP Priority Habitat in that the majority of Essex ditch systems dry out during the summer rather than maintaining a high soil water table. However, there is justification in conserving all Essex examples, with the hope that active management of the water table might help to restore some areas.

4.3.8 Even where the sward has been significantly improved, so that the flora has no particular merit, the environmental conditions created can be of significance for terrestrial invertebrate populations and some over-wintering waders (e.g. Snipe *Gallinago gallinago*, Curlew *Numenius arquata*, Lapwing *Vanellus vanellus* and Golden Plover *Pluvialis apricaria*). Equally, where a high water table can be maintained, the aquatic flora and fauna of the associated ditches can be of greater significance than the open grassland, but such habitats are better treated here rather than alongside more mainstream aquatic habitats.

4.3.9 Because of their risk of flooding, many such remaining tracts of floodplain 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 for long periods, and often support important invertebrate assemblages associated with animal dung. Continuity of grassland cover is also important for numerous other invertebrate species. Equally, where floodplain grassland has been ploughed up for cereal cultivation despite winter flooding and subsequent crop impedance, encouragement should be given to recreate floodplain grassland habitats. Given the importance of environmental conditions rather than a specific flora, such grasslands can be realistically recreated, although the diversity of ditch flora and fauna may not come to match ancient floodplain grasslands.

4.3.10 Such areas of floodplain grassland can act as a buffer for the associated river. For example, by reducing the impact of nutrient run-off compared to a river with arable cropping being practised right up to the top of the bank. Large tracts of semi-natural vegetation along river valleys can also function as a wildlife corridor, assisting in the dispersal of fauna through the open countryside.

4.3.11 There can be justification in considering some riverside willow plantations within this broad category, where the wildlife interest is associated with the tall herb vegetation rather than what might be perceived as the 'woodland' cover above. In these situations, there is likely to be some cross-over with the swamp and tall-herb fen communities considered in section 4.5.

Habitat Criterion 10 (HC10) – River Floodplain

"Significant areas of river floodplain 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".

Guidance

Where such a grassland system reaches estuarine conditions, there may be an arbitrary cut off point between considering the grasslands to be river floodplain grazing marsh and coastal grazing marsh. These two grassland forms are covered by one UK BAP Priority Habitat description but are dealt with separately within this document. Where the upper tidal limit of the river is demarked on Ordnance Survey maps, this should be used as the divider between these two grassland types.

There will be many instances where habitat structure (sward height, presence of scattered scrub) and other edaphic factors (soil type, soil moisture and tendency to winter-flood) will be more important qualities than plant species-richness, although some such site do support scarce and declining plants listed in Appendix 4).

Other Neutral Grasslands

4.3.12 Notwithstanding the special value of MG5 grasslands identified in Section 4.3.3 above, other forms of grassland vegetation on circum-neutral soils (see Section 4.3.4), including old, unimproved swards that do not conform to the NVC MG5 vegetation type, and even quite recent grasslands, can also be selected as LoWS if they have a demonstrable nature conservation value. Some grassland found in the county is not adequately described in the NVC. Examples include Meadow Barley *Hordeum secalinum* dominated stands, species-rich coastal grasslands with abundant Common Couch *Elytrigia repens*, and stands associated with Thames Terrace gravels. In these instances, candidate LoWS should still support a diverse assemblage of flowering plants (both herbs and grasses), especially if they enhance invertebrate habitat or are the only grasslands present within a significant part of the county. Reference should be made to the "priority" NVC community type for the Natural Area in which the site is located (see Table 1).

Table 1 Essex Natural Area 'priority' grassland types (excluding MG5 Lowland Meadows)[13]

London Basin:

- MG4 *Alopecurus pratensis – Sanguisorba officinalis* grassland

East Anglian Plain:

- MG4 *Alopecurus pratensis – Sanguisorba officinalis* grassland
- MG8 *Cynosurus cristatus – Caltha palustris* grassland

4.3.13 With regard to invertebrate populations, even some quite highly agriculturally improved grasslands (e.g. with an abundance of Red or White Clover) can represent significant foraging habitat and even these areas should be considered for selection it they are deemed to be part of the essential foraging range of an invertebrate species of conservation interest. Such grasslands are likely to be identified as part of a larger mosaic of habitats and, as such, are dealt with under that heading, below.

13 See Rodwell (1992) for explanations of these community types.

Habitat Criterion 11 (HC11) – Other Neutral Grasslands

"Unimproved or semi-improved[14] *pastures or meadows that do not clearly fit criterion HC9 shall be eligible for selection if they support features that indicate long continuity as grassland or support notable populations of invertebrates. Special consideration should be given to sites listed in the Grassland Inventory for Essex and to sites supporting plants listed in Appendix4".*

Guidance

These grasslands can, like the lowland meadows covered by HC9, occur on circum-neutral soils and may exhibit species associated with unimproved acid or calcareous grasslands. Reference to the underlying geology should help to place the grassland community in question within the right habitat category.

Lowland Calcareous Grassland

4.3.14 In Essex, surface exposures of chalk are restricted to the extreme north-west, around Saffron Walden, and in the south, around Grays and Purfleet. The former areas were doubtless long-ago sheep walks – open extensively grazed sheep pastures – but have for many decades now been under arable cultivation, whilst the latter has suffered from quarrying and urban expansion. As a result, areas of recognisable chalk grassland flora in Essex are virtually limited to roadside verges, the narrow fringes along the clifftops of old quarries and churchyards. The extreme rarity of chalk grassland in Essex suggests that all sites supporting assemblages of chalk grassland species (see **Appendix 5**) should be considered for selection.

Habitat Criterion 12 (HC12) – Lowland Calcareous Grassland

"All areas of grassland supporting assemblages of typical chalk grassland species included in Appendix 5 should be considered for selection."

14 Semi-improved grassland is a transition category between unimproved and improved swards, they have typically been modified by one or other of the following: herbicides, fertilizers, drainage and/or intensive mowing/grazing, but still retain some features and/or species associated with unimproved grassland.

Guidance

There shall be no lower limit to the size of such sites.

Whilst "classic" chalk grasslands are often very species-rich, in which many species listed in Appendix 5 will be present, Essex grasslands of this type are likely to have far fewer, with perhaps only two such species triggering eligibility under this criterion.

Many such Sites will be roadside verges and reference should be made to the Special Road Verge project in Essex.

4.4 HEATHLAND

4.4.1 Such is the scarcity of this habitat type in Essex, it is felt that all land supporting stands of heathland vegetation should be selected, however sparse the cover of ericaceous (heather) plants and however small the site. Furthermore, this habitat is here defined as encompasses acid grassland, even if no ericaceous shrubs are present, as well as the very limited extent of sphagnum bogs remaining in the county. Acid grassland is defined as a sward variably co-dominated by Common Bent-grass (*Agrostis capillaris*) and Sheep's Sorrel (*Rumex acetosella*), with other associates often present, including Heath Bedstraw, Mouse-ear Hawkweed and Heath Wood-rush. Reference should be made to the Lowland Heathland Inventory[15] although it should be emphasised that many small fragments, still worthy of inclusion, may have been overlooked in the Inventory.

4.4.2 Sites should still be included even if they have succumbed to scrub or secondary woodland invasion if it is considered that the heathland could be restored with appropriate management and a characteristic ground flora still persists. It should be recognised that limited amounts of scrub, especially Gorse and Broom is a valuable component of heathland communities and even scattered trees of birch and oak can be valuable e.g. as song perches or territory markers for heathland birds.

15 English Nature and RSPB (1997) The Lowland Heathland Inventory.

Habitat Criterion 13 (HC13) – Heathland and Acid Grassland

"Any site supporting characteristic heathland or acid grassland vegetation, including deteriorated sites with the potential for restoration shall be eligible for selection".

Guidance

Such sites might be identified in their own right as a component part of a mosaic, for which a separate Mosaic Habitat Criterion exists.

4.5 WETLAND HABITATS

4.5.1 This suite of habitats comprises a very variable continuum from damp grasslands (which at the drier end will grade into lowland meadow or other grassland types discussed above), through tall-herb fens on more or less permanently damp soils, to swamps in shallow standing water and finally open water habitats (e.g. lakes and ponds). Smaller wet ditches are considered to form part of grassland ecosystems, such as the floodplain grasslands (see Section 4.3.8), whilst brackish dykes are considered under coastal habitats, below. In ecological terms, one can define subtle differences in vegetation with terms such as "mire", "fen", "swamp" and "marsh" each having a different (although sometimes overlapping) meaning. A more simplistic approach to naming such habitats is used here, for clarity.

Lowland Fen

4.5.2 Essex has precious few significant examples of the type of vegetation covered by the UK BAP Priority Habitat "Lowland Fen". These are defined as "peatlands which receive water and nutrients from the soil, rock and ground water as well as from rainfall". Narrow bands of sedge (*Carex* spp.) around the shallow margins of ponds and lakes or developing in wet hollows in low-lying grassland can be ascribed to forms of tall-herb fen vegetation, but these are seldom extensive. Notable exceptions include the Essex Wildlife Trust's reserve at Sawbridgeworth Marsh, which lies mainly over the border in Hertfordshire. The Stort valley in

general probably holds the best remaining examples of this vegetation type in Essex.

4.5.3 Elsewhere in Essex, most areas of tall-herb fen occur as narrow bands along the edges of rivers, ponds, lakes and other water bodies, rather than as extensive stands in their own right. Characteristic species include Meadowsweet (*Filipendula ulmaria*), Greater and Lesser Pond-sedges (*Carex riparia* and *C. acutiformis,* respectively), Yellow Iris (*Iris pseudacorus*), Hemp Agrimony (*Eupatorium cannabinum*), Reed Canary-grass (*Phalaris arundinacea*), Reed Sweet-grass (*Glyceria maxima*), Bur-reeds (*Sparganium* spp.) and Greater Willowherb (*Epilobium hirsutum*). Rare Essex plants include Meadow-rue (*Thalictrum flavum*). Such marginal vegetation is likely to be included within any open water Local Wildlife Site. Any extensive area of swamp vegetation or tall-herb fen is likely to be a scarce habitat, dependent upon a narrow range of environmental conditions to develop, and often supporting uncommon species.

4.5.4 Riverside cricket-bat willow plantations can develop a form of wet grassland mosaic with tall-herb fen and sedge beds that may be considered under this category.

