SWTC SEPC APPENDIX A6 – ECOLOGY

LAND SE OF GRIFFIN PLACE

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1 Countryside Hedgerows – Protection and Management – Gov UK
2 The Hedgerows Regulations 1997 Extract
3 The Hedgerows Regulations 1997 Schedules
4 Uttlesford DC Local Wildlife Site Review October 2007

GOV.UK

1. Home (https://www.gov.uk/)
2. Land management (https://www.gov.uk/topic/environmental-management/land-management)

Guidance

Countryside hedgerows: protection and management

Find out if you can remove or work on countryside hedgerows.

From:
Natural England (/government/organisations/natural-england) and Department for Environment, Food & Rural Affairs (/government/organisations/department-for-environment-food-rural-affairs)

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Applies to England

Contents

There are rules you need to follow if you intend to remove a countryside hedgerow. You could get an unlimited fine if you break these rules.

Check if a hedgerow is protected

A countryside hedgerow is a boundary line of bushes which can include trees. A hedgerow is protected, meaning you cannot remove it, if it meets the following criteria for:

- length
- location

- ‘importance’

Length

A hedgerow is protected if it’s:

- more than 20m long with gaps of 20m or less in its length
- less than 20m long, but meets another hedge at each end

Location

A hedgerow is protected if it’s on or next to:

- land used for agriculture or forestry
- land used for breeding or keeping horses, ponies or donkeys
- common land
- a village green
- a site of special scientific interest
- a protected European site (http://jncc.defra.gov.uk/page-4) such as a special area of conservation or special protection area
- a local or national nature reserve
- land belonging to the state

A hedgerow is not protected if it’s in, or marks the boundary of, a private garden.

‘Importance’

A hedgerow is important, and is protected, if it’s at least 30 years old and meets at least one of these criteria:

- marks all or part of a parish boundary that existed before 1850
- contains an archaeological feature such as a scheduled monument (https://historicengland.org.uk/advice/hpg/has/scheduledmonuments/)
- is completely or partly in or next to an archaeological site listed on a Historic Environment Record (HER) (https://historicengland.org.uk/advice/technical-advice/information-management/hers/), (formerly a Sites and Monuments Record)
- marks the boundary of an estate or manor or looks to be related to any building or other feature that’s part of the estate or manor that existed before 1600
- is part of a field system or looks to be related to any building or other feature associated with the field system that existed before 1845 - you can check the County Records Office for this information
- contains protected species (http://www.legislation.gov.uk/ukpga/1981/69/schedule/5) listed in the Wildlife and Countryside Act 1981
- contains species that are endangered, vulnerable and rare and identified in the British Red Data (http://jncc.defra.gov.uk/page-3352) books

- includes woody species (http://www.legislation.gov.uk/uksi/1997/1160/schedule/3/made) and associated features (http://www.legislation.gov.uk/uksi/1997/1160/schedule/1/made) as specified in Schedule 1, Part II Criteria, paragraph 7(1) (http://www.legislation.gov.uk/uksi/1997/1160/schedules/made) of the Hedgerow Regulations - the number of woody species needed to meet the criteria is one less in northern counties

Apply to remove a countryside hedgerow

You can only remove the hedgerow if:

- it's less than 30 years old
- you're the owner, tenant or manager of the hedgerow
- you're a utility company that's eligible to remove it

Discuss your proposal to remove a hedgerow with the local planning authority (LPA) first to make sure it's legal to do so.

The LPA is one of the following:

- the local authority (https://www.gov.uk/find-local-council)
- the National Park Authority (https://www.nationalparks.uk/contact-national-parks-uk/) for land within a national park boundary
- the Broads Authority (http://www.broads-authority.gov.uk/planning/Other-planning-issues/trees-and-hedgerows) in the Norfolk Broads
- the Council of the Isles of Scilly (http://www.scilly.gov.uk/node/48) for land on the Isles of Scilly

You'll need to provide plans relating to the hedgerow you want to remove. The local authority will explain what's needed.

How your LPA will respond

After they have acknowledged your request, your LPA has 42 days to respond to your written notice to remove a hedgerow. In that time they will consult the relevant parish council. The parish council might ask for more time to consider the proposal.

The LPA will issue either:

- a hedgerow retention notice - if the hedge is protected and must be kept
- a written notice giving permission to remove it in the way you've proposed

You have up to 2 years from the date of the written notice to remove the hedgerow.

You can remove the hedgerow if you do not hear back from the LPA within the 42 day period.

People can object to a removal of a hedgerow by contacting the LPA. The LPA will consider any objections they receive.

Appeal a hedgerow decision

You can appeal (https://www.gov.uk/appeal-hedgerow-notice/) if you disagree with a decision and your LPA has sent you either:

- a retention notice, saying you cannot remove a hedgerow
- a replacement notice, telling you to replace a hedgerow you've already removed

You must appeal within 28 days of the date on the LPA decision letter.

Check if you can work on a hedgerow

Before you start working on a hedgerow, check whether there are any restrictions in place.

Nesting birds

You must not do any work which might harm nesting birds or destroy their nests. You'll usually find nesting birds during the main nesting and breeding season from 1 March to 31 August.

Tree protection and licensing

Before carrying out work on hedgerow trees you must check if you need a felling licence (https://www.forestry.gov.uk/england-fellinglicences).

The LPA will tell you if there's a tree preservation order (https://www.gov.uk/government/policies/improving-the-energy-efficiency-of-buildings-and-using-planning-to-protect-the-environment/supporting-pages/tree-preservation-orders) in place or if it's in a conservation area (https://historicengland.org.uk/listing/what-is-designation/local/conservation-areas/).

Restrictions for Common Agricultural Policy (CAP) schemes

If you get paid under the basic payment scheme, there are restrictions on managing hedgerows in the Good Agricultural and Environmental Conditions (GAEC) guidance (https://www.gov.uk/government/collections/cross-compliance).

If you have an Environmental Stewardship agreement (https://www.gov.uk/government/collections/environmental-stewardship-guidance-and-forms-for-existing-agreement-holders) or Countryside Stewardship agreement (https://www.gov.uk/government/collections/countryside-stewardship-information-for-agreement-holders), you must also check your agreement handbook (https://www.gov.uk/government/publications/hedgerows-and-boundaries-grant-countryside-stewardship) to see what restrictions there are.

Report a suspected offence against nesting birds

Report a suspected offence against nesting wild birds or their eggs to your local police force (https://www.police.uk/contact/). Ask for a wildlife crime officer to investigate for illegal activity.

Report a suspected hedgerow offence

How you report a suspected hedgerow offence depends on whether the hedgerow is in a:

- Countryside Stewardship scheme
- Environmental Stewardship agreement scheme
- EU basic payment scheme

These schemes are known as 'Common Agricultural Policy (CAP) schemes'. You can check whether the hedgerow is in a Countryside Stewardship or Environmental Stewardship agreement scheme on the Defra MAGIC website (https://magic.defra.gov.uk/).

Hedgerows in CAP schemes

If you have concerns about the activity someone is undertaking on a hedgerow in a CAP scheme, report it to Rural Payments Agency on 03000 200 301 or email ruralpayments@defra.gov.uk

Hedgerows not in CAP schemes

If the hedgerow is not in a CAP scheme, report the activity to your local planning authority (https://www.gov.uk/find-local-council).

You can find out more about how to manage your hedgerow on the Hedgelink website (http://www.hedgelink.org.uk/).

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Last updated 17 June 2019 + show all updates

1. 17 June 2019
   Included process for reporting offences for hedgerows not in CAP schemes.
2. 16 August 2017
   Corrected guidance on hedgerow removal and when you need permission to do this.
3. 8 November 2016
   This page has been updated to improve: * the definition of a protected hedgerow and important hedgerow * what you need to provide the LPA when you apply to remove a hedgerow * how the LPA will respond to the request
4. 11 September 2014
   First published.

Related content

- Plant and manage hedgerows (/guidance/plant-and-manage-hedgerows)
- Maintain trees along field boundaries (/guidance/maintain-trees-along-field-boundaries)
- Create or manage open space in woodland (/guidance/create-and-manage-open-space-in-woodland)
- Hedgerows, retention and replacement notices: the appeal procedures (/government/publications/hedgerows-retention-and-replacement-notices-the-appeal-procedures)
- Establish trees along field boundaries (/guidance/establish-trees-along-field-boundaries)

Explore the topic

- Land management (/topic/environmental-management/land-management)

The Hedgerows Regulations 1997

Application of Regulations

3.—(1) Subject to paragraph (3), these Regulations apply to any hedgerow growing in, or adjacent to, any common land, protected land, or land used for agriculture, forestry or the breeding or keeping of horses, ponies or donkeys, if—

(a)it has a continuous length of, or exceeding, 20 metres; or

(b)it has a continuous length of less than 20 metres and, at each end, meets (whether by intersection or junction) another hedgerow.

(2) Subject to paragraph (3), a hedgerow is also one to which these Regulations apply if it is a stretch of hedgerow forming part of a hedgerow such as is described in paragraph (1).

(3) These Regulations do not apply to any hedgerow within the curtilage of, or marking a boundary of the curtilage of, a dwelling-house.

(4) A hedgerow which meets (whether by intersection or junction) another hedgerow is to be treated as ending at the point of intersection or junction.

(5) For the purposes of ascertaining the length of any hedgerow—

(a)any gap resulting from a contravention of these Regulations; and

(b)any gap not exceeding 20 metres,

shall be treated as part of the hedgerow.

Criteria for determining "important" hedgerows

4. For the purposes of section 97 (hedgerows) of the Environment Act 1995 and these Regulations, a hedgerow is "important" if it, or the hedgerow of which it is a stretch,—

(a)has existed for 30 years or more; and

(b)satisfies at least one of the criteria listed in Part II of Schedule 1.

Removal of hedgerows

5.—(1) Subject to the exceptions specified in regulation 6, the removal(**1**) of a hedgerow to which these Regulations apply is prohibited unless—

(a)the local planning authority in whose area the hedgerow is situated or, where it is situated in the area of more than one such authority, the local planning authority in whose area the greater part of the hedgerow is situated, have received from an owner of the hedgerow (subject to paragraph (10)) notice in the form set out in Schedule 4, or a form substantially to the same effect, of his proposal to remove the hedgerow ("hedgerow removal notice") together with the plan and evidence mentioned in the form set out in Schedule 4; and

(i)the authority have given to the person who gave the hedgerow removal notice written notice stating that the hedgerow may be removed; or

(ii)the period specified in paragraph (6) has expired without the authority having given to that person a hedgerow retention notice stating that the work may not be carried out; and

(c)the removal is carried out in accordance with the proposal specified in the hedgerow removal notice; and

(d)the hedgerow is removed within the period of two years beginning with the date of service of the hedgerow removal notice.

(2) A local planning authority which has received a hedgerow removal notice shall, consistently with paragraph (5) and within the period specified in paragraph (6), decide whether or not to give notice to that person stating that the work or, where the hedgerow removal notice refers to more than one hedgerow, so much of the work as may be specified by the authority in their notice, may not be carried out ("hedgerow retention notice").

(3) Where a hedgerow in respect of which the local planning authority has received a hedgerow removal notice is situated in a parish in England for which there is a parish council, or in a community in Wales for which there is a community council, that authority shall consult that council (or, where there is more than one such council, each of them) on the proposal to remove that hedgerow.

(4) The consultation referred to in paragraph (3) shall be completed before the period specified in paragraph (6) expires and before the giving of a notice under paragraph (1)(b)(i) or a hedgerow retention notice.

(5) A local planning authority—

(a)shall not give a hedgerow retention notice in respect of a hedgerow which is not an "important" hedgerow;

(b)shall give such a notice, within the period specified in paragraph (6), in respect of an "important" hedgerow unless satisfied, having regard in particular to the reasons given for its proposed removal in the hedgerow removal notice, that there are circumstances which justify the hedgerow's removal.

(6) The period referred to in paragraphs (1)(b)(ii), (2), (4) and (5)(b) is that of 42 days beginning with the date on which the hedgerow removal notice is received by the local planning authority or such longer period as may be agreed between the person who gave the notice and the authority.

(7) A hedgerow retention notice shall, except where regulation 8(4) applies, specify each criterion (of those listed in Schedule 1) which applies to the hedgerow to which the notice relates.

(8) A hedgerow retention notice may be withdrawn at any time by the local planning authority by giving written notice of the withdrawal to the person to whom the hedgerow retention notice was given.

(9) Where a hedgerow retention notice has been given stating that work relating to a hedgerow may not be carried out, and that notice has not been withdrawn, removal of the hedgerow consisting of or including any such work is prohibited.

(10) Where a hedgerow is or is to be removed by or on behalf of a relevant utility operator from land of which it is not the owner, paragraph (1)(a) shall apply as though the reference to the owner were instead a reference to the relevant utility operator.

https://www.legislation.gov.uk/uksi/1997/1160/regulation/5/made

The Hedgerows Regulations 1997

UK Statutory Instruments 1997 No. 1160 Schedules only

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Status: This is the original version (as it was originally made). This item of legislation is currently only available in its original format.

SCHEDULE 1

Regulations 2(3) and 4

ADDITIONAL CRITERIA FOR DETERMINING "IMPORTANT" HEDGEROWS

PART I
INTERPRETATION

In this Schedule—

"building" includes structure;

"Record Office" means—

(a) a place appointed under section 4 of the Public Records Act 1958(1) (place of deposit of public records),

(b) a place at which documents are held pursuant to a transfer under section 144A(4) of the Law of Property Act 1922(2) or under section 36(2) of the Tithe Act 1936(3), including each of those provisions as applied by section 7(1) of the Local Government (Records) Act 1962(4), or

(c) a place at which documents are made available for inspection by a local authority pursuant to section 1 of the Local Government (Records) Act 1962;

"relevant date" means the date on which these Regulations are made;

"Sites and Monuments Record" means a record of archaeological features and sites adopted—

(a) by resolution of a local authority within the meaning of the Local Government Act 1972(5), or

(b) in Greater London, by the Historic Buildings and Monuments Commission(6);

"standard tree"—

(a) in the case of a multi-stemmed tree, means a tree which, when measured at a point 1.3 metres from natural ground level, has at least two stems whose diameters are at least 15 centimetres;

(b) in the case of a single-stemmed tree, means a tree which, when measured at a point 1.3 metres from natural ground level, has a stem whose diameter is at least 20 centimetres;

"woodland species" means the species listed in Schedule 2; and

"woody species" means the species and sub-species listed in Schedule 3, and any hybrid, that is to say, any individual plant resulting from a cross between parents of any species or sub-species so listed, but does not include any cultivar; and

references to the documents in paragraph 6(3)(b) and (4) are to those documents as at the relevant date, without taking account of any subsequent revisions, supplements or modifications.

PART II
CRITERIA

Archaeology and history

1. The hedgerow marks the boundary, or part of the boundary, of at least one historic parish or township; and for this purpose "historic" means existing before 1850.
2. The hedgerow incorporates an archaeological feature which is—
   (a) included in the schedule of monuments compiled by the Secretary of State under section 1 (schedule of monuments) of the Ancient Monuments and Archaeological Areas Act 1979(7); or
   (b) recorded at the relevant date in a Sites and Monuments Record.
3. The hedgerow—

(a) is situated wholly or partly within an archaeological site included or recorded as mentioned in paragraph 2 or on land adjacent to and associated with such a site; and

(b) is associated with any monument or feature on that site.

4. The hedgerow—

(a) marks the boundary of a pre-1600 AD estate or manor recorded at the relevant date in a Sites and Monuments Record or in a document held at that date at a Record Office; or

(b) is visibly related to any building or other feature of such an estate or manor.

5. The hedgerow—

(a) is recorded in a document held at the relevant date at a Record Office as an integral part of a field system pre-dating the Inclosure Acts(**8**); or

(b) is part of, or visibly related to, any building or other feature associated with such a system, and that system—

(i) is substantially complete; or

(ii) is of a pattern which is recorded in a document prepared before the relevant date by a local planning authority, within the meaning of the 1990 Act(**9**), for the purposes of development control within the authority's area, as a key landscape characteristic.

Wildlife and landscape

6.—(1) The hedgerow—

(a) contains species listed or categorised as mentioned in sub-paragraph (3); or

(b) is referred to in a record held immediately before the relevant date by a biological record centre maintained by, or on behalf of, a local authority within the meaning of the Local Government Act 1972(**10**), and in a form recognised by the Nature Conservancy Council for England, the Countryside Council for Wales(**11**) or the Joint Nature Conservation Committee(**12**), as having contained any such species—

(i) in the case of animals and birds, subject to sub-paragraph (2), within the period of five years immediately before the relevant date.

(ii) in the case of plants, subject to sub-paragraph (2), within the period of ten years immediately before the relevant date;

(2) Where more than one record referable to the period of five or, as the case may be, ten years before the relevant date is held by a particular biological record centre, and the more (or most) recent record does not satisfy the criterion specified in sub-paragraph (1)(b), the criterion is not satisfied (notwithstanding that an earlier record satisfies it).

(3) The species referred to in sub-paragraph (1) are those—

(a) listed in Part I (protection at all times) of Schedule 1 (birds which are protected by special penalties), Schedule 5 (animals which are protected) or Schedule 8 (plants which are protected) to the Wildlife and Countryside Act 1981(**13**);

(b) categorised as a declining breeder (category 3) in "Red Data Birds in Britain" Batten LA, Bibby CJ, Clement P, Elliott GD and Porter RF (Eds.), published in 1990 for the Nature Conservancy Council and the Royal Society for the Protection of Birds (ISBN 0 85661 056 9); or

(c) categorised as "endangered", "extinct", "rare" or "vulnerable" in Britain in a document mentioned in sub-paragraph (4).

(4) The documents referred to in sub-paragraph (3)(c) are—

(a) of the books known as the British Red Data Books:

1. "Vascular Plants" Perring FH and Farrell L, 2nd Edition, published in 1983 for the Royal Society for Nature Conservation (ISBN 0 902484 04 4);
2. "Insects" Shirt DB (Ed.), published in 1987 for the Nature Conservancy Council (ISBN 0 86139 380 5); and
3. "Invertebrates other than insects" Bratton JH (Ed.), published in 1991 for the Joint Nature Conservation Committee (ISBN 1 873701 00 4); and

(b) of the books known as the Red Data Books of Britain and Ireland:

"Stoneworts" Stewart NF and Church JM, published in 1992 for the Joint Nature Conservation Committee (ISBN 1 873701 24 1).

7.—(1) Subject to sub-paragraph (2), the hedgerow includes—

(a) at least 7 woody species;

(b) at least 6 woody species, and has associated with it at least 3 of the features specified in sub-paragraph (4);

(c) at least 6 woody species, including one of the following—

black-poplar tree *(Populus nigra* ssp *betulifolia)*;

large-leaved lime *(Tilia platyphyllos)*;

small-leaved lime *(Tilia cordata)*;

wild service-tree *(Sorbus torminalis)*; or

(d) at least 5 woody species, and has associated with it at least 4 of the features specified in sub-paragraph (4),

and the number of woody species in a hedgerow shall be ascertained in accordance with sub-paragraph (3).

