

Natural Environment and
Rural Communities Act
2006 s.(40)

*“Every public authority must,
in exercising its functions, have
regard, so far as is consistent
with the proper exercise of those
functions, to the purpose of
conserving biodiversity”*

Updated January 2007



Integrating Biodiversity into development

...realising the benefits

Contents

Foreword
Introduction
What is Biodiversity?
Where is the wildlife?
Integrating biodiversity into development
Integrating biodiversity checklist
Case studies
Legislation
Reading and references
Glossary
Acknowledgements

Quicklinks

More about biodiversity
What is sustainable development?
Protected species
Stages of the planning process
Ecological consultants
Appropriate survey times
Key players
Basic principles of enhancing
and creating
Format for mitigation plan
UK BAP habitats and species
East of England BAP habitats
and species
Essex BAP habitats and species
Local authority BAP forums

Garden design
Urban infill
Junction improvements
Commercial expansion
Greenspace in residential development
Edge of town
Old building conversion
Riverside development
Mineral development
Greenfield site
Brownfield site

Biodiversity conservation –
statutory obligations

Foreword

John Hall

Biodiversity means the rich variety of life – the superb range of plants and animals and the habitats in which they and we live.

Walk through a bluebell wood near Colchester or Chelmsford in Spring, vibrant with birdsong, and you will **feel** biodiversity without having to know the names of all the many plants and animals which make up this complex web of life.

Cycle to work along the greenways of Harlow and Basildon and you will feel the biodiversity of the hedgerows and wildflower areas.

Stroll or jog with friends in the evening along the banks of the Chelmer, the Roding or one of many other Essex rivers and you realise the richness of life, and this relieves the stresses of the day.

We strive to emulate nature in our gardens where we relax in our own little piece of Essex. This is all biodiversity and it is a very important part of our quality of life.

What has biodiversity got to do with development?

Biodiversity is valuable. House prices are higher in areas with access to biodiverse green spaces. The richness of environment makes people feel good and stimulates

good health – they are less likely to fall ill and quicker to recover. Looking after important green spaces within or close to our towns and connecting these with attractive green corridors generates civic pride in the population – and investment tends to follow.

Massive development is proposed in Essex over the next 20 years, and this is an opportunity to ensure that good quality green space, which is valuable for people and for biodiversity, is integral to any regeneration plans.

Developers need to work well with Planners to integrate biodiversity into their development proposals

This Guide is designed to be used. It cuts through the complexities of biodiversity legislation and protected species to give quick access to detailed information for developers, planners and all those working for a better quality of life in Essex.

John Hall
Director of Essex Wildlife Trust

Peter Martin

I am delighted to introduce Essex Biodiversity Project's new guide for planners and developers. This document provides a great deal of advice relevant to Essex and also points the reader in the right direction for much more advice from other sources. We hope that it will assist those in Essex who can influence biological diversity – or biodiversity – through the process of development, making the wildlife of Essex as rich and diverse as possible for the benefit of all.

The Government has made it clear that sustainability must lie at the heart of the planning process. This is a critical time for the wildlife of Essex as the county comes under unprecedented development pressure. We need to ensure that development is carried out in a sustainable way so that the needs of future generations are not compromised by the decisions we are making now. Maintaining biodiversity is a key element of this.

This guide is a tool to help people understand how to protect and enhance this county's rich biodiversity heritage and we hope that it is used and welcomed by many.

Councillor Peter Martin
Cabinet Member with responsibility for Planning

The draft Regional Spatial Strategy for the East of England proposes 123,400 new homes in Essex, Southend and Thurrock between 2001 and 2021.

Parts of two of the Growth Areas identified in the ODPs Sustainable Communities Plan lie within the county: Thames Gateway, South Essex and the Stansted/M11 area.

Introduction

Essex is an exceptional county. With a population of 1.6 million people, and its proximity to London, Essex is a vibrant and dynamic place to live and work. Towns have good transport links and enjoy economic and cultural success. Highly productive farmland shapes the rural landscape. A superb coastline attracts both commercial and leisure use, with large ports and a national reputation for sailing.

Amidst this economic and social success, there is a wealth of wildlife. Some species or areas are of international or national importance, while others are recognised for the value they have to local people. This variety in our natural heritage, or biodiversity, is recognised as an important aspect of our quality of life and an indicator of sustainable development.

Essex is under increasing development pressure. There are plans to expand existing ports, airports, transport links and housing numbers. For these developments to be sustainable, they cannot go ahead at the expense of wildlife. Planners and developers must work in partnership with conservationists to help reach shared goals of protection, enhancement and creation.

Taking a proactive approach is crucial if growth is to be sustainable. Realising the benefits wherever possible, by integrating biodiversity into future development, will ensure Essex remains an exceptional county for both its people and its wildlife.

In May 2003, the Planning Group of the Essex Biodiversity Project held a Planning and Biodiversity Seminar. We asked planners what they most needed to help them integrate wildlife into their everyday planning decisions.

One outcome identified, was the need for best practice to guide the protection and enhancement of wildlife, or 'biodiversity,' in development schemes.

This guidance is intended to help integrate the protection and enhancement of biodiversity in development schemes through:

- **Helping set biodiversity and development in context.**
- **Setting out key issues and principles – explaining how they are relevant.**
- **Exploring development issues thought pertinent to Essex through case studies**
- **Signposting further sources of information.**
- **Achieving development that makes a significant contribution to biodiversity in Essex.**

The guide ends with a checklist that can be used by both developers and planners to ensure that biodiversity has been integrated into the development – and the maximum potential realised.

Sustainable development must not result in a net loss of biodiversity, but should conserve and ideally enhance it.

Development provides a superb opportunity for biodiversity gain. Planners and developers are influential in the quality of life of people living in and around new developments in Essex. Ultimately, through links to wider countryside, development could lead to a countywide improvement for biodiversity.

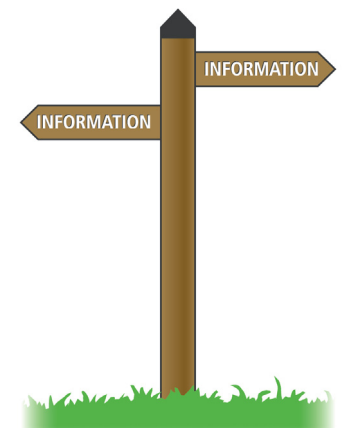
Developers and planners need to take responsibility for biodiversity. They must engage proactively with statutory and non-statutory nature conservation organisations, and those organisations must respond positively and constructively in return.

Only through wide acceptance of the importance of biodiversity can its future be assured. The essence of the Biodiversity Action Plan process is partnership work away from but complementing designated nature conservation sites.

By Essex Planners and Developers integrating biodiversity into future development, realising the benefits whenever possible, they can ensure Essex remains an exceptional county for both people and wildlife.

This guide aims to:

- Help save time in processing applications.
- Promote consistency with Government planning policy guidance for protecting the natural environment.
- Illustrate the roles and responsibilities of the key players in the stages of the planning process.
- Encourage early interaction between Local Planning Authorities, consultees and applicants (including designers and contractors) in matters relating to biodiversity.



In Great Britain in 2003, nearly half of lower plants and a third of vascular plants were 'threatened' or nationally scarce, while 16 per cent of vertebrates were considered 'threatened'

"It is important to work in partnership to safeguard areas of high biodiversity value, including areas of brownfield land. In the Thames Gateway, birds such as the Black Redstart occur, plus a diverse assemblage of insects, including UK Biodiversity Action Plan species, such as the Shrill Carder Bee."

Our Environment, Our Future: The Regional Environment Strategy for the East of England.

What is biodiversity?

Biodiversity simply describes all living things – the variety of life on earth – all plants, animals and the places that they live.

Planners and developers should aim to protect and enhance biodiversity in its widest sense. No development scheme is too small or too large to be unable to provide for biodiversity.

Why conserve and enhance biodiversity?

"Improving the quality of life for the people of this country is perhaps the most important duty of Government. We have set measurable indicators across the whole range of issues that matter most to people, and are likely to matter to future generations too. That means measuring how we perform on the big, important things such as people's health, the state of the economy, employment, transport, crime and the environment."

By the Deputy Prime Minister and Secretary of State for the Environment, Transport and the Regions, The Rt Hon John Prescott MP.

Is Biodiversity a measure of your quality of life?

Much of what makes Essex special is linked to biodiversity. By protecting, enhancing and creating biodiversity resources – you are improving the quality of life of the people who live, work and visit the county.

"Although only about 10 per cent of England's land cover is urbanised, we are an urban nation; almost 90 per cent of the population lives in towns and cities. This figure is set to grow. The role of the natural world, albeit often in stylised forms, in enhancing the quality of life in urban areas has long been recognised".

Working with the grain of nature – a Biodiversity Strategy for England, 2002.

By protecting and enhancing biodiversity in development you improve the quality of the built environment. This results in desirable places to live, work and visit.

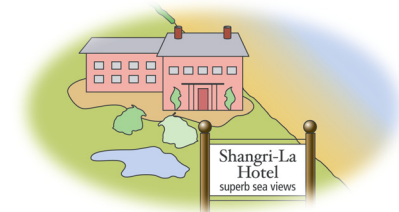
"Many of nature's services are fundamental to our existence, yet their importance is often unrecognised, the appropriate species mix for a habitat provides an insurance function, where some species provide key ecological roles, others can step in if conditions change. Without the conservation of biodiversity the long term functioning of many natural ecosystems may be affected".

Revealing the value of nature, 2002 English Nature.

Biodiversity has a function. Much of what comprises biodiversity, as part of a natural system, also has a function in the system we live in. Pollution can be filtered, flood waters alleviated, air cleaned by biodiversity.

- Our intertidal and wetland habitats, amongst others, help reduce the risk of flood damage.
- Reedbeds and other habitats are being developed for their pollution filtering properties.
- Natural processes help maintain the beauty of our land and coastline.
- Our natural areas contribute to essential large-scale processes such as climate stability and nutrient cycling.

Revealing the value of nature, 2002 English Nature.



Sustainable development

"Biodiversity – the variety of life on earth – is at the heart of our aim for a more sustainable future."

We have a duty to ensure a diverse and thriving natural environment for it is essential to the economic, social and spiritual health and well being of this and future generations."

Working with the grain of nature – a Biodiversity Strategy for England, 2002.



The protection and enhancement of biodiversity is a key indicator and component of sustainable development.

Working with the grain of nature – a Biodiversity Strategy for England, 2002 sets out the Government's vision for conserving and enhancing biological diversity in England. It includes the broad aim that **planning, construction, development and regeneration should have minimal impacts on biodiversity and enhance it wherever possible.**

In moving towards this vision the Government's objectives include: To promote sustainable development – by ensuring that biodiversity is conserved and enhanced as an integral part of economic, social and environmental development, so that policies and decisions about the development and use of land integrate biodiversity with other considerations.

Many would argue that regardless of all of the above, nature should be protected for nature's sake. We are stewards to the natural world and should care for it accordingly.

[more about biodiversity](#)
[about sustainable development](#)

More about biodiversity

Biodiversity describes all living things – the variety of life on earth – all plants, animals and the places that they live.

The term biodiversity has been widely accepted since the Earth Summit in Rio in 1992. Countries acknowledged that the world's biological resource was being seriously depleted and that something had to be done about it. As a result, 159 world leaders signed The Convention of Biological Diversity, and by doing so, committed their countries to do something about it.

When considering biodiversity in developing and planning, there are two groups of species and habitats often mentioned.

1 Protected Habitats and Species are defined as those protected by:

- The Wildlife and Countryside Act 1981 as amended,
- The Countryside and Rights of Way Act 2000 (the CROW Act 2000),
- The Conservation (Natural Habitats, &c) Regulations 1994 (The Habitat Regulations),
- The Badgers Act 1992,
- The Conservation of Seals Act 1970,
- The Deer Act 1991.

2 Biodiversity Action Plan, or BAP, species and habitats

The Rio de Janeiro Earth Summit was held in June 1992 to address concerns at the loss of the world's biodiversity. As a result, the Convention of Biological Diversity was signed committing more than 150 countries to conserve and enhance their biodiversity and contribute to the global resource.

- There is the Global Action Plan – 'The Convention of Biological Diversity'
- As a result of signing this we have our government's response – the **UK BAP**
- We have our country's interpretation of this UK plan – the **England Biodiversity Strategy**
- At a regional level we have the **East of England Biodiversity Forum** who are currently drawing up targets for their priority habitats
- Within the county we have the **Essex Biodiversity Action Plan** produced by Essex Biodiversity Project. The Essex BAP was published in 1999 and currently sets out what should be done and by whom to ensure a future for 25 species and 10 habitats within the county.

- At the local level, nine of the 14 districts or boroughs within Essex have **biodiversity or nature conservation forums** dealing with biodiversity action and five of these now have published long-term BAPs.

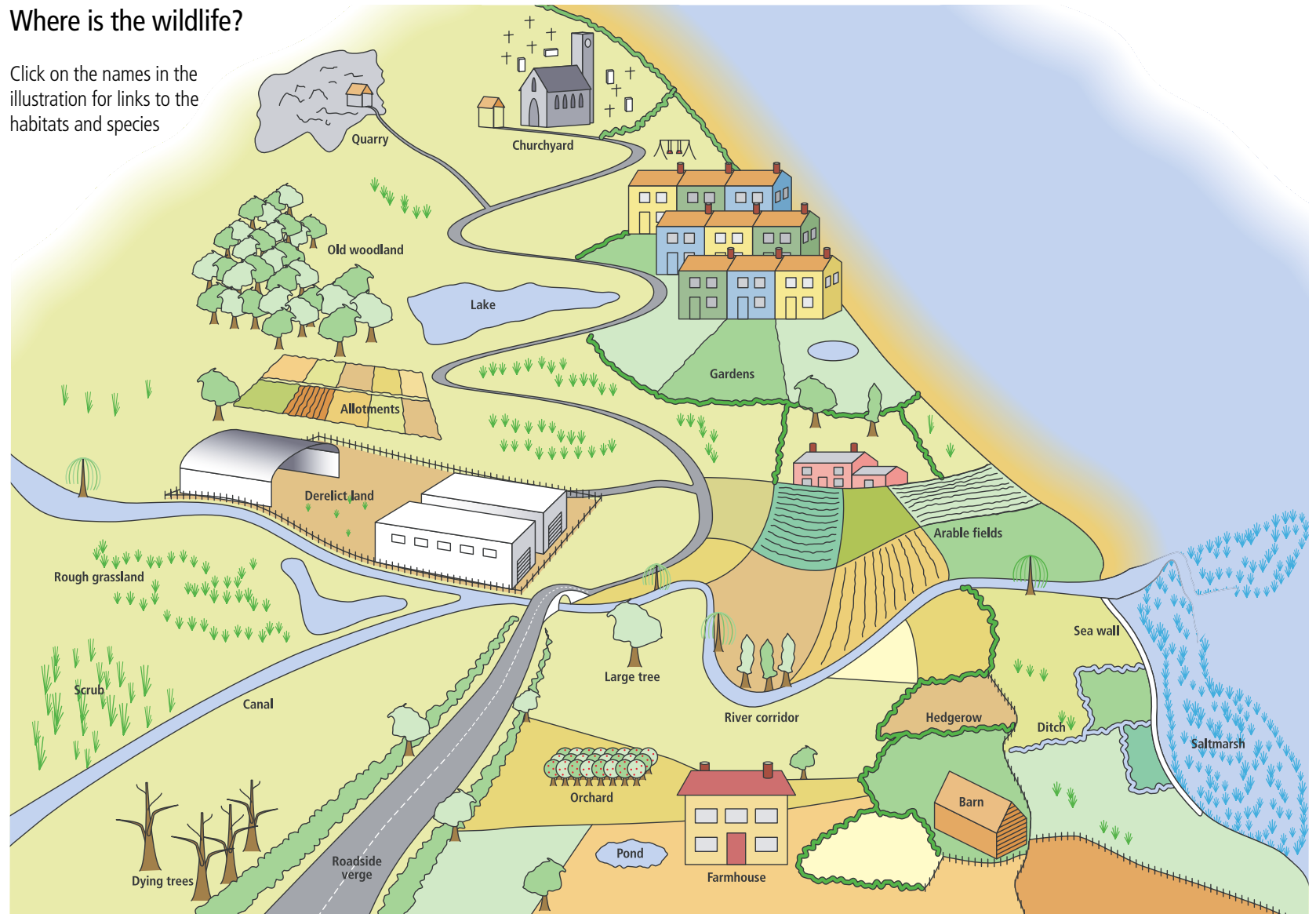
At each of these levels these plans clearly indicate that a broad range of players, including planners and developers, can take action to contribute positively to BAP targets.

Planners and developers should aim to protect and enhance biodiversity in its widest sense. Even where there is no significant habitat or protected species present on a site, biodiversity is still an important consideration, as all new development will be expected to enhance biodiversity and create habitat where possible. Looking at protected and BAP species and habitats is simply the first step in doing this.

[UK BAP species and habitats](#)
[East of England BAP species and habitats](#)
[Essex BAP species and habitats](#)
[Local authority BAP forums](#)

Where is the wildlife?

Click on the names in the illustration for links to the habitats and species



Throughout the UK some species have been afforded special protection, with such species usually, although not always, being the most vulnerable ones. The Wildlife and Countryside Act 1981 (with amendments in later legislation) is the principle mechanism for the legislative protection of wildlife in this country. It protects both species and sites of UK importance. The Countryside and Rights of Way Act 2000 (CRoW Act 2000) is supplementary to the Wildlife and Countryside Act, which it strengthens and updates.

Mammals are also protected from cruel acts by the Mammals (Protection) Act, 1996. In addition, badger, deer and seals have their own legislation.

[Badgers](#)
[Barn Owl](#)
[Bat](#)
[Nesting Birds](#)

[Dormice](#)
[Great Crested Newt](#)
[Invertebrates](#)
[Otter](#)

[Reptiles](#)
[Water Vole](#)
[White Clawed Crayfish](#)
[Wild Flowers](#)

[Appropriate survey seasons](#)

Protected species in Essex

Badgers

Barn Owls

Bats

Nesting birds

Dormice

Great Crested Newts

Invertebrates

Otters

Reptiles

Water Voles

White-Clawed Crayfish

Wildflowers

Badgers



Gerald Downey

Where they can be found

Badgers could be living in, and under, woodland, scrub or hedgerows. They like to dig into a bank or slope, so look in old pits or quarries, steep banks under hedges, any change of level. They will forage over a wide area, using open grassland, gardens, woods, anywhere they can find food.