Habitat Criterion 14 (HC14) – Lowland Fen Vegetation

"Significant areas of lowland fen vegetation[16]*, or such habitat known to support notable species, will be eligible for selection. Usually such sites will include the associated water body or source of groundwater, if applicable."*

Guidance

Smaller areas of this vegetation type can also be included within a larger mosaic of grassland and other wetland habitat types, covered by the Mosaic Habitat Criteria.

16 Fens are peatlands which receive water and nutrients from the soil, rock and ground water as well as from rainfall.

Reedbeds and Other Species-poor Swamps

4.5.5 This category comprises stands of emergent vegetation usually growing in shallow water and dominated by only one or two species, most typically Common Reed (*Phragmites australis*), Sea Club-rush (*Bolboschoenus maritimus*) and/or Reedmace (*Typha* spp.). The vegetation is characteristically species-poor, but provides important habitat for many species of bird, mammal and/or invertebrate for which the key habitat qualities are size and habitat structure (vegetation density or the presence of open pools or channels) rather than floristic diversity. In some of these situations, selection may be more appropriately dealt with via the Mosaic Habitat or Species Selection Criteria. Only reedbeds are considered here as a habitat in their own right.

4.5.6 All significant stands of more or less pure Reed growth are included within the UK and Essex BAP Reedbed habitat. Use by reed-specialist birds (e.g. Reed Warbler (*Acrocephalus scirpaceus*) and Sedge Warbler (*A. schoenobaenus*), Cetti's Warbler (*Cettia cetti*), Bearded Tit (*Panurus biarmicus*) and Marsh Harrier (*Circus aeruginosus*) is desirable but not essential since the habitat is also important for a number of specialist invertebrates, notably some moths and solitary bees and wasps. Whilst large undisturbed beds may be more attractive as breeding habitat for specialist birds, edges and openings subject to limited disturbance are important for foraging as invertebrates and other plants tend to be found in more abundance in these situations. The importance of scattered scrub bushes or scrubby margins to such areas should not be overlooked, as necessary habitat components for several bird species.

Habitat Criterion 15 (HC15) – Reedbeds

"All significant stands of Common Reed (Phragmites australis) will be eligible for selection."

Guidance

Selection should take into account the overall size, the shape of the bed (with wider stands more desirable), and also the degree of human disturbance.

Smaller stands that form part of a larger mosaic of habitats can be included within a site identified under the Mosaic Habitat criterion.

4.6 OPEN WATER HABITATS

4.6.1 The complexities of characterising aquatic habitats along with the less well-studies aspects of their flora and fauna make the identification of sections of river, canal, borrow dyke or individual lakes and ponds on habitat grounds less achievable than for terrestrial habitats. Guidance from the UK BAP Priority Habitats project allows for the identification of certain key habitats and specific qualities that they should exhibit to allow for the selection of a network of key sites. That said, many such sites might be better identified via relevant species selection criteria rather than as a result of their vegetation structure or composition. Thus, a lake, river or reservoir might be identified because it supports a significant number of over-wintering wildfowl or fish population.

Lakes and Reservoirs

4.6.2 The nutrient status of most lowland water bodies has been influenced by human activity, most significantly via run-off from agricultural land. As a result, some water bodies have become grossly over-loaded with nutrients (eutrophication) that fuel severe algal blooms and “boom and bust” oxygen levels in the water body and bed sediments. Such water bodies have little conservation value.

4.6.3 However, many water bodies in lowland England are naturally eutrophic, although nutrient levels do not reach the excesses outlined above. These waters have a high biodiversity and are a UK BAP Priority Habitat. High nutrient levels allow algae to flourish and these, in turn, support planktonic aquatic invertebrates, larger invertebrates, fish and wetland birds. It might be expected, then, that such habitats have the ability to support significant flora and fauna populations, be they a diverse selection of pond-weeds (*Potamogeton* spp.), a varied dragonfly assemblage, important fish stocks, or large numbers of over-wintering wildfowl.

4.6.4 For this reason, it is recommended that eutrophic lakes and reservoirs are identified on the basis of Species Criteria, with the following Habitat Criterion or the Mosaic Habitat Criterion used to define the extent of the site.

Habitat Criterion 16 (HC16) – Lakes and Reservoirs

"Lake and reservoir LoWS identified on the basis of Mosaic Habitat or Species Criteria should be of sufficient size and habitat quality to maintain the seasonal or resident population of that species. Where a seasonal species utilises several water bodies during the course of its stay, all such bodies should be selected".

Ponds

4.6.5 Many ponds will, of course, lie within ancient woods, old grasslands, heathlands and so on and these will be included by default within any LoWS covering those habitats without having to demonstrate any particular conservation value. The following criterion applies only to ponds for which the principal interest of the site is the aquatic flora and/or fauna of that pond or series of ponds. Where terrestrial habitat is included it is because it is of fundamental importance to the overall lifecycle of the species concerned (most obviously for amphibians). This will, almost by default, lead to a mosaic habitat but such sites are dealt with here because the clear focus of the site's importance is the pond as the primary habitat.

Ponds, as defined within the UK BAP Priority Habitats documentation, need to fulfil one of several strict criteria in order to be considered as a Priority Habitat and these guidelines are adopted here as the starting point for selecting Essex ponds as LoWS. The UK BAP Priority Habitat covers the following ponds:

- Habitats of international importance: ponds that meet criteria under Annex I of the Habitats Directive.
- Ponds supporting Red Data Book, UK BAP or Schedule 5 and 8 (Wildlife and Countryside Act 1981, as amended) species, or species listed within Annex II of the Habitats Directive, a Nationally Scarce wetland plant species or three Nationally Scarce aquatic invertebrate species.

- Ponds supporting exceptional populations or numbers of key species, such as dragonflies, wetland plants, amphibians and aquatic macroinvertebrates (i.e. excluding planktonic forms).
- Ponds that score in excess of 75% when analysed using the Predictive System for Multimetrics (PSYM).
- Other pond types, in isolation or in groups, with a limited geographical distribution, recognised as being important because of their age, rarity of type or landscape context. Such ponds might include pingos or dune slack ponds (neither of which occur in Essex).

4.6.6 For Essex, this framework identifies the following pond habitats as being covered by the UK BAP Priority Habitat definition:

- Ponds supporting Great Crested Newts;
- Ponds supporting Water Voles;
- Ponds with diverse amphibian, invertebrate or wetland plant populations
- Ponds supporting Nationally Scarce or Red Data Book Species
- Ponds that are part of the foraging range of Otters

As with lakes and reservoirs, these matters are dealt with via Species Criteria, with the following Criterion aimed at defining the extent of the Site.

Habitat Criterion 17 (HC17) – Ponds

"Pond LoWS identified on the basis of Species Criteria should be of sufficient size and habitat quality to maintain the population of that species at a sustainable level."

Guidance

Where a species has been demonstrated to utilise several water bodies as part of a meta-population, all such bodies should be selected.

For species that utilise both terrestrial and aquatic habitats through their lifecycle, such as amphibians and dragonflies/damselflies, appropriate terrestrial habitat must be immediately adjacent to the pond and included within the LoWS boundary.

Rivers

4.6.7 The UK BAP Priority Habitat "Rivers" also has a number of quite strict defining criteria. Those that apply to Essex are:

- Headwaters, defined as a watercourse within 2.5 km of its furthest source as marked with a blue line on Ordnance Survey Landranger maps (1:50 000 scale) and estimated to cover more than 70% of the UK's flowing waters.
- Sections of SSSI designated for riverine species, which would be excluded from LoWS because of their SSSI status.
- Rivers identified for fluvial geomorphology through the Geological Conservation Review.
- Rivers supporting BAP Priority species or species listed in Annex II of the Habitats Directive.
- Water bodies of high hydromorphological/ecological status, as defined by the Environment Agency (in prep.).

4.6.8 The BAP does not cover canals or reaches which are heavily degraded and which have little scope for improvement. Given that the suggested basic unit for such a habitat is a 10-30 km stretch of homogeneous physical characteristics, it is unlikely that many stretches of Essex river would qualify for inclusion within this UK BAP Priority Habitat definition. Most Essex headwaters are short, suffering from drought and would be disqualified by the degradation/scope for improvement rule.

4.6.9 Notwithstanding this, there is a need to protect stretches of significant Essex riverine habitat within the LoWS network. Sections of river supporting significant species, such as White-clawed Crayfish (*Austropotamobius pallipes*), Otters

(*Lutra lutra*) or Water Voles (*Arvicola terrestris*) are addressed under Species Criteria, as might rivers supporting locally notable species such as Allis (*Alosa alosa*) and Twaite (*A. fallax*) Shad, Bullhead (*Cottus gobio*), Barbell (*Barbus barbus*), Brook Lamprey (*Lampetra planeri*), White-legged Damselfly (*Platycnemis pennipes*) and Beautiful Demoiselle (*Calopteryx virgo*).

Habitat Criterion 18 (HC18) – Rivers

"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). The Site shall be deemed to extend at least 2 metres away from the top of the bank into the adjacent habitat."

Habitat Criterion 19 (HC19) – Extended Riverine Habitat

"*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".*

4.6.10 Given the canalisation, culverting and straightening that has affected many stretches of river in Essex, more broadly "natural" sections of river with a meandering course, natural bank profiles and areas of deep-water pools interspersed with shallower "riffles" are a scarce resource and worthy of conservation under the fluvial geomorphology criterion. Clearly, some such stretches of river might be identified as Local Geological/Geomorphological Sites on account of this landform, but it is equally valid to include such rivers under wildlife Sites on account of the varied habitat structure they present.

Habitat Criterion 20 (HC20) – Complex Riverine Habitats

"Sections of river that support a suite of natural features, leading to a complex riverine habitat structure will be eligible for selection."

Guidance

Such features should include a good diversity of emergent vegetation, floating aquatic plants, shallow 'riffles' and deeper pools, natural, rather than hard, engineered banks and a more or less meandering, rather than canalised, course.

4.7 COASTAL HABITATS

4.7.1 This suite of sites comprises coastal grazing marsh, areas of saltmarsh and other intertidal habitats not covered by SSSI designation, borrow dykes, saline lagoons, beaches and dune-like vegetation and also maritime cliffs. Essex is of national importance for its grazing marsh and inter-tidal habitats and many of the best areas have national (SSSI) and European (SAC, Ramsar) designations. It is a suite of habitats that is under extreme pressure, from global warming and the consequent rise in sea level, from coastal engineering operations that can deflect coastal erosion problems from one areas to another, as well as agricultural improvement works and recreational pressures.