(2) Where the hedgerow in question is situated wholly or partly in the county (as constituted on 1st April 1997) of the City of Kingston upon Hull, Cumbria, Darlington, Durham, East Riding of Yorkshire, Hartlepool, Lancashire, Middlesbrough, North East Lincolnshire, North Lincolnshire, Northumberland, North Yorkshire, Redcar and Cleveland, Stockton-on-Tees, Tyne and Wear, West Yorkshire or York(**14**), the number of woody species mentioned in paragraphs (a) to (d) of sub-paragraph (1) is to be treated as reduced by one.

(3) For the purposes of sub-paragraph (1) (and those of paragraph 8(b))—

(a) where the length of the hedgerow does not exceed 30 metres, count the number of woody species present in the hedgerow;

(b) where the length of the hedgerow exceeds 30 metres, but does not exceed 100 metres, count the number of woody species present in the central stretch of 30 metres;

(c) where the length of the hedgerow exceeds 100 metres, but does not exceed 200 metres, count the number of woody species present in the central stretch of 30 metres within each half of the hedgerow and divide the aggregate by two;

(d) where the length of the hedgerow exceeds 200 metres, count the number of woody species present in the central stretch of 30 metres within each third of the hedgerow and divide the aggregate by three.

(4) The features referred to in sub-paragraph (1)(b) and (d) (which include those referred to in paragraph 8(b)) are—

(a) a bank or wall which supports the hedgerow along at least one half of its length;

(b) gaps which in aggregate do not exceed 10% of the length of the hedgerow;

(c) where the length of the hedgerow does not exceed 50 metres, at least one standard tree;

(d) where the length of the hedgerow exceeds 50 metres but does not exceed 100 metres, at least 2 standard trees;

(e) where the length of the hedgerow exceeds 100 metres, such number of standard trees (within any part of its length) as would when averaged over its total length amount to at least one for each 50 metres;

(f) at least 3 woodland species within one metre, in any direction, of the outermost edges of the hedgerow;

(g) a ditch along at least one half of the length of the hedgerow;

(h) connections scoring 4 points or more in accordance with sub-paragraph (5);

(i) a parallel hedge within 15 metres of the hedgerow.

(5) For the purposes of sub-paragraph (4)(h) a connection with another hedgerow scores one point and a connection with a pond or a woodland in which the majority of trees are broad-leaved trees scores 2 points; and a hedgerow is connected with something not only if it meets it but also if it has a point within 10 metres of it and would meet it if the line of the hedgerow continued.

8. The hedgerow—

(a) is adjacent to a bridleway or footpath, within the meaning of the Highways Act 1980(**15**), a road used as a public path, within the meaning of section 54 (duty to reclassify roads used as public paths) of the Wildlife and Countryside Act 1981(**16**), or a byway open to all traffic, within the meaning of Part III of the Wildlife and Countryside Act 1981(**17**), and

(b) includes at least 4 woody species, ascertained in accordance with paragraph 7(3) and at least 2 of the features specified in paragraph 7(4)(a) to (g).

SCHEDULE 2
WOODLAND SPECIES

Regulation 2(3) and Schedule 1, Part I

Barren strawberry *(Potentilla sterilis)*

Bluebell *(Hyacinthoides non-scriptus)*

Broad buckler fern *(Dryopteris dilatata)*

Broad-leaved helleborine *(Epipactis helleborine)*

Bugle *(Ajuga reptans)*

Common cow-wheat *(Melampyrum pratense)*

Common dog violet *(Viola riviniana)*

Common polypody *(Polypodium vulgare)*

Dog's mercury *(Mercurialis perennis)*

Early dog violet *(Viola reichenbachiana)*

Early purple orchid *(Orchis mascula)*

Enchanter's nightshade *(Circaea lutetiana)*

Giant fescue *(Festuca gigantea)*

Goldilocks buttercup *(Ranunculus auricomus)*

Great bell-flower *(Campanula latifolia)*

Greater wood-rush *(Luzula sylvatica)*

Hairy brome *(Bromus ramosus)*

Hairy woodrush *(Luzula pilosa)*

Hard fern *(Blechnum spicant)*

Hard shield fern *(Polystichum aculeatum)*

Hart's tongue *(Asplenium scolopendrium)*

Heath bedstraw *(Galium saxatile)*

Herb paris *(Paris quadrifolia)*

Herb-robert *(Geranium robertianum)*

Lady fern *(Athyrium filix-femina)*

Lords-and-ladies *(Arum maculatum)*

Male fern *(Dryopteris filix-mas)*

Moschatel *(Adoxa moschatellina)*

Narrow buckler-fern *(Dryopteris carthusiana)*

Nettle-leaved bell-flower *(Campanula trachelium)*

Oxlip *(Primula elatior)*

Pignut *(Conopodium majus)*

Primrose *(Primula vulgaris)*

Ramsons *(Allium ursinum)*

Sanicle *(Sanicula europaea)*

Scaly male-fern *(Dryopteris affinis)*

Small cow-wheat *(Melampyrum sylvaticum)*

Soft shield fern *(Polystichum setiferum)*

Sweet violet *(Viola odorata)*

Toothwort *(Lathraea squamaria)*

Tormentil *(Potentilla erecta)*

Wild strawberry *(Fragaria vesca)*

Wood anemone *(Anemone nemorosa)*

Wood avens/Herb bennet *(Geum urbanum)*

Wood false-brome *(Brachypodium sylvaticum)*

Wood horsetail *(Equisetum sylvaticum)*

Wood meadow-grass *(Poa nemoralis)*

Wood melick *(Melica uniflora)*

Wood millet *(Millium effusum)*

Wood sage *(Teucrium scorodonia)*

Wood sedge *(Carex sylvatica)*

Wood sorrel *(Oxalis acetosella)*

Wood speedwell *(Veronica montana)*

Wood spurge *(Euphorbia amygdaloides)*

Woodruff *(Galium odoratum)*

Yellow archangel *(Lamiastrum galeobdolon)*

Yellow pimpernel *(Lysimachia nemorum)*

SCHEDULE 3
WOODY SPECIES

Regulation 2(3) and Schedule 1, Part I

Alder *(Alnus glutinosa)*

Apple, crab *(Malus sylvestris)*

Ash *(Fraxinus excelsior)*

Aspen *(Populus tremula)*

Beech *(Fagus sylvatica)*

Birch, downy *(Betula pubescens)*

Birch, silver *(Betula pendula)*

Black-poplar *(Populus nigra sub-species betulifolia)*

Blackthorn *(Prunus spinosa)*

Box *(Buxus sempervirens)*

Broom *(Cytisus scoparius)*

Buckthorn *(Rhamnus cathartica)*

Buckthorn, alder *(Frangula alnus)*

Butcher's-broom *(Ruscus aculeatus)*

Cherry, bird *(Prunus padus)*

Cherry, wild *(Prunus avium)*

Cotoneaster, wild *(Cotoneaster integerrimus)*

Currant, downy *(Ribes spicatum)*

Currant, mountain *(Ribes alpinum)*

Dogwood *(Cornus sanguinea)*

Elder *(Sambucus nigra)*

Elm *(Ulmus species)*

Gooseberry *(Ribes uva-crispa)*

Gorse *(Ulex europaeus)*

Gorse, dwarf *(Ulex minor)*

Gorse, western *(Ulex gallii)*

Guelder rose *(Viburnum opulus)*

Hawthorn *(Crataegus monogyna)*

Hawthorn, midland *(Crataegus laevigata)*

Hazel *(Corylus avellana)*

Holly *(Ilex aquilfolium)*

Hornbeam *(Carpinus betulus)*

Juniper, common *(Juniperus communis)*

Lime, large-leaved *(Tilia platyphyllos)*

Lime, small-leaved *(Tilia cordata)*

Maple, field *(Acer campestre)*

Mezereon *(Daphne mezereum)*

Oak, pedunculate *(Quercus robur)*

Oak, sessile *(Quercus petraea)*

Osier *(Salix viminalis)*

Pear, Plymouth *(Pyrus cordata)*

Pear, wild *(Pyrus pyraster)*

Poplar, grey *(Populus x canescens)*

Poplar, white *(Populus alba)*

Privet, wild *(Ligustrum vulgare)*

Rose *(Rosa species)*

Rowan *(Sorbus aucuparia)*

Sea-buckthorn *(Hippophae rhamnnoides)*

Service-tree, wild *(Sorbus torminalis)*

Spindle *(Euonymus europaeus)*

Spurge-laurel *(Daphne laureola)*

Walnut *(Juglans regia)*

Wayfaring-tree *(Viburnum lantana)*

Whitebeam *(Sorbus species)*

Willow *(Salix species)*

Yew *(Taxus baccata)*

SCHEDULE 4

Regulation 5(1)

FORM OF HEDGEROW REMOVAL NOTICE

The Environment Act 1995

The Hedgerows Regulations 1997

To: *(Name and address of local planning authority)*.....

.....

.....

From: *(Name and address of person giving the notice)*.....

.....

.....

1. I give you notice under regulation 5(1)(a) of the above Regulations that I propose to remove the [stretch(es) of] hedgerow(s) indicated on the attached plan. *(If possible, please provide a plan to a scale of 1:2500. A different scale can be used so long as it shows clearly the location and length of the hedgerow or hedgerows that you wish to remove.)*

2. The reasons why I propose to remove it/them are the following:—

3. Of the [stretch(es) of] hedgerow(s) indicated, those marked with an "X" were planted less than 30 years ago. Evidence of the date of planting is attached.

4. I am/We are the owner(s) of the freehold of the land concerned.

OR (please delete as appropriate)

I am/We are the tenant(s) of the agricultural holding concerned.

OR (please delete as appropriate)

I am/We are the tenant(s) under the farm business tenancy concerned

OR (please delete as appropriate)

I am/act for the utility operator concerned.

....

(Signature of person giving notice) *(Date)*

(**1**) 1958 c. 51.

(**2**) 1922 c. 16; section 144A was inserted by the Law of Property (Amendment) Act 1924 (c. 5), Schedule 2.

(**3**) 1928 c. 2.

(**4**) 1962 c. 56.

(**5**) 1972 c. 70.

(**6**) The Commission was established by section 32 of the National Heritage Act 1993 (c. 47).

(**7**) 1979 c. 46.

(**8**) *See* the Short Titles Act 1896 (c. 14).

(**9**) *See* section 1 of the Town and Country Planning Act 1990, as amended by the Local Government (Wales) Act 1994 (c. 19).

(**10**) *See* the definition of "local authority" in section 270(1), as amended by the Local Government Act 1985 (c. 51), Schedule 17 and the Local Government (Wales) Act 1994, Schedule 1, paragraphs 1 and 57.

(**11**) *See* section 128(1) of the Environmental Protection Act 1990 (c. 43); subsection (1) of section 128 was amended by the National Heritage (Scotland) Act 1991 (c. 28).

(**12**) *See* section 128(4) of the Environmental Protection Act 1990.

(**13**) 1981 c. 69. Schedule 5 is amended by S.I. 1988/288, 1989/906, 1991/367 and 1992/2350.

(**14**) In relation to the City of Kingston upon Hull, North and North East Lincolnshire and the East Riding of Yorkshire, *see* S.I. 1995/600; to Darlington and Durham, *see* S.I. 1995/1772; to Hartlepool, Middlesbrough, Redcar and Cleveland and Stockton-on-Tees, *see* S.I. 1995/1747; to Lancashire, *see* S.I. 1996/1868; and to North Yorkshire and York, *see* S.I. 1995/610.

(**15**) 1980 c. 66. *See* the definition of "bridleway" and "footpath" in section 3.

(**16**) 1981 c. 69.

(**17**) *See* the definition in section 66(1).

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UTTLESFORD DISTRICT COUNCIL

It's Our Community

Uttlesford District Council
Local Wildlife Site Review 2007

ESSEX ECOLOGY SERVICES LTD.

UTTLESFORD DISTRICT COUNCIL

SELECTED LOCAL WILDLIFE SITE REVIEW 2007

Version 2
October 2007

Prepared by Essex Ecology Services Ltd.
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ESSEX ECOLOGY SERVICES Ltd.
EECOS

Title of Report	**Uttlesford District Council** **Selected Local Wildlife Site Review 2007**
Client	Uttlesford District Council Council Offices London Road Saffron Walden Essex
Client Representative	Sarah Nicholas
Author	Adrian Knowles
Approved By	Neil Harvey
Report Status	Final
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INDEX

UTTLESFORD DISTRICT COUNCIL
SELECTED LOCAL WILDLIFE SITE REVIEW 2007

1. INTRODUCTION

1.1 General Introduction

This report has been prepared by Essex Ecology Services Ltd. (EECOS), the wildlife consultancy of the Essex Wildlife Trust, on behalf of Uttlesford District Council. It comprises the details of a re-assessment of selected Local Wildlife Sites notified to the Council (as SINCs – Sites of Importance for Nature Conservation) following a district-wide assessment in 1993-4. This report should be used in conjunction with the appropriate electronic GIS data layer provided on CD.

1.2 Background

In Essex, non-statutory "second tier" areas of significant wildlife interest (i.e. nominally below SSSI) were originally called Sites of Importance for Nature Conservation (SINC) and were identified during a series of studies between 1987 and 1994, carried out by the Essex Wildlife Trust. Uttlesford survey work was undertaken during the period 1993-4. With the forthcoming change over to the use of Local Development Frameworks, a re-evaluation of the current suite of important wildlife sites across the whole county is now timely. Recent policy has seen the adoption of the name "Local Wildlife Site" in place of the old SINC nomenclature.

The 1994 assessment was based on a limited set of site selection criteria. Since then, the site selection process has been completely overhauled by EECOS, to bring the system up to date with Biodiversity Action Planning and recent government guidance on the administration of Wildlife Site systems as well as benefiting from a better knowledge of the county's invertebrate, mammalian and avian faunae. The selection criteria have been further refined by the Essex Wildlife Trust's Wildlife Sites Officer, Luke Bristow. These criteria have been used to undertake similar reviews in Basildon, Chelmsford, Braintree, Thurrock, Castle Point, Maldon and Rochford. They are thus becoming the recognised standard in Essex for the identification of those parts of the countryside that merit protection within the planning system and which also merit preferential grant-aid to assist with their sympathetic management.

1.3 Remit and Methodology of the 2007 Survey

The current survey comprised two main initiatives:

1. to re-assess a specific list of Local Wildlife Sites against the current selection criteria;
2. to search for other potential sites within the landscape corridors connecting these existing sites, to determine whether or not any additional sites might be adopted.

The suite of sites to be re-assessed lay in two broad corridors and was specifically identified by officers of Uttlesford District Council. The two corridors were:

1. the West Anglian railway route between Bishop's Stortford and Great Chesterford;
2. the A120 corridor between Bishop's Stortford and the district boundary near Rayne, Braintree.

The assessment was commissioned in the spring of 2007. Aerial photographs of the district, taken circa 1999, were used to identify areas of habitat that showed potential as candidate Local Wildlife Sites in the vicinity of existing sites and close to the major urban areas that form the core of the two general corridors of interest. The potential sites were then visited between April and September 2007 and assessed against the selection criteria. In addition to the use of aerial photographs, the list of current sites was circulated to local naturalists with a knowledge of the area and also discussed at meetings of the Uttlesford Nature Conservation Working Group. Members of this group are drawn from the Essex Biodiversity Partnership, Essex County Council, Essex Amphibian and Reptile Group, local naturalists and officers from Uttlesford District Council. Details of potential new sites were requested for inclusion within the field survey work.

In addition, EECOS wrote to Peter Harvey and Colin Plant of the Essex Field Club and local members of the Essex Birdwatching society, requesting details of important species and habitats they were aware of within the study area. EECOS would particularly like to thank Peter Harvey of the Essex Field Club for providing a good deal of invertebrate records for the district.

Also in spring 2007 a process was commenced to identify the relevant landowners of the sites to be surveyed, to gain their permission to enter onto their land and to engage their involvement in the Local Wildlife Site system. Uttlesford District Council undertook a series of data request searches with the Land Registry to identify registered landowners. EECOS

then wrote to those owners requesting permission to access the relevant site(s). This yielded a rather poor response, with the result that Uttlesford District Council then issued "Warrants for Entry" to EECOS surveyors, under sections 196A, 214B and 324 of the Town and Country Planning Act 1990. These warrants permitted entry to view the sites for which direct permission to enter had not been forthcoming.

For each existing Local Wildlife Site, attempts were made to record their feature(s) of interest that resulted in their original designation, in the hope of confirming the retention of wildlife interest. In some cases, notably for invertebrate populations, the survey work needed to seek out and determine whether or not the species is still present is laborious and time-consuming. In these few instances, continued presence of the appropriate habitat features has been used to re-assess the value of the site for the invertebrate species concerned. If the feature(s) of interest were not apparent, the site was assessed using the full suite of selection criteria to determine whether or not the site should be retained on other grounds. Other sites, not currently identified as Wildlife Sites, were evaluated in a similar manner.

Reference has also been made to the first edition 6" to the mile Ordnance Survey maps of circa 1870-80 available via the web-site old-maps.co.uk. This has allowed for a number of inconsistencies within the ancient woodland inventory for Essex to be identified, which has resulted in changes to some site boundaries and the deletion of one complete site.

This report presents the revised suite of Local Wildlife Sites for Uttlesford District. It also identifies a number of potential Local Wildlife Sites, for which either further information or improved management is needed before the sites might be considered for inclusion within the Local Wildlife Site register. Some consideration is also given to the wider countryside in which these Local Wildlife Sites are located, discussing actual or potential wildlife corridors within the landscape that do or might contribute to a greater interplay between the fauna and flora of individual sites. This idea of connectivity is particularly important for invertebrate populations, the movement and colonisation of new areas by amphibians and mammals and foraging behaviour of bats and birds.

1.4 Integration into the Full Local Wildlife Site Register

This current study has re-assessed approximately one quarter of the original SINCs identified in 1994. In order to rationalise the whole system, some consideration has to be given to the remaining sites although it should be stressed that the remaining three quarters of the old

SINCs have NOT been re-evaluated using the new site selection criteria. This leaves a Local Wildlife Sites register for Uttlesford with which there are known to be inconsistencies and errors, with known changes to the Protected Roadside Verge scheme to name but one issue. All the Uttlesford SINCs are re-listed here (see Section 3.1) with their new numbers, so that numbers might be systematically ascribed to those sites that have been reassessed. This does not mean to say that the Essex Wildlife Trust necessarily endorses the remaining sites as valid Local Wildlife Sites.

Revisions to Local Wildlife Site registers within Essex require a change to the style of re-numbering sites. Originally, sites were grouped into broad habitat categories, with woodland sites being numbered, W1, W2, etc, grassland sites listed with a G-code, Mosaics with an M and freshwater sites as FW. This resulted in Essex having fourteen W1 SINCs – the first woodland site in each of the fourteen local authorities, and so on. To remove this potential confusion, especially near to district boundaries, Local Wildlife Sites are now prefixed with a district code and are numbered sequentially, without regard for the habitat type. Sites are numbered from south to north scanning west to east across the district: effectively they run in "numerical" order based on their 6-figure Ordnance Survey grid reference.

2. SITE ASSESSMENT

2.1 Selection Criteria

The Local Wildlife Site (LoWS) selection criteria have recently been produced as a "stand-alone" document, which is reproduced here as Annex 1. It has been ratified via consultation with Essex County Council, Natural England, the Environment Agency, the Essex Field Club and other local natural history societies as well as participating local authorities. The end result is believed to be a robust set of criteria that give a unified approach throughout Essex, but which do not do away entirely with expert local judgement, which can recognise the variation of habitat types and qualities in different parts of the county.