Characteristic signs

Entrances to the setts are typically a flattened arch shape around 20-30cm high by 25-35cm wide. Outside the entrance holes will be spoil heaps of excavated soil. Badgers are rarely seen, useful field signs are therefore: tufts of hair caught on barbed wire fences; conspicuous badger paths; footprints; latrines (small excavated pits in which droppings are deposited); snuffle holes (small scrapes where badgers have searched for insects and plant tubers; day nests (bundles of grass and other vegetation where badgers may sleep above ground) and scratch marks on trees (usually near the sett).

Aim

The principle aim is to retain setts, foraging areas and corridors used to travel between setts. Loss of any foraging areas should be compensated through improving the quality of the remaining areas of grassland (subject to other biodiversity interests). Where impacts are unavoidable, see "Badgers on site" below for issues to address.

The Law

Badgers and their places of residence (normally called setts) are protected by the Protection of Badgers Act 1992. This legislation was introduced to prevent cruelty to badgers, particularly that associated with badger baiting. The level of protection that the Act gives badgers is unique for a wild mammal that is not considered rare. Work that disturbs badgers without a licence may be illegal; badgers may be disturbed even if the work does not directly interfere with or cause damage to their sett.

English Nature guidelines suggest that a buffer zone between the sett entrances and the building work is established. For example, use of heavy machinery should only be carried out at distances greater than 30m from the sett, work with lighter machinery at distances greater than 20m and light work such as hand digging or scrub clearance at distances greater than 10m.

While badgers are protected, the Government recognises that there may be occasions where it is necessary to undertake activities normally prohibited by the Act. To this end the legislation includes provisions for the issue of licences permitting action to be taken for certain clearly specified purposes.

Two bodies issue licences in England:

- DEFRA issues licences in situations where badgers are causing problems or where certain legitimate activities are impeded by the protection afforded to badgers and their setts.
- English Nature issues licences for the development of land and for a number of specialist purposes, including conservation, research, law enforcement and archaeological investigation.

English Nature only usually licenses sett interference after detailed planning permission has been granted so that there is no conflict with the planning process. Local authorities and developers need to be aware that for many projects it may be necessary for an environmental assessment to be carried out if the proposed development site hosts badgers. Before the planning application is determined, the local planning authority should request a detailed ecological survey/report and developers should be prepared to provide information, including:

- the numbers of badgers on the site, or that are affected by the proposal;
- the impact that the proposal is likely to have on badgers and what can be done in the way of mitigation;
- if the impact is necessary or acceptable;
- if a licence will be required from English Nature.

Planning and licensing applications are separate legal functions: planning permission from the Local Planning Authority is no guarantee that development operations will not breach the Protection of Badgers Act 1992. It is important, therefore, that developers and planners take adequate account of badgers at the planning stage in order to ensure that a licence is likely to be issued by English Nature.

Badgers on site – organising work

When any protected species is thought to occur on site, early advice should be sought from professional consultants, or from local experts, as this can prevent costly delays at a later date.

Following the advice below will help developers to avoid committing offences and increase the likelihood of obtaining a licence from English Nature if necessary:

- Any scheme proposed to offset the effects of development must be based on competent advice and an appropriate survey carried out at the correct time of the year;
- Observations may be necessary over a period of time before insight can be gained into how badgers are using a site. Bait marking (a method used to map defended territorial ranges) and other survey techniques are usually effective only at certain times of the year;
- At times, particularly in winter, it is often extremely difficult, even for the experts, to tell whether or not a sett is occupied. For this reason, and due to the possible presence of a pregnant or nursing sow with cubs and the reluctance of badgers to emerge for long periods in winter, sett exclusion and destruction should normally be limited to between the beginning of July and the end of November;
- Those in charge of a development must ensure that clear instructions are given to all the workforce where care needs to be taken not to cause unlicensed damage to setts or disturbance to badgers;
- Machinery used near setts should be operated by experienced persons with fine control of excavators or other groundwork technology, preferably supervised by someone who can advise competently on badgers;
- Fires should only be lit, and chemicals stored, well away from setts;
- Any trenches left open overnight should have a means of escape for any animals that might fall in;
- Trees should be felled so that they fall away from active setts;
- Account should be taken of the effect the work will have on the territory of each badger social group. For large developments it may be necessary to provide artificial setts, enhanced feeding areas and access routes for badgers both before and during building work. Small developments should ensure that badger paths are not obstructed and small, but seasonally important, water sources and feeding areas are not destroyed;
- The law does not permit licences to capture badgers for development purposes, so physically moving them out of the way of development is not an option. Similarly, if inappropriate development (eg that isolates a badger territory by surrounding it with roads) results in problems such as increased road deaths, licences cannot be relied upon to move the badgers afterwards;
- Badgers can cause considerable damage to gardens and they should not be encouraged to rely solely upon these as a source of food or for places in which to dig new setts;
- Destruction of main setts should be considered only as a last resort.

Further Information

<http://www.english-nature.org.uk/pubs/publication/PDF/badgerdev.pdf>

<http://www.essexwt.org.uk/Species/badger.htm>

(English Nature) *Badgers and Development. A Guide for Planners and Developers*

(RSPCA) *Problems with Badgers* (available from RSPCA HQ, Wildlife Dept. Tel: 08700 101181)



David Harrison

Barn Owls

Where they can be found

Barn owls are often found in close proximity to humans, making use of farm buildings, dovecotes, church towers, bale stacks and a wide variety of derelict and unused buildings, as well as hollow trees and cliff sites where available.

Characteristic signs

Beams or wall ledges will reveal long and thick white splashing on beams, rafters and floor, often with a build up of pellets beneath the favoured roost sites. The pellets will contain the indigestible remains of prey species such as bone, fur and feathers. Pellets are dense, cylindrical masses averaging 5-6cm in length, although can vary between 1cm-10cm. Fresh pellets have a black, shiny appearance.

Aim

The principle aim is to protect the roost and breeding site. Provision for Barn Owls can be incorporated into the parts of the development site used by the birds and new nest boxes can be provided or other nearby buildings which are not due for development.

The Law

In addition to the basic protection afforded to all wild birds (see Nesting Birds), those listed in Schedule 1 of the Wildlife & Countryside Act 1981 (as amended), including birds of prey, an offence is committed if they are recklessly disturbed while building a nest or is in, on or near a nest containing eggs or young or disturbs dependent young of such a bird.

Further information

Barn Owls on Site: A Guide for Developers and Planners. Barn Owl Trust and English Nature 1995

<http://www.essexwt.org.uk/Species/barn%20owl.htm>



Bats

Where they can be found

Bats require safe summer roosts/hibernation sites and suitable foraging areas. Bats may use several roost sites during the year. They will often return to a roost site at the same time each year. Buildings are most frequently used in summer but any age and type of building may be utilised. Cave-like places, such as tunnels or cellars buildings such as churches and timber-framed barns, and trees with holes and crevices, are used for hibernation.

Could be living in the roof of the house, the barn (including inside the loose fitting timber joints), inside almost any building. Bats are commonly found in roofs. Outside they may roost above soffit and behind fascia and barge boarding, between underfelt and boards/tiles, under lead-work – such as flashing around chimneys, and between or under stone tiles. Inside they may be found, along the roof ridge beam and under the ridge tiles (or lead ridge), hanging from roofing felt or roof supporting timbers, around the chimney breast, in the joints of joists, such as mortice and tenon joints that have become twisted or warped or have 'shrunk' allowing bats access, and in splits in old timbers in roof voids.

Bats also roost in old trees – look for cracks, splits, under bark, holes where branches have broken off. Bats can use these roosts in both summer and winter, and wherever possible old trees should be retained except where there is a safety risk. Cutting back old branches and reducing the weight on the tree can often extend its life.

Bats follow linear features such as hedgerows when feeding at night, they fly around tree canopies, and they follow rivers too. Bats are strongly associated with water. Feeding sites can be anywhere eg. woodland, parkland, hedgerows/linear features, grassland and water bodies.

Characteristic signs

The most characteristic signs are droppings. These are roughly the size and shape of mouse droppings but they will crumble to a powder when dry and they are generally found either stuck to walls or scattered beneath where the bats hang or beneath the roost exit. Brown staining at entrance holes white urine stains on timber are another sign of long-term roosts.

The Law

Bats are protected under The Conservation (Natural Habitats &c) Regulations 1994 (the Habitats Regulations) and the Wildlife and Countryside Act 1981 (as amended). They

are often referred to as European Protected Species because they enjoy the extra protection under the Habitats Regulations.

Under this legislation, it is illegal to:

- Intentionally kill, injure, or capture bats or their young
- Intentionally or recklessly damage, destroy or obstruct access to areas used by bats for shelter or protection
- Intentionally or recklessly disturb bats while they are occupying a structure or place which is used for that purpose.

Licensing

Planners should be aware that developments affecting bats need a license from the Department of Environment, Farming and Rural Affairs (DEFRA) before work is carried out. If planning permission is given for proposals that do not satisfy the licensing requirements, the license application may be turned down and the development cannot then go ahead.

Developers apply for a licence only after planning permission has been granted and a license is granted *only* if:

- a there is no satisfactory alternative; and
- b the population of bats will be maintained at favourable conservation status in its natural range.

It is for the developer to ensure compliance with the law during the actual implementation of the development, not the planning authority. It is for the planning authority to monitor whether planning conditions are being properly discharged.

Further information

Bat Mitigation Guidelines English Nature Jan 2004.

<http://www.english-nature.org.uk/pubs/publication/PDF/Batmitigationguide2.pdf>

General guidance note for all European protected species – Defra's European Protected Species Guidance Note (available to download from English Nature's website).

Bat Workers Manual (available from JNCC's mailing house NHBS Tel: 01803 865913).

Focus on Bats. Discovering their lifestyle and habitats (available from English Nature's website or enquiry service).

Bats in Roofs. A Guide for Surveyors. (available from English Nature's website or enquiry service). A CD on mitigation in barn conversions is available from Hertfordshire Biological Record Centre (biorec.info@hertscc.gov.uk)

Nesting birds

Where they can be found

Found especially in woodland, scrub and hedgerows, but ground-nesting birds can occur anywhere. Birds also nest in buildings, cliffs and cliff-banks.

The Law

All nesting birds are protected under Wildlife & Countryside Act 1981. It is illegal to kill or disturb them. Some species have extended protection covering young away from nests.

No work should take place in nesting habitats between 1 March to 31 July. There are some exceptions where breeding continues after July, eg. Sand Martins to mid September. The duration of breeding season can vary depending on the weather.

Vegetation can be cleared outside the breeding season from the end of October to mid February. If nests are discovered, work should stop immediately and the site fenced and protected under ecological supervision. Work can only continue after the young have left the nest.

Further information

(RSPB) *Wild Birds and the Law. A Plain Guide to Bird Protection Today* (available from English Nature's enquiry service).

<http://www.rspb.org.uk/policy/wildbirdslaw/birdsandlaw/index.asp>



Harold McSweeney – picture taken under license from the Nature Conservancy Council



Chris Gibson

Dormice

Where they can be found

Most dormice live in old deciduous woodland and thick hedgerows.

Characteristic signs

The best indicator of the presence of a dormouse is opened hazel nutshells on the woodland floor. Dormice open these nuts by making a neat round hole on one side and leave characteristic tooth marks around the edge of the hole.

Aim

The principle aim is to protect the dormouse habitat.

Further information

Dormouse Conservation Handbook. English Nature

<http://www.essexwt.org.uk/Species/dormouse.htm>

Great Crested Newts



Where they can be found

Great Crested Newts (GCN) breed in ponds, but spend most of the year outside the pond in long grass or rough vegetation up to 500 metres away. They hibernate in the gaps between stones in walls or rockeries, and in piles of logs. Any pond in Essex can have GCN resident, from small garden ponds up to farm field type ponds.

The Law

Great crested newts are protected under The Conservation (Natural Habitats &c) Regulations 1994 (aka the Habitats Regulations) and the Wildlife and Countryside Act 1981 (as amended). They are often referred to as European Protected Species because they enjoy the extra protection under the Habitats Regulations.

Under this legislation, it is illegal to:

- Intentionally kill, injure, or capture great crested newts or their young; (this includes the eggs of great crested newts)
- Intentionally or recklessly damage, destroy or obstruct access to areas used by great crested newts for shelter or protection
- Intentionally or recklessly disturb great crested newts while they are occupying a structure or place which is used for that purpose.

Licensing

Planners should be aware that developments affecting great crested newts need a license from the Department of Environment, Farming and Rural Affairs (DEFRA) before work is carried out. If planning permission is given for proposals that do not satisfy the licensing requirements, the license application may be turned down and the development cannot then go ahead.

Developers apply for a licence only after planning permission has been granted and a license is granted *only* if:

- a there is no satisfactory alternative; and
- b the population of great crested newts will be maintained at favourable conservation status in its natural range.

It is for the developer to ensure compliance with the law during the actual implementation of the development, not the planning authority. It is for the planning authority to monitor whether planning conditions are being properly discharged.

It is considered best practice for survey work for protected species (including great crested newt) to be carried out **prior** to any planning application. Where a development is subject to the Environmental Impact Assessment Regulations, it is a legal requirement that planning authorities assess the potential impact of development upon great crested newts before issuing planning permission.

Any report which accompanies a planning application and which deals with great crested newts must be accompanied by:

- A survey, which identifies presence/likely absence, relative population size, etc;
- An assessment of the development's impact on great crested newts; and
- A mitigation strategy.

Has an appropriate methodology been used?

The most important survey methods for detecting great crested newts in water bodies are bottle trapping, torching and egg searching. More detailed information describing these survey techniques can be found in *Great crested newt mitigation guidelines* and the leaflet *Surveying for (great crested) newt conservation*.

Further information

Great Crested Newt Mitigation Guidelines English Nature Aug 2001

<http://www.english-nature.org.uk/pubs/publication/PDF/gcn0801w.pdf>

<http://www.essexwt.org.uk/Species/great%20crested%20newt.htm>

Great Created Newt Conservation Handbook (Available from English Nature's enquiry service or to download from the website)

Great Crested Newts: Conservation Licences for Pond Management Work (Available from English Nature's enquiry service or to download from the website)



Peter Hurvey

The Blue Carpenter Bee Ceratina cyanea is a rare bee confined to southern England, with most recent records from West Sussex and the Maidstone area of Kent. It was rediscovered in Essex after nearly 100 years in 1993 at a site in Thurrock, where it was present in very large numbers, but the site is now a large housing estate. Other more recently discovered sites have also been lost to development or are under threat. This species nests in dead broken bramble stems, so the presence of a certain amount of bramble scrub in open situations where dead stems are exposed to the sun is crucial to its survival. It is likely to prefer bramble growing in drought-stressed and mineral-deficient situations. The bee collects pollen from a variety of flowers including yellow composites, knapweed and bird's-foot trefoil.

Invertebrates

Where they can be found

Invertebrates are remarkable for the extent to which they have successfully adapted to a multitude of different habitats.

Essex supports a range of wildlife habitats that favour many invertebrates, some of which we are familiar with eg. Butterflies, moths, dragonflies and beetles, while other groups we know less well. Among the latter are some that are extremely rare in Britain including a number of UK Biodiversity Action Plan species, which occur in nationally important metapopulations in the South Essex Region.

Some of the best habitats for invertebrates are those where nature has been allowed to take its course free from significant human intervention. Key habitats to watch out for include:

- Areas of flower rich grassland free from regular mowing regimes.
- Areas of early successional or 'pioneer' habitats (eg. some brownfield sites).
- Wetlands including damp flushes, pools, wet woodland and coastal habitats.
- Scrubland especially where mixed with other habitats like grassland or a wetland.

Brownfield sites are of particular significance in Essex and include various types of post industrial land and old quarries. Habitats here offer a number of characteristics that you can watch out for when assessing the value of a site for biodiversity. These include:

- Bare ground and a sunny aspect
 - Essential for ground nesting invertebrates as well as for helping invertebrates to reach operating temperature (they are all cold blooded).
 - Rubble, metal, roofing felt, dead wood – if they are in direct sunshine these can all offer warm spots for basking.
- Free draining substrates (eg. sand, gravel, chalk, PFA).
 - Create parched conditions that slow down the natural process of succession and favour plants that support scarce invertebrate species.
 - Such substrates are often nutrient poor, another factor that exerts stress on the plants, with benefits for invertebrates.

- Varied habitat structure
 - A range of conditions from bare ground to grassland in varying states (anything from short rabbit grazed turf through to tall tussock forming grasses) to scrub species – a mixture of these habitats (or 'mosaic') adds value.
- Lack of intensive management
 - Invertebrates have annual life cycles and need continuity of environmental conditions to ensure breeding success.
 - Brownfield sites offer refuges from fertilisers and pesticides that have contributed to an impoverished invertebrate resource in the wider countryside.

See reading and references for more detailed information on habitat features and the requirements of invertebrates.

Planning guidance

Since 1994 a wide range of invertebrate species have been identified for special attention as part of the UK Biodiversity Action Plan. In 2002 The England Biodiversity Strategy *Working with the Grain of Nature* referred to the need to integrate brownfield site biodiversity issues into policies and programmes for sustainable urban communities. Planning Policy Statement (PPS) 9 – *Biodiversity and Geological Conservation* (2004) provides UK BAP species with 'priority species' status and signals that measures to address the conservation of their populations are a regional planning issue (via the Regional Spatial Strategy for the East of England – RSS14) while planning applications should be determined with consideration for the proposed development's effect upon both protected and priority species.

Further information

Habitat management for invertebrates – A practical handbook P.Kirby (1992) JNCC, RSPB and National Power.

Organising surveys to determine site quality for invertebrates English Nature (2004)



Alan Williams

Otters

Where they can be found

Otters are now on the increase in Essex Rivers, they have long territories and are very mobile. Any riverside development could affect them. Survey might not reveal their passing use of a particular spot. They are also found in streams and lakes. Holts are made in undisturbed riverbanks especially under exposed tree roots.

Characteristic signs

Otter droppings are black or dark greenish and tar-like when fresh. With age, droppings fade to grey but retain their sweet, musky smell. Fish bones are usually clearly visible. Otter droppings are found in conspicuous places such as ledges under bridges, on prominent rocks and grass hummocks. In wooded river reaches otters will frequently spraint on overhanging tree roots or boughs.