Coastal Grazing Marsh

4.7.2 Within the UK BAP, this habitat is included with freshwater marsh as "Coastal and Floodplain Grazing Marsh". Coastal grazing marsh comprises the upper reaches of the natural saltmarsh zonation that has been enwalled, drained and agriculturally improved to greater or lesser extents. In the worst cases, the land has been ploughed, fertilised and re-seeded or in the extreme case converted to arable cultivation. Some such sites are now the focus of "coastal realignment" or "managed retreat" schemes that see the deliberate breaching of the seawall and the recreation of saltmarsh or grazing marsh grassland habitat.

4.7.3 Areas that have remained as grazing land sometimes still show signs of the former saltmarsh drainage creeks and channels. These are the most diverse and valuable coastal grassland habitats, supporting a suite of Nationally Scarce plants and invertebrates, as well as providing high tide refuge for wildfowl and waders from the adjacent intertidal habitats. However, given that much of the interest of these grasslands lies in them being a feeding or resting habitat for

coastal wildfowl and waders, even recently created blocks of grassland can soon attain a value for wildlife.

4.7.4 There is some justification in assuming that all sites retaining characteristic field patterns and drainage systems which still have ecological links to the adjacent estuarine habitats should be considered for selection. This may be provided, for example, through movements of wildfowl and waders or tidal flow of brackish water over part of the site. 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. In this instance, floristic diversity is not necessarily a key quality. Many important sites for Brent Geese (*Branta bernicla*) are improved grassland swards, with the key qualities being sward height, size of field, proximity of the open estuary and freedom from disturbance. 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, or the site is small or suffering inappropriate management. The Essex Red Data List includes many brackish water invertebrates for which coastal grazing marshes are an important habitat.

Habitat Criterion 21 (HC21) – Coastal Grazing Marsh

"All areas of coastal grazing marsh shall be eligible for selection".

Guidance

Particular consideration should be given to size, diversity, the presence of anthills, low-ways and periodically inundated creeks, notable species and close proximity to the associated intertidal habitats. 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.

Whilst the conservation of old grazing marsh is of considerable importance, newer areas of coastal grazing marsh grassland should also be considered. Such areas might be created through agri-environment schemes or as part of

coastal realignment projects and could qualify for selection as a LoWS if a particular importance for a species or group of species is demonstrated.

Intertidal Habitats

4.7.5 Truly marine habitats are generally held to be beyond the scope of Local Wildlife Site systems, but the intertidal zone of mudflats and saltmarsh communities is included and this will include the following UK BAP Priority Habitats: Coastal Saltmarsh, Intertidal mudflats and Seagrass Beds. The majority of this habitat in Essex is protected by both UK and EU legislation but several small fragments of these habitats (mainly saltmarsh) occur outside this legal framework, excluded from SSSI designation by relatively high degrees of disturbance, greater environmental degradation or other limiting factor. Nevertheless, these areas can act as important buffers to the legally designated sites and also provide opportunities for environmental education that will not damage the best examples of this fragile and declining habitat.

4.7.6 As discussed under para. 4.7.2, coastal grazing marsh was generally created by enwalling the upper end of saltmarsh zonations – the fringe of land through which the natural tidal cycle ranged. As a result, the high tide limit in Essex is invariably a false boundary, a meeting of sea and an engineered wall be it built of clay, concrete or other artificial material. As such, there are very few places where there exists a natural tidal cycle and a full zonation of upper saltmarsh communities. Such areas are of value as near-natural ecosystems. These conditions are mimicked, to a greater or lesser extent, by the several managed retreat schemes around the Essex coast although in some cases the last line of defence is still an artificial wall and in nearly all cases the tidal cycle is still artificially channelled through breaches in outer seawalls, giving rise to artificially adapted drainage cycles.

Habitat Criterion 22 (HC22) – Tidal Transition Zones

"All sites exhibiting an unrestricted upper saltmarsh to grassland transition will be eligible for selection".

Habitat Criterion 23 (HC23) – Saltmarsh and Mudflats

"All areas of saltmarsh and other intertidal habitats outside of SSSIs will be considered for selection. Newly created habitats within managed retreat zones can be considered once they have acquired a typical flora and use by other coastal wildlife is demonstrated".

Saline Lagoons

4.7.7 This UK BAP Priority Habitat is defined as bodies of brackish, saline or hyper-saline water that retain a proportion of their water at low tide. Drainage may be via a channel impeded by a natural bar or mud, sand or shingle or because it is through a restricting man-made channel.

4.7.8 There are precious few examples of truly natural lagoons in Essex, where drainage is impeded by a bar or intertidal substrate, but very small "lagoon pools" may form within low points in saltmarsh that may develop a flora and fauna characteristic of larger saline lagoons.

4.7.9 Within the broad definition of this habitat used in the Essex and UK BAP, allowing for water held back behind man-made channels or structures, one can view many of the coastal borrow dykes as providing parallel habitat conditions and some of these have been shown to support classic saline lagoon invertebrates. Many such borrow dykes are included, along with the seawall, within intertidal SSSIs, but where they are not, consideration should be given to identifying them as saline lagoon habitats. This should be driven by the presence of characteristic saline lagoon marine invertebrates, which requires specialist surveys. As such, areas of saline lagoon will be identified through Species Selection Criteria, with the following habitat criterion used to delimit the extent of such a site.

Habitat Criterion 24 (HC24) – Saline Lagoons and Borrow Dyke Habitats

"Sections of borrow dyke and tidal or semi-tidal brackish or saline lagoons known to support a flora and fauna characteristic of saline lagoon conditions will be eligible for selection".

Guidance

The extent of habitat selected should reflect the ecological needs of the species concerned but should include the means by which sea water is supplied to the lagoon plus parts of the lagoon system deemed to be capable of supporting the species concerned and within the dispersal capabilities of that species.

The suite of "characteristic species" is too large and diverse a group to reproduce here, but reference should be made to local expertise in guiding what constitutes a significant population of such species.

Sand Dune and Shingle Beaches

4.7.10 These habitat types are scarce in Essex and largely protected within the SSSI system. However, they are such fragile, rare and, typically, diverse habitats that there should be a presumption in favour of selecting all remaining fragments. In places around the Essex coast a particular form of what is effectively shingle beach is formed from old cockle shells (e.g. at Bradwell-on-Sea) and this habitat is included within this LoWS category. There are no true, extensive sand dune areas left in Essex, although small fragments exist at Shoeburyness and small, narrow fringes of this vegetation survive at Mersea Island, Colne Point, Goldhanger and Hamford Water. However, sites that support characteristic sand dune and shingle beach flora (see Appendix 6) should be deemed eligible for selection. Due to the scarcity of this habitat, most of the characteristic plants are on the Essex Red Data List.

Habitat Criterion HC25 (HC25) – Sand Dune and Shingle Beach Vegetation

"All areas of sand dune and shingle habitat exhibiting a characteristic land form and flora will be eligible for selection".

Maritime Cliffs and Slopes

4.7.11 There are probably only two largely natural maritime cliff slope systems in Essex: The Naze at Walton and The Cliff at Burnham. The former is a geological SSSI and the latter is both a geological SSSI and also part of the Crouch and Roach

Marshes biological SSSI. However, even landscaped and largely urbanised coastal slopes such as those at Clacton, Frinton, Benfleet, Westcliff and Leigh-on-sea can exhibit a flora and invertebrate fauna allied to that which can be found at the more natural sites. Smaller "mini-cliffs" can be found where large earthen seawalls are being eroded, and these too might support a characteristic invertebrate fauna but they are too small and ephemeral to be included here. Maritime cliff and slope sites are best treated by using Species Criteria to identify important assemblages of plants and animals, including Sand Martin nest sites. The following criterion establishes the extent that such a site should embrace.

Habitat Criterion 26 (HC26) – Maritime Cliffs and Slopes

"Maritime Cliffs and Slopes identified on account of one or more significant species or groups of species should be of sufficient extent, either in isolation or as a clearly recognisable chain of inter-related sites, should be of sufficient extent to include habitat capable of supporting sustainable populations of the species concerned."

Guidance

For invertebrates, where habitat conditions and ecological requirements are still relatively poorly understood, a "precautionary principle" approach should be taken, making the site larger rather than smaller than might first be apparent, by embracing semi-natural habitat likely to be of value to the species concerned.

4.8 OTHER HABITATS

Post-industrial Sites with High Nature Conservation Value

4.8.1 This habitat, often referred to as 'brownfield', embraces 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 significant importance for individual species of flora and fauna as well as assemblages of species. As a result, in many situations, one could argue for the selection of any given site through Species Selection Criteria, with several notable species favouring such sites. However, there is a certain suite of habitat conditions that are favourable to the support of biodiversity in general on these sites.

4.8.2 Post-industrial habitats of high nature conservation value may be characterised as unmanaged flower-rich grasslands with sparsely-vegetated areas developed on infertile substrates. Typically they comprise small-scale mosaics of the following habitats: areas of bare ground; early pioneer communities; longer established open grasslands; scrub; together with patches of other habitats such as heathland, swamp, ephemeral pools and inundation grassland. The vegetation can have similarities to early/pioneer communities (particularly grasslands) on more 'natural' substrates but, due to the severity of the edaphic conditions, the habitat can often persist for decades without active management (intervention).

4.8.3 Also included within this description are significant areas for wildlife developed from, or forming part of, the built environment. In particular those associated with derelict or ruined historic structures such as castles, walls, burial mounds and more recent military fortifications.

4.8.4 The main factors to consider when assessing brownfield/post-industrial sites or derelict buildings or structures for selection include:

- rich and/or large examples of habitat(s) typical of the substrate/edaphic conditions, which demonstrate the characteristic mosaic of bare ground, pioneer communities, flower-rich grassland and other habitat patches;
- presence of significant populations of notable species;
- sites which have retained areas of bare ground and pioneer communities over an extended period, demonstrating arrested succession;
- sites which are the last remaining examples in former industrial or urban areas where the habitat was formerly widespread or extensive;
- sites with a high scientific interest because of historical records or the nature of particular substrates or properties that may be especially rare; and/or
- the presence of an area of open water or the potential to become flooded, especially seasonally wet and saline areas.

Habitat Criterion 27 (HC27) – Post-industrial Sites

"Brownfield/post-industrial sites or derelict buildings/structures of high nature conservation value will be eligible for selection if they are known to support notable species or where it can be demonstrated they provide the habitat qualities necessary to support such 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".