2.2 Local Wildlife Sites Register

Annex 2 provides the register of revised Local Wildlife Sites within the two search corridors identified above. Each site is presented on a single sheet, with a few exceptions, which gives the following information:

- detailed boundary/location map;
- name of site;
- area in hectares;
- Ordnance Survey grid reference of site centre;
- summary description of site, identifying the characteristic vegetation and features of specific interest;
- coded selection criteria (explanations for which are given in Annex 1 – the selection criteria document);
- a condition statement and a few brief notes on management issues affecting the site;
- the dates of first identification as a SINC/LoWS and the date of this current revision, if appropriate.

A digitised map layer of these site boundaries accompanies this report on CD ("L1 – Local Wildlife Sites"). This layer includes all Sites within the district, including those that have not been formally re-assessed here, with their new code number.

2.3 Identification of Potential Local Wildlife Sites

Annex 3 provides similar information for a small number of sites that might, in the future, qualify for inclusion within the full Local Wildlife Sites register. Realising their potential

may merely require the gathering of additional information in order to confirm a suspected interest, or may require remedial management work to bring the site up to standard. This is the case with two sites that have been demoted from the Local Wildlife Sites register. A few, newly created sites may just need time to mature before they might be considered. For each Site, desired actions are listed in Annex 3 in order to guide future initiatives aimed at realising the potential of these sites. A digitised map layer of these Potential Local Wildlife Site boundaries accompanies this report on CD ("L2 – Potential Local Wildlife Sites").

2.4 Sites of Special Scientific Interest (SSSI)

One of the more fundamental changes to how the Local Wildlife Site register is operated in Essex has been the removal of SSSIs from the system. Whilst it can be argued that SSSIs and Local Wildlife Sites are ecologically inter-linked, with one providing "added value" to the other, national guidelines call for a clearer distinction to be made between SSSIs and Local Wildlife Sites. For Clarity, the SSSIs within Uttlesford are identified in Annex 4, as follows:

Ashdon Meadows
Debden Water
Elsenham Woods
Garnett's Wood/Barnston Lays
Hales and Shadwell Woods
Hatfield Forest
High Wood, Great Dunmow
Little Hallingbury Marsh
Nunn Wood
Quendon Wood
Sawbridgeworth Marsh
The Grove (part of Langley Wood SSSI in Cambridgeshire)
West Wood

It should be stressed that the SSSI boundaries illustrated here are indicative only and do not have any legal standing. For exact boundaries and further information regarding SSSIs in Essex, Natural England officers should be contacted via their Colchester Office.

3. DISCUSSION

3.1 Changes to the Local Wildlife Site Register

The following is a summary of the changes to the register, since the original 1994 assessment. This is a full listing, including old SINCs with their new numbers. N.B. where the "Changes" column is left blank the site has not been re-assessed during this study. Sites that have been re-assessed and are accepted with no changes to their boundaries are labelled "Unchanged". Sites that have been re-assessed are also marked * after their name. The sites are listed in order of their original habitat coding, to allow for ease of translocation from this old code to the new one.

CODE			
Old	**New**	**SITE NAME**	**CHANGES**
W1.	Ufd2	Bottom Roughway Wood	
W2.	Ufd3	Roughway Wood/Oldfield Grove	
W3.	Ufd5	Oxbury Wood	
W4.	Ufd7	High Wood	
W5.	Ufd9	Mead Bushes Wood	
W6.	Ufd10	Park Wood, Chrishall	
W7.	Ufd11	Cane's Walk	
W8.	Ufd14	Arnold's Spring	
W9.	Ufd16	Scotch Wood	
W10.	Ufd19	Morley Wood	
W11.	Ufd20	Bloodhounds Wood	
W12.	Ufd24	Ley Wood	
W13.	Ufd25	Daw's Grove	
W14.	Ufd27	Rockell's Wood	
W15.	Ufd28	Bailey Hills	
W16.	Ufd32	Free Wood	
W17.	Ufd33	Battle's Wood	
W18.	Ufd34	Lee Wood	
W19.	Ufd35	Lee Wood	
W20.	Ufd37	Strethall Wood	
W21.	Ufd39	Ash Grove	
W22.	Ufd40	Felsted Croft Grove	

CODE			
Old	**New**	**SITE NAME**	**CHANGES**
W23.	Ufd42	Wilford's Wood	
W24.	Ufd43	Bixett Wood	
W25.	Ufd44	Beaver's Wood	
W26.	Ufd45	Ann's Wood	
W27.	Ufd46	Green Wood/Teapond Grove	
W28.	Ufd51	Cups/Bush Pasture Groves	
W29.	Ufd55	Hazelend Wood	
W30.	Ufd57	Howe Wood, Catmere End	
W31.	Ufd59	Northey Wood *	Unchanged
W32.	Ufd66	Birchanger Wood *	Very small addition
W33.	Ufd67	Catherine Grove *	Additions along southern boundary
W34.	Ufd70	Houghtey Wood *	Unchanged
W35.	Ufd72	Broom/Burney Woods *	Very small addition
W36.	Ufd73	Coney Acre *	Significant deletion
W37.	Ufd75	Digby Wood *	Unchanged
W38.	Ufd76	Parsonage Spring *	Unchanged
W39.	Ufd77	Bushy Lays/Spring Close *	Addition on northern boundary
W40.	Ufd77	Spring Close	Amalgamated with W39.
W41.		Quendon Wood SSSI	SSSI removed from LoWS system
W42.		Ugley Green Wood	SITE DELETED
W43.	Ufd83	Downhall Wood	
W44.	Ufd87	Paynsden Wood *	Unchanged
W45.	Ufd93	Spring Wood *	Minor deletion (fragment transferred to new site)
W46.	Ufd94	Round Coppice *	Unchanged
W47.	Ufd95	Alsa Wood *	Very small addition
W48.	Ufd97	Stocking Wood *	Unchanged
W49.	Ufd98	Durrel's Wood *	Significant additions
W50.	Ufd99	London Jock Wood *	Very small addition
W51.	Ufd101	Emanuel Wood *	Unchanged
W52.	Ufd102	Wilkin's Plantation *	Unchanged
W53.	Ufd103	Burton Wood	
W54.	Ufd105	Priory Wood *	Unchanged
W55.	Ufd107	Brakey Lee Wood	
W56.	Ufd108	Long Border *	Unchanged

CODE			
Old	**New**	**SITE NAME**	**CHANGES**
W57.	Ufd109	Westley Wood	
W58.	Ufd110	Paddock Wood	
W59.	Ufd111	High/Priors Wood *	Unchanged
W60.	Ufd114	Park Wood, Widdington	
W61.	Ufd115	Horseley Wood/Cabbage Wood/Pig's Parlour	
W62.	Ufd116	Man Wood	
W63.	Ufd118	High/Prior's Wood Lane *	Minor addition
W64.	Ufd119	Grimsditch Wood	
W65.	Ufd120	Howe Wood, Debden	
W66.	Ufd122	Little Grimsditch Wood	
W67.	Ufd123	Colville Hall Wood	
W68.	Ufd126	Peverel's Wood	
W69.	Ufd127	Row Wood	
W70.	Ufd129	Fulfen Slade Lane	
W71.	Ufd130	Pigeon Wood/Greenstreet Spring	
W72.	Ufd131	Lady Wood/Regent's Spring *	Regent's Spring added
W73.	Ufd133	Pritchett's Spring *	Unchanged
W74.	Ufd136	Pounce Wood *	Unchanged
W75.	Ufd137	Hadstock Wood	
W76.	Ufd139	Whitehill Wood *	Unchanged
W77.	Ufd140	Cammashall Wood	
W78.	Ufd141	Brick Kiln Spring	
W79.	Ufd142	Madge Hobbs Wood	
W80.	Ufd145	Littley Wood West	
W81.	Ufd146	Prior's Wood *	Unchanged
W82.		Elsenham Woods SSSI	SSSI removed from LoWS system
W83.	Ufd147	Mollpond Wood *	Unchanged
W84.		Nunn Wood SSSI	SSSI removed from LoWS system
W85.	Ufd150	Willis's Spring	
W86.	Ufd152	Canfield Hart	
W87.	Ufd153	Hawland Wood	
W88.	Ufd154	Chickney Lane	
W89.	Ufd155	Martin's Wood *	Unchanged
W90.	Ufd156	Robin's Grove/Hills Wood *	Unchanged

CODE			
Old	**New**	**SITE NAME**	**CHANGES**
W91.	Ufd157	Bright's Wood	
W92.	Ufd158	Littley Wood East	
W93.	Ufd159	Broomshawbury Wood	
W94.	Ufd160	Grove Spring	
W95.	Ufd161	Crowney Wood	
W96.	Ufd163	Hales Wood South	
W97.	Ufd164	Rowney Woods	
W98.		Hales and Shadwell Woods SSSI	SSSI removed from LoWS system
W99.	Ufd166	Shadwell Wood West	
W100.	Ufd167	Harrison's Wood	
W101.	Ufd168	Poplars Wood	
W102.	Ufd170	Hamperden End Wood	
W103.	Ufd171	Beck's Wood	
W104.	Ufd172	Runnel's Hey	
W105.	Ufd175	Little Hales Wood	
W106.	Ufd176	Scabbard's Wood	
W107.	Ufd177	Wimbish Lanes	
W108.	Ufd179	Philipland/Middlefield Wood	
W109.		Little Easton Airfield Woods	SITE DELETED
W110.	Ufd184	Hart's Grove	
W111.	Ufd185	Oak Wood	
W112.	Ufd187	Bury Spring	
W113.	Ufd189	Homestead Grove	
W114.	Ufd190	Leaden Roding Marsh/Longstead Lane	
W115.	Ufd191	Reedings Grove	
W116.	Ufd192	Home Wood, Thaxted	
W117.	Ufd195	Brown's Wood	
W118.	Ufd197	Bush Croft	
W119.	Ufd201	Wilderness Grove	
W120.	Ufd202	Home Wood, Ashdon	
W121.	Ufd204	High Rodingbury Wood	
W122.	Ufd205	Home Wood, Tilty	
W123.	Ufd206	Leaden Roding Woods	
W124.	Ufd208	Roundlay Grove	

CODE			
Old	**New**	**SITE NAME**	**CHANGES**
W125.	Ufd209	Eseley Wood	
W126.	Ufd210	Burntfield Grove	
W127.	Ufd211	Tilekiln Grove	
W128.	Ufd212	Lord's Wood	
W129.	Ufd216	Canfield Thrift	
W130.		High Wood, Great Dunmow SSSI	SSSI removed from LoWS system
W131.	Ufd217	Margaret Roding Wood	
W132.		The Grove (part of SSSI)	SSSI removed from LoWS system
W133.	Ufd219	Grigg's Grove	
W134.	Ufd221	Bow Croft Wood	
W135.	Ufd223	Beech Wood	
W136.	Ufd224	Hoglands Wood/Broomhills/Frederick's Spring *	Minor deletion and addition
W137.	Ufd226	Little Bendysh Wood	
W138.	Ufd227	Bush Wood	
W139.	Ufd231	Dobb's Wood	
W140.	Ufd232	Great Bendysh Wood	
W141.	Ufd233	Clay Wood	
W142.		West Wood SSSI	SSSI removed from LoWS system
W143.	Ufd234	Ash Grove/Oak Spring *	Oak Spring added
W144.	Ufd235	Roffey Wood	
W145.	Ufd236	Olives Wood *	Unchanged
W146.	Ufd237	Bigod's Wood	
W147.	Ufd238	Avesey Wood	
W148.	Ufd240	Alrey Wood 1	
W149.	Ufd241	Dow Wood/Four Corner Spinney	
W150.	Ufd243	Alrey Wood 2	
W151.	Ufd244	Gallows Wood	
W152.	Ufd247	Holbrook Wood	
W153.		Garnett's Wood/Barnston Lays SSSI	SSSI removed from LoWS system
W154.	Ufd250		Amalgamated into new Merks Hall Site
W155.	Ufd250		Amalgamated into new Merks Hall Site
W156.	Ufd251	Ridley Wood	
W157.	Ufd252	Crow's Wood	
W158.	Ufd250		Amalgamated into new Merks Hall Site

CODE			
Old	**New**	**SITE NAME**	**CHANGES**
W159.	Ufd255	Marks Wood	
W160.	Ufd256	Clobbs Wood *	Minor addition
W161.	Ufd257	Homelye Wood *	Unchanged
W162.	Ufd264	Bran End Wood	
W163.	Ufd266	Hempstead Wood	
W164.	Ufd269	Bran End *	Amalgamated with G111
W165.	Ufd271	Sampford Hall Wood	
W166.	Ufd272	Scales Grove	
W167.	Ufd273	Great Howe Wood	
W168.	Ufd274	Mount Hall Wood	
W169.	Ufd275	Lakehouse Grove	
W170.	Ufd277	Lubberhedges Wood	
W171.	Ufd278	Whitehouse Spring *	Unchanged
W172.	Ufd279	Mouslin Wood *	Unchanged
W173.	Ufd281	Boxted Wood *	Unchanged
G1.	Ufd1	Langley Lower Green Protected Roadside Verge	
G2.	Ufd4	Building End Meadows	
G3.	Ufd6	Langley Upper Green Protected Roadside Verge	
G4.	Ufd8	Chrishall Parish Church	
G5.	Ufd12	Cane's Walk Strip	
G6.	Ufd13	Pelham Centre Meadow	
G7.	Ufd15	Deer's Green Protected Roadside Verge	
G8.	Ufd17	Park Green	
G9.	Ufd18	Cooper's End Protected Roadside Verge	
G10.	Ufd21	Cooper's End Meadow	
G11.	Ufd22	Clavering Mill Protected Roadside Verge	
G12.	Ufd23	Farnham Green	
G13.	Ufd26	Daw's Grove Protected Roadside Verge	
G14.	Ufd29	Stickling Green	
G15.	Ufd30	Becketts Paddock	
G16.	Ufd31	Scotts Pasture	
G17.	Ufd36	Farnham Churchyard	
G18.	Ufd38	Green Man Meadows	
G19.	Ufd41	Catmere End	

CODE			
Old	**New**	**SITE NAME**	**CHANGES**
G20.		Little Hallingbury Marsh SSSI	SSSI removed from LoWS system
G21.	Ufd48	Manuden Church	
G22.	Ufd49	Rickling Protected Roadside Verge	
G23.	Ufd50	Arkesden Chalk Pit	
G24.	Ufd52	Howe Wood, Strethall Protected Roadside Verge	
G25.	Ufd53	Strethall Field Protected Roadside Verge	
G26.	Ufd54	Hallingbury Mill Pastures	
G27.	Ufd56	Manuden Strip Lynchets	
G28.	Ufd60	Wicken Bonhunt Churchyard	
G29.	Ufd61	Catmere End	
G30.	Ufd62	Wendens Ambo Lane	
G31.	Ufd63	Stansted Marsh *	Partial deletion plus addition
G32.	Ufd64	Wicken Bonhunt Protected Roadside Verge	
G33.	Ufd65	Little Hallingbury Churchyard	
G34.	Ufd68	Strethall Road Protected Roadside Verge	
G36.	Ufd69	The Mount, Stansted *	Significant deletion plus minor addition
G37.	Ufd71	A11, Chesterford Protected Roadside Verge	
G38.	Ufd74	Great Chesterford Road Verge *	Split from former larger site
G38.	Ufd82	Little Chesterford Verges *	Split from former larger site, with amendments
G39.		Gall End Meadow	Downgraded to Potential LoWS
G40.	Ufd80	Quendon Park *	Significant deletions of surrounding grassland
G41.	Ufd81	Wendens Ambo Station Road Protected Roadside Verge *	Unchanged
G42.	Ufd84	Hatfield Heath	
G43		Newport Churchyard	Downgraded to Potential LoWS
G44.	Ufd86	Woodside Green	
G45.	Ufd90	Kiora Pastures *	Significant additions
G46.	Ufd91	Saffron Walden - Audley End Park Wall Protected Roadside Verge *	Unchanged
G47.	Ufd96	Audley Park Pastures *	Minor deletion and correction of boundary
G48.	Ufd104	Crave Hall Meadow	
G49.	Ufd106	Widdington - Waldegraves Protected Roadside Verges *	Unchanged
G50.		Little Walden Road quarry	Downgraded to Potential LoWS
G51.	Ufd113	Little Barrington Hall Protected Roadside Verge	
G52.		Elsenham Hall Fields	Downgraded to Potential LoWS
G53.		Pennington Hall Meadow	Downgraded to Potential LoWS

CODE			
Old	**New**	**SITE NAME**	**CHANGES**
G54.	Ufd117	Saffron Walden – Roos Hill Protected Roadside Verges *	Minor amendment
G55.		Byrd's Farm Lane Special Roadside Verge	Downgraded to potential LoWS
G56.	Ufd124	Ashdon Road Verges *	Additions
G57.	Ufd125	Matching Airfield Grasslands, North	
G58.		Radwinter Road Bank	SITE DELETED
G59.	Ufd128	Stansted Airport Sewage Works Fen *	Significant deletion
G60.	Ufd135	Saffron Walden - Ashdon Road Protected Roadside Verges *	Unchanged
G61.	Ufd132	Harrison Sayer Reserve	
G62.	Ufd138	Elder Street Protected Roadside Verge	
G63.	Ufd143	Molehill Green Meadow *	Unchanged
G64.	Ufd144	Pledgdon Green	
G65.	Ufd148	Molehill Green *	Significant deletion
G66.	Ufd149	Palegate Meadow	
G67.	Ufd151	Smith's Green Protected Roadside Verge	
G68.	Ufd169	Broxted Protected Roadside Verge	
G69.	Ufd174	Debden Green Protected Roadside Verge	
G70.	Ufd178	Fitzjohns Marsh	
G71.	Ufd180	Canfield End Pastures	
G72.	Ufd181	Aythorpe Roding Churchyard	
G73.	Ufd182	Burnt House Meadow	
G74.	Ufd183	Aythorpe Roding Verges	
G75.	Ufd186	Canfield End Churchyard	
G76.	Ufd188	Cutler's Green Protected Roadside Verge	
G77.	Ufd193	Ashdon Road Protected Roadside Verge	
G78.	Ufd194	Little Easton Airfield *	Minor deletion
G79.		Ashdon Meadows SSSI	SSSI removed from LoWS system
G80.	Ufd198	Cutlers Green	
G81.	Ufd199	Howlett End Protected Roadside Verge	
G82.	Ufd200	Radwinter Manor Place	
G83.	Ufd203	Chalks Green	
G84.	Ufd207	Tilty Mill Meadow	
G85.	Ufd213	Folly Mill Protected Roadside Verge	
G86.	Ufd214	Ellis Green	
G87.	Ufd215	Aythorpe Roding Protected Roadside Verge	