The Law

Otters are protected under The Conservation (Natural Habitats &c) Regulations 1994 (aka the Habitats Regulations) and the Wildlife and Countryside Act 1981 (as amended). This means it is illegal to kill, capture, and disturb Otters or to damage or destroy their places of shelter.

Disturbance level not associated with seasons.

Aim

The principle aim is for development not to destroy otter habitat. Riverside development should leave a corridor for the movement of Otters, and all other waterside wildlife for that matter. Leave an undeveloped corridor at least six metres wide. Where road bridges cross streams provide a ledge under the road and above the waterline. Mitigate habitat loss by creation of features of value/artificial holts. Maintain access corridors along watercourses during works Reduce road mortality by using fences/culverts at ecologist's direction.

Further information

Otters and River Habitat Management. Environment Agency 1999

<http://www.essexwt.org.uk/Species/otter.htm>

Reptiles



All native reptiles are protected species. Adders, grass snakes, slow worms and common lizards are legally protected species that are likely to be encountered on development sites throughout Essex wherever suitable habitat occurs.

Where they can be found

The adder is Britain's only venomous snake, although it rarely bites (only when threatened). Diamond-shaped pattern along back with blotches on the side and vertical pupils is distinctive, not to be confused with the grass snake that has a yellow collar and round pupils. It favours habitat such as heathland, seawalls, woodland glades, urban fringe, mineral extraction sites and rough grassland. It is largely diurnal, often basking in the sun in open areas not too far from cover. It feeds mainly on small mammals, nestlings and lizards. Adders hibernate from October to March. It is widespread in suitable habitat but declining.

<http://www.essexwt.org.uk/Species/adder.htm>

Grass snakes use a wide variety of habitats containing open sites for basking and wet areas for feeding. Rivers, marshes, damp meadows and still water bodies are all potential habitats. They will also live in drier sites for example open woodland, rough grassland, allotments and heathland. Eggs are laid in a warm environment in early summer eg. compost or manure heaps, rotting logs and less commonly, moss or piles of dead leaves. Grass snakes hibernate in places such as rubble piles, mammal burrows and tree roots.

<http://www.essexwt.org.uk/Species/grass%20snake.htm>

Slow worms prefer to live in damp and warm habitats. Woodland, grassland, railway embankments, allotments and gardens potentially support slow worms. They are also frequently found on wasteland sites. They hibernate in winter under piles of leaves, within tree roots and in ground crevices.

<http://www.essexwt.org.uk/Species/slow%20worm.htm>

Common lizards or viviparous lizards favour sheltered habitats containing dry, warm places where they can bask in the sunshine. The majority of lizards are found in grassland, hedgerows, woodland edges, roadsides and frequently railway embankments and wasteland sites.

<http://www.essexwt.org.uk/Species/common%20lizard.htm>

Aim

The principle aim is to avoid any impact on reptile populations. If this cannot be achieved then compensate by small-scale relocation and exclusion combined with habitat creation, enhancement or restoration on-site or in the immediate surrounding area. Where major impact is unavoidable and on-site compensation is not possible reptiles will need to be translocated away from the site, to any area that provides equivalent or better habitats.

The Law

All reptiles are protected under the Wildlife and Countryside Act 1981 (as amended) Schedule 5.

Under this legislation, it is illegal to:

- Intentionally kill or injure adders, grass snakes, slow worms or common lizards.

It is also an offence to sell these species or catch them with the intention of offering for sale.

There is no provision for licensing the intentional killing or injuring of grass snakes, slow worms or common lizards during development. The defence in the Act permits otherwise illegal activity if it is the incidental result of a lawful operation and could not reasonably have been avoided. Implementation of a valid planning permission is a lawful operation but does not give developers carte blanche to disregard the law. However, the phrase "could not reasonably have been avoided" provides an important caveat and illustrates why local planning authorities need to have due regard to relevant planning policy guidance.

For a local planning authority to be able to determine a planning application that may have an impact on grass snakes, slow worms or common lizards, the planning application must be accompanied by:

- a survey, which identifies presence/likely absence; population size, etc.
- an assessment of the development's impact on the reptiles
- a mitigation strategy, if mitigation is feasible without detriment to the species.

If the application does not include all of the above, the authority should request them prior to determining the application.

Further information

Evaluating local mitigation/translocation programmes: Maintaining Best Practice and lawful standards. HGBI advisory notes for Amphibian and Reptile Groups (ARGS). (HGBI 1998)

The English Nature leaflet, *Reptiles in Your Garden*, provides general advice and has details of species identification. This leaflet is available free from English Nature's Enquiry Service (Tel: 01733 455000).

The Herpetofauna Groups of Britain and Island (1998). *Evaluating local mitigation/translocation programmes: Maintaining Best Practice and lawful standards.* HGBI Advisory Notes for Amphibian and Reptile Groups (ARGS), can be downloaded from the Froglife website (see above).

JNCC. 2003. *Herpeofauna Workers' Manual*. JNCC, Peterborough.

Reptiles: guidelines for developers is an English Nature leaflet outlining where they can be found, their protection in law, as well as good practice mitigation and compensatory measures. ISBN 1 857 16 8070. Available from English Nature's Enquiry Service (Tel: 01733 455000).

Water Voles



Terry Whitaker

Where they can be found

Water voles live in rivers and streams, down to quite small brooks and ditches.

Characteristic signs

Droppings are the most characteristic signs and most are usually deposited at discrete latrine sites near the nest or where they leave or enter the water. Water Vole droppings are about 8-12mm long and 4-5mm wide, cylindrical with blunt ends and symmetrical. (Rat droppings are always larger than water vole droppings and have an unpleasant odour).

Aim

The principle aim is for development to avoid water vole habitats, protect the river itself and a strip of land alongside the river at least six metres wide and prevent any activity that could lead to pollution of the river. Only if the destruction of the water vole habitats cannot be avoided consideration should be given to the provision of alternative habitats, preferably located nearby, such as a new pond or ditch or equivalent or greater length or area.

The Law

Since April 1998 the water vole has received limited legislative protection through its inclusion on Schedule 5 of the Wildlife and Countryside Act 1981. Their places of shelter are protected, but the voles themselves receive no protection. It is an offence to intentionally:

- Damage, destroy or obstruct access to any structure or place which water voles use for shelter or protection.
- Disturb water voles while they are using such a place.

Where building work is likely to affect water voles or their habitat the following action may be taken:

- Planning the development to avoid water vole habitats.
Water voles spend most of their time close to water. Leaving an undeveloped area around ponds or along ditches and streams is the best way to protect them.

- Excluding water voles from development areas.
Careful removal of above ground greenery causes water voles to move on. Green shoots should be removed at frequent intervals to discourage the voles from returning. This method is not suitable for large areas and will only be effective if there is suitable unoccupied habitat close by for water voles to move into. Only try exclusion when water voles are active – late summer is the best time.
- Trapping, removing and releasing the voles in an appropriate site.
If there are no alternatives, it may be possible to trap and transfer water voles to a suitable site nearby. Professional advice should be sought and close liaison maintained with Wildlife Trusts and English Nature
- Incorporating habitat enhancement into the works.
Development sometimes provides opportunities for this (eg. the restoration of vegetated bankside corridors to link fragmented water vole populations).

Licences are available from English Nature for scientific research or protection of health and safety. There is no license for the intentional destruction of water vole burrows for development or maintenance.

Planning authorities

- Must ensure checks for the presence of water voles have been made, including water vole surveys by qualified ecologists and checks with local record centres.
- Should attach appropriate mitigation/planning conditions to protect water voles.
- Must consult English Nature for all works affecting water vole habitats.

Further Information

(English Nature) *Water Vole: Guidance for planners & developers* (available from English Nature's website or enquiry service)

Water Vole Conservation Handbook. English Nature; Environment Agency; Wildlife Conservation Research Unit 1998.

<http://www.english-nature.org.uk/pubs/publication/pdf/Wvole.pdf>
<http://www.essexwt.org.uk/Species/water%20vole.htm>

Macdonald D. and Strachan R. (1999). *The mink and the water vole*. Analyses for conservation. Environment Agency and WildCRU. Oxford.



Norfolk Biodiversity partnership

White-Clawed Crayfish

Where they can be found

Streams, rivers, canals, lakes, reservoirs, and gravel pits. Clean water, high oxygen, and little sediment. Rocks or tree roots for refuge.

The Law

White-clawed Crayfish are under The Conservation (Natural Habitats &c) Regulations 1994 (aka the Habitats Regulations) and the Wildlife and Countryside Act 1981 (as amended), which means it is illegal to catch and/or handle without a license.

Should not be disturbed between November and June. Activity is reduced and females are carrying eggs.

Works affecting watercourses to be supervised by suitably trained and licensed ecologists. Ecologists to capture and move animals.

Further Information

(English Nature/Environment Agency) *Guidance on works affecting Atlantic White-clawed Crayfish* (available from English Nature's North Mercia Team Tel: 01743 282000)



Colin Austin

Wildflowers

Where they can be found

Almost any grassland site that is not closely mown. Valuable sites are roadside verges, railway embankments, meadows and pastureland and scrubland.

So much species rich grassland has been lost in the past 50 years, (95 per cent of the 1945 level by 1995) that any further loss of the remnant grasslands should be resisted. Use development opportunities to create new areas, but see case studies in this guide

The Law

All wild plants, listed under Schedule 8 of the Wildlife & Countryside Act 1981 (as amended), are protected in law from intentional uprooting, picking or destruction. An offence is also committed if an unauthorised person intentionally uproots any plant not included in that Schedule (ie. without the consent of the owner or occupier of the land).

Further information

<http://www.essexwt.org.uk/habitats/grass.htm>

Habitats in Essex

Allotment

Saltmarsh

Arable

Scrub

Barn

Sea wall

Canal or ditch

Churchyard

Derelict land

Dying tree

Farmhouse

Gardens

Hedgerow

Lake

Large tree

Old woodland

Orchard

Pond

Quarry

River corridor

Roadside verge

Rough grassland



Allotment

In particular, look out for:

Bats

Great Crested Newts

Badgers

Reptiles

Tree Preservation Order (TPO): a legal order made by a local planning authority that makes it an offence to cut, lop, uproot, or wilfully damage or destroy a tree without the authority's consent.



David Smart

Arable

In particular, look out for:

Barn Owls

Nesting birds

Great Crested Newts

Badgers

Water Voles

Reptiles



Barn

In particular, look out for:

[Barn Owls](#)

[Bats](#)

[Nesting Birds](#)

[Old Building Conversion](#)



Canal or ditch

In particular, look out for:

Bats

Badgers

Nesting birds

Great Crested Newts

Water Voles

Otters

White-Clawed Crayfish

Riverside development



Adrian Knowles

Churchyard

In particular, look out for:

Bats

Great Crested Newts

Badger

Reptiles

Wildflowers

Tree Preservation Order (TPO): a legal order made by a local planning authority that makes it an offence to cut, lop, uproot, or wilfully damage or destroy a tree without the authority's consent.

Derelict land



In particular, look out for:

Great Crested Newts

Invertebrates

Reptiles

Wildflowers

Brownfield sites

The term Brownfield site (or previously developed land) refers to land with a whole range of previous uses, ranging from mineral extraction sites such as old sand and chalk quarries, post-industrial land, silt lagoons and fuel ash lagoons. The habitats that occur on these sites are often very flower-rich and structurally diverse because they have developed on nutrient-poor and sometimes contaminated substrates, and are subject to sporadic disturbance rather than cutting or grazing regimes.

These habitats may support very large and diverse invertebrate assemblages, vastly more so than the modern agricultural countryside and indeed many semi-natural habitats. They have much more in common with the wildlife-rich countryside of the past than the modern countryside.

Brownfield sites are the new lowland heaths and flower-rich meadows, and in Essex they can assume regional and national significance for their invertebrate fauna, with populations of many Red Data Book, Nationally Scarce and Essex Red Data species, as well as a number included in the UK Biodiversity Action Plan.

Key points to consider in relation to Brownfield site habitats:

Survey – Sites with potentially significant habitats should be subject to specialist survey at suitable times of year to evaluate their fauna.

Mitigation – Where development is permitted then habitat loss should be mitigated for both species and the overall invertebrate assemblage by the creation of comparable habitat nearby. The following are some key points to consider:

- Vegetation should be allowed to develop naturally on a made substrate consisting of mineral deficient material and a low level of management. Plants stressed by water deficit and mineral deficiency are often the most important for associated invertebrates.
- Topography and substrate depth should be varied with mounds and hollows to provide varied hydrology. The provision of low banks and sandy areas would provide nesting areas for ground nesting *aculeate Hymenoptera* and would only colonise with vegetation slowly, allowing for a low maintenance strategy.

- Shallow substrate and summer drought should help to prevent rapid vegetation colonisation, providing valuable areas of bare and sparsely vegetated ground and allowing the development of a diverse but drought-stressed vegetation including bramble, important for example to the Blue Carpenter Bee.
- Deeper substrate would allow the colonisation by deep rooted perennials important to invertebrates such as Black Horehound *Ballota nigra* and Carrot *Daucus carota*. Bird's-foot Trefoil Lotus, Red *Bartsia Odontites verna*, Red Clover *Trifolium pratense* and Lucerne *Medicago sativa* are all important forage plants for long tongued bumblebees and could be seeded.

Management regime – Occasional disturbance to re-expose bare ground would become necessary every few years.

More general management information is available from books such as *Habitat management for invertebrates – A practical handbook* (See reading and references)



Dying tree

In particular, look out for:

Bats

Nesting birds

Invertebrates

Tree Preservation Order (TPO): a legal order made by a local planning authority that makes it an offence to cut, lop, uproot, or wilfully damage or destroy a tree without the authority's consent.



Farmhouse

In particular, look out for:

Bats

Barn Owls

Great Crested Newts

Old building conversion



Gardens

In particular, look out for:

Bats

Nesting birds

Great Crested Newts

Badgers

Reptiles

Garden design



Hedgerow

In particular, look out for:

[Badgers](#)

[Bats](#)

[Dormice](#)

[Great Crested Newts](#)

[Nesting Birds](#)

[Invertebrates](#)

[Reptiles](#)

Tree Preservation Order (TPO): a legal order made by a local planning authority that makes it an offence to cut, lop, uproot, or wilfully damage or destroy a tree without the authority's consent.



Lake

In particular, look out for:

Bats

Nesting birds

Great Crested Newts

Water Voles

Otters

Reptiles



Phil Luke

Large tree

In particular, look out for:

Bats

Nesting birds

Tree Preservation Order (TPO): a legal order made by a local planning authority that makes it an offence to cut, lop, uproot, or wilfully damage or destroy a tree without the authority's consent.

Old woodland



In particular, look out for:

Bats

Nesting birds

Great Crested Newts

Badgers

Invertebrates

Reptiles

Dormice

Wildflowers

Tree Preservation Order (TPO): a legal order made by a local planning authority that makes it an offence to cut, lop, uproot, or wilfully damage or destroy a tree without the authority's consent.

A graded edge to woodland provides a wider variety of habitat and encourages a wider variety of species. Retain or Create and manage a series of layers, from short to long grass to shrubs to understorey to trees.

Aim

Ancient woodland is irreplaceable and should be strongly protected. There would have to be an exceptionally good case to be made for removal of any ancient woodland. The great losses of old woodland that have occurred are well known, and new woodland creation is a popular option.

However, old woodland is a very complex habitat. It takes time for woodland to develop this complexity. It is estimated that it may take 400 years for a new woodland plantation to fully establish.

Characteristics

Woodland is more than just trees, being structured as a number of layers. These start on the ground as the field layer, where wildflowers like Bluebell grow. Above this is the understorey of Brambles shrubs and young trees, then comes another layer of smaller trees like Hawthorn and Hazel. Finally over the top is the canopy layer of mature trees like Oak, Ash or Lime.

Many of the trees will be dead, and this together with dead branches and dead wood on the ground forms valuable habitat as well

Importance

Many animals of the woodlands depend on more than one layer. Bats will roost in cracks in large old trees, but feed on the insects that are there because of the flowers on the ground. The whole of the woodland vegetation is linked together underground by a network of fungi whose threads penetrate the soil and the roots of plants and move nutrients around from plant to plant.

In general the older and more natural the woodland the greater is its nature conservation value

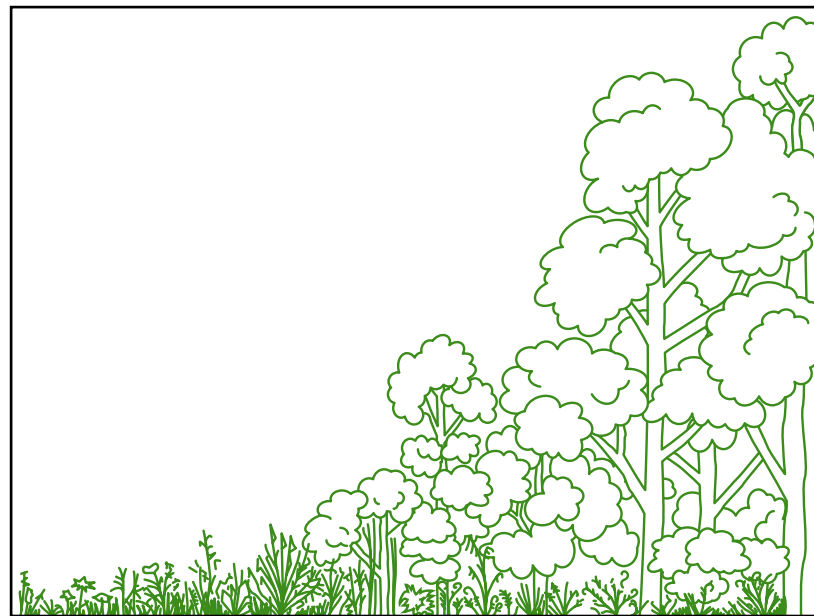
Management

There are few wholly natural woodlands however, most having been managed for some purpose, coppiced for wood and timber production or kept for game shooting. The way a wood is managed is very important, and even where neglected these can be enhanced by suitable management. Improved management of existing woodland can be a more important planning gain than new planting.

New woodland planting

Woodland and trees should not be planted on sites which already have a wildlife value, like flower rich grassland or heathland.

For those who want more woodland but who cannot wait centuries for natural regeneration, new woodland plantings



Short grass and flowers

herbs and shrubs

understorey

trees

should mimic the features of old woodland, and where possible link to them.