Mosaic and Corridor Habitats

4.8.5 This category recognises that one occasionally comes across sites comprising two or more habitat types where there is no one clear dominant habitat in terms of conservation value. Each component might be too small, or not quite of sufficient standard to merit identification as a LoWS in isolation but, taken together, form a significant habitat mosaic. Alternatively, a site might have no especial value in itself, but attains importance because of an adjacent site of high value. An example of this would be an agriculturally improved, species-poor grassland sward that includes a high concentration of Red Clover, which provides a valuable additional foraging habitat for invertebrates identified as being significant in an adjacent meadow, post-industrial or maritime cliff site. Similarly, an area of grassland might form important terrestrial foraging habitat for amphibians breeding in an adjacent pond, even though of modest value in terms of the grassland criteria alone. The identification of such a site would ultimately be driven by Species Selection Criteria, using this criterion to determine boundaries.

Habitat Criterion 28 (HC28) – Small-Component Mosaics

"A site comprising two or more sub-habitats, each of which just fails to be selected as a Site within its own main habitat criterion group or on species grounds, will be eligible for selection".

Guidance

The component sub-habitats should be readily identifiable as comprising the key habitats covered by the main habitat criteria e.g. wet woodland, lowland fen and reedbed. The component habitats should have some identifiable ecological connectivity, as is the case with these three wetland habitats. Incongruous mosaics, such as reedbed adjacent to lowland mixed deciduous woodland should be excluded.

The extent of such sites should take into account the relative abundance of each of the component sub-habitats in that part of the county.

Habitat Criterion 29 (HC29) – Habitat Extension Mosaics

"Where a site that would not on its own qualify for consideration as a LoWS provides a significant and clearly identifiable extension to the habitat of an adjacent LoWS, then the habitat extension area should be added to the LoWS".

Guidance

In order for the site extension to be included, it should support a clearly identifiable resource that would be utilised by the species of significance for which the site is identified. It is likely that the site extension will be of broadly the same habitat type as the main key site, although occasionally quite distinct habitats are required during the annual lifecycle of a species.

Any site identified on species grounds should contain habitat resources at a sufficient scale to support sustainable populations.

4.8.6 A linear series of such habitat might sometimes be considered to be a "wildlife corridor". In a human context, a corridor is a purpose-built structure for the explicit purpose of getting from one place to another but in ecological terms it should be viewed as habitat that a species' population can "live along" or along which a species is prepared to forage and explore as part of its normal behaviour. The "goal" or end point at the other end of the corridor is our

perception, not the species' desire, when actively managing the countryside for nature conservation and attempting to aid the dispersal of a species into e.g. an apparently suitable habitat which it does not currently occupy. Such a corridor might also link two small, vulnerable populations with no interchange into one larger population which interchange of individuals and hence genetic stock.

Habitat Criterion 30 (HC30) – Wildlife Corridors

"Where two or more LoWS are physically linked by additional habitat of a type that would allow the dispersal and interchange of species within each site, then these corridors should be included within the LoWS."

Guidance

The corridor e.g. a hedge linking two woods, need not be species-rich or of any great antiquity. The key feature is that it provides suitable conditions that would allow the critical species in question to pass along it, thereby giving access to both key sites linked by the corridor.

Depending on the species concerned, it may not be necessary for the corridor to directly connect with the donor/receptor sites: a "stepping stone" quality may be sufficient to provide the corridor function.

Arable Field Margins

4.8.7 These are defined as herbaceous strips or blocks around arable fields that are managed specifically to provide benefits for wildlife. These strips must be more than 2 metres from the centre of the adjacent hedge or ditch, with the grassland between 0 and 2 metres from the centre being considered as part of the boundary feature, NOT the arable field margin.

4.8.8 Such grassland strips are only likely to be selected if part of a whole-farm conservation network and shown to be supporting populations of associated notable species, whereupon they will be identified using species criteria.

Accessible Natural Greenspace

4.8.9 Where a site of some substantive nature conservation value lies close to, and is readily accessible to, a centre of population, a case can be made for adopting it as a LoWS even if the habitat narrowly fail to qualify for inclusion in its own right. This justification is based on the important role that such sites can play in formal and informal environmental education and passive "wildlife experiences" for local residents. Whilst many such sites may be distinctly urban and represent the only opportunity to experience the countryside at first hand on a regular basis, other sites may be suburban or even rural and yet fulfil an important role in allowing people to have wildlife experiences.

4.8.10 Such pieces of habitat are likely to suffer more in terms of vandalism, trampling and invasion by alien species including predation by domestic pets. Urban sites are also more likely to be ecologically isolated from other, similar habitats. If the site is an ancient wood, veteran tree or other feature of antiquity, there is often an additional cultural association that might be exploited as part of a campaign of environmental education.

Habitat Criterion 31 (HC31) – Accessible Natural Greenspace

"A site that comes close to qualifying under other selection criteria can be eligible for selection based upon its amenity, cultural and/or education value close to a centre of population."

Guidance

The site in question should still have substantive nature conservation interest but this criterion allows for a slight "lowering of the bar" in acknowledgement of the role these sites play in helping people to engage with the countryside and its wildlife. The benefits of this should have ramifications for how the countryside in general is viewed and treated by the public.

5 SPECIES SELECTION CRITERIA

5.1 INTRODUCTION

5.1.1 The following Species Criteria (SC 1-20) have been developed to ensure that sites with specific species interest, which do not qualify under the Habitat Criteria, are evaluated as potential LoWS on their species interest alone. Occasionally, these criteria suites will operate in tandem, with a species criterion used to identify the existence of a candidate LoWS and an accompanying habitat criterion giving guidance on the extent of such a site. Alternatively, they can be used to emphasise a feature of particular significance, with sites being selected under more than one criterion. For example, a grassland would be eligible for selection if it is an example of MG5 Lowland Meadow (HC9), but it might also be given a Species Selection criterion if it includes a notable population of Green-winged Orchid, a "significant" plant species in Essex (see below).

5.1.2 Providing a definitive list of notable species to guide LoWS selection is problematic for many reasons. Primarily, this problem may arise from a disproportionate attention given to high profile and flagship species, a relative lack of data for certain lesser known and taxonomically challenging groups, and the existence of some published species status assessments that do not reflect current understanding of species distribution. Furthermore, published national guidelines and "Schedules" of legally protected species or species of conservation concern are reviewed periodically and are therefore susceptible to change. However, in general terms, species with the following status should be considered as being of probable notable status:

- Wildlife and Countryside Act 1981 (species listed in Schedules 1, 5 and 8);
- Priority species under the UK and/or Essex BAPs;
- Red Data Lists (RDL) and Red Data Books (RDB), including species with specific IUCN[17] designation, and species with a non-IUCN designation of 'rare'[18] or 'scarce'[19];

17 See Appendix 1 for a detailed discussion of IUCN designations

18 Defined as those species with an IUCN designation of 'Rare' or above, 'Red' list birds, and for species with out IUCN designation considered 'Rare'.

19 Defined as those species with an IUCN between 'near threatened' and 'Lower risk - conservation dependent', 'Amber' list birds, and for species with no IUCN designation considered 'Scarce'

- Species included on the Essex Red Data List (currently available as a draft via the Essex Field Club web-site).

5.1.3 Although these lists provide the foundation for assessing notable status, not all species on these lists will warrant specific protection within the LoWS network. Conversely, important species assemblages may occur that comprise a range of relatively common species, whose interest is linked to an unusual or uncommon assemblage, or simply exceptional diversity.

5.1.4 In keeping with the Defra guidelines, on 'substantive' (significant) populations of notable species or important assemblages of species will be considered for selection. However, what constitutes a significant population will vary between species, their individual rarity and population trends, both nationally and in the county. For example, a relatively small population of a species which is known to occur in only two sites in Essex is likely to be significant and worthy of selection, while a relatively large population of a species that is widespread and abundant in the county, but is perhaps notable for being uncommon nationally, may not be significant in the county context.

5.1.5 An assessment of which notable species warrant protection in LoWS and what constitutes a significant population, will ultimately be a subjective one, but these decisions must be based on the best available information and using expert opinion as necessary.

5.1.6 The evaluation process will primarily focus on an assessment of each site's wildlife interest against the specific Species Selection Criteria. However, other aspects will also require careful consideration prior to site notification. Firstly, all sites selected must encompass sufficient suitable habitat to enable the species or assemblage to be maintained as a viable population(s). Expert advice may be required to determine important habitat requirements for some species with complex life-cycles, and to assess the value, if any, of an *in-situ* approach to the conservation of highly mobile species. In principle, designated sites should contain the major habitat components necessary for key life-stages of the target

species (e.g. refuge, foraging, nesting, displaying, breeding and/or burrowing), or for species that depend on more than one site, provide an essential component for their survival.

5.1.7 Other more general considerations are also likely to have a bearing on site notification. Examples include management feasibility, the potential for habitat enhancement and expansion, and opportunities to link and/or buffer existing non-statutory and statutory wildlife sites.

5.2 PLANTS

Vascular Plants

5.2.1 The selection of LoWS for their habitat importance will ensure that many important populations of notable plant species are protected. Nevertheless, some notable plants may occur outside of otherwise important semi-natural habitats and require selection under specific criteria. Examples of this include road verges, where significant populations of many plants have survived when their "parent" grassland the other side of the field boundary has long gone. Such verges are better viewed as single (or multiple) species refuges, rather than as grasslands *per se* although the UK BAP Priority Habitat Descriptions do now recognise that examples of, for example, the MG5 Lowland Meadow habitat do occur on road verges and these are included within the Priority Habitat definition.

5.2.2 Nationally significant plant species should be identified according to the current Vascular Plant Red Data List for Great Britain. The current document covers a total of 1,756 vascular plant taxa, of which 495 carry specific individual conservation status (the remainder are of 'Least Concern'). Many of these plant species are known to occur within Essex and where appropriate should be protected within the LoWS network.

5.2.3 A number of additional plant species are included on the Essex RDL. This list covers 616 vascular plants, and includes a number of species that are uncommon in Essex, but are of Least Concern nationally. No formal Rare Plant Register, following nationally accepted methods for assessing plant status, is

currently available for the county, but if available in the future such a list should be used to complement the existing Essex RDL.