CODE			
Old	**New**	**SITE NAME**	**CHANGES**
G88.	Ufd218	Collins Farm Lane	
G89.	Ufd220	Thaxted Churchyard	
G90.	Ufd222	Plough Meadow	
G91.	Ufd225	Cowless Hall Meadows	
G92.	Ufd228	Friars Farm Meadow	
G93.	Ufd229	Haylock's Fen	
G94.	Ufd230	Elms Spinney	
G95.		Parsonage Downs	Downgraded to Potential LoWS
G96.	Ufd239	Gallow Wood Marsh	
G97.	Ufd242	Sweetings Meadow	
G98.	Ufd245	Wincelow Pasture	
G99.	Ufd246	Hempstead Church Meadow	
G100.	Ufd248	Great Sampford Road Bank	
G101.	Ufd249	Stagdon Cross Protected Roadside Verge	
G102.	Ufd253	Great Sampford Sand Pit	
G103.	Ufd254	Daisyley Road Verges	
G104.	Ufd258	Hounslow Green Protected Roadside Verge	
G105.	Ufd259	Bustard Green	
G106.	Ufd262	Poplar Farm, Duck End Protected Roadside Verge	
G107.	Ufd263	Onslow Green	
G108.	Ufd265	Bran End Meadows	
G109.	Ufd268	Little Sampford Protected Roadside Verge	
G110.	Ufd270	Stebbing - The Downs Protected Roadside Verge *	Unchanged
G111.	Ufd269	Brick Kiln Farm Pastures	Amalgamated with W164
G112.	Ufd276	Felsted Fen	
G113.	Ufd280	Stebbing Green *	Minor additions
M1.		Sawbridgeworth Marsh SSSI	SSSI removed from LoWS system
M2.	Ufd47	Wallbury Plantation and Marsh	
M3.	Ufd58	Rushy Mead	
M4.	Ufd85	Aubrey Buxton Reserve *	Unchanged
M5.	Ufd88	River Cam Wet Woods *	Significant additions
M6.	Ufd100	Turner's Spring/The Bourne *	Minor addition
M7.		Debden Water SSSI	SSSI removed from LoWS system
M8.		Hatfield Forest SSSI	SSSI removed from LoWS system

CODE			
Old	**New**	**SITE NAME**	**CHANGES**
M9.	Ufd121	Barrington Hall Lake	
M10.	Ufd173	Chickney Hall	
M11.	Ufd196	Flitch Way *	Minor additions
M12.	Ufd250		Amalgamated into new Merks Hall Site
M13.	Ufd260	Nick's Hole	
M14.	Ufd261	Hick's Plantation *	Unchanged
	Ufd78	Alsa Lodge Pit *	NEW SITE
	Ufd79	Wicken Water Marsh *	NEW SITE
	Ufd89	Newport - Debden Road Protected RoadsideVerge *	NEW SITE
	Ufd92	Saffron Walden Golf Course *	NEW SITE
	Ufd112	Bulmer Road Verges *	NEW SITE
	Ufd134	Eastend Lane *	NEW SITE
	Ufd162	Redgates *	NEW SITE
	Ufd165	Redgates Lane *	NEW SITE
	Ufd267	Stebbing – Bran End Protected Roadside Verge *	NEW SITE

Where a site is showing "Site Deleted" the area is not even considered as a potential for future re-instatement, at least in the short-term. This is either because it is felt that there has been an irreversible decline in the quality of the site, or the site, whilst not declined in condition, no longer meets the more stringent selection criteria.

Several sites have been removed from the register of Local Wildlife sites but are placed on the list of potential sites, pending the acquisition of further information about the wildlife present or improved management resulting in a better site condition.

3.2 Discussion of Changes

Within the two survey zones the most significant change, other than the removal of SSSIs from the system, has been the loss of several grassland sites, with several others approaching a borderline condition. In each case, the cause of decline is perhaps a little surprising: it is under-management. In times when horse grazing paddocks and other grazing land is often at a premium, it is curious that many of the grasslands surveyed are in desperate need of regular grazing and removal of encroaching scrub. This has affected Pennington Hall Meadow, Gall End Meadow and Elsenham Hall Fields to the extent that they are now downgraded to potential sites. Molehill Green Meadow is declining, also, but retains its Local Wildlife Site status for the time being. Sites such as The Mount, Stansted are being grazed but nevertheless, the inexorable spread of scrub from hedgerows is reducing the amount of grazing land available. Livestock grazing is unlikely to limit the lateral spread of scrub from a site's margins, so that periodic cutting back by hand will be necessary.

Conversely, a number of sites are downgraded to potential sites on account of being damaged or irreversibly degraded by over-zealous management, but in the form of mowing. These sites include the large "village green" at Parsonage Downs, Great Dunmow, where even the original SINC description warned of the adverse effects of being mown as amenity lawn. Similarly downgraded is Newport Churchyard, where regular mechanised mowing is destroying the species-rich sward. These trends are perhaps not irreversible, if the mowing regimes were to be moderated to allow selected areas to grow tall during the summer months.

The Woodland Trust's property "Ugley Green Wood" has been removed from the register, but this should not be interpreted as a decline in quality. Indeed, as this recent plantation matures it should continue to gain in quality. In 1994, all land belonging to nature conservation organisations was automatically included within SINC registers, regardless of quality. This no longer applies, leaving this unremarkable, but maturing piece of planted woodland falling short of current woodland selection criteria. Its potential is long-term, measured in decades, and so it is not included within the list of potential LoWS.

Even one Essex Wildlife Trust nature reserve also falls foul of these more exacting standards. Little Walden Road Quarry was identified as a site of importance for its chalk grassland plants before the completion of adjacent house-building and the site was originally much larger in extent than the current nature reserve. The house-building process destroyed much of the floor of the quarry where the critical plant species occurred. The site may re-qualify for

selection on account of its invertebrate populations, but further survey work is needed to clarify this point.

Former site W109, Little Easton Airfield Woods, is permanently deleted. It is shown on the Ancient Woodland Inventory for Essex as ancient woodland, but reference to Ordnance Survey maps of the late 1880s show the land to be open fields at that time. Nothing about the structure or flora of the woods suggests an ancient status, except perhaps the immediate stream-side fringe, and so the site is removed from the register. The main block is poor quality wood dominated by Sycamore.

Former site G55, Byrd's Farm Lane Special Roadside Verge, is deleted on the grounds that it is no longer a Protected Road Verge and seemingly no longer supports the population of Crested Cow-wheat, which was the reason for its selection as such in the first place

Radwinter Road Bank (G58) is deleted on the grounds that its flora has been lost to scrub encroachment, over-vigorous mowing and general habitat deterioration. It was not one of the Essex County Council Protected Roadside Verges.

Other than these major changes to the register, the majority of sites have undergone minor "fine-tuning" of their boundaries to reflect changes over the last 13 years and allowing the inclusion of areas of supporting habitat that were overlooked or thought to be of insufficient quality during the original survey.

In addition to this, several new sites have been identified as a result of the desk study and data trawl undertaken as part of the project. The new sites are:
Alsa Lodge Pit – an important invertebrate site, although currently suffering loss of habitat by partial development of the pit as a whole.
Wicken Water Marsh – a wetland area to the west of Newport
Newport - Debden Road Protected Roadside Verge – a site with a surviving fragment of chalk grassland vegetation.
Saffron Walden Golf Course – a large area of rough scattered across the course, with chalk grassland plants of some interest.
Bulmer Road Verges – another chalk grassland flora on chalky boulder clay.
Eastend Lane – an attractive flower-rich bridleway with scarce Essex plants.

Redgates - a surviving piece of old chalk flora grassland, although with a serious scrub problem.

Saffron Walden - Redgates Lane Protected Roadside Verge – contains the nationally scarce Crested Cow-wheat plant.

Stebbing – Bran End Protected Roadside Verge – a significant population of the nationally scarce Lesser Calamint.

3.3 Potential Sites

As previously indicated, adverse management is the reason behind why several sites are listed here, rather than as full LoWS. However, for several sites more detailed ecological survey work will be required to determine the full extent of the wildlife interest of the site. This is especially true for sites suspected of having invertebrate interest.

The list of Potential LoWS contains a number of sites that might appear surprising at first, namely landfill sites and active sand pits. However, it is just this sort of "brownfield" land that has been shown, in the south of the county, to support a wealth of locally or nationally scarce and rare invertebrates. There is no reason to suspect that such sites will be very much less interesting in the north-west of the county. Many invertebrates are able to exploit, or actually depend upon, areas of sparsely vegetated ground with large bare areas warmed by the sun on south-facing slopes and these conditions are invariably found scattered across landfill and active mineral extraction sites. The key to conserving such invertebrate interest beyond the active life of the site clearly depends upon the restoration plans, which have sometimes been drawn up many years previously when the value of brownfield land was not fully appreciated.

3.4 The Future

The Essex Wildlife Trust has now appointed a Local Wildlife Sites Officer, Luke Bristow, to work alongside local authorities and landowners to provide guidance on getting the most out of the Local Wildlife Sites for Essex. The LoWS Officer can provide a point of liaison between the local authority and landowners as well as give advice on management, assisting with advice on grant aid and other matters regarding the system.

4. HABITAT APPRAISAL

4.1 Overview

The key factor that gives many Uttlesford Local Wildlife Sites their peculiar interest stems from the underlying geology. Much of the soil covering this part of Essex has a base-rich (alkaline) nature, either as a result of developing from the limited hard rock outcrops of chalk around Saffron Walden or via the chalky boulder clay spread widely over north-west Essex by glacial activity. The resultant more or less alkaline soils give rise to conditions that many plants cannot tolerate: the relatively insoluble state of some essential plant minerals in alkaline soils limits the distribution of some species and conversely favours others. Thus, chalky woods, grasslands or marshes have characteristic plants and associated animal life.

This, coupled perhaps with climatic constraints, has resulted in a number of nationally scarce species being quite widespread in north Essex, south Suffolk and south Cambridgeshire, giving those relevant local authorities the especial responsibility of guardianship of the majority of the national stock of such species.

4.2 Woodland

One of the most iconic plants for the chalky boulder clay woods is Oxlip (*Primula elatior*), and many of the ancient woods reviewed here support populations of this Nationally Scarce plant. All Oxlip woods should be considered to be of regional if not national importance. A less conspicuous companion in chalky boulder clay woodlands is Herb Paris (*Paris quadrifolia*). The typical canopy of many of the ancient woods on the boulder clay comprises Ash, Field Maple, Hazel and Pedunculate Oak, providing for a rather lighter and open canopy structure compared with the Hornbeam-dominated woods of south Essex. However, Hornbeam does also occur within this area, especially in the more southern woods around Takeley and Bishop's Stortford, although it is widely present in smaller quantities across the survey area.

The dense shading of some woodland canopies is being exacerbated by the lack of recent management. This abandonment of traditional coppices has resulted into each coppice stool growing up into sometimes four to six individual tree-sized trunks and produces a very densely shading canopy. This then limits the ground flora. Very few woods within the survey zones showed signs of active recent coppice, with London Jock Wood near Widdington being the main exception.

Several of the larger ancient woods surveyed have undergone large-scale clearance and re-planting with exotics, often conifers, thereby having an even greater impact upon the overall structural diversity and wildlife value of the wood. This has affected the cluster of large ancient woods to the east of Saffron Walden, Emanuel Wood at Chesterford Park and Broom/Burney Woods at Quendon. However, it is believed that these woods are not beyond redemption and they are retained within the Local Wildlife Site system. Nevertheless, it would be a great asset to the district if these sites could be reverted back to their native canopy composition.

A more curious woodland plant is Crested Cow-wheat, another Nationally Scarce plant and one with an even more restricted national distribution than Oxlip. Its ecological preference seems to be to grow on the edges of ancient woods or along the margins of rides or closely adjacent hedgerows rather than under the canopy of the wood itself. Its scarcity merits the consideration of all known sites as Local Wildlife Sites. It is known from a number of sites to the east of Saffron Walden, but appears to have disappeared from one former Essex County Council Protected Roadside Verge on Byrds Farm Lane.

4.3 Grassland

True chalk grassland i.e. that formed on thin brown earth soils over bedrock chalk is extremely rare in Essex, with suitable outcrops only occurring around Saffron Walden and the Grays/Purfleet area in Thurrock. Even here, there are very few examples of extensive open swards. The closest grassland type to this occurs mainly on a number of road verges, with plants such as Greater Knapweed (*Centaurea scabiosa*), Crosswort (*Cruciata laevipes*), Fairy Flax (*Linum catharticum*), Salad Burnet (*Sanguisorba minor*), Stemless Thistle (*Cirsium acaule*), Wild Liquorice (*Astragalus glycyphyllos*) and Thymes (*Thymus* spp.) being characteristic species. In a national context, these areas of "chalk grassland" would not perhaps rate particularly highly alongside the extensive downlands of Kent, Sussex and the Chilterns, but the road verges around Saffron Walden and Chrishall represent the most significant stock of such plants left in Essex and are therefore of great local importance.

Many of the chalk grassland species referred to above also occur in chalky boulder clay grasslands, where they are joined by a specialist of these more heavy soils: Sulphur Clover (*Trifolium ochroleucon*). With the intensive management of pastures and meadows, this is another species that has found road verges to be a vital refuge, although one that it prone to

adverse management and catastrophic disturbance as a result of highways maintenance and vehicular activity.

Churchyards can also provide a similar refuge for such plants, with the original yards often encapsulating a piece of ancient grassland when the church was constructed. However, the flora of many churchyards is under threat from over-zealous mowing, especially in areas of the yard where graves are no longer active and could be left in a more semi-natural grassland surrounding. The sometimes conflicting interests of grassland wildlife and visual or physical amenity are also apparent when considering village greens. Uttlesford has many such greens, although most fall outside the remit of this current study. Molehill Green near Stansted Airport is threatened by future expansion of the airport, whilst Stebbing Green remains relatively unscathed although there are issues with the unofficial "adoption" of sections in front of properties as continuations of the resident's front lawn.

4.4 Wetlands

Wetlands, too, have a distinctive wildlife value when located on base-rich substrates, but this is more noticeable within the invertebrate life rather than through plant life. That said, Greater Tussock-sedge is strongly associated with base-rich fens and marshes and occurs within the present study area within the Debden Water SSSI.

Within the invertebrate fauna, the molluscs are those creatures most prominent, with the calcareous soils providing the calcium carbonate necessary for constructing their shells. An aspect of invertebrate ecology that is receiving more attention in recent years is the plight of the native White-clawed Crayfish. This is a species of clean, calcareous streams and rivers, making the River Cam catchment of potential value for this species, although records are currently lacking. At the very least, parts of this catchment might make valuable re-introduction sites although their vulnerability to "crayfish plague" carried by a number of alien, introduced crayfish in Essex rivers may limit the success of any such re-introduction programme.

4.5 Wildlife Corridors

For most species of flora and fauna, the term "corridor" is a misleading one. In human terms, a corridor is merely a conduit by which one gets from A to B, with the conscious decision to get to B having left A. The journey may take only a few seconds, minutes or at the most hours if one considers roads as human corridors. Furthermore, it does not necessarily matter if

the human corridor passes through "inhospitable" or "useful" territory: it is, as said, a means of "getting from A to B". For wildlife, only a very small handful of large-scale migratory species can be said to follow similar patterns and even then there are fundamental differences in how that corridor works. Wildebeest follow ancient, traditional routes across southern Africa, but the "corridor" still needs to support their basic needs every day along the way. The closest example of a small-scale corridor that works in a similar way to that used by humans might be a pipe underpass that allows Badgers to carry on using a traditional foraging path once a road has been built across it. In this instance, Badgers will often instantly take advantage of the underpass, provided it is very close to their known route. Badgers tend to adapt to this arrangement because they generally follow well-worn paths when out foraging for food and patrolling their home range in any case.

Within the realm of countryside planning and management it is invariably the case that it is us humans that have decided that the species concerned living at point A would be better off if it were also living at point B: wildlife merely takes advantage of living wherever it can. Thus, for B to be colonised by the species, it may well have to "live down" the corridor to reach our desired end-point. In other words, the corridor must be of sufficient habitat quality to support the species, albeit temporarily, whilst it spreads through the habitat hopefully ending up at point B, where there is sufficient habitat for permanent populations to become established. For the successful movement of Brown Hares, this corridor will need to be at a landscape scale, whilst for reptiles it may only be a few tens of metres wide.

There is still a major variation in the time-scales in which such corridors may operate. If one is exceptionally lucky, Dormice might spread from one wood to another using an artificial rope-bridge slung over a road in a few weeks or months, but such dispersal, if it happens at all, is much more likely to take years to work. Dormice are not capable of thinking "we can use this bridge to get to the other side now" – it will just happen as part of random exploration of their surroundings. A newly planted hedge to encourage the dispersal of bats may take many years before it is big enough to attract bats to use it for foraging behaviour. It is therefore of fundamental importance that for the dispersal of wildlife through the countryside, not only should potential habitat point B be capable of supporting the species, but the land designated to allow it to spread to that point must also be suitable habitat. It would be for the good of the species in terms of mixing gene pools for the return journey from B to A to be possible at any time, along with mixing with individuals at points C, D etc. so the concept of a matrix rather than a corridor is a better one.

For all this, there is one fundamental problem in designing and implementing wildlife corridor schemes: there are virtually no scientific papers that empirically show that such corridors work at the landscape scale. It can be demonstrated that Badgers and migrating frogs and toads use underpasses under roads, and some studies have looked at insect dispersal along road verges, but such insights into how and why animals move through the countryside are very few and far between and usually focus on small-scale site mitigation rather than landscape planning. As such, all that can be done is to strive towards a far-reaching matrix of what we perceive to be good quality habitat for the species or groups of species concerned and hope that their population and distribution are improved as a result.

4.6 Corridor Requirements

The requirements of a few selected groups of animals can be used to illustrate some of the key features that need to be considered when attempting to plan the spread of species around the countryside. This will reinforce the fact that it is impossible to have a "one size fits all" wildlife corridor. Rather, one is likely to be dealing with " a bat corridor" or "a Water Vole" corridor, with little prospect of dual use, although some shared usage may be possible e.g., bats with Dormouse, reptiles and amphibians with ground-dwelling invertebrates.

4.6.1 Bats

Bats are obviously very mobile species, but they have some requirements to use an area regularly. Habitually, they tend to spread from their roost sites along hedgerows, tree belts or similar features, feeding as they go, before arriving at a main feeding area. As such, these hedgerows come some way towards the human concept of a route to get somewhere, but nevertheless the hedge must be able to provide foraging habitat itself or it is less likely to be used much, if at all. Most bat species will not cross large open areas whilst on nightly foraging activity. That said, bats are clearly capable of moving large distances on a seasonal basis when they travel to and from winter hibernation sites and the overall presence or absence of bats in an area is probably more down to the presence or absence of suitable summer roost sites and good quality habitat capable of supporting the colonies when there. In summary, if the habitat is good enough, bats will probably find it (sooner or later). The speed at which it is found may depend on the quality of the matrix of hedgerows, woods and similar features which favour foraging activity.

4.6.2 Amphibians and Reptiles

Newts, toads and frogs have a tendency to return to the pond of their origin, dispersing into the surrounding countryside away from the breeding season. However, if new ponds are encountered during that dispersal, colonisation can occur. The likelihood of that colonisation taking place depends on how tempted the species is to disperse in that direction e.g. down strips of habitat that satisfy their needs at that time of year.

Consider two ponds, one in a field hedgerow and the other in the middle of an arable field nearby (see Figure 1, below).