Use a variety of species appropriate to the area, with plants of local origin when possible, and the National Vegetation Classification is a useful guide to woodland types. Plant trees randomly; not in rows. Plant the field layer and the understorey too, with rides kept open for the wildflowers and butterflies.

If the site is large enough, think about including a pond too. Glades, rides and the woodland edge are valuable areas, with variation of sunny, humid and sheltered conditions.

Further information

There is plenty of advice on woodland creation, in books and on the internet. Look at our reference section or start at <http://www.forestry.gov.uk/keepersoftime>

Deer management

A word of warning; many woodlands are now heavily over-populated with Deer. Though these animals are popular with visitors, they are herbivores and will eat all fresh young growth. In some woodlands deer have eliminated the ground flora and prevent tree regeneration from seed, and they can wreck new plantations. All species of deer need to be kept under control, and there is plenty of advice available on this matter, the following links are a good place to begin.

[http://www.forestry.gov.uk/pdf/fcin36.pdf/\\$FILE/fcin36.pdf](http://www.forestry.gov.uk/pdf/fcin36.pdf/$FILE/fcin36.pdf) – *The Impact of Deer on Woodland Biodiversity*

<http://www.thedeerinitiative.co.uk>



Orchard

In particular, look out for:

Bats

Nesting Birds

Invertebrates

Wildflowers

Pond



In particular, look out for:

Bats

Great Crested Newts

Water Voles

Otters

Reptiles

Wildlife Trusts' Wetland Restoration Manual

The manual includes more than 250 pages, plus illustrations, held in a hard-backed ring-bound file.

Copies of the manual cost £45

The Wildlife Trusts
UK Office
Tel: 01636 670089

Aim

Existing ponds should be retained and improved if necessary. If development involves the loss of a pond a new pond should be recreated elsewhere on the site.

Characteristics

A healthy pond swarms with life, and serves as a nursery for spectacular insects like dragonflies and amphibians like frogs and newts. A large pond or lake will support more varied aquatic life than a small one.

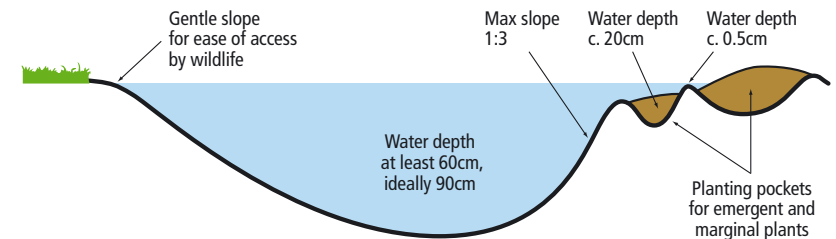
Further information

www.brookes.ac.uk/pondaction/pondsforplanners.pdf – *The Importance of Ponds: A guide for planners and developers.*

<http://www.essexwt.org.uk/Leaflets/ponds.htm>

<http://www.pondstrust.org.uk>

Typical profile of small pond



Conservation License requirements

Fish movements are regulated under a variety of legislation. Application forms for fish introduction/removal are available from the Environment Agency Fisheries, Recreation and Biodiversity Team at the Ipswich office.

There is no specific regulatory control regarding pond/wetland plants but damaging non-native plants should be avoided such as Japanese Knotweed, Giant Hogweed, Himalyan Balsam, Australian Swamp Stonecrop, Floating Pennywort, Parrot's Feather, Floating Waterfern and Least Duckweed.

It is an offence under Section 14(2) of the Wildlife and Countryside Act 1981 to 'plant or otherwise cause to grow in the wild any plant listed in Schedule 9 Part II. The only flowering plants currently listed in Schedule 9 are Japanese Knotweed and Giant Hogweed.

Sustainable Drainage Schemes

Ponds can form a useful part of a Sustainable Urban Drainage Scheme (SUDS).

http://www.environment-agency.gov.uk/commdata/acrobat/a5_suds_v3.pdf

For advice on techniques see http://www.ciria.org/suds/suds_techniques.htm

Garden Design

Riverside Development

Mineral Development

Greenfield Site

Principles of Enhancing and Creating Biodiversity



Quarry

In particular, look out for:

[Badgers](#)

[Bats](#)

[Nesting Birds](#)

[Invertebrates](#)

[Great Crested Newt](#)

[Reptiles](#)

[Water vole](#)

River corridor



In particular, look out for:

[Badgers](#)

[Bats](#)

[White-clawed Crayfish](#)

[Great Crested Newts](#)

[Nesting birds](#)

[Otters](#)

[Reptiles](#)

[Water Voles](#)

Coasts and rivers

The 300-mile Essex coastline is of international importance for nature conservation. It is also important for its open landscape and numerous historic features. Since the coastline is of extreme environmental sensitivity, sustainable development requires that there should be very strong planning policies to protect and promote the conservation of its natural resources and heritage. Both the Essex & Southend Replacement Structure plan and Local Plans in coastal areas give strong protection to the undeveloped Essex coast and estuaries.

The Government's Planning Policy Statement 25 (PPS25), Development and Flood Risk, is founded on the presumption against inappropriate development in floodplains. Storm events and floods are likely to become more frequent as a result of climate change and further exacerbated by sea level rise.

Experience shows that hard defences are not always the best means of reducing risks. Maintenance and restoration of floodplains and coastal wetlands are more effective. By working with nature, rather than against it, we can better protect people and property as well as providing valuable habitats for wildlife.

(PPS25 available to view or download at: <http://www.communities.gov.uk/index.asp?id=1504639>).

Under the Water Framework Directive, emerging River Basin Management Plans and Flood Risk Strategies should play a key role in targeting areas for wetland restoration to help alleviate threats of flooding and meet biodiversity targets. This positive approach could produce a 'win-win' situation for flood risk management and nature conservation. For example, for riverside development it is prudent to pull back to higher land away from rivers, allowing high-risk floodplain land to provide a natural green buffer with benefits for people and biodiversity.

Sustainable Drainage Systems (SDS)

PPG25 makes specific mention of sustainable drainage systems (SDS) in reducing run-off from hard impermeable surfaces, and the environmental benefits in delivering 'soft' drainage and storm water management solutions for development schemes. Planner and developers should work closely with the Environment Agency (EA) in order to develop practical and effective surface water management systems.

Tree canopies can reduce the rate at which rainwater reaches the ground. Reed beds and ponds can also help to filter dispersed pollutants and clean water that drains off roads, roofs, car parks and agricultural land. All new development should incorporate features of sustainable drainage systems.

(SDS: <http://www.ciria.org.uk/acatalog/C609.html> Also see PPS25)

Roadside verges



Adrian Knowles

In particular, look out for:

[Nesting Birds](#)

[Wildflowers](#)

Where

In the 1970s a number of important verges were designated as Special Roadside Verges. Since then the number has grown and there are now over 100 sites covering more than 44km of roadside habitat across Essex. Reviews of, and additions to, this list of special verges are carried out annually. A site will not be adopted formally as a Special Verge unless it has been assessed according to various biodiversity and safety criteria.

Aim

Where possible, development which would involve the loss or damage to a special roadside verge should be avoided.

- Ensure Special Roadside Verges are not lost to road widening, junction improvements or new access points to properties.
- Leave cutting to authorised contractors.
- Avoid planting trees and non-native plants such as bulbs grasses and garden plants.
- Ensure Special Roadside Verges are protected from unwanted dumping.

Characteristics

Special roadside verges are of high biodiversity value and where properly managed, support a wide variety of threatened or declining species. Four very important and nationally scarce plants mainly restricted to verge sites include sulphur clover, crested cow-wheat, lesser calamint and cowslip.

Sensitive management can provide a huge potential for wildlife associated with the verges and also for wildlife in the surrounding countryside. Verges act as corridors helping to connect fragmented or isolated habitats by allowing species to travel between them.

Further information

For more information about roadside verges or to propose new sites contact either

The Conservation Manager at Essex Wildlife Trust, Tel 01621 862960.

or

Essex County Council Countryside and Ecology Officer 01245 437655.

Grassland



In particular, look out for:

Bats

Nesting birds

Great Crested Newts

Badgers

Invertebrates

Otters

Reptiles

Wildflowers

Characteristics

There are three main kinds of grassland in Essex influenced by the acidity or alkalinity of soil and also the water content and heaviness.

The most commonly found is neutral grassland. It includes enclosed and managed grassland such as hay meadows and pastures, a range of grasslands which are inundated with water periodically, permanently moist or even waterlogged grassland, where the vegetation is dominated by grasses, and tall and unmanaged grassland.

Calcareous grassland can be found in north west Essex and in Thurrock. Calcareous grasslands contain an exceptional diversity of rare plants.

Acid grasslands are now rare in Essex and they provide an important reservoir of rare species in our area.

Importance

Species-rich grassland benefits a wide variety of wildlife especially insects and particularly those species requiring pollen and nectar sources eg bumble bees, butterflies, moths and some beetles.

Aim

Wherever possible grassland habitats should be protected from development or conversion to woodland. If development can enable the restoration of grassland this should be encouraged.

Management

To improve biodiversity and conservation value:

- Take into account site's characteristics: soil type, hydrology, current use, past use and management.
- Apply the correct cutting regime.
- Keep soil fertility down by removing the cuttings off the site.
- Consider the long-term management requirements.
- If re-seeding, seed should come from as local a source as possible or even spread hay from a neighbouring site on to the site.

Further information

The Flora Locale organisation offers all of the advice that you will need on grassland, and on other habitats as well.

<http://www.floralocale.org/>

and then look at their Knowledge Zone
<http://www.floralocale.org/content.asp?did=23899>

See also
<http://www.essexwt.org.uk/habitats/grass.htm>
[essexwt.org.uk/Tables/Wildflower_Meadows.htm](http://www.essexwt.org.uk/Tables/Wildflower_Meadows.htm)

Saltmarsh



In particular, look out for:

Nesting birds

Invertebrates

Otters

Water Voles

Saltmarsh has a high degree of protection through both international and national legislation. Determine the relevant designation and consult the government circular *Statutory obligations and their impact within the planning system* Part 1.

Coasts and estuaries

The 300-mile Essex coastline is of international importance for nature conservation. It is also important for its open landscape and numerous historic features. Since the coastline is of extreme environmental sensitivity, sustainable development requires that there should be very strong planning policies to protect and promote the conservation of its natural resources and heritage. Both the Essex & Southend Replacement Structure plan and Local Plans in coastal areas give strong protection to the undeveloped Essex coast and estuaries.

The Government's Planning Policy Statement 25 (PPS25), *Development and Flood Risk*, is founded on the presumption against inappropriate development in floodplains. Storm events and floods are likely to become more frequent as a result of climate change and further exacerbated by sea level rise. Experience shows that hard defences are not always the best means of reducing risks. Maintenance and restoration of floodplains and coastal wetlands are more effective. By working with nature, rather than against it, we can better protect people and property as well as providing valuable habitats for wildlife.

PPS25 available to view or download at: <http://www.communities.gov.uk/index.asp?id=1504639>

Under the Water Framework Directive, emerging River Basin Management Plans and Flood Risk Strategies should play a key role in targeting areas for wetland restoration to help alleviate threats of flooding and meet biodiversity targets. This positive approach could produce a 'winwin' situation for flood risk management and nature conservation. For example, for riverside development it is prudent to pull back to higher land away from rivers, allowing high-risk floodplain land to provide a natural green buffer with benefits for people and biodiversity.

Coastal Squeeze

Risks to coastal communities are increasing and ecologically important habitat is being lost because, as sea levels rise, hard coastal defences are squeezing out salt-marshes and wetlands. Government and Local Planning Authorities should seek out and support rural opportunities for managed realignment by setting back sea walls and allowing new wetlands to develop as a sustainable option for coastal defence. Where appropriate, landowners who want to restore coastal wetlands should be helped through effective partnerships, guidance for change of use and financial compensation for the loss of land and income.

Abbotts Hall Farm managed realignment: <http://www.essexwt.org.uk/sites/Abbotts%20Hall%20Farm.htm>

Biodiversity conservation – statutory obligations



Scrub

In particular, look out for:

Nesting birds

Great Crested Newts

Badgers

Invertebrates

Reptiles



Sea wall

In particular, look out for:

[Nesting birds](#)

[Invertebrates](#)

[Reptiles](#)

Sea wall habitat is likely to have protected status

Integrating biodiversity into development – realising the benefits

The following key principles provide a structure to guide our approach:

ASSESS

the biodiversity value of the site

PROTECT

current key habitats and species of wildlife interest

ENHANCE and CREATE

enhance existing habitats or create new areas

MITIGATE

against potentially damaging impacts on wildlife

COMPENSATE

where damage is unavoidable to wildlife

MONITOR and ENFORCE

to promote the success of enhancement, mitigatory and compensatory measures

A CHECKLIST

for developers and planners

The following diagram shows the stages of the planning application process (in this example where a protected species is present). We have highlighted the key principles for ease of reference. Use this information as a quick reference.

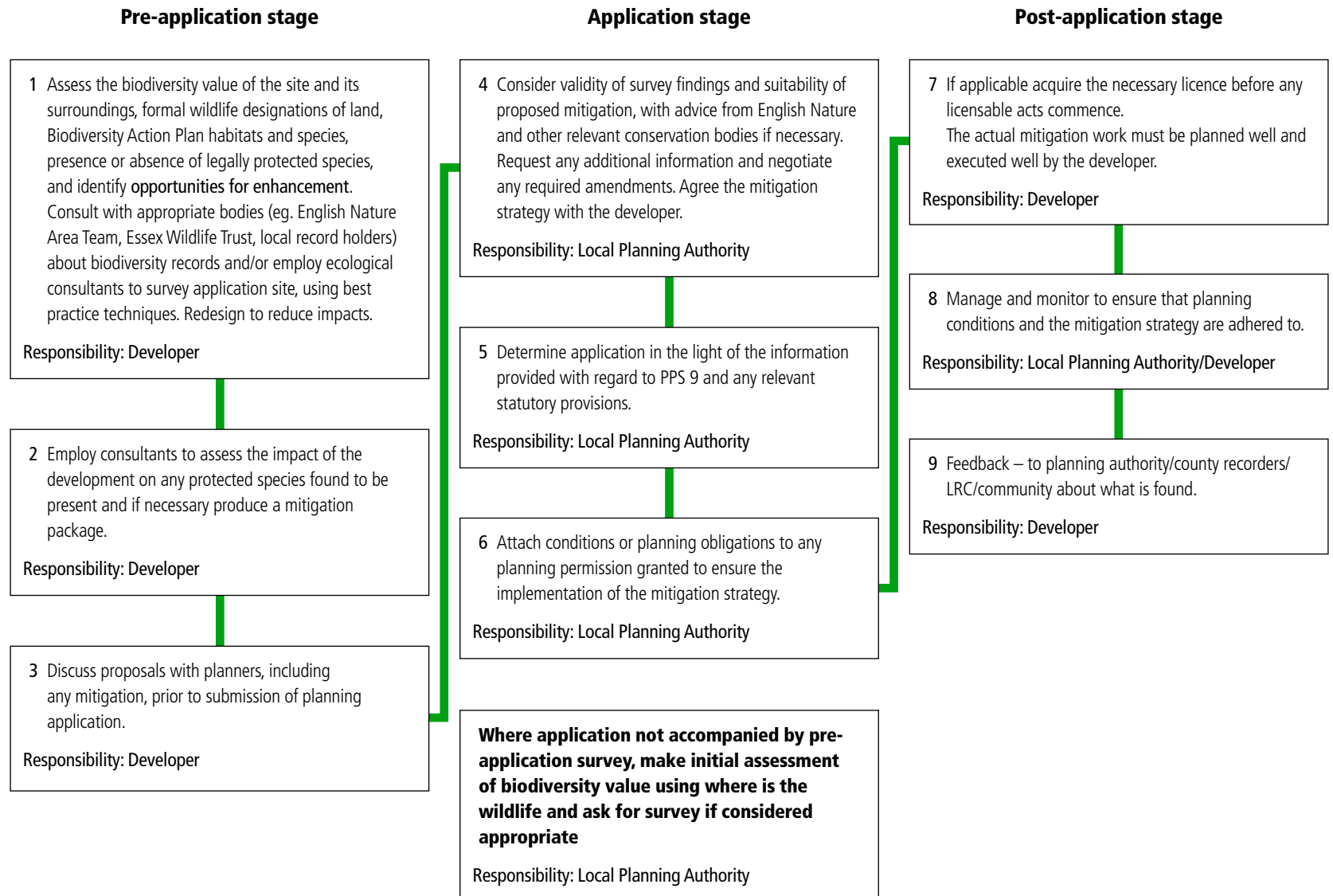
Refer to subsequent sections dealing with each principle in turn when you need further guidance on steps to take and/or where to find more information. These pages address each principle in turn showing who needs to do what and when in the development proposal's life.

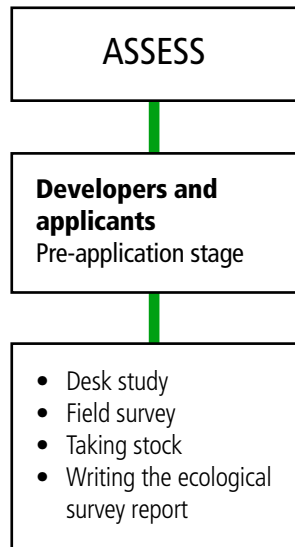
Note: bear in mind that in practice the steps set out under each principle often merge into the next.

Stages of the planning process for a site where protected species may be present

Certain types of planning application may have “significant environmental effects” (Environmental Impact Regulations).

For more information on this important area, refer to *The Essex Guide to Environmental Impact Assessment* – October 2002, produced by the Essex Planning Officers’ association. ISBN 1 85281 195 1.





ASSESS – Assessing biodiversity on site or potentially affected by the proposal

Developers and applicants

Pre-application stage:

Overview:

Finding out what wildlife exists on and around the site needs to include:

- Desk study – Enquiring into the historic data available for a given site.
- Field survey – Survey by a suitably qualified person to bring any historic data right up to date.

Do I need to employ a consultant? You can begin the assessment process yourself by seeking historic information for the area in and around your chosen site. This may give clues about known biodiversity interest. The site visit will provide more information. Field survey will need to be carried out by a suitably qualified person such as an ecological consultant – see **Ecological consultants** for more information.

1 The desk study:

- Check for sources of information – see Key players and also for example the MAGIC website <http://www.magic.gov.uk> for information about designated sites in the area.
- Seek further information from the key players on any designated sites/ biodiversity flagged up by your initial information trawl.