5.2.4 Although these national and county lists currently provide the foundation for assessing species status, not all plant species listed will warrant specific protection. In order for a single species listed on the Essex RDL (but lacking any national threat/rarity status) to trigger LoWS selection it would need to be a very significant population, the assessment of which took into account the national, regional and local rarity and threat of the species concerned.

5.2.5 The selection of sites for the conservation of particular plant species will follow advice from relevant local and national experts, for example the Essex Field Club's County Recorder and national referees for specific plant taxa.

Species Criterion 1 (SC1) – Vascular Plants

"Sites supporting significant populations of 'notable' vascular plants will be eligible for selection".

Guidance

Determination of the significance of a species should take into account published national and local Red Data Lists, Schedules within the Wildlife and Countryside Act 1981 (and subsequent amendments), the views of the County Recorder and the distribution of the species across the county.

Bryophytes

5.2.6 As with vascular plants, many notable bryophytes (mosses and liverworts) will be protected within LoWS designated for their habitat value. However, it is possible that some sites will merit selection on the basis of their bryophyte interest alone.

5.2.7 The foundation for assessing the national status of bryophytes will follow the definitions of Nationally Rare and Nationally Scarce species given by Hill *et al*. (1991, 1992 & 1994), with Red Data species following Church *et al.* (2001). The

local status will follow the Essex RDL, which currently lists four liverworts and three mosses that are considered rare in the county.

5.2.8 Expert advice will be sought to determine the need for designating sites for their specific bryophyte interest.

Species Criterion 2 (SC2) – Bryophytes

"Sites supporting significant populations of 'notable' bryophytes will be eligible for selection".

Guidance

Determination of the significance of a species should take into account published national and local Red Data Lists, Schedules within the Wildlife and Countryside Act 1981 (and subsequent amendments), the views of the County Recorder and the distribution of the species across the county.

Lichens

5.2.9 Some LoWS selected on their habitat characteristics, particularly ancient woodland and veteran trees, will have associated lichen interest. However, it is likely that features such as individual trees, churchyards that do not qualify under other criteria, may have specific lichen interest and warrant consideration as a LoWS. One might also desire to identify the very walls of a church, castle or similar structure as a LoWS on the basis of the flora growing there, as is the case with the Roman wall around Colchester.

5.2.10 The assessment of the national status should follow the British Lichen Society's assessment of rarity and threat (Woods and Coppins, 2001). A county list of rare lichens has not been produced to date, but if such a list becomes available in the future it should be used to assess local status.

5.2.11 Expert advice will be sought to establish the need for designation of sites associated with specific lichen interest.

Species Criterion 3 (SC3) – Lichens

"Sites supporting significant populations of 'notable' lichens will be eligible for selection".

Guidance

Determination of the significance of a species should take into account published national and local Red Data Lists, Schedules within the Wildlife and Countryside Act 1981 (and subsequent amendments), the views of the County Recorder and the distribution of the species across the county.

5.3 FUNGI

5.3.1 A similar rationale to that used above can be applied to fungi.

Species Criterion 4 (SC4) – Fungi

"Sites supporting significant populations of 'notable' fungi will be eligible for selection".

Guidance

Determination of the significance of a species should take into account published national and local Red Data Lists, Schedules within the Wildlife and Countryside Act 1981 (and subsequent amendments), the views of the County Recorder and the distribution of the species across the county.

5.4 BIRDS

5.4.1 The basis for assessing bird species' statuses in Essex combines the UK list of Birds of Conservation Concern (BoCC), the UK and Essex BAPs and local status assessments undertaken by the Essex Birdwatching Society. The latest BoCC listing was published in *British Birds* 102, June 2009 or can be accessed via www.britishbirds.co.uk/Bocc3final.pdf

5.4.2 The birds list in the Essex RDL is not sufficiently up to date to be used absolutely for the identification of sites but should nevertheless be a starting point for discussion. Many bird species included on the Essex RDL are sufficiently uncommon to warrant specific protection. However, many species, such as farmland bird assemblages (which are a group that have suffered a severe decline), would require positive land management changes at the landscape scale, and would not benefit significantly from specific site protection.

5.4.3 Other bird species and assemblages have more specific requirements that could be accommodated at site level. This may include for example, sections of undisturbed beach holding breeding Little Terns, parkland and woodlands with breeding Hawfinch, Sand Martin colonies and water-bodies and surrounding habitat that support large and significant heronries.

5.4.4 It is also possible that some sites may warrant selection due to the regular presence of exceptional breeding or over-wintering populations of relatively commonplace species. Here, there are overlaps with habitat criteria, for example with the orchard habitat criterion HC7, where sites left with windfall apples left on the ground may attract significant numbers of over-wintering migratory Redwings and Fieldfares as well as resident species.

5.4.5 The value of site designation for important bird species and assemblages should be decided using the best available information and expert opinion. Such judgements should be typically based on five-year averages rather than *ad hoc* sightings or single year peaks that may not represent the general picture.

Species Criterion 5 (SC5) – Notable Bird Species

"*Discrete habitat areas known to support significant populations of notable bird species, whether breeding or over-wintering, will be eligible for selection."*

Guidance

Such judgements should ideally be made using 5-year average data, although in exceptional circumstances, shorter time period data sets may be acceptable.

For many birds it may not be possible to identify discrete habitats. For example, Grey Partridge and other farmland birds that might range quite widely, exploiting favourable habitat conditions as appropriate.

It might be possible to identify e.g. an isolated grassland site for its breeding Skylark population if it is demonstrated that the site supports a stable population that might additionally overspill into the surrounding arable land. Other such examples undoubtedly occur, making it important to consider each species and each site on its own merits.

For others, e.g. Little Tern or Little Ringed Plover, it will be possible to identify discrete nesting sites which, if regularly used, might be eligible for selection, but foraging habitat is likely to be too diffuse for inclusion.

Species Criterion 6 (SC6) – Exceptional Populations of Common Bird Species

"Discrete habitat areas that regularly support exceptional breeding, feeding, roosting/resting or over-wintering populations of relatively commonplace species will be considered for selection".

5.5 MAMMALS

5.5.1 In parallel with bird species, some mammals lend themselves to protection within the LoWS system, whilst others do not. The UK BAP Priority list of terrestrial mammals (i.e. excluding bats) includes Hedgehog, Harvest Mouse, Polecat and Brown Hare, all of which need conserving at a landscape scale in much the same way as farmland birds. With current knowledge, it would be difficult to define discrete habitat areas for these species. The following section therefore concentrates on only a limited number of species of conservation concern.

Dormouse

5.5.2 The Dormouse is a national and Essex BAP species, which is afforded high levels of protection under UK and European wildlife legislation. It is thought to have become extinct in up to seven counties in England over the past 100 years, and is a rare mammal in Essex, although new locations are still being discovered.

5.5.3 Until recently it was widely held that Dormice were restricted to large semi-natural woodlands, particularly those with Hazel coppice. However, developments in Dormouse survey techniques, which have been particularly well demonstrated in south-west England, have shown it occupies a wider range of broadly arboreal habitats than previously thought. Suitable habitats are now known to include coniferous woodland, hedgerows, and low growing vegetation types such as scrub, and dense tall ruderal vegetation. Dormice have also been recorded in relatively small fragments of suitable habitat. Such small populations are, however, very vulnerable to adverse impacts and prone to localised extinction.

Species Criterion 7 (SC7) – Dormouse

"All sites confirmed as supporting populations of Dormouse will be eligible for selection. Sites should include all adjoining areas of suitable Dormouse habitat and important movement corridors (HC30)".

Bats

5.5.4 All bats are included in the Essex BAP and the UK BAP lists four species (Barbastelle, Noctule, Soprano Pipistrelle and Brown Long-eared). All British bat species are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and Schedule 2 of the Conservation (Natural Habitats &c.) Regulations 1994. In summary, the Act and Regulations together make it illegal to (i) Intentionally or deliberately kill or capture (take) bats, (ii) Deliberately disturb bats (whether in a roost or not), and (iii) Damage, destroy or obstruct access to bat roosts (whether or not bats are in residence).

5.5.5 Annex II of the Regulations also lists four British bat species that are given elevated conservation status, namely Greater Horseshoe, Lesser Horseshoe, Barbastelle and Bechstein's bats. Only one of these species, the Barbastelle, is currently known to occur in Essex. Any breeding populations of this rare bat species, or other Annex II species should they be recorded in Essex in the future, not protected by statutory designation, together with other significant breeding and hibernation bat roosts, should be considered for selection.

5.5.6 There is, however, a general lack of protection given to their foraging habitat and routes used to move around the landscape. In many instances this is too diffuse to be identified, but use could be made of the mosaic criterion HC 29 and wildlife corridor criterion HC30 to identify and help protect key movement routes and foraging areas associated with significant bat colonies or over-wintering sites.

Species Criterion 8 (SC8) – Barbastelle (and other Annex II) bats

"All sites containing a breeding colony of Barbastelle bats (or other Annex II bat species should they be recorded in Essex in the future) will be eligible for selection."

Guidance

All woodland immediately contiguous with the breeding site, together with areas proven to be key foraging grounds and associated movement corridors, should be included in the site, using HC29 and HC30.

Species Criterion 9 (SC9) – Other Bat Breeding Colonies

"All sites, except dwelling houses, regularly supporting breeding colonies of four or more bat species, or an exceptional breeding roost or colony of one or more species, will be eligible for selection".

Guidance

The level that constitutes an "exceptional" breeding roost or colony should be determined in association with the Essex Bat Group and other expert opinion.

All appropriate foraging habitat immediately contiguous with the breeding site, together with other areas proven to be key foraging grounds and associated movement corridors, should be included in the site, using HC29 and HC30.

Species Criterion 10 (SC10) – Bat Hibernation Sites

"All sites, except dwelling houses, supporting exceptional numbers of hibernating bats of one or more species will be eligible for selection".

Guidance

The level that constitutes an "exceptional" number should be determined in association with the Essex Bat Group and other expert opinion.

All appropriate foraging habitat immediately contiguous with the hibernation site and associated bat movement corridors should be included, using HC29 and HC30.

Otter

5.5.7 The Otter is afforded high levels of protection under UK and European Legislation and is a priority species under both the UK and Essex BAPs. The decline of Otters in the UK was thought to begin in the 1950's and has been linked to the presence of toxic chemicals in the environment. The prevalence of these chemicals in the UK environment has reduced since the 1980's and Otter numbers have been in a period of recovery since this time.