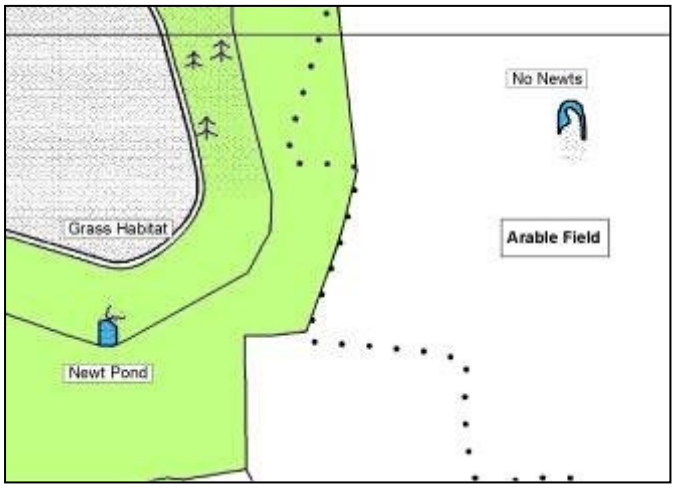


Figure 1. Landscape with isolated pond

The isolated pond within the arable field may provide suitable habitat for breeding newts, but they are unlikely to disperse in that direction, unless a short corridor of suitable terrestrial habitat is created (Fig. 2.)

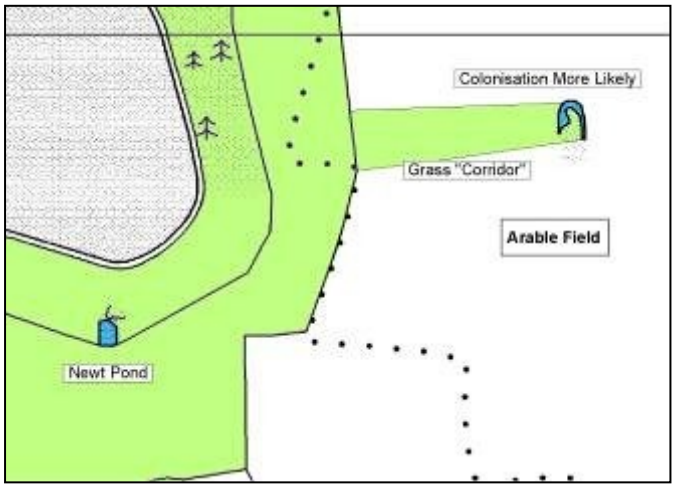


Figure 2. Corridor in place

In a landscape with a high density of ponds, a better concept is again one of a matrix rather than single corridors, since this will allow good mixing of the gene pool. This type of corridor would also assist the dispersal of reptile species.

4.6.3 Water Voles

In Britain, Water Voles are strictly tied to living close to water bodies, usually rivers and streams but sometimes ponds and lakes. It is interesting to note that this does not apply in continental Europe where, as the scientific name *Arvicola terrestris* implies, it is a terrestrial species found well away from water. Water Voles are capable of dispersing some distance down rivers and their immediate banks and could colonise suitable sections of river bank where stands of emergent vegetation provide cover and food supply and steep banks permit burrowing. However, the biggest block to such corridor use is the presence of Mink in the river catchment. Feral Mink are very significant predators of Water Voles and are thought to be largely responsible for the drastic decline in Water Vole numbers across Britain. Thus, there is an instance here of "empty corridors" – many suitable river sections are likely to remain devoid of Water Voles if Mink are present, with the complication that the Mink will be largely using the same corridor for dispersal, although they are less strictly tied to such routes.

4.6.4 Flying Insects

This category clearly encompasses a huge variety of organisms, each of which has strengths and weaknesses in terms of dispersal. Many such insects are highly mobile and are capable of chancing upon suitable nesting habitat and "living space" whilst out foraging for food. These colonisation events can be leaps across relatively unattractive habitat in the case of some bees and wasps, so the concept of "stepping stones" rather than corridors is a more appropriate analogy. That said, the speed and likelihood of colonisation will probably depend on how far apart the "stones" are placed. Many such insects survive as meta-populations, that is, clusters of semi-independent colonies within which some exchange of individuals takes place. In this way, re-colonisation can take place following a localised extinction and new habitats can be exploited as existing sites become less suitable e.g. by succession to scrub from an open grassland.

A more significant factor affecting the dispersal of such species over larger distances is the existence of barriers. A clear example of this is a multi-lane dual carriageway, which represents a formidable barrier to many low-flying insects. Many species will be prone to being killed by speeding traffic or will not cross such a bleak tract of land due to behavioural

constraints. It should be borne in mind that, to a limited extent, such barriers may be partial corridors in themselves, in that the verges may act as grassland or hedgerow corridors along the route of the road. This theme is returned to later.

Other species, however, are very poor colonisers of new habitat, despite being winged. Many butterflies are quite poor fliers and do not have the inclination to fly long distances. These tend to be habitat specialists that are, by and large, the rarer species in today's countryside. For these species the concept of permanent linked habitat along which they can slowly spread, living many years along the corridor, is still a valid one.

4.6.5 Ground-dwelling Invertebrates

The problems faced by these animals are largely parallel to those faced by reptiles and amphibians, although their willingness or otherwise to cross even minor paved roads makes the problem of road corridors as barriers rather than as means of dispersal is even more extreme.

4.6.6 Plants

Plants similarly display a range of abilities, from weed species that have seeds which can travel in the wind many miles or even tens or hundreds of miles, through to species that only spread a few inches a year in patch-like growth. This latter group includes several so called "ancient woodland indicators", with the premise being that if they are found in a wood, it is likely to be ancient and possibly a modified relic of the original wildwood that once covered the land. This is because these plants are such poor dispersers that they are incapable of colonising new areas of woodland. In reality, even the poorest of such dispersers is theoretically capable of spreading into newer mature woodland if it is immediately adjacent to the ancient wood, but even then the rate of spread will be very slow. For these species the corridor needs to be effectively permanent and the rate of spread will be measured in decades or centuries for any significant movement.

4.7 Wildlife Corridors in Uttlesford

Opportunities for dispersal through the countryside can be considered as two distinct forms: via relatively or absolutely inflexible infrastructure features and also through general land use patterns and alignments. The first factor can be split into artificial and natural features.

4.7.1 Artificial Infrastructure Corridors/Barriers

These are essentially major road verges and railway lines. Map 1 illustrates the most significant of such features: the M11, A120 and the West Anglia railway line. Many other lesser barriers also exist, such as the old A120. As indicated above, our scientific knowledge of what makes a proven successful wildlife corridor at the landscape scale is almost nonexistent. However, our appreciation of what makes an identifiable barrier to movement is slightly better developed and it is suggested that any corridor system would bear more fruit in terms of wildlife dispersal by addressing these issues rather than by attempting large-scale land use manipulation, at least in the first instance.

Some of the cuttings and embankments of the M11 represent significant areas of grassland that have obviously been colonised by a range of insects, birds and mammals. The frequent site of Kestrels hovering over such roads bears testament to the small mammal populations that have colonised and doubtless spread along these areas of rough grassland. However, the mortality of mammals, birds and insects caught trying to cross such features is not so often seen, unless it is the size of a Badger or deer.

Map 1 shows that these two main road routes effectively divide the district into three sections, with the inference that movement between these sections may be limited for some species. That said, given the size of Uttlesford District, landscape fragmentation at this most severe scale is perhaps rather more limited than for some of the smaller local authorities in the more urbanised south of the county.

Map 1 also identifies what are likely to be rather more "permeable" artificial corridors, mainly railway lines, although even then these features may inhibit dispersal. For Uttlesford the effect here is, again, likely to be limited, with only one railway line and that running largely parallel to the more problematic barrier to dispersal presented by the M11.

Natural Infrastructure Corridors/Barriers

This term is taken to mean more or less natural physical features over which we have little overall control on their whereabouts. This comprises major watercourses: the upper reaches of the Rivers Stort, Cam, Pant and Chelmer. These rivers and their often tree-lined courses provide an obvious corridor feature, but it is effectively immovable. They clearly have the ability to allow aquatic species to migrate along their lengths, but could also act as grassland corridors, subject to the state of bank-side vegetation. However, it must be accepted that the

rivers are, to some species, just as much of a barrier to lateral movement as are the major trunk roads. This will have its greatest effect on ground-dwelling invertebrates, reptiles (that can swim under duress but may not habitually do so, other than Grass Snake) and small mammals.

4.7.2 Natural Habitat Chains

Map 1 also identifies a number of more obvious chains of semi-natural habitat, including several Local Wildlife sites, where the dispersal of species is likely to occur more freely than in other parts of the district. These have largely been identified by the Large Area Working Group of the Essex Wildlife Trust, with one further area identified as a proposed zone by EECOS. The purpose of this Working Group was to identify zones of habitat where characteristic habitats were in need of action to improve their connectivity with each other, to enhance the intrinsic value of each site and to generally treat nature conservation in a more "holistic" manner. These chains are:

1. Strethall to Chrishall – chalky grassland habitats but also with a cluster of large ancient woods, much of which lies in the ownership of a few, large estates.
2. Langley to Manuden – small commons, village greens and road verges as an important but fragmented grassland resource.
3. Shadwell to Hales Wood – Oxlip woods.
4. Bendysh to Hempstead Wood – Oxlip woods.
5. Rowney to West Wood – Oxlip woods.

   Map 1 shows a number of hypothetical corridor "bridges" between these woodland clusters to illustrate the desire to enlarge the scale of connectivity. In reality, a north-east to south-west corridor between area 4 and the western end of area 5 would encapsulate a number of small woodland and hedgerow Local Wildlife Sites.

6. Stansted Oxlip woods. Again, a corridor of Local Wildlife Site woodlands can be identified to link this to area 5, to the north.
7. Hatfield Forest – as a core zone, but this surrounding countryside benefitting from this unique "store" of biodiversity.
8. Upper Chelmer riverine habitats. Recent survey work has shown that this catchment area still supports native White-clawed Crayfish.
9. Pincey Brook riverine habitats.
10. Stort Valley riverine habitats
11. This last site is not a formal product of the Wildlife Trust's Working Group, but is here recommended for inclusion, comprising the River Cam/Granta riverine habitats.

Within any one of these areas for "biodiversity opportunity", some fairly predictable prescriptions can be generated to enhance their biodiversity value. These include linking woodlands with belts of new planting or the strengthening of existing hedgerows, the creation

of permanent grassland headlands adjacent to important road verge grassland strips and focussing effort on getting appropriate management regimes for the Local wildlife Sites within the area.

Clearly, such initiatives can be applied at smaller scales in other chains of Local Wildlife Sites, with the arc of important sites either side of Bran End, Stebbing being a notable feature.

4.8 Planning for the Future

From the above discussion it should be apparent that planning for wildlife dispersal through corridors is at an embryonic stage in ecological knowledge. It could be argued that corridors should be unnecessary: the whole of the countryside should be open for movement in any direction a species cares to disperse. This is, albeit an admirable vision, a long-term project to say the least. For now, corridors or clusters of sites may be desirable to help conserve species that have either died out of a formerly populated area, or would have a far more stable population status if it were more widespread.

As previously mentioned, one cannot reasonably design a corridor that will suit all species. Rather, specific prescriptions can be designed for species projects. For example, one might have a project to encourage the spread of Water Voles along the length of a river catchment. The specific features that a suitable river and its bank should possess can then be identified and, where practicable, put in place. A similar project might look to increase the number of Great Crested Newt ponds, the number of meadowland butterflies in an area and so on.

That said, a number of broad principles can be identified to assist in the general maintenance of biodiversity in Uttlesford.

Encourage field grass margins and the re-establishment of hedgerows

Parts of the district, notably the far north where huge arable fields predominate, are impoverished in terms of even "commonplace" wildlife species, so even modest habitat creation schemes have the potential to reap great rewards. The concept of grass margins around every arable field epitomises the idea of a matrix-based, rather than corridor-based, approach to nature conservation.

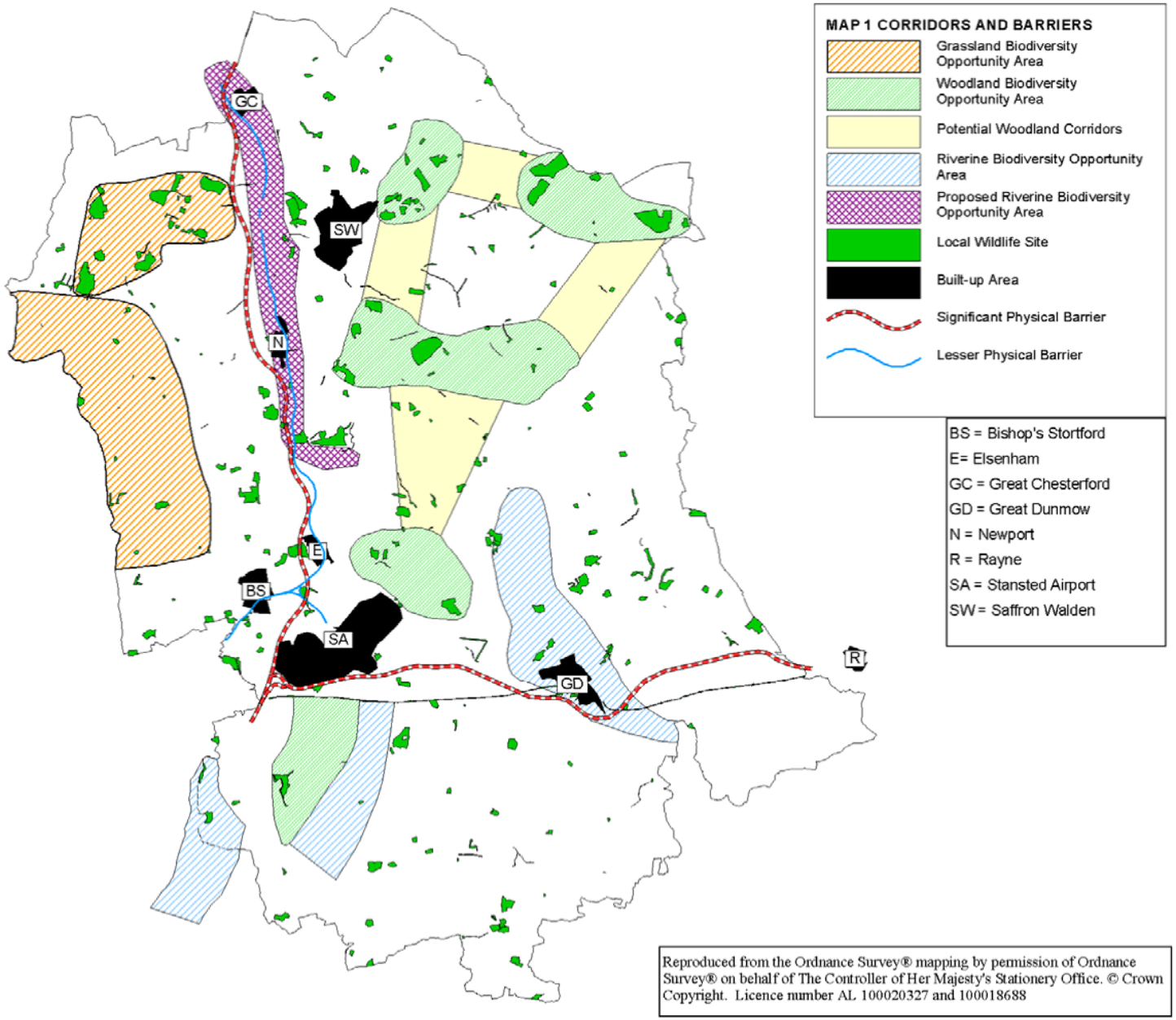
Where possible, design "green bridges" over major trunk roads and other barriers likely to be impermeable to the lateral movement of wildlife.

As previously discussed, it is easier to identify where and how the passage of wildlife through the countryside is being blocked than it is to design and implement routes for large-scale dispersal. Impediments to the dispersal of wildlife come in three main forms: urban growth, with no places of shelter designed into or left within them; featureless arable landscapes; and roads. The idea of green bridges is an appealing one from the perspective of the nature conservationist, but extremely expensive to implement. They have been used with great success in countries with less pressure on the land and more wildlife to contend with, such as Canada, where the pressures to keep Black Bears and Moose out of the way of speeding traffic on new cross-country routes is rather different to the pressures faced in this country. Green "butterfly" bridges were lobbied for in the UK when the M3 was driven through a huge cutting through Twyford Down in south Hampshire, but this was declined on grounds of cost.

Not withstanding this, the need to reduce the number of obstacles in the countryside is an important consideration. There are many small-scale solutions known to work, including underpasses for Badgers, Otters and amphibians under roads, rope bridges connecting two woods either side of a road for Dormice and planting tree belts for bats.

Encourage the traditional management of coppice-with-standards ancient woods.

Several of the larger ancient woods surveyed during this present study have been replanted with exotic conifers and broad-leaved species and it would be highly desirable to see these reverted to a semi-natural broad-leaved canopy. For the reminder of woods the economics of woodland management may not be particularly favourable, but efforts to encourage the resumption of coppicing in those woods where it was a traditional practice would generally be desirable.



Annex 1

LOCAL WILDLIFE SITE SELECTION CRITERIA

Produced by the Essex Wildlife Sites Project
Published by Essex Wildlife Trust
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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, produced by Adrian Knowles. Adrian's criteria form the basis of the current document, which has been revised in light of consultation and feedback from a wide range of people. The following made particularly important contributions:

- Adrian Knowles, Senior Ecologist, Essex Ecology Services Ltd
- Andrew May, Conservation Manager, Essex Wildlife Trust
- Charlie Williams, Conservation Officer, Natural England
- Darren Tansley, Water for Wildlife Officer, Essex Wildlife Trust
- 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

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Finally, I would like to thank Ursula Broughton and Genevieve Broad whose help was invaluable in preparing the final document for publication.

Luke Bristow
Wildlife Sites Officer, Essex Wildlife Trust

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

CONTENTS

1 INTRODUCTION

1.1 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 selection criteria, currently used to identify Local Wildlife Sites (LoWS) 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.

1.2 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 provide a comprehensive, rather than representative, suite of sites;*
- *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.*

1.3 The use of the word 'Local' might seem to devalue sites previously referred to as being of 'County' importance. However, this change brings the system in Essex in line with national guidance, and does not alter its value which remains unchanged: '**LoWS are Wildlife Sites of County Importance'**. None-the-less it is important to note that in pursuing its key objective, the conservation of the natural range and ecology of habitats throughout the county, the system has always included a degree of local flexibility. Thus, whilst the grasslands of a district or unitary authority might be generally poorer than the county 'average', on account of geology, previous land use, climate or edaphic factors, they might still be selected if they are representative of semi-natural grasslands within that part of the county.

1.4 The importance of a robust set of criteria for identifying Local Wildlife Sites is indicated in Planning Policy Statement 9 (PPS9): paragraph 9 states 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."*

1.5 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.

1.6 The Wildlife Sites Handbook[2] states that:

[2] Wildlife Trusts, (1997) *The Wildlife Sites Handbook, Version 2*.

"Local Wildlife Sites, together with statutory sites, should be treated as the minimum wildlife resource of an area."