- Refer to the Local Plan for the area – identify relevant policies.

2 The field survey:

Check

- Where is the wildlife for guidance on habitat features to watch out for.

Note that most protected species lifestyle means that survey work needs to be done within a suitable period during the year – see **appropriate survey seasons** for information on suitable survey times.

3 Taking stock:

Consider the information you’ve gathered:

- What biodiversity issues exist?
- What measures are needed to address biodiversity issues on or around the site?
- Consider what work your chosen ecologist/consultant needs to do and how this interacts with your development proposal. Identify Local Plan policies that represent either constraints and/or useful links with other policy areas – In terms of biodiversity these include open space, recreation, sustainable transport links such as footpaths and cycle ways, sustainable design and construction, sustainable drainage, landscape.

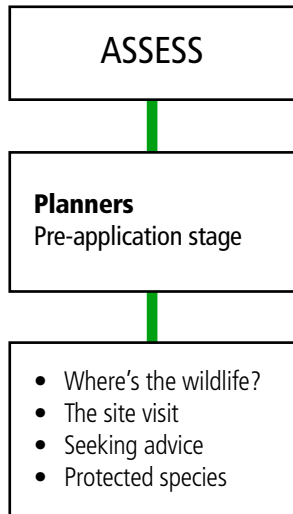
4 Writing the ecological survey report (or ‘Scoping study’)

Your ecological survey should include the following:

- An assessment of the status and extent of all protected species population/s and Biodiversity Action Plan species or habitats. This may require looking outside the development footprint. The method of survey/investigation should be stated.
- A summarised assessment of the overall impact of the development proposal taking account of mitigation and compensation measures.
- Establish the ecological framework that the development will sit within. Use information to Protect (see next section) what already exists and to design development that enhances the ecological value of the area.
- Where applicable – a compensation strategy to include a reasoned statement as to the choice of compensation; clear and timetabled methods; a timetable for the whole project and any need for a licence from Defra or English Nature.

*Note: the methods needed to produce an adequate survey vary according to the species or species group concerned. This is a specialist subject area that your consultant should investigate and advise on. Refer to **Reading and references** for guidance on where to source relevant information.*

[UK BAP species and habitats](#)
[East of England species and habitats](#)
[Essex BAP species and habitats](#)
[Local authority BAP forums](#)
[Ecological consultants](#)
[Key players](#)
[Appropriate survey seasons](#)



ASSESS – Assessing biodiversity on site or potentially affected by the proposal

Planners

Pre application stage:

This early part of the planning process plays a crucial part in paving the way for integrating biodiversity into development.

- Promote pre-application discussions where possible.
- Refer to the information for developers and applicants.
- Make applicants aware of this guidance, and the 'signposts' the guidance offers to other sources of information too.
- Promote reference to the Local Plan and flag up biodiversity's status as a cross-cutting theme and its consequent synergy with other policies (for example open space, recreation, sustainable transport links such as footpaths and cycle ways, sustainable design and construction, sustainable drainage, landscape).

Application stage:

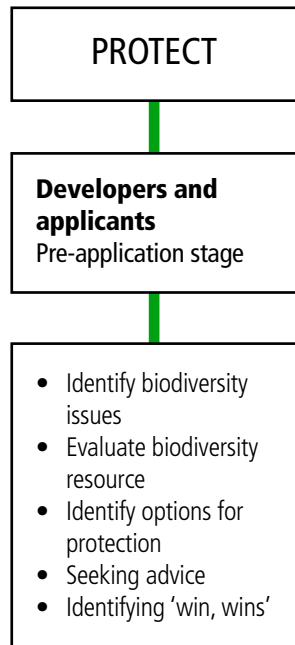
- Refer to Developers and applicants section.

Check:

- **Where is the wildlife** for guidance on habitat features to watch out for.
- Print off the above references and take them with you on the site visit as an aide memoire.
- Does the site warrant ecological survey? Where you need advice request the views of ecologist colleagues in house and/or consult relevant organisations. See **Key players** for further details.
- Where the site does need a survey and none exists make the applicant aware of their responsibility to address such issues and refer them to this guidance.
- Where protected species are known or suspected to be on site refer to **Protected Species in Essex** for more information.

[Key players](#)

[Protected species in Essex](#)



PROTECT – Protecting biodiversity on and around the site

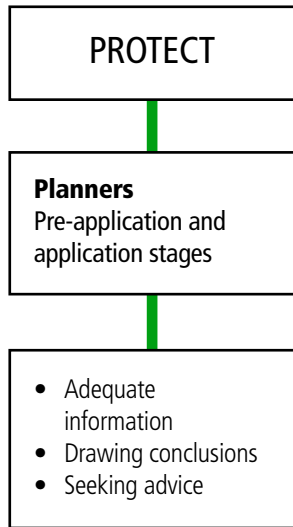
Developers and applicants

Pre application:

Assessing the site should identify:

- Statutory issues eg. Designated Sites (SSSI, Special Protection Areas, Ramsar sites etc) and protected species – see **Protected species in Essex**.
- Other biodiversity issues
 - Priority species and habitats (UK Biodiversity Action Plan).
 - Non statutory sites (eg. Wildlife Sites).
 - Landscape features that are of major importance for wildlife due to the role they fulfil as links or stepping stones (eg. hedges, copses, streams and ditches).
- The survey should make use of this information to evaluate the relative biodiversity importance of the identified plants, animals or features and to assess impacts (both positive and negative) that the development may involve.
- Consider the options available to protect biodiversity – these may involve preventative measures (avoiding impacts arising) together with positive measures to integrate biodiversity (incorporation into a landscape scheme, management measures etc) see **Basic principals of enhancing and creating**.
 - Avoiding impacts – Consider how design aspects of the development might be amended to protect biodiversity eg. layout options and/or timing of works.
 - If impacts cannot be avoided refer to 'mitigation' and 'compensation' for other methods.
- Seek input from local ecological specialists where appropriate (eg. for their detailed knowledge of a locality and/or species). See table **Key players** for further details.
- Reconcile or integrate those biodiversity elements that need to be protected within the development site. For example an existing bat roost may need to be incorporated into the design for the conversion of a traditional rural barn. Please see the **Case studies** for more examples.
- Consider opportunities for the integration of biodiversity elements on site for the contribution they will make to the completed development eg. native trees, hedgerows and grassland in terms of landscaping and/or for the part they can play as a setting for informal recreation or a rest area on the site of a workplace. Retain and manage such features where they already exist (and see below for advice on creating these features) – See section on **Enhance and create**.

[UK BAP habitats and species](#)
[East of England BAP habitats and species](#)
[Essex BAP habitats and species](#)
[Local authority BAP forums](#)
[Protected species in Essex](#)
[Basic principals of enhancing and creating](#)
[Key players](#)
[Case studies](#)



PROTECT – Protecting biodiversity on and around the site

Planners

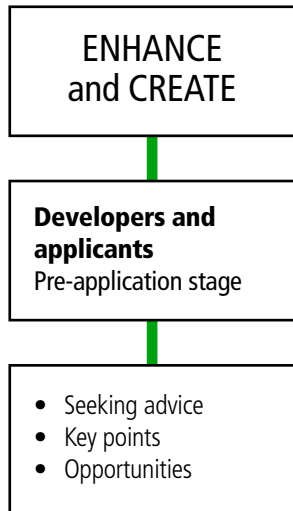
Pre application:

- See the Developers and Applicants steps above for checklist of what needs to happen to protect biodiversity.
- Seek submission of a suitable survey as soon as possible. Note that surveys for protected species should be submitted and consulted upon prior to determining the application.
- Consider the survey conclusions in the light of your site visit.
- Where you need advice request the views of ecologist colleagues in house and/or consult relevant organisations. See **Key players** for further details.
- Encourage developers, applicants and their consultants to seek input from local ecological specialists where appropriate (eg. for their detailed knowledge of a locality or species). See **Key players** for further details.

Application stage:

- Where you think a survey is needed (see Assess above), but none has been submitted, make the applicant aware of their responsibility to address such issues and refer them to this guidance.
- Where you have received a survey check its findings. Do they concur with your impression at the site visit ? – see **Where is the wildlife**.
- Have steps been taken to protect biodiversity eg. through avoiding impacts and/or positive management measures?
- Where you need further advice, request the views of ecologist colleagues in house and/or consult relevant organisations. See **Key players** for further details.
- Planners themselves may also need to employ ecological consultants.

[Key players](#)



ENHANCE and CREATE – Enhancing biodiversity on site and creating new biodiversity resources

Developers and applicants

Pre-application stage:

NB: enhancing the biodiversity resource on a site goes hand in hand with the assessment and protection elements of the process.

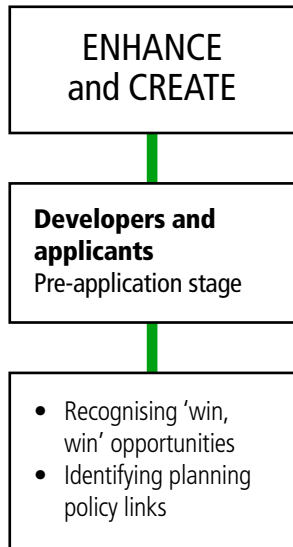
Having successfully assessed a site and identified what needs to be protected possible measures should be discussed with an ecological consultant and/or the planning authority.

Opportunities will often exist to combine protection of existing key habitats and species with enhancement of the site. The following are some key points to consider:

- Each site is unique – your consultant will need to weigh up options with you to identify the optimum solution for the situation.
- Biodiversity offers an opportunity to link together various aspects of your development proposal. These include open space, recreation, sustainable transport links such as footpaths and cycle ways, sustainable design and construction, sustainable drainage and landscape. Identify Local Plan policies that represent useful supporting links.

- For example: native trees, hedgerows and grassland may contribute to landscaping and/or as a setting for informal recreation or a rest area on the site of a workplace. Retain and manage such features where they already exist.
- **Basic principles of creating and enhancing** (and its links) give more guidance on how to enhance your site's biodiversity resource.
- Bear in mind the wide range of opportunities for biodiversity enhancement, ranging from;
 - Creating new biodiversity resources – For example where a site is devoid of existing biodiversity and a 'clean sheet' approach is appropriate, to
 - Enhancing existing resources, for example by creating a grassland/scrub margin as a buffer between new development and a mature hedgerow known as a foraging route for the local bat population.

Basic principles of creating and enhancing



ENHANCE and CREATE – Enhancing biodiversity on site and creating new biodiversity resources

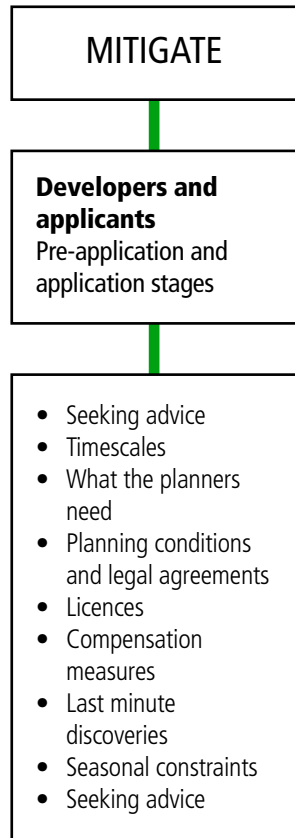
Planners

Pre-application stage:

- Refer to Developers and Applicants section.
- Encourage applicants to recognise the opportunities to amalgamate biodiversity enhancements with:
 - Open space
 - Recreation
 - Access (eg. footpaths and cycleways)
 - Sustainable design and construction
 - Sustainable drainage systems
 - Landscaping
 - Floodplain management
 - Balancing ponds

Application stage:

- As above



MITIGATE – Mitigating (or reducing) the impacts of development upon biodiversity

Developers and applicants

Pre-application stage

A key result of your assessment of the proposed development site should be to identify what adverse impact(s) your proposal may have upon biodiversity. It should also have identified and evaluated the various biodiversity resources affected, taking account of relevant legislation (eg. that covering Designated Sites and protected species – see **Protected Species in Essex**) and planning guidance (eg. Planning Policy Guidance Notes and Planning Policy Statements – see **Legislation**). Where measures to protect and enhance biodiversity on site are not enough to safeguard the biodiversity resource on site or to meet the legislation, mitigation measures are required.

The following are key points to remember when considering mitigation proposals:

- Mitigation measures for impacts on biodiversity are a specialist subject. Measures need to be tailored to the circumstances of the site, the development and the species concerned. You will need to discuss options with a suitably qualified consultant.
- Bear in mind the timescales that mitigation can entail – discuss these with your consultant and consider them in relation to your development schedule.
- Where protected species may be involved the need for mitigation generally hinges upon the answer to

the following question:

- If I were to carry out the development proposal would it result in harm to the species or its habitat? (See PPG9 Nature Conservation – Paragraph 47)
- If the answer is ‘Yes’ then mitigation is required and the issue assumes the status of a ‘material planning consideration’ (ie. an issue that the planning authority will take into account as part of the planning process).
- Before your planning application can be decided you should submit information to the planning authority, as follows:
 - Identification and evaluation of biodiversity on site/affected by the proposal.
 - Description of any impacts (both positive and negative)
 - Description of whether, in principle, adverse impacts may be mitigated, and how.
- The planning authority will use this information to decide your application and may consult other bodies for their views on your proposals.
- Drawing up detailed mitigation measures and implementing them may be dealt with by means of a planning condition and/or a legal agreement (for an example see **Format for Mitigation Plan** – example involves a European Protected Species).

Remember that while preparation of a detailed mitigation strategy may be dealt with as a planning condition you need to have identified and quantified any impacts and to have prepared a case that shows how mitigation can in principle safeguard the species or population concerned prior to the application being decided.

Mitigation may involve additional processes such as acquiring a licence for work affecting some species or their habitats (see **Protected Species in Essex**). Almost invariably the grant of a licence is dependent upon planning consent having been granted.

Mitigation measures may not be sufficient on their own to safeguard a species or population. The section on Compensate provides information on what steps to consider in this situation.

Application stage:

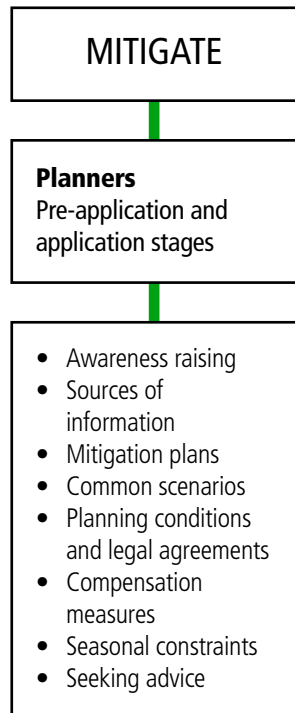
In order to integrate biodiversity into your development proposal effectively you should aim to address the steps set out above before submitting your planning application. This approach will also help to minimise the chance of delays due to unforeseen issues relating to biodiversity.

‘Last minute discoveries’ of biodiversity eg. protected species, can happen after your planning application has been submitted.

The above sections on Assess, Protect and Enhance and Create and Mitigate explain what to do (but see below too).

Bear in mind that you may not be able to assess your site’s biodiversity adequately at certain times of year (see **Appropriate survey times**). The statutory period for deciding planning applications (normally eight weeks) imposes further constraints emphasising the advantages of addressing biodiversity issues before submitting your planning application. Where you face a last minute discovery situation you will need to discuss next steps with your consultant and the planning authority. They in turn may seek advice from any in house ecologist and/or relevant consultees.

[Protected species in Essex](#)
[Format for Mitigation Plan](#)
[Appropriate survey times](#)



MITIGATE – Mitigating (or reducing) the impacts of development upon biodiversity

Planners

Pre-application stage:

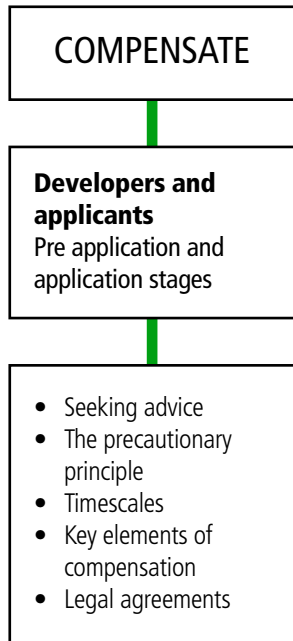
- Refer to Developers and Applicants section.
- Refer also to previous sections on Assess, Protect, Enhance & Create as appropriate.
- Make the applicant aware of their responsibility to address such issues (Local Plan policies where relevant, PPG9 Nature Conservation), refer them to this guidance and the 'signposts' that it offers to other sources of information too.
- Refer to **Format for Mitigation Plan** (example involves a European Protected Species).

Application stage:

As for pre-application stage plus:

- Scenario 1: Biodiversity information submitted with application:
 - Establish whether submitted survey/evaluation and mitigation proposals are satisfactory.
 - Mitigation measures may not be sufficient on their own to safeguard a species or population. The section on Compensate provides information on what steps to consider in this situation.
 - Where you need advice request the views of ecologist colleagues in house and/or consult relevant organisations. See **Key players** for further details.
 - Establish whether a planning condition or legal agreement is appropriate in order to deliver mitigation.
- Scenario 2: Application submitted without biodiversity information.
 - Refer to section on Assess for info on whether biodiversity is likely to be an issue.
 - Where adequate biodiversity information can be gathered in the time available request a suitable report and seek the views of consultees on its content.
- Establish whether a planning condition or legal agreement is appropriate in order to deliver mitigation.
- Mitigation measures may not be sufficient on their own to safeguard a species or population. The section on Compensate provides information on what steps to consider in this situation.
- Where biodiversity information (eg. protected species) cannot be gathered and submitted within the normal eight week determination period discuss next steps with the applicant and their consultant.
- Where you need advice request the views of ecologist colleagues in house and/or consult relevant organisations. See **Key players** for further details.