5.5.8 Otters were considered to be extinct in Essex by 1974. However, they now occur sparingly throughout the north of the county, although absent from the southern districts. It is thought to have re-colonised Essex through a combination of spread from adjacent natural or released populations in Suffolk and Hertfordshire and also through planned re-introduction schemes by Otter conservation organisations, including the creation of artificial otter holts.

5.5.9 Whilst they range over sections of river that are too long to accurately identify, confirmed, well established and frequently used Otter holts may warrant specific protection, although these are notoriously difficult to find.

Species Criterion 11 (SC11) – Protection of Otter Holts

"A confirmed, natural or artificial, well established and regularly used otter holt, including an appropriate buffer zone of up to 250 metres up and down stream, will be eligible for selection".

Water Vole

5.5.10 Following recent (2008) changes in legislation, the Water Vole now receives wide-ranging protection under UK Legislation, making it an offence to kill, injure or disturb the animals or to damage, destroy or block access to its places of shelter. Water Vole is also a priority species under both the UK and Essex BAPs.

5.5.11 Water Voles are found throughout Britain, particularly in lowlands areas, but have suffered a significant decline in numbers and distribution over recent decades. This decline has been linked to various factors, although direct habitat loss and predation/displacement by feral North American Mink are clearly important factors. This decline has also resulted in discontinuous populations being increasingly isolated and vulnerable to localised extinction.

5.5.12 In Essex, it is estimated that populations have declined by over 90%, although the coastal grazing marshes and borrow dyke systems still contain healthy colonies including some nationally important populations. However, populations within the main inland river catchments have declined dramatically, with only a few isolated populations remaining, for example in the Mar Dyke river towards the south of the county. Only 3.7% of the 2007 Water Vole survey points on the Blackwater catchment, which drains approximately 30% of the county, showed occupation, and the river Roding has experienced an almost total population crash, with only isolated water bodies off the main channel still occupied.

Species Criterion 12 (SC12) – Breeding Water Vole Colonies

"Any watercourse or wetland system supporting a viable breeding population of Water Vole will be eligible for selection".

5.6 AMPHIBIANS

5.6.1 Five native species of amphibian occur within the county, namely Common Frog, Common Toad, Smooth Newt, Palmate Newt and Great Crested Newt. The first four species are afforded limited protection under the Wildlife and Countryside Act 1981 against sale only. The Great Crested Newt is afforded high levels of protection under UK and European Legislation and is a priority species under both the UK and Essex BAPs. Common Toad is also a newly adopted UK Priority species.

5.6.2 Common Frog, Common Toad and Smooth Newt are relatively common both nationally and in our county and, in isolation, do not currently warrant specific *in situ* conservation within the LoWS network. However, sites that support significant populations of a range of amphibian species ('hotspots'), including common species, will be considered for selection as a LoWS.

Species Criterion 13 (SC13) - Hotspots for Amphibian Diversity

"*Any water body, other than a garden pond, known to support significant populations of three or more species of breeding amphibian will be eligible for selection."*

Guidance

Sites should include sufficient surrounding terrestrial habitat, including appropriate over-wintering shelters, to ensure that viable amphibian populations can be maintained in the long-term. Consideration should also be given to the potential importance of any other water bodies within the dispersal range of the species present".

5.6.3 In contrast, populations of Palmate Newt, which is a very local species in Essex, and Great Crested Newt (a species of high conservation interest, albeit locally not uncommon) do warrant consideration for specific protection within LoWS.

Species Criterion 14 (SC14) - Palmate Newts

"Any water body, other than a garden pond, known to support a breeding population of Palmate Newt will be eligible for selection."

Guidance

Sites should include sufficient surrounding terrestrial habitat to ensure that a viable population can be maintained in the long-term. Consideration should also be given to the potential importance of any other water bodies within the dispersal range of the species".

5.6.4 Given its high level of protection, some counties have proposed that all Great Crested Newt breeding sites are considered as potential LoWS. However, because a large number of Great Crested Newt breeding ponds are thought to occur in Essex, this position is not considered appropriate in our county, and only the habitat of particularly significant populations that are not within SSSIs should be considered. Given the high level of protection afforded to this species by EU legislation (notably the Habitats Directive), this legislation alone should be sufficient to protect Great Crested Newt habitat and breeding ponds. The identification of LoWS for Great Crested Newts might best serve as a driver for auxiliary habitat creation schemes aimed at halting the loss of fragmented newt populations under threat from habitat changes that cannot be controlled through legislation. Such changes include water pollution through agricultural run-off, the natural succession of ponds and lakes, habitat fragmentation by new road schemes and other developments and changes in land-use in the surrounding countryside.

Species Criterion 15 (SC15) - Great Crested Newts

"Any water body, other than a garden pond, known to support an exceptional breeding population of Great Crested Newts will be eligible for selection."

Guidance

Eligible sites will include sufficient surrounding terrestrial habitat to ensure that a viable population can be maintained in the long-term. Consideration should also be given to the potential importance of any other water bodies within dispersal range.

5.7 REPTILES

5.7.1 Four native species of reptile occur in Essex, namely Adder, Grass Snake, Common (or Viviparous) Lizard and Slow-worm, all of which are UK BAP Priority species. These species are afforded protection under the Wildlife and Countryside Act 1981(as amended) against intentional killing, injury or taking animals from the wild.

5.7.2 Grass Snake and Slow-worm are relatively widespread in the county, with Common Lizard and Adder occurring more locally. Although no individual reptile species currently warrant specific *in situ* conservation within Essex, sites that support significant populations of a range of reptile species will be considered for LoWS selection.

Species Criterion 16 (SC16) - Hotspots for Reptile Diversity

"Any site supporting significant populations of three or more reptile species will be eligible for selection".

5.8 INVERTEBRATES

5.8.1 A relatively small number of British invertebrates receive legal protection of any sort, and even fewer are known to occur in Essex. For most sites with invertebrate interest, the key quality is often the diversity of species within a group (e.g. a notable number of butterfly species breeding) or the presence of an assemblage of nationally significant species across many taxa. Only for the very rarest species or for species specifically targeted by an Essex or UK BAP might one consider identifying a LoWS on the basis of a single species.

Native (White-Clawed) Crayfish

5.8.2 Native (White-clawed) Crayfish is listed in Appendix III of the Bern Convention and Annexes II and IV of the EC Habitats Directive. It is classed as globally threatened by IUCN/WCMC, and is a UK Priority BAP species, also included in the Essex BAP.

5.8.3 This rare and threatened species is highly susceptible to disease and also competition for food and shelter from non-native species. In particular, it is threatened by the spread of the North American Signal Crayfish, which has spread widely in UK rivers as a result of accidental and deliberate introductions from fish farms since the 1970s. Native and non-native species of crayfish rarely co-exist and the spread of Signal Crayfish is one of the most significant threats to the survival of native crayfish in the UK. White-clawed Crayfish are also susceptible to disease, and in particular crayfish plague, a disease carried by Signal Crayfish.

5.8.4 This species was feared to be extinct in Essex until a population was discovered in 2006 on the River Chelmer. White-clawed Crayfish remain very rare in our county, found in isolated pockets in the north of the county and are highly susceptible to localised extinction. For this reason any river or watercourse found to support a population of White-clawed Crayfish will be considered for selection.

Species Criterion 17 (SC17) – White-clawed Crayfish

"All populations of White-clawed crayfish will be eligible for selection. Any designated Site should include suitable buffering both upstream and downstream".

Other Invertebrates

5.8.5 Terrestrial and other freshwater aquatic invertebrates are the subject of relatively little conservation-related legislation, with only a small number of species protected by the Wildlife & Countryside Act, 1981 (as amended). This is despite the fact that many dozens of species have population numbers that are minute when compared with vertebrates such as Great Crested Newts and Water Voles,

which now receive very strict legal protection. A large number of terrestrial invertebrate species that are considered to have suffered severe national decline are listed in the UK BAP, although this list is biased towards a few, well-studied groups.

5.8.6 This list is a measure of threat not a measure of rarity and can be used to justify the selection of key sites for UK BAP Priority species. Some (though by no means all) nationally "rare" (i.e. Red Data Book) species have probably always been rare, highly restricted in terms of population sizes and known localities but essentially stable in the long term. These might be perceived to be less of a conservation concern than UK BAP Priority species, which are afforded that status because their populations are in serious decline, with the threat of localised or national extinction if trends continue. That is not to say, however, that RDB species are not worthy of conservation effort because without it many of these species too may fall into decline and merit BAP proposals.

Species Criterion 18 (SC18) – UK BAP Priority Invertebrates

"All significant populations of terrestrial and freshwater aquatic UK BAP Priority invertebrates will be eligible for selection."

Guidance

Sites should encompass sufficient habitat to maintain viable populations of the species concerned.

5.8.7 A number of Red Data Books, and subsequent reviews, covering most of the major insect groups have been published, which classify species according to a series of threat/scarcity categories. However, it is widely acknowledged that formal scarcity and threat categories assigned to some species are now inappropriate, and that other species not included in those reviews, are known to justify inclusion.

5.8.8 Whilst the scarcity status of some species nationally may nowadays be disputed or considered inadequately known, county-specific statuses for some groups are available and provide a more precise way of assessing species importance. In our county this includes the Essex Rarity and Threat categories and the ERDL.

5.8.8 Nevertheless, knowledge of invertebrates on specific sites is often poor, especially so on undesignated sites, where in many cases little survey work may have been carried out at all. The presence of particular habitats can be used to trigger an assessment of invertebrate interest, but decisions on a particular site should be based on wide ranging survey of several invertebrate groups using a variety of sampling methods.

Species Criteria 19 (SC19) – Important invertebrate assemblages

"Significant populations of notable invertebrate species, and/or important invertebrate assemblages (i.e. unusual or uncommon assemblages, or exceptional diversity) will be eligible for selection. In deciding the significance of a species, reference should be made to any available Essex Red Data List, national Red Data Book or "Review".

Species Criteria 20 (SC20) – Notable 'flagship' macro-invertebrates

"Exceptional populations or high species diversity of non-notable macro-invertebrates (e.g. dragonflies, damselflies and butterflies) will be eligible for selection".

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APPENDIX 1 CONSERVATION DESIGNATIONS FOR HABITATS AND SPECIES

Over the past thirty years, numerous lists of conservation status have been produced - Red Lists, Biodiversity Action Plan (BAP) Priority Lists, species listed on European Directives, species listed on the Schedules of the Wildlife & Countryside Act (1981), together with lists of rare and scarce species. There is considerable overlap between these with some species appearing on several lists - for example the otter and the marsh saxifrage *Saxifraga hirculus* have as many as six 'badges'.