The assumption being below this minimum threshold wildlife cannot recover to a sustainable level. This statement defines the key objectives of a Local Wildlife Sites system: to ensure that populations of declining species of flora and fauna are held at levels where their populations are capable of returning to long-term stability. This is achieved typically through ensuring that important habitats and their associated species are managed in an appropriate way ensuring they become, or are maintained, as part of viable ecological units.

1.7 However, our current knowledge of ecosystems may not always be sufficient to determine accurately what the threshold level is for a particular species or habitat. Thus, we are sometimes unable to judge if a species or habitat has already dropped below the minimum threshold. In order to avoid this problem it is imperative that we take a precautionary approach, to ensure no species or habitat declines irreversibly leading to its ultimate extinction. This 'precautionary principle' was embodied by the Bergen Declaration on Sustainable Development in the Economic Commission for Europe (ECE) Region[3], which states:
"Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation."

1.8 This would lead one to conclude that all semi-natural habitat should be protected, since it is not known whether or not the smallest, most species-poor piece of land is important for the survival of a particular species, were we to have a better understanding of its ecology. In practical terms, however, such a stance is unworkable, so that one needs to derive a method for safeguarding a 'reasonable' network of valuable wildlife sites, which might act as the basis for nature conservation efforts in any given area.

1.9 This document sets out a process to determine what is valuable enough to be recorded as a Local Wildlife Site in Essex.

[3] Bergen Ministerial Declaration on Sustainable Development in the ECE Region. UN Doc. A/CONF.151/PC/10 (1990)

2 REVIEW OF CRITERIA USED IN OTHER COUNTIES

2.1 Some Wildlife Site selection criteria, used in other counties, include quite specific threshold values for site selection, for example:

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

2.2 Criteria of this type are very easily understood by the layman and in theory easy to defend if placed under scrutiny at a public inquiry, but these are resisted in the Essex selection criteria for the following reasons.

2.3 In the case of ancient woods, the underlying assumption is that the wood will be particularly rich in woodland beetles, fungi, spiders and all other forms of life, compared to an equal area of more recent woodland. It is this special biodiversity of ancient woodlands that conservationists seek to protect, not just an interesting assemblage of flowering plants. An ancient wood with only 8 such plants is still likely to be very rich in other forms of life but would not be selected, just because of a quirk of the ground flora. Such a site could also come under critical attack if an alternative survey only found 8 rather than 10 indicator species; suddenly the site would be faced with de-selection, despite being in reality as important as it had been in the past. Ancient woodland indicator species of vascular plants can be used to determine which woods are ancient and which are probably not, but cannot be used to determine which woods are of greater or lesser biological importance. This is particularly true for ancient woods on very dry, acid sandy soils, which tend to be floristically less species-rich than those on other soils.

2.4 Similar arguments can be applied to resisting the use of 'ancient meadow' indicators to select grassland sites. Using a certain number of grasses and herbs to select grassland allows the selection to be undermined as a result of counter-claims that a different number of species is present and arguments about what constitutes 'a grassland herb' rather than an incidental ruderal or woodland escapee.

2.5 Using strict size criteria can also prove difficult to defend. For example a would-be developer might argue that a site was only 0.9 rather than 1.0 hectare, or may allow piecemeal erosion of a site until it falls below the required size and thus argues for its de-selection. Many habitats in Essex are so rare, fragmented and small in size that even very small sites could be identified as Local Wildlife Sites to conserve what little is left, and to act as a focus for habitat creation schemes on adjacent land in order to create more viable ecological units. This position highlights the occasional importance of 'potential value' when assessing a site for selection (see para 4.8.3).

2.6 The Wildlife Sites Handbook states that:
"Due to the nature of the process, assessing a site against criteria will nearly always involve elements of professional judgement".

2.7 The selection process in Essex originally relied quite heavily on this element of 'professional judgement', with the widespread proviso that most of the very learned naturalists in a county are in fact 'amateurs', although highly skilled in their field of knowledge. The original selection criteria developed in the early 1990s were based on habitat quality and a number of key ecological features to 'test' the value of a site to

determine whether or not it should be included in the network. This approach was followed in the subsequent version for Essex (2004), and is built upon here (2007) to produce a more robust set of criteria which clearly illustrate the rationale behind a site's selection.

3 DEVELOPMENT OF REVISED SELECTION CRITERIA

3.1 The previous selection criteria produced in 2004 built upon work completed by the Essex Review Panel in 1999. The panel recommended that the Essex system for selecting and adopting Wildlife Sites should ensure that the site network achieves a number of key targets. These targets were the starting point for the development of a number of Wildlife Site Statements (WSS), which underpin the subsequent site selection criteria.

3.2 The criteria have been further refined through a program of consultation with key stakeholders[4] initiated in 2006 by the Essex Wildlife Sites Project (EWSP), which culminated in the production of the current document in 2007. The EWSP is coordinated by Essex Wildlife Trust with support from Essex County Council, Environment Agency, Natural England and the Essex Biodiversity Project.

3.3 Finally, 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 does not have sufficient geological expertise or resources to address these sites adequately. This position will be reviewed should circumstances become more favourable in the future. Furthermore, geological sites with sufficient 'nature conservation' interest will be treated the same as any other candidate Local Wildlife Site.

[4] See Acknowledgements

4 WILDLIFE STATEMENTS

4.1 PREAMBLE

The following Wildlife Site Statements provide the framework for the production of a protocol for Local Wildlife Site review, evaluation and selection, and more specifically a basis to generate both Habitat Selection Criteria (HCr) and Species Selection Criteria (SCr). The Wildlife Site Statements themselves are in bold, with explanatory or supporting information in normal font.

4.1 WILDLIFE SITE STATEMENT 1

4.1.1 The Local Wildlife Site network of Essex will not include land identified as a Site of Special Scientific Interest (SSSI) on biological grounds at the time of the relevant Local Wildlife Site review. Geological SSSIs will be included within the network where they are found to possess suitable wildlife features. It must be realised, however, that the Local Wildlife Site network is critical to the support of such SSSIs (and vice versa) and that the identification of a site as a Local Wildlife Site rather than as an SSSI does not mean that the site is necessarily of inferior quality to a similar site that has been given SSSI status.

4.2 WILDLIFE SITE STATEMENT 2

4.2.1 If part or all of an SSSI is de-notified, then it should be immediately assessed as a candidate Local Wildlife Site and, if appropriate, added to the relevant register of sites.

4.3 WILDLIFE SITE STATEMENT 3

4.3.1 Local Nature Reserves will be subjected to the standard species/habitat selection criteria rather than receive automatic selection.

4.3.2 Under the original selection criteria developed in the early 1990s, the network of sites included all Sites of Special Scientific Interest (SSSI) and Local Nature Reserves (LNR). Consistent with recent national guidance, this position in relation to SSSIs is no longer adopted in the 2007 criteria. However, LNRs and geological SSSIs will be considered where they merit selection on nature conservation interest.

4.4 WILDLIFE SITE STATEMENT 4

4.4.1 All sites that meet the standards set by a Habitat Selection Criterion will be identified as Local Wildlife Sites.

4.4.2 This statement is consistent with Defra's Guidance on Local Sites, which states that:

"Local Site systems should select all areas of substantive nature conservation value..."

Therefore, the system in Essex will seek to select all sites with significant (as defined by the criteria) semi-natural habitats.

4.5 WILDLIFE SITE STATEMENT 5

4.5.1 Local Wildlife Site reviews shall attempt to identify all significant populations of notable species that do not have significant populations protected by SSSIs. Notable is defined for the purposes of this document to encompass ALL species:

- **listed in the Essex or UK Biodiversity Action Plan;**
- **with an appropriate IUCN[5] designation;**
- **a non-IUCN designation of 'rare' or 'scarce';**
- **any bird identified on the UK 'red' or 'amber' list; or**
- **identified within the Essex Red Data List (ERDL).**

4.5.2 Priority should be given to those species thought to be especially threatened or in decline, in Essex or nationally. Habitats which support significant populations of these species should be considered for selection as Local Wildlife Sites. Furthermore, the presence of notable species within a site selected through other criteria shall be used to support the designation of that site.

4.5.3 The system should support populations of every notable species, although this does not mean that every population of a notable species is required to be adopted as a Local Wildlife Site.

4.5.4 This is a key distinction from the policy of identifying **all** habitats of 'substantive nature conservation value', although there is some justification in so doing. The population dynamics of some fauna, especially invertebrates, are markedly different to that of plants and vegetation types, with ephemeral populations arising from attempted range expansion and subsequent contraction blurring the picture of a species' core range. There is felt to be some justification in restricting the site selection process to sites where populations are believed to be stable, rather than every site where a notable species has been recorded. The antiquity of some survey data further strengthens this point, in that only recent, reliable survey information should be used to identify sites on species grounds alone.

4.5.5 The Essex Red Data List (ERDL) has been coordinated by Peter Harvey of the Essex Field Club for Natural England (viewable at www.essexfieldclub.org.uk). It comprises a listing of those especially rare, threatened or drastically declining species known to have been found in the county. Included within this list are all nationally rare species, nationally scarce species and, where sufficient data is available, other species of lesser national significance that are rare or threatened in Essex (see **Appendix 1** for a more detailed account of the various national and county conservation designations).

4.5.6 In spite of the information provided in national and local BAPs or Red databook/lists, determining and prioritising which notable species are thought to be especially threatened or in decline, and currently not adequately protected in Essex, may, for some species, represent a complex task. In these circumstances, a suitably qualified authority should be consulted.

4.5.7 The criteria which stem from this statement have been developed to encompass the following situations:

- the presence of populations of one or more nationally rare[6] species;

[5] See **Appendix 1** for a detailed discussion of IUCN designations

- the presence of populations of one or more UK BAP species;
- the presence of populations of one or more nationally scarce[7] species;
- the presence of an Essex rarity (listed in either the ERDL or Essex BAP); and
- the presence of an unusually diverse assemblage of species, from within one species group, be they rare, scarce or relatively commonplace species.

Furthermore the criteria need to:

- conserve populations of rare and scarce species both at the core of their known distribution and also in smaller or more vulnerable satellite populations on the periphery of their known range.

4.6 WILDLIFE SITE STATEMENT 6

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

4.6.1 The Site should contain the habitat requirements at the correct scale in relation to the species on which the site is being selected. This is a key point in protecting many species' populations. There is often little merit in identifying a site where a rare invertebrate has been recorded if that site does not extend to include, where they are known, significant proportions of all the ecological requirements of that species. For example, many invertebrates need a sufficiently large and continuous pollen or nectar supply to complete their life cycle. This may lead to the designation of an area of peripheral vegetation that might not otherwise qualify for Local Wildlife Site selection in its own right, if it can be demonstrated that it supplies additional habitat benefits for the species concerned.

4.6.2 Such a Statement is harder to apply to other groups, such as mammals and some birds. It may be desirable to protect the nesting location of a particularly scarce bird (e.g. little tern *Sterna albifrons*, marsh warbler *Acrocephalus palustris*, or goshawk *Accipiter gentilis*) but it may be impractical to identify and protect all the land (or sea) on which those birds forage for food. Similar problems might be encountered with otters *Lutra lutra*, although not necessarily so with water voles *Arvicola terrestris*, dormice *Muscardinus avellanarius*, harvest mice *Micromys minutus* or water shrews *Neomys fodiens*.

4.6.3 In addition to those that stem from the Essex Review Panel targets, the following Wildlife Site Statements (7-9) have been developed to inform the selection of Local Wildlife Sites.

4.7 WILDLIFE SITE STATEMENT 7

4.7.1 Habitats can be identified as Local Wildlife Sites if their identification as such contributes to the fulfilment of national, regional or county Biodiversity Action Plan targets. This does not mean to say that all such habitats must be identified

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

[7] 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'

e.g. the identification of ALL ancient or species-rich hedgerows is not deemed appropriate.

4.8 WILDLIFE SITE STATEMENT 8

4.8.1 Other sites, not covered by criteria stemming from the previous Statements, can be identified as Local Wildlife Sites on the basis of there unique ecological characteristics. These habitat selection criteria shall give due consideration to the values and principles embodied in the 'Ratcliffe Criteria', especially rarity, naturalness, typicalness, fragility, size, diversity and position in an ecological unit[8].

4.8.2 The last point is particularly important. For example, sites of low intrinsic nature conservation value, but which perform an important function in terms of their position within the wider ecological landscape will be considered for selection.

4.8.3 Potential value might also be considered, especially for degraded UK or Essex BAP habitats.

4.9 WILDLIFE SITE STATEMENT 9

4.9.1 Domestic gardens[9] will not ordinarily be considered for selection. The only exception to this might be where the garden provides the very best or only site of a notable species.

4.9.2 To these nine fundamental points, three final Statements (10-12) can be added which are designed to strengthen and 'legitimise' the system for identifying Local Wildlife Sites consistent with national guidance.

4.10 WILDLIFE SITE STATEMENT 10

4.10.1 The following 'non-biological' criteria, mentioned in the Defra guidance, will also be considered where a site just fails to meet selection criteria which relate to Wildlife Site Statements 1-8:

- **historical and cultural associations;**
- **value for appreciation of nature; and/or**
- **value for learning.**

4.10.2 The inclusion of 'non-biological' criteria marks a departure from the previous documents used to identify Local Wildlife Sites in Essex, which focussed exclusively upon a sites ecological interest. It was felt that this was a significant omission, and the addition of WSS 10 brings the selection criteria in line with the Defra guidance of 2006.

4.11 WILDLIFE SITE STATEMENT 11

4.11.1 Before notification, each candidate Local Wildlife Site must be ratified by a Local Wildlife Sites Selection Panel.

4.11.1 This should be locally based at the borough, district or unitary level, and include representatives of the following organisations: local natural history societies, Essex

[8] Ratcliffe, D.A. (ed), 1977, *A Nature Conservation Review*, NERC/NCC

[9] Defined as land, used primarily for amenity, which forms part of a private residence less than 1 hectare in size.

Wildlife Trust local groups, local authority officers, statutory nature conservation agencies, non-statutory nature conservation organisations and natural history museums.

4.11.2 Local ratification is crucial, and this process will be strengthened, upon completion of a LoWS review, by seeking final endorsement of the ratified sites from the Essex Wildlife Sites Project Advisory Group in order to maintain a comparability of standards across the county. In situations where the local selection panel is unable to reach a decision consistent with the selection criteria or it proves difficult to convene a Local Selection Panel, the final arbiter shall be the EWSP Advisory Group, which comprises representatives from: Essex Wildlife Trust, Natural England, Environment Agency, Essex County Council, Essex Biodiversity Project, Essex Field Club and the Essex Planning Officers' Association.

4.12 WILDLIFE SITE STATEMENT 11

4.12.1 Local Authorities should include a policy within their Local Development Framework (LDF), or other relevant policy document, to allow, where necessary, for the addition or deletion of Local Wildlife Sites from their register within the lifetime of the LDF or policy document.

4.12.2 Local Authorities should endeavour to review the LoWS in their area on a regular basis. Consistent with Defra guidance, the Local Wildlife Sites Project recommend that the period between reviews should be no greater than 5 years.

5 PROTOCOL FOR SURVEY, EVALUATION AND SELECTION

5.1 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[10] undertaken between 1987 and 1994 by Essex Wildlife Trust. Subsequently, LoWS have typically been selected as part of borough, district or unitary authority wide '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. Identify LoWS owners (e.g. land registry search);
   b. 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.

[10] Joint Nature Conservation Committee, (1993) *Handbook for Phase 1 survey – a technique for environmental audit*.

5.2 IDENTIFICATION OF POTENTIAL SITES FOR ASSESSMENT

5.2.1 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 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.

5.2.2 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.

5.3 ARRANGING ACCESS FOR SURVEY

5.3.1 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."

5.3.2 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 Wildlife Sites Project 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. 5.2.1. Furthermore, there is likely to be some merit in contacting organisations representative of particular groups of landowners, e.g. the National Farmers Union (NFU).

5.3.3 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).

5.4 SITE SURVEY AND ASSESSMENT

5.4.1 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[11]. It is recommended that site assessments utilise the current version of the 'Local Wildlife Site Monitoring Form'[12].

5.4.2 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.

5.5 SITE EVALUATION AND SELECTION

5.5.1 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."

5.5.2 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 short-list of 'candidate sites' that appear to meet one or more criterion. This should be undertaken by a suitably experienced and competent ecologist, preferably with a good understanding of the county's flora and fauna.

5.5.3 The short-list 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 Wildlife Sites Advisory Group for endorsement in order to maintain a comparability of standards across the county. If the EWSP Advisory Group 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.

5.6 NOTIFICATION

5.6.1 Once the final list of LoWS has been endorsed by the EWSP Advisory Group, 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**.

5.6.2 Where access to the site has not been possible, sites should still be notified where it can be clearly demonstrated the site meets one or more selection criterion based upon survey information collected either from a public footpath or observed from neighbouring land where access permission has been granted. The following reasons for failure to gain access apply: a landowner has refused access for survey; the landowner of a site can not 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.

[11] For guidance see the Common Standards Monitoring section of the JNCC website viewable at: www.jncc.gov.uk
[12] Copies can be downloaded from: http://www.essexbiodiversity.org.uk/

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

6 HABITAT SELECTION CRITERIA

6.1 PREAMBLE

The criteria in this section, and section 7, are phrased such that sites which satisfy a Wildlife Site Statement shall be 'considered' for selection, subject to ratification by a Local Wildlife Sites selection panel, and/or, where appropriate, the Essex Wildlife Sites Project Advisory Group. The selection criteria themselves are in bold, with explanatory or supporting information in normal font. Where a criterion relates directly to one or more Wildlife Site Statements, that Statement shall be identified in parentheses at the end of the criterion (e.g. WSS6 = Wildlife Site Statement 6).

6.2 WOODLAND

6.2.1 There is a general acceptance that ancient woodlands are of significant importance within the Essex countryside, in most cases being semi-natural vegetation derived from the natural climax vegetation that would have covered most of the land prior to human intervention. Ancient woodland sites would be withheld from selection only if they have deteriorated to such an extent by extreme coniferisation, human disturbance, or are of such a small size that they are thought unlikely to support viable populations of the woodland flora and fauna that make ancient woods important. If de-selection is petitioned, the onus of responsibility will lie with the plaintiff to demonstrate through professional ecological survey that no such flora or fauna occurs at the site nor has occurred in the recent past.

6.2.2 HCr1

All sites identified in the Essex Ancient Woodland Inventory compiled by Natural England (HCr1a), plus any other site considered to be ancient by reason of its indicative ground flora, documentary evidence or physical and/or geomorphological qualities (HCr1b) shall be considered for selection (WSS 7).

6.2.3 Plant species deemed to be indicative of ancient woodland sites in Essex are listed in **Appendix 3**. For non-ancient woodland, including parkland, recent secondary woods, scrub and also hedgerows and green lanes, separate criteria apply.

6.2.4 HCr2

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

a) it lies immediately adjacent to ancient woodland and has a diversity of age and/or species structure consistent with naturally occurring woodland or provides an important buffering or connective function. (WSS 7, 8: size, diversity, position in ecological unit);

b) the wood has a diverse age and species structure (including a limited extent of coniferous plantation) and preferably includes the presence of grassy rides, ponds or other open areas. The minimum size threshold should consider the relative abundance of woodland in the surrounding countryside (WSS 8);

c) the wood forms part of a mosaic of good quality wildlife habitat in association with at least two other habitats from the following list: scrub, open water, heath, acid grassland, neutral grassland, calcareous grassland, marsh and swamp. The minimum size threshold will consider

the relative abundance of semi-natural habitat in the surrounding countryside (WSS 8); and/or

d) the wood is identifiable as a 'priority' or 'characteristic' National Vegetation Classification (NVC) community type for the Natural Area[13] in which the site is located. Greater emphasis shall be given to 'priority' woodland types (WSS 7, 8).