[Format for Mitigation Plan](#)
[Key players](#)



COMPENSATE – Compensating for unavoidable losses of biodiversity

Note: *mitigation and compensation are often taken as meaning the same thing – the term ‘mitigation’ tends to be used as shorthand for both concepts. Although closely interrelated they are different. Mitigation aims to reduce adverse impacts. Compensation is action to offset or compensate for loss where that loss is unavoidable.*

Developers and applicants

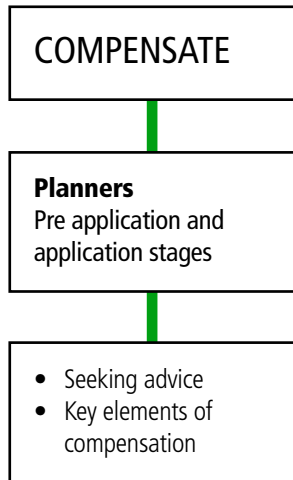
Pre-application and Application stage:

- Site survey and evaluation will have demonstrated that biodiversity on site cannot be satisfactorily safeguarded and that conventional mitigation measures are insufficient on their own to avoid loss of key biodiversity resources (eg. protected species and ‘priority’ – **UK BAP species and habitats**). Measures to compensate for loss are therefore required.
- Compensation measures for impacts on biodiversity are a specialist subject. Measures need to be tailored to the circumstances of the site, the development and the species concerned. You will need to discuss options with a suitably qualified consultant.
- Compensation measures are founded on two key principles:
 - The precautionary principle – Loss of habitat represents a level of change so great that the effects on the species affected are invariably negative and the outcome of measures to compensate for this is unpredictable. As a result the

precautionary principle is applied so that compensation measures seek to provide a new or enhanced habitat resource that is of greater size, number etc. This approach recognises that new habitat takes time to establish and allows reasonable flexibility for losses of the species involved to occur without a significant adverse impact upon the species’ population.

- No net loss – Reflects the precautionary principle approach. The term sums up the need to provide compensatory habitat of a size/area greater than the affected area so as to allow for a degree of uncertainty (and some loss) during the habitat’s rehabilitation.
- Where compensation measures are required they may involve considerable timescales to put into effect. Discuss with your consultant what options may exist in order to allow for this in terms of your development schedule.
- Your plans to address compensation will need to deal with the following:
 - A management plan (where appropriate).
 - Monitoring of the mitigation/compensation measures should be factored in.
 - Funding – of the compensation measures for a period to be agreed with the planning authority.
- Discuss with the planning authority what arrangements may be made to deliver the compensation measures eg. Legal agreement.

UK BAP species and habitats



COMPENSATE – Compensating for unavoidable losses of biodiversity

Planners

Pre-application stage:

- Refer applicants to the above section of this guidance.

Application stage:

- Refer to Developers and Applicants section (above).
- Where you need advice request the views of ecologist colleagues in house and/or consult relevant organisations. See **Key players** for further details.
- Negotiate/encourage (as appropriate) arrangements for delivery of compensation for example by means of a Legal Agreement.
- Check that contents of any arrangements include:
 - A management plan (where appropriate).
 - Monitoring of the mitigation/compensation measures.
 - Funding – of the compensation measures for a period to be agreed.

[Key players](#)

MONITOR and ENFORCE – Monitoring and enforcing the delivery of mitigation/compensation measures

Overview:

Achieving measures that deliver the required mitigation and compensation should focus on suitable mechanisms that feature as part of the planning application stage of the development (eg. planning conditions and legal agreements). This represents the most practical and efficient use of resources. The EBP recognises that the planning system makes provision for measures to enforce planning law but such operational decisions are for each planning authority to make.

Developers and Applicants

Application stage:

- Your plans to address compensation should address monitoring of the mitigation/compensation measures and provide the means for any resulting information to inform the management of the site or feature.
 - Funding – of the compensation measures for a period to be agreed with the planning authority.
- Refer to **Reading and references** for sources of information.

MONITOR and ENFORCE – Monitoring and enforcing the delivery of mitigation/compensation measures

Planners

Application stage:

- Negotiate an appropriate agreement (eg. legal agreement) to secure monitoring of the site/feature (as appropriate) as part of the agreed management and to be funded by the developer.
- Refer to **Reading and references** for sources of information.
- Where you need advice request the views of ecologist colleagues in house and/or consult relevant organisations. See **Key players** for further details.
- Planners can also employ ecological consultants

[Key players](#)

CHECKLIST – The ideal response

	Yes	No
Has historic data been gathered?	<input checked="" type="checkbox"/>	
Has an appropriate field survey taken place?	<input checked="" type="checkbox"/>	
Have impacts been avoided at design stage?	<input checked="" type="checkbox"/>	
Have links been considered to the area outside the development?	<input checked="" type="checkbox"/>	
Has appropriate consultation taken place?	<input checked="" type="checkbox"/>	
Is the information sufficient?	<input checked="" type="checkbox"/>	
Have adequate mitigation measures been identified?	<input checked="" type="checkbox"/>	
Have arrangements or provisions been made for appropriate planning conditions to be monitored during the life of the construction period?	<input checked="" type="checkbox"/>	
Have any impacts been identified that can not be adequately mitigated		<input checked="" type="checkbox"/>
Is there a compensation proposal?	<input checked="" type="checkbox"/>	
Has the compensation proposal had sufficient consultation?	<input checked="" type="checkbox"/>	
Is there adequate aftercare management detailed as part of the planning approval?	<input checked="" type="checkbox"/>	

Use this checklist to ensure biodiversity has been integrated into future development. Realising the benefits whenever possible will lead to a greening of development, and help ensure Essex remains an exceptional county for both people and wildlife.

Case studies

The case studies have been selected to show a range of development types and the wildlife issues that can arise from them, with examples of solutions that have been devised to protect, enhance, mitigate or compensate. It is encouraging that so many examples can already be found within Essex, and there are doubtless many more that could have been used.

This should provide encouragement to do more. A large variety of techniques are available to make space for biodiversity, and there are many printed references to these. Some recommendations are made in the Bibliography section of this guide.

Garden design

Urban infill – development on garden land

Junction improvements – a new access to a science park

Commercial expansion – additional development in an existing office site

Greenspace – in residential development

Edge of town residential expansion

Old building conversion – a traditional barn

Riverside development – before and after

Mineral development – restoration and aftercare

Greenfield site – urban fringe

Brownfield site – Thames Gateway flagship site

Essex Biodiversity Project will continue to add case studies thought pertinent to Essex. Visit our website <http://www.essexbiodiversity.org.uk> for news on the latest updates.

Garden design

With large-scale changes in the agricultural landscape, the land in and around our urban areas is becoming an increasingly important refuge for wildlife. Much wildlife can be found in gardens, particularly those that are well established and sizable, with a range of trees, shrubs, grass and ponds.



Key issues

Brown or green roofs, planted with sedum or wildflowers are an attractive addition to building design

Modern housing at densities of 30 to 50 dwellings per hectare can leave little room for wildlife. Retention of significant corridors outside of the residential plots along hedgerows, ditches, streams etc, is one way of providing some habitat for wildlife.



fig 1

Areas like this offer the most potential for wildlife, with the back sections of gardens providing undisturbed space for trees, shrubs and dense plant cover. (fig 1)

It also adds value for wildlife if these areas are linked together in continuous strips between gardens, and link to larger open spaces outside the development. (fig 2)



fig 2

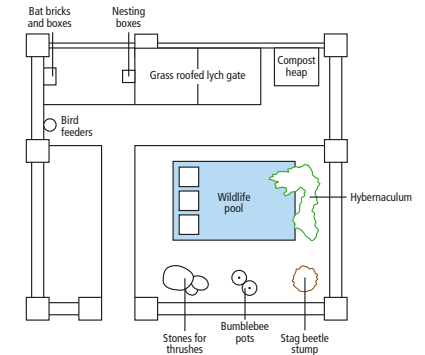
Gateway Garden
 Designer: Stephen Hall
 Contractors: Giles Landscapes of Welney

Integrating development and biodiversity

New housing layouts should use these principles, and should provide indigenous landscape planting that will mature into structured habitat. Development should also promote creation of wildlife ponds, wild areas, log piles, bird and bat boxes, etc. All such initiatives will achieve important gains for biodiversity while providing a quality environment for wildlife and residents alike.

The Wildlife Trusts' Gateway Garden (illustrated opposite) won a Silver medal at Chelsea Flower Show in 2004 and demonstrates ideas that could be used when creating a garden, particularly where there is new build housing.

[more about The Wildlife Trusts' Gateway Garden](#)



Benefits/problems

With many of these principles of layout there are practical problems in retaining these features. Planning conditions and restricted covenants could be used to secure these, but the reality is that many householders will seek to modify or replace/remove such features, and enforcement can be difficult.

Where hedges are provided as boundary features around the edge of housing, they should be physically separated from the residential plots, say by ditches, to ensure their long-term survival. Otherwise they may be 'lost' through absorption into surrounding gardens.

Further information

Wildlife in buildings
<http://www.nationaltrust.org.uk/main/w-wabman.pdf>
 Wildlife in gardens
<http://www.english-nature.org.uk/pubs/publication/PDF/Wildlifegardening2.pdf>
 Urban habitats
<http://www.essexwt.org.uk/habitats/urban.htm>

Urban infill

development on garden land

Located in a small hamlet in west Essex, a new house was planned on a large plot of land between existing houses and a parish-owned pond with resident Great Crested Newts. This European protected species is a material consideration but the planning application was otherwise acceptable.



Key issues

The developer was required to carry out a full, targeted ecological survey with a mitigation plan to be submitted with the application. The pond is not in the applicant's ownership/control, but newts spend most of the year out of the pond and may be using surrounding gardens as foraging habitat.



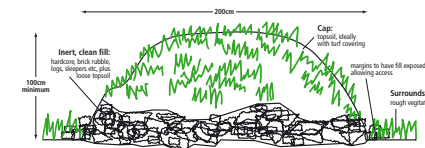
fig 1

Integrating development and biodiversity

The mitigation plan includes details of the construction of a newt hibernaculum between the pond and garden, which was a condition of the approved application. (fig 1)

This design mimics artificial and natural conditions in which great crested newts have frequently been found overwintering. Dimensions should not be below 2m long x 1m

wide x 1m high. The illustrated design would be suitable for locating on an impermeable substrate. On free-draining substrates, the design is largely similar but the bulk of the fill is sited in an excavated depression in the ground. Hibernacula should



ideally be positioned across a site, both close to and distant from breeding ponds, always in suitable terrestrial habitat and above the flood-line. Translocation of newts into terrestrial habitats should be delayed where time is required for maturation from the point of creation or restoration. This may be a year or more depending on the soils, vegetation type and weather conditions. Newts should not be moved into areas before significant habitat modification takes place.

Benefits/problems

These are quiet lanes so the newts probably forage throughout the area in the neighbouring gardens. It is difficult to ensure consistent habitat management in gardens of new properties, and given the vagaries of home ownership and potential for extensions, etc, it is generally not acceptable to rely on gardens as compensation for terrestrial habitat lost to development. The same applies to garden ponds. Only in limited circumstances where there is legal provision (eg. through restrictive covenants) for the retention and management of great crested newt habitat would gardens be considered suitable in mitigation.

The developer could make a contribution to the cost of restoring the very overgrown pond too, although this option was not made a planning condition.

Further information

English Nature (Aug 2001) *Great crested newt mitigation guidelines*
ISBN 1 85716 568 3.

<http://www.pondtrust.org.uk>

<http://www.brookes.ac.uk/pondaction/pondsforplanners.pdf>

Junction improvements

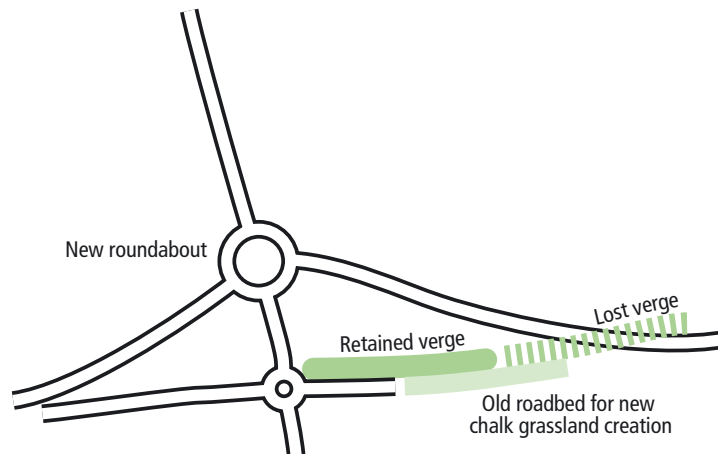
a new access to a science park

A science park on the Essex-Cambridgeshire border is to be expanded. An existing simple crossroad junction was deemed to be unsatisfactory by the Highway Authority as it needed to cater for a greatly increased traffic load to development expansion close by. It was decided that a new roundabout (part of the development proposals) was the most satisfactory option.



Key issues

The realignment of the road and construction of a new roundabout involved the removal of a significant proportion of Protected Roadside Verge (designated as a Wildlife Site), important for its rare chalk flora.



Integrating development and biodiversity

The initial submission included a full ecological survey of the site and suggested mitigation/compensation measures. The application was approved subject to planning conditions, one of which required a landscape and habitat management/maintenance scheme to be submitted and approved. The detailed habitat creation scheme included translocation of plants from the old verge, creation of a new area of chalk grassland on the old roadbed (using chalky topsoil from the old verge) and allowance for natural regeneration from the seedbank in the soil. The works were overseen by an ecological specialist consultant.

Benefits/problems

Although the programme of works was carried out as approved in 2002, it became apparent that the new chalk grassland had initially failed to establish, despite following the detailed specification. The area became dominated by arable 'weed' species, such as docks, thistles, coarse grasses and oilseed rape. Reasons for this failure include the likelihood that chalk grassland topsoil became mixed with adjoining arable soils, containing unwanted species. Plants of ancient and species-rich grasslands thrive in low nutrient conditions, so improved/fertilised topsoils should never be introduced. In this case it would have been better to use only the chalk topsoil and chalk subsoil mixed with fresh cuttings from the existing grassland (known as 'green hay'). Regular monitoring and maintenance is essential so that the process can be adapted as required.

Despite an apparently well-founded and specified scheme, the outcome was initially very far from the desired state, but by 2006 the desired species were beginning to appear, though the undesirable species were still dominant. Additional management has been carried out to remove the docks by hand, but this level of time-consuming management should be allowed for in the aftercare of such schemes.

The overall result has been the loss of protected roadside verge with ineffective compensation. In retrospect it would have been better if the protected status had been robustly defended, and the road scheme refused consent. The recreation/translocation of established and fragile grassland communities is fraught with difficulties. Grassland creation should only be accepted as a substitute for the in situ conservation of semi-natural grassland as a last resort.

Further information

http://www.essexwt.org.uk/tables/wildflower_meadows.htm

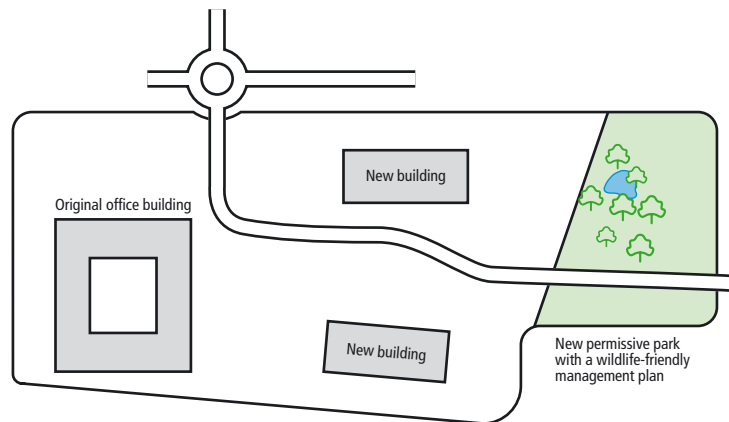
Commercial expansion additional development in an existing office site

Set on the western edge of Harlow New Town, a 1960s office development required expansion to develop into a modern business park. The original headquarters office is situated at one end of a large parkland site and has been used informally by local residents for many years.



Key issues

The eastern end of the parkland has good quality neutral wildflower grassland and some new woodland planting. As part of its expansion objectives, the company was asked to incorporate some open space for the benefit of wildlife and local people in its Masterplan Outline Planning application.



Integrating development and biodiversity

As well as identifying sites for new buildings and a large car park, the Masterplan designated the eastern end of the site, outside the business park campus, for public access. The grassland and woodland trees were assessed by an ecological survey and a management plan was produced that divides the site into units, each with a detailed annual programme of management works.

Benefits/problems

The grassland is cut at times of the year to benefit wildflower pollination and seeding. Tree management is undertaken to keep the oak woodland in good health, which benefits the numerous birds, small mammals and insects that use the habitat.

This is a good example of a 'win-win' case study that has benefits for the owners - the company is proud of the green setting for their site and the new permissive parkland supports a good variety of wildlife, while local residents benefit from easy access to quality greenspace on their doorstep.

Harlow has an excellent network of interconnected green wedges, comprising both formal and informal open spaces (mainly woodland, scrub and grassland). This permissive parkland is an important part of the biodiversity resource in the District.

Many schemes fall down on the fact that that the new park areas cannot be managed effectively and efficiently. The cost of ongoing management kills it. Therefore, the design must be tested and adjusted according to what is manageable. There must be sufficient resources to enable this management to be carried out on a long-term basis.

Further information

For general background on Harlow's protected Wildlife Sites: Harlow District Council (Nov 2002) *Wildlife Sites*, Supporting document for the Replacement Harlow Local Plan.

Greenspace

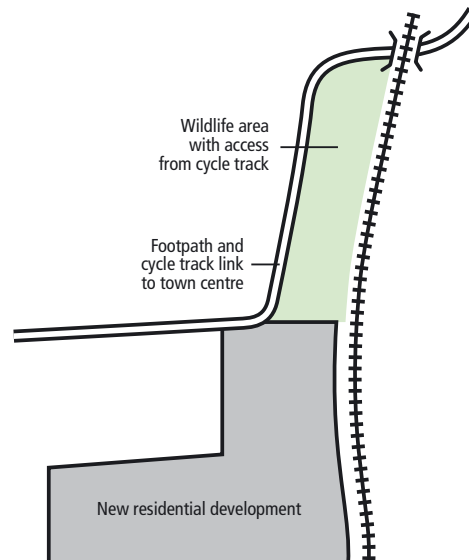
in residential development

A large brownfield industrial site became vacant close to Chelmsford town centre, identified for new housing provision. This site lies adjacent to a railway line with an area of wildlife interest lying next to the railway embankment. The challenge was to develop the site while retaining/enhancing the biodiversity interest.



Key issues

The northern area contains ponds as well as areas of grass, trees and scrub. Although no rare or protected species are present, the assemblage of commoner species is important in the local context of this urban setting. A range of birds, small mammals and insects use the mosaic of habitats.