UK Red Listed and Rare Species

These are a collection of taxonomically based published 'red lists' using the International Union for the Conservation of Nature and Natural Resources (IUCN) criteria, together with auxiliary lists of rare and scarce species. In the UK, Red and amber lists for birds do not follow the IUCN criteria. See the British Trust for Ornithology website http://www.bto.org/psob/index.htm#population

Table 2 Red lists based on IUCN Criteria.

Designation	Description
Extinct	Taxa which are no longer known to exist in the wild after repeated searches of their localities and other known likely places. Superseded by new IUCN categories in 1994, but still applicable to lists that have not been reviewed since 1994.
Extinct in the Wild	A taxon is Extinct in the wild when it is known to survive only in cultivation, in captivity or as a naturalised population (or populations) well outside the past range. A taxon is presumed extinct in the wild when exhaustive surveys in known and/or expected habitat, at appropriate times (diurnal, seasonal, annual) throughout its range have failed to record an individual. Surveys should be over a time frame appropriate to the taxon's life cycle and life form.

Designation	Description
Critically Endangered	A taxon is Critically Endangered when it is facing an extremely high risk of extinction in the wild in the immediate future.
Endangered	Taxa in danger of extinction and whose survival is unlikely if the causal factors continue operating. Superseded by new IUCN categories in 1994, but still applicable to lists that have not been reviewed since 1994.
Vulnerable	Taxa believed likely to move into the Endangered category in the near future if the causal factors continue operating. Superseded by new IUCN categories in 1994, but still applicable to lists that have not been reviewed since 1994.
Rare	Taxa with small populations that are not at present Endangered or Vulnerable, but are at risk. (In GB, this was interpreted as species which exist in fifteen or fewer 10km squares). Superseded by new IUCN categories in 1994, but still applicable to lists that have not been reviewed since 1994.
Lower risk - conservation dependent	Taxa which are the focus of a continuing taxon-specific or habitat-specific conservation programme targeted towards the taxon in question, the cessation of which would result in the taxon qualifying for one of the threatened categories above within a period of five years.
Lower risk - least concern	Taxa which do not qualify for Lower Risk (conservation dependent) or Lower Risk (near threatened) or (in Britain) Nationally Scarce.

Designation	Description
Data Deficient	A taxon is Data Deficient when there is inadequate information to make a direct, or indirect, assessment of its risk of extinction based on its distribution and/or population status. A taxon in this category may be well studied, and its biology well known, but appropriate data on abundance and/or distribution are lacking. Data Deficient is therefore not a category of threat or Lower Risk. Listing of taxa in this category indicates that more information is required and acknowledges the possibility that future research will show that a threatened category is appropriate.
Near Threatened	Taxa which do not qualify for Lower Risk (conservation dependent), but which are close to qualifying for Vulnerable. In Britain, this category includes species which occur in 15 or fewer hectads[20] but do not qualify as Critically Endangered, Endangered or Vulnerable.

Table 3 Red listed and rare species - not based on IUCN Criteria

Designation	Description
Nationally rare without IUCN designation	Occurring in 15 or fewer hectads (10km squares) in Great Britain. Excludes rare species qualifying under the main IUCN criteria.
Nationally scarce species without an IUCN designation	Occurring in 16-100 hectads in Great Britain. Excludes rare species qualifying under the main IUCN criteria.

20 A hectad is an area 10 km x 10 km square.

Designation	Description
Bird Population Status: red	Red list species are those that are Globally Threatened according to IUCN criteria; those whose population or range has declined rapidly in recent years; and those that have declined historically and not shown a substantial recent recovery.
Bird Population Status: amber	Amber list species are those with an unfavourable conservation status in Europe; those whose population or range has declined moderately in recent years; those whose population has declined historically but made a substantial recent recovery; rare breeders; and those with internationally important or localised populations.
Nationally rare	Occurring in 15 or fewer hectads in Great Britain
Nationally rare marine species	Species which occur in eight or fewer hectads containing sea (or water of marine saline influence) within the three mile territorial limit
Nationally scarce	Taxa which are recorded in 16-100 hectads but not included in one of the Red List Categories
Nationally scarce marine species	Species which occur in nine to 55 hectads containing sea (or water of marine saline influence) within the three mile territorial limit

Essex Red Data List (ERDL) www.essexfieldclub.org.uk

This list has been produced for Natural England (Colchester Office) by P.R. Harvey on behalf of the Essex Field Club, with the input and help of the County Recorders of the Essex Field Club, as well as other naturalists in the county.

The need for such a list arose as a result of discussions between English Nature (Natural England), the Essex Field Club and the Essex Biodiversity Project. It is hoped that the list will be an important compilation of Essex information, and one which will help inform and better enable biodiversity and planning decisions within the county. It was never intended that the list should be fixed for all time, but that changes would be made as necessary to keep it up to date. Indeed further changes are likely to take place, particularly where new information on groups not yet covered becomes available.

Biodiversity Action Plan (BAP) Lists

UK - A Priority Habitat and Species List published in the UK Biodiversity Group Tranche 2 Action Plans (1998)

See the UK BAP website for further information www.ukbap.org.uk

Essex - In 1999, the Essex Biodiversity Project published action plans for 25 species and 10 habitats.

See the Essex BAP website for further information http://www.essexbiodiversity.org.uk

APPENDIX 2 UK AND EUROPEAN WILDLIFE LAW

International Conventions and Directives

Constituent list	Explanation
Bern Convention	The Convention on the Conservation of European Wildlife and Natural Habitats (the Bern Convention) was adopted in Bern, Switzerland in 1979, and came into force in 1982. The principal aims of the Convention are to ensure conservation and protection of all wild plant and animal species and their natural habitats (listed in Appendices I and II of the Convention), to increase cooperation between contracting parties, and to afford special protection to the most vulnerable or threatened species (including migratory species) (listed in Appendix 3). To this end the Convention imposes legal obligations on contracting parties, protecting over 500 wild plant species and more than 1000 wild animal species.
Bonn Convention	The Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention or CMS) was adopted in Bonn, Germany in 1979 and came into force in 1985. Contracting Parties work together to conserve migratory species and their habitats by providing strict protection for endangered migratory species (listed in Appendix 1 of the Convention), concluding multilateral Agreements for the conservation and management of migratory species which require or would benefit from international cooperation (listed in Appendix 2), and by undertaking co-operative research activities

Constituent list	Explanation
Birds Directive	In 1979, the European Community adopted Council Directive 79/409/EEC on the conservation of wild birds (PDF 209KB) (the 'Birds Directive'), in response to the 1979 Bern Convention on the conservation of European habitats and species (the 'Bern Convention'). The Directive provides a framework for the conservation and management of, and human interactions with, wild birds in Europe. It sets broad objectives for a wide range of activities, although the precise legal mechanisms for their achievement are at the discretion of each Member State (in the UK delivery is via several different statutes).

Constituent list	Explanation
Habitats and Species Directive	In 1992 the European Community adopted Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora (EC Habitats Directive). This is the means by which the Community meets its obligations as a signatory of the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention). The provisions of the Directive requires Member States to introduce a range of measures including the protection of species listed in the Annexes; to undertake surveillance of habitats and species and produce a report every six years on the implementation of the Directive. The 169 habitats listed in Annex I of the Directive and the 623 species listed in Annex II, are to be protected by means of a network of sites. Each Member State is required to prepare and propose a national list of sites, which will be evaluated in order to form a European network of Sites of Community Importance (SCIs). These will eventually be designated by Member States as Special Areas of Conservation (SACs), and along with Special Protection Areas (SPAs) classified under the EC Birds Directive, form a network of protected areas known as Natura 2000.
EC Cites	The 'Washington' Convention on International Trade in Endangered Species of Wild Fauna and Flora, more commonly known as CITES, aims to protect certain plants and animals by regulating and monitoring their international trade to prevent it reaching unsustainable levels. The Convention entered into force in 1975, and the UK became a Party in 1976.

National Legislation

Wildlife and Countryside Act 1981

Protected birds, animals and plants are listed in Schedules 1, 5 and 8 respectively of the Wildlife and Countryside Act.

Schedule1:
The Act makes it an offence (with exception to species listed in Schedule 2) to intentionally kill, injure, or take any wild bird or their eggs or nests. Special penalties are available for offences related to birds listed on Schedule 1, for which there are additional offences of disturbing these birds at their nests, or their dependent young. The Secretary of State may also designate Areas of Special Protection (subject to exceptions) to provide further protection to birds. The Act also prohibits certain methods of killing, injuring, or taking birds, restricts the sale and possession of captive bred birds, and sets standards for keeping birds in captivity.

Schedule 5:
The Act makes it an offence (subject to exceptions) to intentionally kill, injure, or take, possess, or trade in any wild animal listed in Schedule 5, and prohibits interference with places used for shelter or protection, or intentionally disturbing animals occupying such places. The Act also prohibits certain methods of killing, injuring, or taking wild animals.

Schedule 8:
The Act makes it an offence (subject to exceptions) to pick, uproot, trade in, or possess (for the purposes of trade) any wild plant listed in Schedule 8, and prohibits the unauthorised intentional uprooting of such plants.

APPENDIX 3 SPECIES INDICATIVE OF ANCIENT WOODLAND IN ESSEX

The following list of Ancient Woodland Indictor plants (AWIs) has been taken from the list (specifically the section covering the 'eastern region' of Britain) compiled by Keith Kirby of Natural England, and reproduced in Francis Rose's new Wild Flower Key[21]. Species not recorded in Essex have been removed from the list. To aid the interpretation and use of the list additional notes have been included.