Table 1 Essex Natural Area woodland types[14] (priority types are in bold type)

London Basin:

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

East Anglian Plain:

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

East Anglian Chalk:

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

Suffolk Coast and Heaths:

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

6.3 PARKLAND AND VETERAN TREES

6.3.1 Parkland is a particular type of woodland mosaic in which semi-natural grassland would often have been an important component, sometimes more so than the 'woodland' component. Characteristic features of parkland include encircling ditches/banks, large veteran trees that have grown in an open, rather than restricted, woodland setting and species-rich grassland. Veteran trees can be exceptionally important for invertebrates and, in some cases, may provide sufficient reason to select the site, even with the lack of any other parkland component. Such trees might even be growing within an arable field.

6.3.2 HCr3

Areas of ancient parkland, preferably with veteran trees, and a semi-natural grassland ground flora should be considered for selection (WSS 8).

6.3.3 HCr4

Veteran parkland trees "known or likely to support significant dead wood or other invertebrate assemblages, or epiphytic bryophytes or lichens" may be selected even in the absence of other parkland features, such as semi-natural grassland. The stand should include a sufficient number and variety of trees to provide appropriate habitat conditions for the associated species of interest (WSS 5, 6, 8).

[13] Natural Areas are sub-divisions of England, each with a characteristic association of wildlife and natural features.
[14] See Rodwell (1991) for explanations of these community types.

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

6.3.5 Stands of willow *Salix* spp. wood should be identified where they are known to support breeding habitat or significant foraging habitat, specialist woodland bird or invertebrate species, or where they form significant components of a mosaic site. Such sites should aim to include and protect the source of the water that maintains the habitat in its condition. Particularly large stands of wet woodland could be identified, without the supporting evidence of specialist woodland birds or invertebrates, consistent with criterion HCr2(d).

6.3.6 HCr5

All significant stands of Willow scrub woodland should be considered for selection. Selection should take into consideration the distribution of this woodland type in the county, size, associated fauna and the characteristic nature of the ground flora. Its place within a mosaic of vegetation types is also an important consideration (WSS 7).

6.4 SCRUB COMMUNITIES

6.4.1 In Essex, scrub communities come in many forms, from strips of suckering elm to dense blocks of hawthorn and blackthorn, coastal shrubby seablite and broom communities, and brakes of gorse within heathland settings. The south of the county has a suite of very characteristic scrub types associated with former plotland housing, in which garden trees, shrubs and herbs form an integral part of the more natural scrub growth that is now overcoming the old gardens.

6.4.2 HCr6

Large areas of scrub shall be considered for selection if they fulfil at least one of the following statements:

a) **large areas of scrub known to support significant breeding populations of scrub-dependent birds or provide significant shelter or foraging habitat for migrant passerines (WSS 6, 8: size, naturalness, typicalness);**
   - **scrub-dependent birds include the following species: nightingale *Luscinia megarhynchos*, whitethroat *Sylvia communis*, lesser whitethroat *Sylvia curruca*, grasshopper warbler *Locustella naevia*, dunnock *Prunella modularis*, bullfinch *Pyrrhula pyrrhula*, blackcap *Sylvia atricapilla*, and willow warbler *Phylloscopus trochilus*;**

b) **scrub that forms part of a mosaic of good quality wildlife habitat in association with at least two other habitats from the following list: woodland, open water, heath, acid grassland, neutral grassland, calcareous grassland, marsh and swamp. The minimum size threshold should consider the relative abundance of semi-natural habitat in the surrounding countryside, and also the species diversity within the scrub block, with smaller blocks being permitted if they are particularly species-rich (WSS 8);**

c) **plotland and similar post-industrial/brownfield scrub habitat in which the alien flora contributes positively to the wildlife value of the scrub. Such scrub should typically include grassy rides and glades or form part of a mosaic with at least two other habitats from the following list: woodland, open water, heath, acid grassland, neutral grassland, calcareous grassland, marsh and swamp. (WSS 8: typicalness, diversity); and /or**

d) **the scrub is identifiable as a 'priority' community type for the Natural Area in which the site is located (WSS 8). These scrub types are:**
   - **London Basin: elm scrub**
   - **Greater Thames Estuary: Mediterranean-type shrubby seablite/broom scrub.**

6.5 ORCHARDS

6.5.1 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 is also important for over-wintering birds where wind-fall fruit is left on the ground. Orchards with a species-rich ground flora are even rarer and should be selected as a priority, as they often contain notable plant species.

6.5.2 HCr7

Orchards will be considered for selection if they contain large, old trees with good lichen cover and/or include unusual local/traditional varieties of tree and/or support populations of notable species; and/or have a ground flora that would satisfy selection as a grassland site (WSS 7, 5 and 8).

6.5.3 HCr8

Large orchards shall be considered for selection if they regularly support significant breeding populations of any ERDL bird species, or significant over-wintering populations of fieldfares *Turdus pilaris*, redwings *Turdus iliacus*, mistle thrushes *Turdus viscivorus*, or other migratory birds listed in the ERDL (WSS 5, 8: rarity, size).

6.6 ANCIENT AND SPECIES-RICH HEDGEROWS AND GREEN LANES

6.6.1 Despite widespread grubbing-out in previous decades, such features 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 may be selected if they form important woodland/scrub corridors connecting or closely juxtaposed to other, protected[15] wildlife sites. This provides a means of highlighting the importance of such wildlife corridors. Special consideration shall be given to suckering elm hedges, these being especially characteristic of Essex farmland and allied to elm scrub communities capable of selection via HCr6(d). 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.

6.6.2 HCr9

A hedgerow or green lane shall be considered for selection if it fulfils one of the following statements:

- **it provides appropriate habitat connectivity or functions as a corridor between two or more Wildlife Sites (WSS 7, 8: position in an ecological unit);**
- **it provides a significant extent of scrub or mosaic habitat in a part of the county otherwise deficient in such habitat (WSS 8: rarity); and/or**
- **it constitutes part of the 'ghost' outline of a former ancient wood and retains some of the characteristic flora and/or fauna of an ancient wood (WSS 7, 8).**

6.7 GRASSLANDS

6.7.1 Old, unimproved[16] and species-rich grasslands (including fen-meadows and rush-pastures) are such a scarce resource that there should be a presumption in favour of selecting the majority of such habitats. The Essex Wildlife Site Review Panel documentation recommended using Natural England's Grassland Inventory[17] as a source for 'automatically' selecting 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, and it is unclear how the update will 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.

[15] Includes all sites with an international, national or local statutory or non-statutory designation.

[16] Unimproved grassland is permanent semi-natural grassland which has not been cultivated for some years and/or been subjected to excessive intensive mowing/grazing, drainage, herbicide or fertilizer/slurry/manure applications, and supports a characteristic suite of species (see appendix 4).

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

6.7.2 The role of road verges in conserving albeit small fragments of species-rich grassland within the wider countryside should also be recognised. 'Special Verges' identified by the Special Verges Project[18] will be considered for selection where they meet an appropriate grassland criterion.

6.7.3 Old, unimproved grasslands might 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 a landform indicating the site has not been ploughed). However, even quite recent grasslands can be selected if they support a diverse assemblage of flowering plants (both herbs and grasses), especially if they enhance invertebrate habitat (WSS 6), form part of a mosaic or are the only grasslands present within a significant part of the county.

6.7.4 HCr10

All old, largely unimproved grassland shall be considered for selection. Evidence for antiquity shall be taken from the presence of indicator plants, land-form or documentary records. Where appropriate, reference should also be made to the 'priority' National Vegetation classification (NVC) community type for the Natural Area in which the site is located, as well as size, location within the county, species diversity and fragility (WSS 7, 8).

Table 2 Essex Natural Area 'priority' grassland types[19]

London Basin:

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

East Anglian Plain:

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

Some grassland found in the county is not adequately described in the NVC. Examples of those not adequately described include meadow barley *Hordeum secalinum* dominated stands, species-rich coastal grasslands with abundant common couch *Elytrigia repens*, and stands associated with Thames Terrace gravels.

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

[19] *See Rodwell (1992) for explanations of these community types.

6.7.5 HCr11

Old, unimproved or semi-improved[20] pastures or meadows that do not clearly fit criterion HCr10 shall be considered for selection if they support a rich flora or a significant population of a notable species (WSS 5, 7, 8: rarity, fragility).

6.7.6 HCr12

Semi-improved or improved[21] grasslands shall be considered for selection if they significantly increase the key habitat for a site selected on species grounds, such that the grassland is deemed to be part of the essential foraging habitat of that species (WSS 6).

6.7.7 HCr13

Floristically less interesting pieces of grassland shall be considered for selection if they form an integral part of a semi-natural habitat mosaic; specifically the grassland occurs in association with at least two of the following habitats: woodland, scrub, open water, heath, other grassland types, reedbed, tall herb fen, swamp and/or vegetation described in section 6.10 'post industrial sites with high nature conservation value'. The minimum size threshold for the mosaic should reflect the relative abundance of semi-natural habitat in the surrounding countryside (WSS 7, 8).

6.7.8 Special consideration should be given to large tracts of river flood-plain grassland, especially those still subjected to seasonal inundation. 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 invertebrate populations and some over-wintering waders (e.g. snipe *Gallinago gallinago*, curlew *Numenius arquata*, and plovers *Pluvialis* spp.). Because of their risk of flooding, many such remaining tracts of flood-plain grassland can be considered to be old, even though they may have lost their characteristic flora. Such areas have often been under a grazing regime 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.

6.7.9 Such areas of flood-plain grassland can act as a buffer for the associated river. For example, 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.

6.7.10 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 the 'woodland' cover. In these situations, there is likely to be some cross-over with the swamp and tall-herb fen communities considered in section 6.12.

6.7.11 HCr14

[20] 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.

[21] Improved grasslands are those meadows or pastures which have been so affected by intensive mowing/grazing, drainage or the application of herbicides or fertilizers/manure/slurry that they have lost most of the species associated with unimproved grassland.

Significant areas of river flood-plain grassland should be considered for selection, especially those areas still subject to seasonal inundation. The role of such grasslands as wildlife corridors should also be considered (WSS6, 7, 8).

6.7.12 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.

6.7.13 HCr15
All areas of grassland supporting assemblages of species included in Appendix 5 should be considered for selection (WSS 7, 8: rarity, fragility).

6.7.14 Acid grasslands are treated within section 6.9 'heathland'.

6.8 COASTAL GRAZING MARSH

6.8.1 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. As such, 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 due to disturbance, small size of site or inappropriate management. The Essex Red Data List includes many brackish water invertebrates for which coastal grazing marshes are an important habitat.

6.8.2 HCr16
All fragments of former coastal grazing marsh shall be considered for selection. Consideration should be given to size, diversity, the presence of anthills, low-ways and periodically inundated creeks, notable species and the degree of isolation from the associated estuary. The presence of a characteristic flora is desirable but is not essential, especially where the main focus of importance is over-wintering wildfowl and waders (WSS 7, 8).

6.8.3 HCr17
All sites exhibiting an unrestricted upper saltmarsh to grassland transition should be considered for selection (WSS 7, 8: naturalness, rarity).

6.9 HEATHLAND

6.9.1 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 plants and however small the site. Furthermore, this habitat encompasses acid grassland, even if no ericaceous shrubs are present, as well as the very limited extent of sphagnum bogs remaining in the county. The basis for identifying blocks of heathland should be the Lowland Heathland Inventory[22] although it should be emphasised that small fragments, still worthy of inclusion, may have been overlooked in the Inventory.

6.9.2 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 (WSS 8: potential value).

6.9.3 HCr18
All heathland sites listed on the Natural England Lowland Heathland Inventory for Essex should be considered for selection (WSS 7).

6.9.4 HCr19
Any other site supporting characteristic heathland or acid grassland species and with the potential for restoration shall be considered for selection (WSS 7, 8).

6.10 POST INDUSTRIAL SITES WITH HIGH NATURE CONSERVATION VALUE

6.10.1 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.

[22] English Nature and RSPB (1997) *The Lowland Heathland Inventory.*

6.10.2 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 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).

6.10.3 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.

6.10.4 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.

6.10.5 HCr20

Brownfield/post-industrial sites or derelict buildings/structures of high nature conservation value will be considered 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 (WSS 6, 7, 8).

6.11 REEDBEDS

6.11.1 All significant stands of more or less pure reed growth are included within this UK and Essex BAP habitat. Use by reed-specialist birds (e.g. reed *Acrocephalus scirpaceus* and sedge warbler *A. schoenobaenus*, Cetti's warbler *Cettia cetti* and bearded tit *Panurus biarmicus*) is desirable but not essential since the habitat is also important for a number of specialist invertebrates, notably some moths and solitary bees. Other swamp communities are discussed separately.

6.11.2 HCr21

All significant stands of reed *Phragmites australis* will be considered for selection (WSS 7), either in their own right or as part of a larger mosaic of habitats. Selection should take into account overall size, the shape of the bed (with wider stands more desirable), and also the degree of human disturbance.

6.11.3 HCr22

Smaller or narrower stands of reedbed shall be considered if they form part of a mosaic of other habitats, including open water, wet woodland, marsh and other swamp communities (WSS 8).

6.12 SWAMP AND TALL-HERB FEN

6.12.1 In Essex, most areas of tall-herb fen and swamp communities occur along the edges of rivers, ponds, lakes and other water bodies, rather than as extensive stands in their own right. Such marginal vegetation is likely to be included within any open water or mosaic 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. For some swamp types e.g. sea club-rush *Bolboschoenus maritimus*, reedmace *Typha latifolia*, the vegetation is characteristically species-poor, but provide important habitat for many species of bird, mammal and/or invertebrate. In some of these situations, selection may be more appropriately dealt with via the 'Species Selection Criteria'.

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

6.12.3 HCr23

Significant areas of species-rich swamp[23] or tall-herb fen[24], or such habitat known to support notable species should be considered for selection. Usually such sites will include the associated water body or source of groundwater, if applicable.

6.13 FRESHWATER HABITATS

6.13.1 The complexities of characterising aquatic vegetation make the identification of sections of river, canal, borrow dyke or individual lakes and ponds on habitat grounds less precise than for terrestrial habitats. This section establishes a framework for site selection, but it is recommended that bodies of water, including

[23] Swamp is defined as non-woody vegetation transitional between open water and terrestrial vegetation.
[24] Fens are peatlands which receive water and nutrients from the soil, rock and ground water as well as from rainfall.

obviously man-made structures such as farm reservoirs and flood storage areas, should mainly be designated via Species Selection Criteria aimed particularly at protecting the following important aquatic features:

- fish stocks, e.g. Allis *Alosa alosa* and Twaite *A. fallax* shad, bullhead *Cottus gobio*, barbell *Barbus barbus*, brook lamprey *Lampetra planeri*;
- invertebrates, e.g. white-clawed crayfish *Austropotamobius pallipes*, white-legged damselfly *Platycnemis pennipes*, and beautiful demoiselle *Calopteryx virgo;*
- flora, e.g. diverse assemblages of pond-weeds *Potamogeton* spp. or crowfoots *Ranunculus* spp.; and/or
- other notable species.

6.13.2 HCr24

Where a section of river, stream, canal or borrow dyke is designated via Species Selection Criteria, a minimum 500 metre section of that water course shall be designated (250 metres upstream and downstream of a positive sample site) or 250 metres upstream and downstream of the end points of a cluster of records from the same population (WSS6). The Wildlife Site shall be deemed to extend at least 2 metres away from the top of the bank into the adjacent habitat.

6.13.3 HCr25

Where two designated sections of watercourse are separated by no more than 1000 metres of undesignated water, the intervening section may be included within one large site, if it is deemed that the central section has the potential to be restored to good condition or realistically colonised by the species concerned (WSS 6, 8: potential value).

6.13.4 HCr26

Where sections of lakes or ponds hold species or vegetation stands of interest, the whole water body shall be designated (WSS 6, 8).

6.13.5 HCr27

Sections of river that support a suite of natural features, leading to a complex riverine habitat structure should be considered for selection. Such features should include a good diversity of emergent vegetation: floating aquatic plants; shallow 'riffles' and deeper pools; natural, rather than hard, engineered banks; and a more or less meandering, rather than canalised, course (WSS 8: naturalness, rarity, size, diversity, fragility).

6.14 SALINE LAGOONS

6.14.1 Within the broader definition of this habitat used in the Essex and UK BAP, all tidal or semi-tidal brackish or saline lagoons and inundated borrow dykes will be considered for selection. Close proximity to other coastal habitats of nature conservation value is also desirable.

6.14.2 HCr28

Sections of borrow dyke and tidal or semi-tidal brackish or saline lagoons should be considered for selection. Such sites should have some ecological link with adjacent coastal habitats (WSS 7, 8).

6.15 SAND DUNE AND SHINGLE

6.15.1 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. Due to the scarcity of this habitat, most of the characteristic plants are on the Essex Red Data List.

6.15.2 HCr29
All areas of sand dune and shingle habitat exhibiting a characteristic land form and flora should be considered for selection (WSS 8).

6.16 OTHER HABITAT CRITERIA

6.16.1 The following Essex BAP habitats are not included within specific criteria, although in many cases the system allows for their characteristic species to support site selection through 'Species Selection criteria'.

6.16.2 **Cereal Field Margins** are only likely to be selected if part of a whole-farm conservation network and shown to be supporting populations of associated notable species.

6.16.3 **Coastal saltmarsh and eelgrass beds**: Wildlife Site status is usually restricted in Essex to terrestrial and freshwater habitats rather than inter-tidal habitats. Most, if not all, eelgrass *Zostera* spp. beds off the Essex coast are already covered by SSSI protection as well as international designations.

6.16.4 **Urban Habitats**: the BAP for this category is very broad, encompassing old countryside features encapsulated in towns by urban sprawl, newly 'designed' green areas within urban development, and also brownfield and post-industrial sites. The most important urban habitat types are dealt with in section 6.10.

6.16.5 Two final habitat criterion, which should be considered with caution, address seperate issues relating to site selection, which may arise from time to time and cannot be adequately resolved via the 'conventional' habitat or species criteria. The first deals with a site which suffers several 'near misses' against a number of other habitat or species criteria. For example, it might have an interesting suite of invertebrates but without any notable species being present, plus a good but not exceptional flora, or it appears to function as a wildlife corridor between two important sites. In these situations, there is some justification in including special cases within the selection process, although over-reliance on this criterion is not recommended.

6.16.6 HCr30
A site that comes close to qualifying on a number of other selection criteria can be considered for selection based upon its overall nature conservation interest. The case for selection must be supported by suitably qualified experts in those species and/or habitats involved (WSS 8).

6.16.7 The second although not strictly a habitat criterion, plays a similar 'supportive' role by providing a means to select a site which just fails to meet other habitat or species criteria, but which provides important opportunities for amenity or education consistent with the 2006 Defra guidance.