Integrating development and biodiversity

Planning permission was given for a substantial new residential neighbourhood to be built on areas of least or no ecological significance. The layout was informed through a general ecological survey. A 'green' area to the north (around 1ha) was dedicated, by the developer, to the local authority for the purpose of it being managed as a wildlife/nature area, together with £80k towards its management (under a Section 106 agreement).

The site itself does not support any rare or protected species, although kingfishers are probably nesting alongside a large pond at the edge of the railway embankment. However, it provides a good range of habitats including scrub, ponds and open areas, extending the amount of land being managed to benefit biodiversity.

Benefits/problems

This is a good local example of a forward-thinking developer's commitment to the protection and enhancement of biodiversity, with benefits of improved quality of life for the residents. A pathway through the site allows public access to nearby greenspace. This meets Natural England and local authority performance indicator (BVPI – Best Value Performance Indicators) targets for providing accessible greenspace within a close distance of residential areas. The site is well within walking/cycling distance of the town centre – another benefit of sustainable development.

A large, deep pond has been fenced off for health and safety reasons. It is hoped that local people can be encouraged to use and look after the whole site. The local authority's Parks Service is discussing possibilities of working with BTCV (British Trust for Conservation Volunteers) to achieve this.

Local provenance hedging rather than fencing, flower-rich (instead of amenity) grassland managed with wildlife in mind and less uniform planting of native trees could increase the biodiversity value of the southern side of such a development.

Many schemes fall down on the fact that that the new park areas cannot be managed effectively and efficiently. The cost of ongoing management kills it. Therefore, the design must be tested and adjusted according to what is manageable. There must be sufficient resources to enable this management to be carried out on a long-term basis.

Further information

For Natural England targets for local access to greenspace (ANGSt), see <http://www.english-nature.org.uk/pubs/publication/PDF/spacefornature.pdf>

Edge of town residential expansion

This large site lies on the edge of Stansted Mountfitchet in the M11-Stansted growth area. It combines both brownfield and greenfield characteristics. It is a former nursery site with large tracts of species-poor grassland interspersed with patches of bramble and tree belts close to the eastern boundary.

A largely residential development received outline planning permission in February 2004, with reserved matters to be agreed with the local planning authority related to the treatment of ecological issues. No development has begun on site (as at February 2005).

Culvert and underpasses will need barriers to ensure that animals are funnelled into appropriate crossing points.

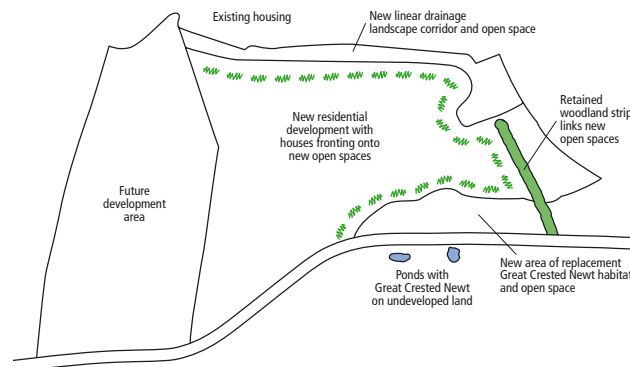
Stansted Mountfitchet –
Rochford Nursery site
Penny Anderson Associates
Ltd (ecologists).



Key issues

A comprehensive ecological appraisal was carried out to identify key biodiversity issues and to agree mitigation proposals. The species that will require mitigation and protection during development are great crested newts, reptiles (common lizard, slowworm and grass snake) and breeding birds. The site lies close to a grassland Wildlife Site (The Mount, Stanstead), but no adverse impacts are anticipated for this non-statutory designated area, which is given protection through local plan policy.

The ex-nursery site contains a mosaic of demolished buildings and open areas, which support a number of wildlife habitats. There is a known great crested newt population (European protected species) in ponds across the road on the south side of the site and



probably using parts of the site itself. The large areas of undisturbed grassland provide excellent habitat for significant common lizard and slowworm populations. Grass snakes are also present in moderate numbers. Breeding birds are also an issue. Bats may roost in trees on the site – further surveys are planned.

Integrating development and biodiversity

The development layout provides an area of replacement great crested newt terrestrial and aquatic habitats comprising new water bodies suitable for breeding, structures provided for shelter (hibernacula) and other high quality habitats (foraging). The scheme retains an existing linear woodland strip which links the newt area to other areas such as a landscaped drainage course. Culverts will be provided to act as a safe wildlife corridor under new roads (dispersal/movement).

The habitat creation/enhancement scheme on site would not be large enough to accommodate the common lizard and slowworm populations, although grass snakes will be retained in situ. The mitigation scheme would involve the transfer (translocation) of these species to a specially prepared off-site receptor area. Effects on breeding birds would be prevented by clearing potential nesting habitats outside the breeding season or by undertaking surveys to ensure that no nests/young were present prior to clearance.

Benefits/problems

The retained/created wildlife areas act as valuable habitat for great crested newts, reptiles and birds. Wildlife corridors are important to ensure that plants thrive and animals can remain mobile. The housing layout also provides an attractive area of open space for residents and adds value to the houses overlooking it.

Further information

Great Crested Newts (mitigation guidelines)

<http://www.english-nature.org.uk/pubs/publication/PDF/gcn0801w.pdf>

Reptiles (developer guidelines)

<http://www.english-nature.org.uk/pubs/publication/PDF/ReptilesIft.pdf>

Reptiles in gardens

<http://www.english-nature.org.uk/pubs/publication/PDF/Reptilesingarden.pdf>

Bats (mitigation guidelines)

<http://www.english-nature.org.uk/pubs/publication/PDF/Batmitigationguide2.pdf>

Birds (law)

<http://www.rspb.org.uk/policy/wildbirdslaw/birdsandlaw/index.asp>

Old building conversion a traditional barn

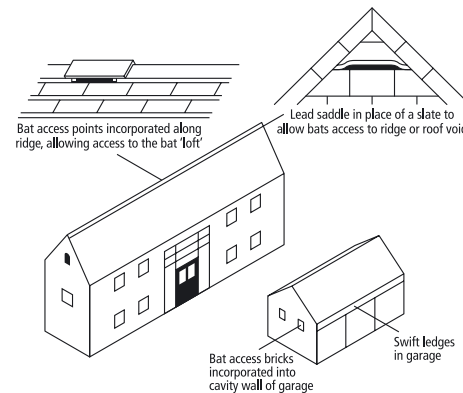
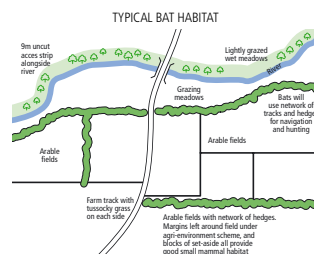
A thatched barn in rural Uttlesford is proposed for partial non-residential conversion (storage). Listed Building Consent is sought for internal and external restoration.



Key issues

An ecological survey found that the barn supports a colony of brown long-eared bats augmented by a smaller number of pipistrelle bats. All species of bats are protected by the Habitat and Species Directive in the Conservation (Natural Habitats &c.) Regulations 1994. Pipistrelle bats could be using the barn occasionally as a roosting site. The barn is used on a regular basis as a summer roosting site by brown long-eared bats. It is not thought that the barn is used as a nursery roost.

Any consented works will need to include mitigation measures and be subject to a Defra licence. The habitats surrounding the barn are considered suitable for foraging bats.



Integrating development and biodiversity

The licence application to Defra will need to include a Method Statement with the results of an appropriate bat survey, mitigation measures proposed and a detailed timetable of the planned works.

Since no evidence for a nursery roost was identified, any works should avoid the winter hibernation period (1 December to 28 February). During the refurbishment works there will be a temporary loss of the internal roosting spaces, but this is estimated to have a low impact on the bat population. To ensure that no harm comes to the bats it may be necessary to physically exclude the bats before commencing works. In order to ensure continuity of roosting provision during the works, it is recommended that a minimum of four 'Schwegler' type woodcrete bat boxes are installed on mature trees close to the barn.

Since part of the conversion includes a study area it is proposed to incorporate a suitable bat loft area along the underside of the main roof ridge. A separate roof void for brown long-eared bats would be provided exceeding the minimum recommended dimensions for the species. Access to the new roof space would be facilitated through gaps (20mm x 75mm) in the gable ends/apexes. A monitoring strategy will need to be carried out to ensure effectiveness of the mitigation.

Benefits/problems

Bats and development can be satisfactorily integrated provided that good survey data is available and any adverse effects of works can be adequately mitigated. The refurbishment of old buildings should not be detrimental to any roosting/breeding bats and ensure that the population of bats is maintained at a favourable conservation status in their natural range.

Although not a problem in this case study, barn owls are often present in suitable outbuildings. They have protected status and would need up-to-date survey information and a mitigation strategy to ensure long-term survival.



Further information

Bats (mitigation guidelines)

<http://www.english-nature.org.uk/pubs/publication/PDF/Batmitigationguide2.pdf>

Barn owls (general information)

<http://www.rspb.org.uk/birds/guide/b/barnowl/index.asp>

A CD on mitigation in barn conversions is available from Hertfordshire Biological Records Centre (biorecs.info@hertscc.gov.uk)

Manuden – Barn Conversion
Donald Purkiss Associates
(architects)

Riverside development

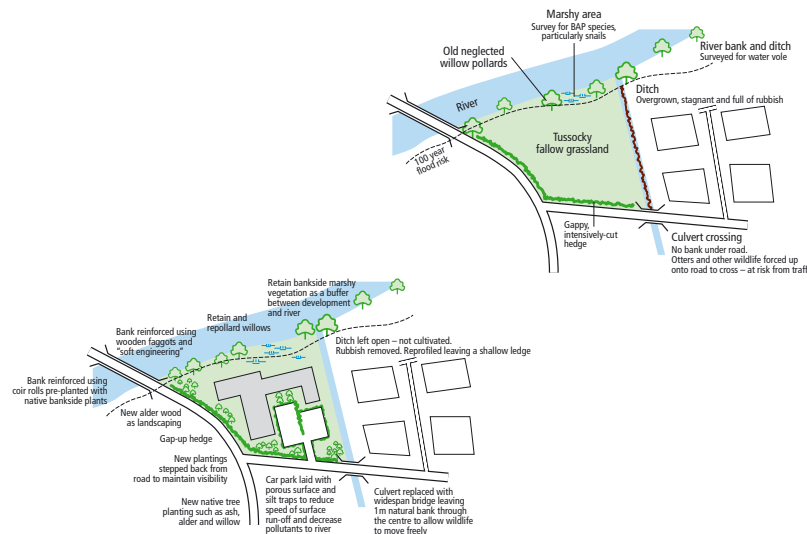
This case study is generic – we welcome suggestions for a good practice Essex-specific example.

An existing riverside commercial development site is due to expand. A neighbouring rural greenfield site has become available which will fulfil the growth aspirations of the applicants, while utilising the existing good road communications. The site is typical low-lying tussocky grassland bordered by riverside trees (willows and scrub), poor hedges and a neglected, rubbish-choked ditch.



Key issues

Although the site is not of designated wildlife significance (not SSSI or Wildlife Site) it does merit further investigation. The river and connecting ditches should be surveyed for water vole, kingfisher and otter, while the old neglected willow pollards on the riverbank could be home to bats (wet/marginal vegetation supports good prey insect populations). A small marshy area is an important habitat and should be surveyed for BAP species, particularly Desmoulin's whorl snail.



Integrating development and biodiversity

With a potential increase in non-porous surfaces close to the floodplain, every opportunity should be taken to use good water management techniques. The ditch should be left open (not culverted), cleaned up and reprofiled to benefit water vole and otters. Porous car park surfacing would reduce flash run-off and water-borne pollutants. Road bridges across the river and ditch should include an underlying bank or ledge to enable otters to move freely up/down river. This will reduce road kill/injuries, as otters will pass over roads if ledges are not provided at bridge crossings.

Habitat improvements should include retention and repollarding of riverside willows, planting of alder woodland as landscaping/buffering, thickening the boundary hedges and introducing positive bankside management ('soft' engineering solutions with biodiversity spin-offs).

Benefits/problems

This example is typical of what can be achieved through protection of locally important wildlife and enhancement of neglected habitat. Although there has been landtake, this has been implemented with minimal or no damage to ecologically sensitive areas. Through long-term management and monitoring the marginal areas will continue to thrive with overall net gains for biodiversity. The local workforce will also see benefits with pleasant natural surroundings and recreational advantages.

Building on a floodplain has its problems. Not building on the floodplain, pulling the development back to put the green space near the river may be a better solution.

Further information

Thames biodiversity issues

http://www.lbp.org.uk/02audit_pages/au11_thames.html

Mineral development restoration and aftercare

This mineral extraction site in Tendring is still under active working, but contains areas of restored and developing habitat.

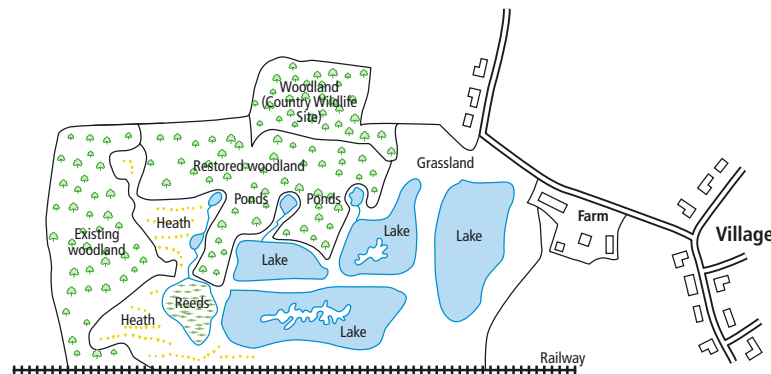


Key issues

The site borders existing woodland to the west and north. The extraction of sands and gravels brings potential problems of soil instability, changes to the water table, soil compaction, wind-blown deposits and potential pollution from vehicles and plant. The requirement for environmental assessment of the likely adverse effects should provide effective mitigation measures to negate or minimise many impacts. There are also issues of noise/light disturbance, habitat loss and fragmentation to consider, although the final restored habitat mosaic may ultimately offer a greater biodiversity resource.

The extraction is phased over many years with restoration of the worked-out areas continuing as progress allows.

Arlesford – Villa Quarry
Mineral Services Ltd
(restoration).



Integrating development and biodiversity

The final restoration scheme for the site includes creation of shallow-edged lakes, islands, flower-rich grassland, heathland, reedbeds, ponds and restored woodland. Before mineral extraction the site was under orchard and arable cultivation.

The site includes a tract of ancient woodland that overlies rich sand/gravel deposits. The mineral extraction permission gave consent to remove a large portion of this Wildlife Site in order to win raw materials, but this consent predates current more stringent environmental assessment.

Benefits/problems

Although the ancient woodland was partially destroyed due to sand/gravel extraction, the restoration programme has included tree planting and formation of wildlife-friendly lakes. The restored wetland part of the site won the prestigious Cooper-Heyman Cup in the Quality Products Association Awards 2002.

The large southern lake is bordered by meadows and heathland. Islands were created with gently sloping, sinuous edges, and shingle areas raised for nesting terns. A long and irregular shoreline was created around the lake to suit the feeding needs of water-fowl, and shallower areas planted away from the edges to provide shelter.

A Biodiversity Action Plan was prepared to ensure maintenance of the correct natural balance. Some 65 bird species were recorded and special provision has been made for barn owls with two nesting boxes. Anglers now use the lake on a controlled basis.

The winning of materials under an ancient woodland (Wildlife Site) is an unfortunate outcome in exchange for the eventual restored wetland habitats. While there is provision for replanting the lost woodland, the loss of seedbank (through soil stripping) means that the diversity and complex structure of the original woodland can never be recreated in practice.

Invertebrates would benefit from some areas of sands/gravel to be left bare and kept open, rather than the extensive habitat recreation of grassland, woodland and heath.

Further information

White, G and Gilbert, J (eds) (2003) *Habitat creation handbook for the minerals industry* RSPB. ISBN 1 901930 37 8.

Greenfield site urban fringe

This large greenfield development on the eastern fringes of Harlow has the potential to provide a sustainable community for about 6000 residents. Phase 1 of the development, including 440 dwellings and a local centre, was granted outline planning permission in 1998 and is now under construction.

A comprehensive Environmental Statement for Phase 11 was submitted to the local Council in mid-September 2004. This current outline application has not been determined (as at February 2005), due to the complexity of the case.

Harlow – New Hall Phase 11
Roger Evans Associates
(architects).



Key issues

The majority of the site is currently arable land which is of low ecological value. Other habitats found within the site are improved and semi-improved grassland, woodland,

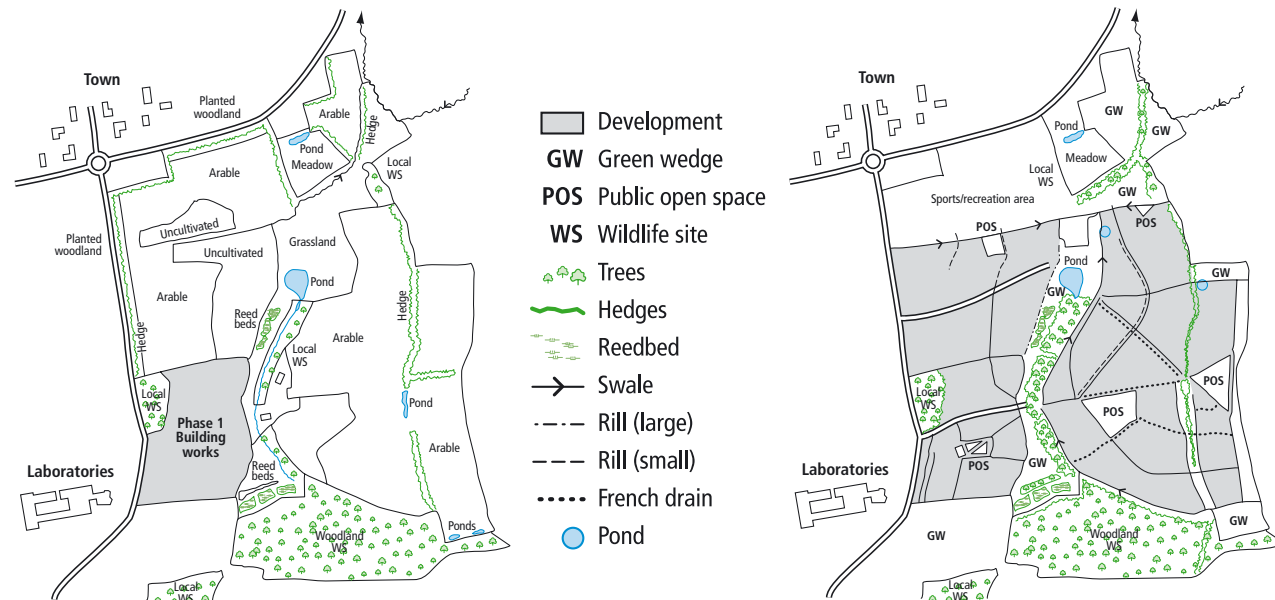
hedgerows, scattered trees, streams, ponds and water treatment beds (reeds). These features are of greater ecological significance. There are two non-statutory woodland Wildlife Sites close to the application site and several sites of local importance for nature conservation identified by Harlow District Council.