Acer campestre	Field Maple	1
Adoxa moschatellina	Moschatel	
Allium ursinum	Ramsons	
Anemone nemorosa	Wood Anemone	
Blechnum spicant	Hard Fern	
Bromopsis ramosa	Hairy Brome	
Calamagrostis epigejos	Wood Small-Reed	2
Campanula trachelium	Nettle-Leaved Bellflower	3
Cardamine amara	Large Bitter-Cress	
Carex laevigata	Smooth-Stalked Sedge	
Carex pallescens	Pale Sedge	
Carex pendula	Pendulous Sedge	
Carex remota	Remote Sedge	
Carex strigosa	Thin-Spiked Wood Sedge	
Carex sylvatica	Wood Sedge	
Carpinus betulus	Hornbeam	1
Ceratocapnos claviculata	Climbing Fumitory	
Chrysosplenium alternifolium	Alternate-Leaved Golden-Saxifrage	
Chrysosplenium oppositifolium	Opposite-Leaved Golden-Saxifrage	
Conopodium majus	Pignut	2
Convallaria majalis	Lily Of The Valley	
Crataegus laevigata	Midland Hawthorn	
Daphne laureola	Spurge-Laurel	
Dipsacus pilosus	Small Teasel	2
Dryopteris affinis	Scaly Male Fern	
Dryopteris carthusiana	Narrow Buckler-Fern	
Elymus caninus	Bearded Couch	2
Epipactis helleborine	Broad-Leaved Helleborine	
Epipactis purpurata	Purple Helleborine	
Equisetum sylvaticum	Wood Horsetail	
Euonymus europaeus	Spindle Tree	
Euphorbia amygdaloides	Wood Spurge	
Festuca gigantea	Giant Fescue	
Frangula alnus	Alder-Buckthorn	2
Galeobdolon luteum	Yellow Archangel	
Galium odoratum	Woodruff	
Geum rivale	Water Avens	
Gnaphalium sylvaticum	Heath Cudweed	2

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Helleborus viridis	Green Hellebore	3
Hordelymus europaeus	Wood Barley	
Hyacinthoides non-scripta	Bluebell	
Hypericum hirsutum	Hairy St. John's-Wort	
Hypericum pulchrum	Slender St John’s-Wort	2
Ilex aquifolium	Holly	1
Iris foetidissima	Stinking Iris	2;3
Lathraea squamaria	Toothwort	
Lathyrus linifolius	Bitter Vetchling	
Lathyrus sylvestris	Narrow-Leaved Everlasting Pea	3
Luzula pilosa	Hairy Woodrush	
Luzula sylvatica	Great Woodrush	
Lysimachia nemorum	Yellow Pimpernel	
Lythrum portula	Water-Purslane	2
Malus sylvestris	Crab Apple	
Melampyrum cristatum	Crested Cow-Wheat	4
Melampyrum pratense	Common Cow-Wheat	
Melica uniflora	Wood Melick	
Mercurialis perennis	Dog's Mercury	
Milium effusum	Wood Millet	
Moehringia trinervia	Three-Veined Sandwort	
Myosotis sylvatica	Wood Forget-Me-Not	3
Neottia nidus-avis	Bird's Nest Orchid	
Ophioglossum vulgatum	Adder’s-Tongue Fern	2
Orchis mascula	Early Purple Orchid	
Oreopteris limbosperma	Lemon-Scented Fern	
Oxalis acetosella	Wood Sorrel	
Paris quadrifolia	Herb Paris	
Pimpinella major	Greater Burnet-Saxifrage	2
Platanthera chlorantha	Greater Butterfly Orchid	2
Poa nemoralis	Wood Meadow-Grass	
Polygonum vulgare	Polypody	
Polystichum aculeatum	Hard Shield-Fern	
Polystichum setiferum	Soft Shield-Fern	
Populus tremula	Aspen	1, 2
Potentilla sterilis	Barren Strawberry	2
Primula elatior	Oxlip	
Primula vulgaris	Primrose	
Prunus avium	Wild Cherry	1
Quercus petraea	Sessile Oak	
Ranunculus auricomus	Goldilocks Buttercup	
Ribes nigrum	Black Currant	3
Ribes rubrum	Red Currant	3
Ruscus aculeatus	Butcher's Broom	
Sanicula europaea	Sanicle	
Sedum telephium	Orpine	3
Sorbus aucuparia	Rowan	1, 2
Sorbus torminalis	Wild Service Tree	
Stachys officinalis	Betony	2
Stellaria neglecta	Greater Chickweed	2
Tamus communis	Black Bryony	

Tilia cordata	Small-Leaved Lime	
Veronica montana	Wood Speedwell	
Viburnum opulus	Guelder-Rose	2
Vicia sepium	Bush Vetch	2
Viola odorata	Sweet Violet	3
Viola reichenbachiana	Early Dog Violet	

Notes

1. Only record as an AWI if it occurs frequently as coppice or other large, old tree.
2. Occurs in other habitats.
3. Beware of garden escapes; the more likely source in Essex.
4. In Essex typically occurs on the edge of ancient woods or hedges.

APPENDIX 4 SPECIES INDICATIVE OF UNIMPROVED GRASSLAND & MARSH IN ESSEX

The following list has been produced by the Essex Wildlife Sites Project with the help of the County's Vascular Plant Recorder Dr Ken Adams.

Note: '*' 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

Achillea ptarmica	Sneezewort	*
Briza media	Quaking Grass	*
Bromus commutatus	Meadow Brome	
Bromus racemosus	Smooth Brome	
Caltha palustris	Marsh Marigold	M
Campanula rotundifolia	Harebell	A
Cardamine pratensis	Cuckooflower	
Carex acuta	Tufted Sedge	
Carex binervis	Ribbed Sedge	A
Carex caryophyllea	Spring Sedge	
Carex distans	Distant Sedge	
Carex disticha	Soft Brown Sedge	
Carex echinata	Star Sedge	
Carex nigra	Black Sedge	
Carex panicea	Carnation Sedge	
Carex paniculata	Greater Tussock Sedge	
Carex vesicaria	Bladder Sedge	
Carex viridula ssp. o*edocarpa*	Straight-Beaked Sedge	
Conopodium majus	Pignut	
Dactylorhiza incarnata	Early Marsh Orchid	
Dactylorhiza praetermissa	Southern Marsh Orchid	
Danthonia decumbens	Heath Grass	A
Equisetum fluviatile	Water Horsetail	
Galium uliginosum	Fen Bedstraw	
Galium verum	Lady's Bedstraw	
Genista tinctoria	Dyer's Greenweed	
Glyceria declinata	Glaucous Sweet-Grass	
Juncus compressus	Round-Fruited Rush	
Juncus squarrosus	Heath Rush	A
Juncus subnodulosus	Blunt-Flowered Rush	M
Lathyrus nissolia	Grass Vetchling	
Lychnis flos-cuculi	Ragged Robin	M
Lysimachia nummularia	Creeping Jenny	
Molinea caerulea	Purple Moor-grass	A
Oenanthe fistulosa	Tubular Water-Dropwort	M
Ophioglossum vulgatum	Adder's Tongue Fern	
Orchis morio	Green-Winged Orchid	*

Pedicularis sylvatica	Lousewort	
Potentilla anglica	Trailing Tormentil	
Potentilla erecta	Tormentil	A
Primula veris	Cowslip	
Rhinanthus minor	Yellow Rattle	*
Sanguisorba minor ssp. m*inor*	Salad Burnet	
Saxifraga granulata	Meadow Saxifrage	*
Scutellaria minor	Lesser Skullcap	M
Senecio aquaticus	Marsh Ragwort	
Silaum silaus	Pepper Saxifrage	*
Spiranthes spiralis	Autumn Lady's-Tresses	*
Stachys officinalis	Betony	
Stellaria uliginosa	Bog Stitchwort	
Thalictrum flavum	Meadow Rue	
Thymus polytrichus	Wild Thyme	
Trifolium ochroleucon	Sulphur Clover	
Trifolium subterraneum	Subterranean Clover	
Triglochin palustris	Marsh Arrowgrass	
Valeriana dioica	Marsh Valerian	
Veronica catenata	Pink Water Speedwell	

APPENDIX 5 SPECIES INDICATIVE OF CHALK GRASSLAND IN ESSEX

The following list has been produced by the Essex Wildlife Sites Project with the help of the County's Vascular Plant Recorder Dr Ken Adams.

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

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

APPENDIX 6 CHARACTERISTIC PLANTS OF SAND DUNES AND SHINGLE BEACHES

List compiled by Adrian Knowles, Senior Ecologist, EECOS, Essex Wildlife Trust

Ammophila arenaria	Marram Grass
Atriplex laciniata	Frosted Orache
Cakile maritima	Sea Rocket
Carex arenaria	Sand Sedge
Crambe maritima	Sea Kale
Crithmum maritimum	Rock Samphire
Elytrigia atherica	Sea Couch
Elytrigia juncea	Sand Couch
Eryngium maritimum	Sea Holly
Euphorbia paralias	Sea Spurge
Glaucium flavum	Yellow Horned-poppy
Honckenya peploides	Sea Sandwort
Lathyrus japonicus	Sea Pea
Leymus arenarius	Lyme-grass
Phleum arenarium	Sand Cat's-tail
Polygonum oxyspermum ssp. raii	Ray's Knotgrass
Salsola kali	Prickly Saltwort
Suaeda vera	Shrubby Seablite
Tripleurospermum maritimum	Sea Mayweed
Vulpia fasciculata	Dune Fescue

APPENDIX 7 LOCAL WILDLIFE SITE NOTIFICATION SHEET

Code and Name: Th1. Tank Lane

Size: (1.1 ha)

Grid Reference: 554786

Date of Survey: 22/07/2007

Date of Notification: 28/08/2007

BAP Habitats: UK BAP lowland calcareous grassland

Notable Species: ERDL Viper's Bugloss *Echium vulgare;* UK BAP bumblebee *Bombus humilis*

Description: This site comprises a remnant of chalk grassland, now becoming rather badly infested with scrub growth, with a small block of maturing secondary woodland at the eastern end. Nevertheless, the site still supports an interesting chalk flora, including marjoram *Origanum vulgare*, ploughman's spikenard *Inula conyzae*, viper's bugloss *Echium vulgare* and vervain *Verbena officinalis*.

In addition, the site has been shown to support a very significant assemblage of scarce invertebrates, including national BAP, Red Data Book and Essex Red Data List species. The national BAP bumblebee *Bombus humilis* has been shown to be nesting here, with important forage plants red bartsia *Odontites vernus* and bird's-foot trefoil *Lotus corniculatus* present.

Selection Criteria: HC12; SC18; SC19

Condition and Proposed Management: Some small-scale cyclical management of scrub invasion should be undertaken, following an initial larger-scale clearance to improve the currently rather scrubby situation. This should comprise cutting out individual trees and shrubs, rather than by wholesale cutting of large areas of grass and scrub together. One of the important features of the site is the unmanaged flower-rich tall herbage that provides good physical structure as well as a good nectar source for many species.