6.16.8 HCr31

A site that comes close to qualifying on a number of other selection criteria can be considered for selection based upon its amenity and/or education value. The case for selection must be supported by suitably qualified experts in the appropriate field of interest (WSS 10).

7 SPECIES SELECTION CRITERIA

7.1 PREAMBLE

7.1.1 Wildlife Site Statement 5 sets the scene for this section, in presuming that at least one viable population of all notable species known from Essex will be included within the Local Wildlife Site network, especially if not already protected within the SSSI series. The following criteria are included as a more detailed means of delivering that Statement. Under this category one can consider two sub-groups: Local Wildlife Sites identified for a single species and others identified to protect an assemblage of species. It is assumed that 'assemblages of important plant species' will have been covered by a Habitat Selection Criterion, so that one is left with individual plant species and both individual and assemblages of fauna of nature conservation interest.

7.1.2 In all cases selection should be subject to the condition that the site boundary encompasses a significant area of known habitat requirements. For example, nesting sites and food/prey foraging conditions are present in viable quantities. Thus, for a species such as the national BAP bumblebee *Bombus sylvarum* it would not be sufficient just to find a specimen on a site. There would need to be viable flower-rich areas comprising species such as bird's-foot trefoil *Lotus corniculatus*, red bartsia *Odontites verna* and clovers *Trifolium* spp. plus likely nesting habitat (e.g. relatively unmanaged tall open warm grasslands) and over-wintering habitat (e.g. rough grassland). Furthermore, not all sites with singing nightingales should be selected, but sites where breeding of several pairs is proven to be taking place might be selected.

7.1.3 Previous deliberations of the Essex Wildlife Sites Review Panel suggested that a scoring system should be developed to help select which species assemblages should be proposed as Local Wildlife Sites. This scoring system does not yet exist and so a more subjective and yet still defendable selection process is used here in the interim. Wildlife Site Statement 5 states that only significant populations of notable species should be considered for protection. There is therefore a need to have a selection process to determine what constitutes a 'significant population' for a given species or assemblage of species.

7.1.4 The following selection criteria are designed to identify sites where selection may be considered but eventual notification as a Local Wildlife Site will depend on further considerations. These include the viability of the habitat available to support the species or the potential to bring surrounding land into a favourable condition (in which case that land should be included within the Local Wildlife Site). It will also be necessary to consider whether or not a potentially stable breeding colony may exist (rather than just the transient occurrence of the species on a site), as well as the context of the population within its known range, both nationally and in the county.

7.2 AMPHIBIANS AND REPTILES

7.2.1 There are five native amphibians in Essex: common frog *Rana temporaria*, common toad *Bufo bufo*, palmate newt *Triturus helveticus*, smooth newt *T. vulgaris* and great crested newt *T. cristatus*. The latter is a UK and Essex BAP species and fully protected under UK and European law (see **Appendix 2** for more details about wildlife law). Some county selection criteria propose the selection of all breeding sites for great crested newt, but this is felt to be an unworkable criterion in Essex on account of the number of great crested newt ponds likely to occur in the county. The criterion adopted here is broader in scope, but it is recommended that local authorities support the maintenance of a separate 'alert map' of all great crested newt ponds, so as to draw attention to the legal safeguards afforded to this species when planning or land use changes threaten ponds or associated habitats.

7.2.2 SCr1

Significant breeding populations of great crested newts shall be considered for selection. Such sites should have a suitable flora for egg-laying and nursery areas, and should include a core area of terrestrial habitat used outside the breeding season. Consideration shall be given to the proximity or otherwise of adjacent populations (WSS 6, 7).

7.2.3 Palmate newts would appear to be the scarcest herptile[25] in Essex and are therefore worthy of more specific protection.

7.2.4 SCr2

Any site (other than a garden pond[26]) known to support a breeding population of palmate newts shall be considered for selection. Such sites should have a suitable flora for egg-laying and nursery areas and should include a core area of terrestrial habitat used outside the breeding season (WSS 5, 6, 12).

7.2.5 There is also a value in protecting general amphibian diversity.

7.2.6 SCr3

Any site (other than a garden pond) with three or more species of breeding amphibian shall be considered for selection. Such sites should have a suitable flora for egg-laying and nursery areas, and should include a core area of terrestrial habitat used outside the breeding season (WSS 5, 6, 12).

7.2.7 There are four species of reptile in Essex: adder *Vipera berus*, grass snake *Natrix natrix*, common (or viviparous) lizard *Lacerta vivipera* and slow-worm *Anguis fragilis*.

7.2.8 SCr4

Any site supporting significant populations of three or more reptile species shall be considered for selection. Such sites should include sufficient terrestrial (and in the case of grass snake also aquatic) habitat to maintain viable populations of the species (WSS 5, 6).

[25] Used to collectively describe an amphibian or reptile

[26] Pond situated in the grounds of an occupied private residence less than 1 hectare in size (residence not pond).

7.2.9 There is also a need to consider a more general contribution to overall herptile biodiversity.

7.2.10 SCr5

The presence of two species of reptile and/or amphibian species can be used to further the case for selection in the instance of marginal sites that might not otherwise have been selected, under other criteria. Such sites should include sufficient terrestrial (and in the case of grass snake also aquatic) habitat to maintain viable populations of the species (WSS 5, 6).

7.3 MAMMALS – BATS

7.3.1 Bats are protected under UK and European Wildlife law, which makes it an offence to disturb roost sites. However, there is additional value in having a criterion to identify and protect hibernation sites.

7.3.2 SCr6

All colonial hibernation sites for any bats species in Essex (other than an occupied residential property) shall be considered for selection as a Local Wildlife Site (WSS 5, 7).

7.4 DORMOUSE

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

7.4.2 SCr7

All sites known to support breeding populations of dormouse should be considered for selection. All woodland immediately contiguous with the known site should also be included if it supports habitat conditions thought to be suitable for dormice (WSS 5, 6, 7).

7.4.3 SCr8

All woodland with suitable habitat conditions connected by suitable area of habitat (e.g. one or more hedgerows) to a known dormouse population should be considered for selection, as should the connecting corridors (WSS 5, 6, 7).

7.5 OTTER

7.5.1 Otters are fully protected under UK and European wildlife law. In recent years they have spread across much of Essex as a result of naturally extending populations and from released captive-bred stock. A number of artificial otter holts have been constructed in order to encourage them to settle. Whilst they range over sections of river that are too long to accurately identify, their holts are worthy of protection.

7.5.2 SCr9

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

7.6 WATER VOLE

7.6.1 This is a national and Essex BAP species and appears to be scarce in Essex. The most robust populations are now confined to the coastal grazing marshes with the species declining or lost in most Essex river systems primarily due to predation by north American mink *Mustela vison*. In some urban watercourses, rats can be a significant threat to water vole colonies. Habitat loss through drought, pollution, and damage to burrow systems during water course management or development are also possible causes of local extinctions.

7.6.2 SCr10

Any watercourse or wetland system containing breeding populations of water vole should be considered for selection. Watercourses or wetland systems with sub-optimal habitat, that link otherwise fragmented populations, should also be considered if suitable habitat enhancement could be expected to result in the integration of those populations.

7.7 BIRDS

7.7.1 The basis for the conservation of bird species in Essex is taken to be the Essex Red Data List, which is largely based on the UK Red and Amber alert lists (produced by the British Trust for Ornithology)[27], plus more detailed local knowledge from the Essex Birdwatching Society. Many species included in the ERDL are in need of conservation management and protection based upon changing agricultural and land management practices across the wider countryside, rather than the protection of small, specific sites. Thus, whilst the yellowhammer *Emberiza citronella* is a farmland bird in decline, it would be unfeasible to identify all hedgerows and scrub blocks where it breeds. However, little tern colonies, hawfinch *Coccothraustus coccothraustus* woodlands and heronries are more discrete units and should be considered for selection.

7.7.2 In addition to notable species, there are likely to be some sites that warrant selection as a result of the regular presence of significant breeding or over-wintering populations of relatively commonplace species, such as jackdaw *Corvus monedula* or curlew. In these situations, selection should be informed by advice from the Essex Birdwatching Society.

7.7.3 SCr11

Where significant breeding or over-wintering habitat of notable bird species can be reasonably identified as discrete areas, then they shall be considered for selection.

[27] http://www.bto.org/psob/index.htm

7.7.4 SCr12

Other sites shall be considered for selection where it can be demonstrated that they regularly support significant breeding or over-wintering populations of non-notable bird species.

7.8 INVERTEBRATES

7.8.1 The Invertebrate Site Register (ISR) for Essex[28] is largely out of date and not exhaustive in its identification of important invertebrate habitat. As a result, it should be used only as a focus for further research into invertebrate populations. The first step in most cases will be to determine whether or not the species listed within the Register are still present.

7.8.2 A more suitable basis for selection of sites with significant invertebrate interest is the various scoring systems for invertebrate populations that have been developed (see **Appendix 6**). In particular, the Species Quality Index (SQI) is recognised nationally as a rational methodology for identifying important assemblages of invertebrates.

7.8.3 SCr13

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

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

7.8.5 SCr14

Significant populations of notable invertebrates or noteworthy assemblages of distinct taxa (e.g. dragonflies, butterflies) should be considered for selection. The interpretation of significance should take into account both the core populations at the centre of the species range and also stable populations on the periphery, especially where colony expansion or colonisation of nearby habitat is likely (WSS 5).

7.9 PLANTS

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

7.9.2 SCr15

Significant populations of notable vascular plants, bryophytes, lichens and/or fungi should be considered for selection. Where there is ambiguity, guidance will be sought from the relevant county expert to help determine what represents a significant population for a particular species (WSS 5).

[28] The ISR was a national initiative established in the 1980's to identify, document and evaluate sites of importance for the conservation of terrestrial and freshwater invertebrates in Great Britain. The dataset has increasingly become out-dated since the 1990's.

8 BIBLIOGRAPHY

Ball, S. G., 1986, *Terrestrial and freshwater invertebrates with Red Data Book, Notable or habitat indicator status*. Invertebrate Site Register internal report number 66. Nature Conservancy Council.

Defra, 2006, *Local Sites: Guidance on their Identification, Selection and Management*

Defra, 2002, *Working with the grain of nature – a biodiversity strategy for England*'

Dennis, M.K., 1996, *Tetrad Atlas of the Breeding Birds of Essex*, Essex Birdwatching Society

Dobson, J., 1999, *The Mammals of Essex,* Lopinga Books

DoE, 1994, *Planning Policy Guidance: Nature Conservation.* PPG9, October 1994.

English Nature, 2002, *Draft Position on Local Sites,* unpublished report.

Falk, S. J., 1991, *A review of the scarce and threatened bees, wasps and ants of Great Britain.* Research and Survey in Nature Conservation, No. 35, Peterborough: Nature Conservancy Council

ODPM, 2005, *Planning Policy Statement 9: Biodiversity and Geological Conservation,* Office of the Deputy Prime Minister

Rackham, O., 1980, *Ancient Woodland: Its history, vegetation and uses in England*, Edward Arnold

Rackham, O., 1986, *The Woods of South-east Essex*, Rochford District Council

Ratcliffe, D.A. (ed), 1977, *A Nature Conservation Review*, NERC/NCC

Rodwell, J.S. (ed), 1991, *British Plant Communities Volume 1: Woodlands and scrub,* Cambridge University Press

Rodwell, J.S. (ed), 1992, *British Plant Communities Volume 3: Grasslands and montane communities,* Cambridge University Press

Shirt, D.B., ed., 1987, *Insects,* British Red Data Books, 2. Peterborough: Nature Conservancy Council.

Thompson, G. and McClean, B., 1999, *Essex Biodiversity Action Plan,* Essex County Council/ Essex Wildlife Trust

Wildlife Trusts, 1997, *The Wildlife Sites Handbook, Version 2.*

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 3 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.
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.

Designation	Description
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.
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[29] but do not qualify as Critically Endangered, Endangered or Vulnerable.

Table 4 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.
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

[29] A hectad is an area 10 km x 10 km square.

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
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[30]. 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
Helleborus viridis	green hellebore	3
Hordelymus europaeus	wood barley	

[30] Rose, F. and O'Reilly C. (2006) The Wildflower Key, Warne, London

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

'*' 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	lady's smock	
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. *oedocarpa*	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	
Molinia 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. *minor*	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 alsine	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 SPECIE SINDICATIVE OF CHALK GRASSLAND IN ESSEX

Note: Some of these speci es can also be found within unimp roved cha lky boulder clay, or exceptionally within neutral soil, meadows. This appendix is intended t o 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 amarelle	autumn gentian
Helianthemum nummularium	rock-rose
Helictotrichon pratense	meadow oat-grass
Inula conyzae	ploughman's spikenard
Nepeta cataria	catmint
Oregano vulgare	majoram
Orobanche elatior	knapweed broomrape
Sanguisorba minor ssp. minor	salad burnet
Scabiosa columbaria	small scabious
Thymus polytrichus	wild thyme

APPENDIX 6 INVERTEBRATE SPECIES QUALITY INDEX (SQI)

The **Species Quality Index (SQI)** is a widely used method of comparing one site with another; the following section explains the rationale behind its use.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

likely to be of national significance, with regionally important sites perhaps scoring between 5 and 7.

APPENDIX 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: HCr15; SCr11; SCr12

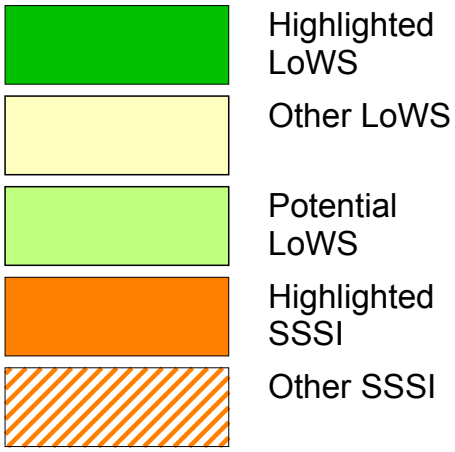
Condition and Proposed Management: Some small-scale cyclical management of scrub invasion should be undertaken, following an initial larger-scale clearance to improve the currently rather scrubby situation. This should comprise cutting out individual trees and shrubs, rather than by wholesale cutting 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.

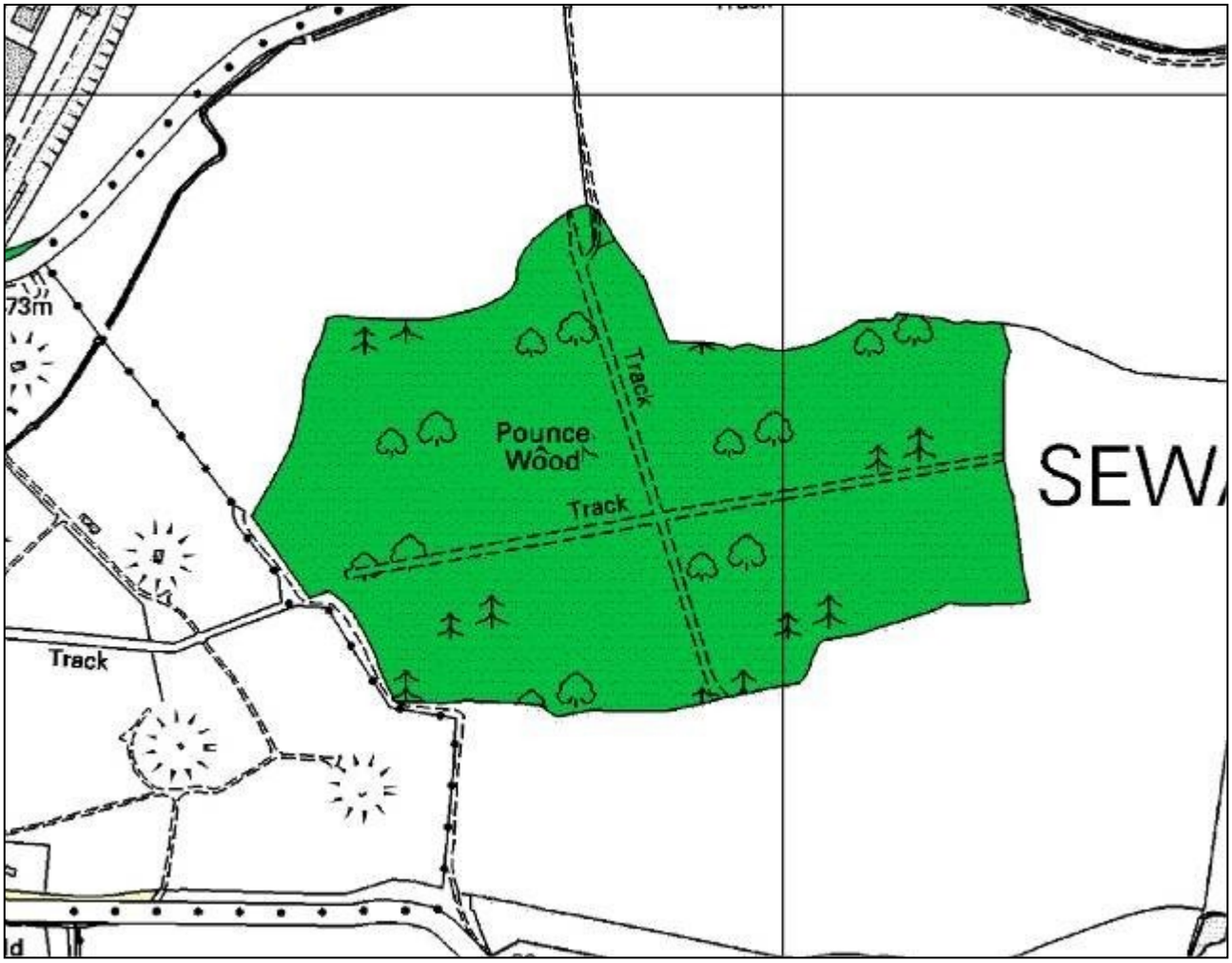
ANNEX 2

LOCAL WILDLIFE SITE REGISTER
FOR WEST ANGLIA RAILWAY AND A120 CORRIDORS 2007

Note: where a plant's scientific name is followed by an asterisk (e.g. *Campanula rotundifolia**), the plant is listed on the Essex Red Data List. Further information about this Red Data List project is available via the Essex Field Club.

KEY TO MAPS





Ufd136. Pounce Wood (13.6 ha) TL 559387

This large ancient wood has been almost entirely replanted with Beech (*Fagus sylvatica*), Spruce (*Picea* sp.) and other conifers. The native broadleaved canopy of Ash (*Fraxinus excelsior*), Field Maple (*Acer campestre*), Pedunculate Oak (*Quercus robur*) and Hazel (*Corylus avellana*) is restricted to a narrow boundary strip. The ground flora is very restricted under the dense canopy, with only scattered Bluebell (*Hyacinthoides non-scripta*) and Dog's Mercury (*Mercurialis perennis*) under the Beech. The main rides support a reasonable marshy grassland flora, with frequent Wood Sedge (*Carex sylvatica*) and Remote Sedge (*Carex remota*). A primary management aim should be the replacement of the exotic species with native trees.

LoWS Selection Criteria: HCr1(a)

Condition and Management Issues: The ground flora is limited by the generally dense shade cast by the planted canopy. Replacement with a semi-natural broadleaved canopy and understorey would be highly desirable.

Date of first designation: 1994

Date of last revision: 30/09/2007