Two protected species, badgers and great crested newts, have been found within the site and are well established. The population of great crested newts has colonised the recently constructed reedbeds (part of Sustainable Urban Drainage Systems).

Integrating development and biodiversity

The layout of the proposed development retains all the key landscape features of ecological value and so the habitat of the protected species. Landscape proposals also include reinforcement and enhancement of these areas.

Some of the area that is proposed for development does, however, serve as foraging habitat. Areas have been identified to compensate for this loss and the layout includes provision for wildlife corridors that will enable access to those identified areas and for movement between individual populations. The inclusion of further water features for the sustainable drainage system will provide further habitat for the great crested newts.



Benefits/problems

In addition to the mitigation and compensation measures for predicted ecological impacts, there are proposals to carry out a variety of enhancement works to improve the remaining areas of habitat for wildlife. These measures include new roosting opportunities for bats (eg. bat boxes and barn usage), planting of native trees and shrubs, maintaining/enhancing existing hedgerows, managing the woodlands as conservation areas, and managing the undeveloped northern part of the site as an informal recreation and conservation area, including fencing the woodland areas from adjacent pastures to encourage the development of the understorey and ground flora.

Tree shelter belts act as wind protection and buffer zones between the housing and nearby habitats. These features provide an attractive setting for the built development and will mature into useful habitat for nesting birds and insects. The inclusion of corridors between different features such as ponds and greens ensures a real connection between the different types of habitat required by the various species.

An ecological management plan will be prepared and implemented for the site. The plan will ensure that these habitats continue to be managed positively for nature conservation and that the potential to enhance biodiversity interest of the site is fully realised.

Guidance for Harlow

Harlow District Council has published more specific guidance for their area, to set out a green framework for new development with design guidance on habitats.

The Green Infrastructure Plan in the Harlow Area is an independent study by Chris Blandford Associates, working under the close supervision of a Steering Group consisting of representatives from national, regional and local organisations.

The Green Infrastructure Plan provides guidance on how the green areas should be protected, enhanced and where appropriate extended. Green spaces can include areas such as parks, gardens, woods and nature reserves with or without public access; linkages include linear features such as off-road paths, highways, rivers, streams or hedgerows, which can provide corridors for wildlife and connect people to open spaces.

The concept of green infrastructure planning is based on a strategic approach to ensuring that environmental assets of natural and cultural value are integrated with land development, growth management and built infrastructure planning at the earliest stage. This approach enables land management to be more proactive, less reactive, and better integrated with efforts to manage growth and development at all spatial planning levels. Green infrastructure planning is therefore a key mechanism for delivering sustainable communities and quality of life benefits within growth areas.

The Harlow, Epping Forest, the River Stort and the Lea Valley Green Spaces Project (the Harlow Green Spaces Project), which is part-funded by the ODPM, aims to enhance the intrinsic character and nature of green spaces within the Harlow Area, acquire new green spaces for public access and to create links between these green spaces.

The Harlow Green Spaces Project partners commissioned Chris Blandford Associates to prepare a Green Infrastructure Plan for the Harlow Area to provide a strategic framework and guidelines for the implementation of a connected and multi-functional green infrastructure network of wildlife sites, public open spaces and green links within the countryside in and around Harlow. The documents can be found using the following link:

<http://www.harlow.gov.uk/default.aspx?page=7973>

Further information

Cobham Resource Consultants (1992) *New Hall Farm, Harlow – Ecological Assessment Working Paper* CRC Abingdon.

English Nature (2001) *Great crested newt mitigation guidelines* Natural England, Peterborough.

Harlow District Council Planning Services (2002) *Replacement Harlow Local Plan Supporting Document: Wildlife Sites* Harlow District Council, Harlow.

Brownfield site – Thames Gateway flagship site

Located on the edge of a dense urban area in the Thames Gateway growth area, a new mixed development was proposed on a key brownfield site that supports a nationally significant invertebrate population and a wide range of protected species including great crested newts.

Through sympathetic design and extensive dialogue with key stakeholders (notably Natural England and Buglife), the built development was located on the least ecologically sensitive part of the site while the remaining habitats were protected and enhanced in perpetuity.

The views of the local people were canvassed as they will be the main beneficiaries of the new nature reserve created.



Key Issues

The site is an ex-proposed oil refinery bordering the River Thames that was never fully built. The area is characterised by abandoned concrete roads, dredged silt and circular sand-filled oil tank foundations that have been reclaimed by nature over four decades. The resulting habitat mosaic of grassland, scrub, bare ground, coastal fringe, wetland and man-made artefacts has developed into one of the richest and most diverse insect assemblages in the country (more wildlife species per square metre than any national nature reserve). The site is also home to a wide range of protected species including great crested newts, water voles, badgers and reptiles.

Pressure on brownfield sites for development is intense, particularly in the Thames Gateway, where Government targets aim to redevelop 60 per cent of such sites.

Integrating development and biodiversity

The East of England Development Agency originally planned to redevelop 50ha of this 68ha brownfield site. Had this proposal gone ahead uncontested there would have been catastrophic loss of biodiversity. The challenge and opportunity presented by this unique site was to realise a flagship exemplar of sustainable development, successfully integrating the nationally important biodiversity resource into the development.

Natural England worked successfully with the East of England Development Agency and others to ensure that employment and community needs were addressed alongside protecting and enhancing the natural environment. On completion, two thirds of the site

will become a wildlife area with interpretation facilities. The rest of the site will be developed into offices, using sustainable design and construction techniques that will provide a further habitat for invertebrates (eg. brown/green roofs and other nectar sources), and in total create up to 900 new jobs in an area that has the highest proportion of long-term unemployed in the Eastern region.

Benefits/problems

This case study benefits from its large scale – there was sufficient space to avoid damage to the most valuable parts of the site and to accommodate extensive mitigation and enhancement works. The site also connects to coastal grazing marsh under the ownership and management of RSPB, which acts as an important ecological buffer and species reservoir. Not all wildlife-rich brownfield sites are likely to be so fortunate, particularly in the Thames Gateway. In any sustainable development scenario the objective should always be: “no net loss of biodiversity”.



An ecological management plan has been prepared and implemented for the site. The plan will ensure that the habitat mosaic continues to be managed positively for wildlife and people, and that the potential to enhance biodiversity interest is fully realised. The value of the site for wildlife has been recognised by Natural England – is it now a Site of Special Scientific Interest (SSSI), notified in February 2005.

Further information

All of a Buzz in the Thames Gateway project (Natural England, Buglife and Wildlife Trusts)
Inventory of brownfield sites in the Thames that are important for invertebrates. Contact Pete Massini at Natural England, London offices or Jamie Roberts at Buglife.

www.buglife.org.uk (Canvey Island Rain Forest article)

www.livingroofs.org (green and brown roofs)

Legislation

The legislation concerned with planning and wildlife is very complex and achieved by a combination of the provisions of the

- Habitat Regulations 1994
- Wildlife and Countryside Act 1981
- Countryside and Rights of Way Act 2000, and
- Legislation specific to particular species.
- Natural Environment and Rural Communities Act 2006 s.(40)

The last of these requires that: *Every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity.* This requirement applies to all Local Authorities.

Guidance on how to operate the legislation is now provided in Planning Policy Statement 9 Biodiversity and Geological conservation, and a Guide to Good Practice March 2006, which can both be found at

<http://www.communities.gov.uk/index.asp?id=1143832>

An accompanying circular ODPM circular 06/2005 provides administrative guidance on the application of the law relating to planning and nature conservation, which can be found at

<http://www.communities.gov.uk/index.asp?id=1144318>

UK Policy and Guidance

The planning system has a critical role in supporting the Government's wider environmental objectives, including biodiversity goals set out in *Biodiversity: The UK Action Plan* (DoE, 1994) and *Working with the grain of nature – the biodiversity strategy for England* (Defra, 2002). The statutory development plan provides the basis for all planning decisions and plays a key role in protecting species and habitats as well as enhancing and creating habitats. The Planning and Compulsory Act 2004 has introduced a new development planning system.

The Development Plan

The development plan consists of the regional Spatial Strategies prepared by the East of England Regional planning body; and development plan documents prepared by district council, unitary authorities and, in the case of minerals and waste development plan documents, by the County Council.

Local Development Frameworks

Local Development Frameworks is the term used for the portfolio of local development documents which together deliver the spatial planning strategy for the local planning authority's area. Local Development Frameworks should include the following development plan documents – the core strategy; site specific allocations of land; and area action plans (where needed). Generic

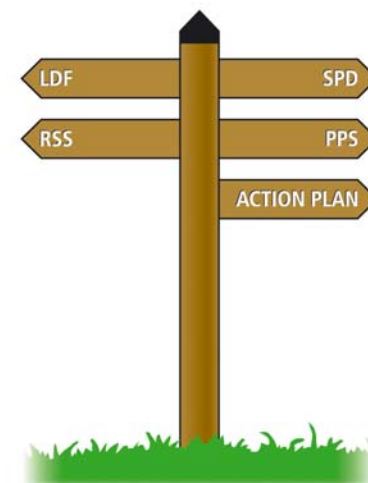
Development Control policies will be either a separate development plan document or included in the core strategy. A strategy. A proposals map illustrating the spatial extent of policies will accompany all development plan documents.

Supplementary Planning Documents

Supplementary Planning Documents will form part of the local development framework. They are not part of the statutory development plan and therefore are not subject to independent examination. However, they should be subject to rigorous procedures of community involvement and Sustainability Appraisal and Strategic Environmental Assessment (if appropriate)

Transitional Arrangements

Adopted structure and local plans and unitary development plan will retain



development plan status and will automatically become 'saved' policies for a period of three years. During the three year period local planning authorities will bring forward the local development documents to replace saved policies.

Regional Spatial Strategies

The existing regional strategy for Essex is 'saved' RPG9 – South East. This will be superseded by RSS14 – Regional Spatial Strategy for the East of England. RSS14 will set out a strategy to guide development in the East of England for the next 20 years. A number of the policies in RSS14 will address the aims set out in The Regional Environment Strategy, Our Environment, Our Future (July, 2003).

National Planning Guidance

National planning guidance for biodiversity is currently set out in Planning Policy Guidance Note 9, *Nature Conservation*. This along with other PPGs is currently under revision. The revised PPGs are known as Planning Policy Statements (PPS). PPS 9 *Biodiversity and Geological Conservation* will be accompanied with a Circular setting out statutory provision and a Best Practice Guide. The aim of PPS 9 is to ensure that policies in regional spatial strategies and local development documents are in line with the Government's broader policy objectives for biodiversity.

Biodiversity conservation – statutory obligations

Biodiversity and the Planning system

Planning Tier	Old	New
National	<p>Planning Policy Guidance (PPGs)</p> <p>Planning Policy Guidance Note 9 1994 (PPG9) – detailed guidance on the treatment of nature conservation in planning</p> <p>Other PPGs have indirect impacts on wildlife biodiversity interests such as PPG2 (Green Belt), PPG3 (Housing), PPG17 (Sport), PPG16 (Archaeology and Planning), PPG21 (Tourism)</p>	<p>Planning Policy Statements (PPSs)</p> <p>Planning Policy Statement 9 – Biodiversity and Geological Conservation</p> <p>Circular 06/2005</p> <p>Planning for Biodiversity & Geological Conservation. A Guide to Good Practice March 2006</p>
Regional	<p>Regional Planning Guidance (RPGs)</p> <p>RPG14 – Ch9 Environmental Resources (Policies ENV1, ENV2, ENV3)</p>	<p>Regional Spatial Strategy (RSS)</p> <p>RSS's should incorporate regional and sub-regional biodiversity objectives (see PPS 9)</p>
County	<p>Structure Plan/ UDP (Essex & Southend on Sea replacement structure plan)</p> <p>Part 1 Minerals Local Plan</p> <p>Waste Local Plan</p>	<p>Minerals and waste development frameworks</p>
District/Unitary	<p>Local plan/UDP Part 2</p>	<p>Local Development Framework (LDF)</p> <p>Local Development Documents (LDDs) should include biodiversity objectives reflecting both national and local priorities (see PPS 9)</p>
Local		<p>Action Plans</p> <p>Area action plans set out the framework for areas where significant change or conservation is needed</p> <p>Area Action Plans should incorporate policies and proposals for action which ensure the potential impacts of planning decisions on biodiversity are fully considered</p>

The draft Government Circular: *Biodiversity and Geological Conservation – Statutory Obligations and their impact within the Planning System* released for consultation in September 2004 provides a comprehensive summary of all such legislation.

http://www.odpm.gov.uk/stellent/groups/odpm_planning/documents/page/odpm_plan_030967.pdf

This circular is to be issued jointly by the Office of the Deputy Prime Minister (ODPM) and the Department for Environment, Food, and Rural Affairs (Defra). It will support PPS9 – *Biodiversity and Geological Conservation* which is being issued for public consultation at the same time. The final version of these documents, together with good practice guidance yet to be published, will eventually replace Planning Policy Guidance note 9 on Nature Conservation, published in 1994.

The new planning system will be implemented on a rolling programme by LPAs, with Local Development Documents agreed and adopted before May 2007. The draft *Regional Spatial Strategy for the East of England* (RSS14) is already in progress, with publication expected in late 2006, after further public consultation.

Designing for biodiversity

There is often a requirement as part of a development to provide areas of public open space or recreation. Combining the needs of local people with the desire to enhance biodiversity can result in attractive areas full of wildlife.

Wherever landscaping or amenity planting takes place, think of enhancing the biodiversity as well as the visual value. The two need not be discrete. Places for wildlife need not be wild and unkempt. Neither do the species need be native. Use non-native plants to increase flowering time so providing nectar for insects over a long period of time – see **Chelsea Garden**.

Erect artificial structures such as bird and bat boxes on extensions or in new buildings. Make gardens beneficial to wildlife.

1 Connections

The diagram should cover an area approximately 500m radius around the site.

Show:

- Wildlife designations of surrounding land
- Biodiversity Action Plan Habitats – UK/Essex/authority
- Water features
- Woodland and trees
- Hedges and shrubs
- Grassland
- Buildings
- Location of protected species
- Green corridors
- Footpaths and cycleways

Purpose

Indicates the ecological linkages into the surrounding area, and features which need to be protected, or used as the base for an enhancement scheme. Plants and animals use buildings as their habitat, as well as open landscape.

These factors will influence the form and layout of the new development.

[Chelsea Garden](#)
[Case studies](#)
[UK BAP species and habitats](#)

[East of England BAP species and habitats](#)
[Essex BAP species and habitats](#)
[Local authority BAP forums](#)

2 Site features

The plan should cover the whole development site (including land in other ownerships, or for later phases) and immediately adjoining sites.

Show:

- Topography
- Open spaces
- Woodland
- Water features
- Existing buildings
- Trees
- Hedges and shrubs
- Wildlife/Ecology
- Microclimate
- Adjoining property boundaries
- Adjoining buildings/uses

Purpose

Indicates whether surrounding landscape features may influence the layout of new buildings.

Indicates natural and built features within the site and ecological interest that may affect the choice of layout of new development and offer opportunity for enhancement or creation.

Indicates the nature of adjoining private sites and public spaces which may sway the choice of layout of the proposed development.

3 Potential

- Protect – what currently exists
- Mitigate – lessen the impact
- Compensate – make good unavoidable losses
- Enhance and create – habitat in developments
- After planning permission is granted – monitor and manage

Purpose

Even where there is no significant habitat or protected species present on a site biodiversity is still an important consideration. All new development will be expected to enhance biodiversity and create habitat where possible.

The 10 **Case Studies** within this Guidance explore how biodiversity can be designed into 10 different types of development thought pertinent to Essex, Southend and Thurrock.

Why do we need regional biodiversity targets?

A great deal of work has taken place across the country since 1994 to meet both national and local targets. However, until recently the UK targets were not sub-divided and Local Plan targets inevitably reflect **local** priorities. We need to join the national to the local.

As 2010 looms, organisations need more information on how to meet Biodiversity Targets and where to concentrate effort. Local BAPs remain the primary mechanism for achieving the UK BAP Targets, and the regional targets are not intended to replace local targets, but they do form a transparent and comparable link to the UK targets.

Regional Biodiversity Targets form an important component of the Sustainable Development Framework and the Regional Environment Strategy key action to “Implement Biodiversity Action Plans to enhance the region’s biodiversity.”

How will the regional targets be used?

Regional habitat biodiversity targets should be used by:

- Regional decision makers by influencing policy delivered via regional strategies, such as the Regional Spatial Strategy (Regional Planning Guidance 14), the



Regional Economic Strategy, the Regional Environmental Strategy and the Regional Woodland Strategy. These strategies all sit within the East of England Sustainable Development Framework and will increasingly be brought together within the Regional Assembly’s Integrated Regional Strategy.

- Local Authorities, who have a duty under the Local Government Act 2000 to promote the environmental, social and economic well-being of their areas. Local authority planning for biodiversity should be firmly linked into Community Strategies to provide a

framework to ensure biodiversity is embedded into all activities.

- Environmental organisations and land owners and managers, to assess their contribution to biodiversity to help make the East of England a place in which wildlife can thrive, thus helping to improve the quality of life for those who live in, work in or visit the region.

The targets will be subjected to review by the Regional Biodiversity Forum, in association with the East of England Environment Forum, to ensure continued contribution to the overall UK targets.

How have the regional targets been assembled?

English Nature have identified the contribution of each “Natural Area” to the national targets. Natural Areas are sub-divisions of England, each with a characteristic association of wildlife and natural features. They provide a way of interpreting the ecological variations of the country in terms of natural features, illustrating the distinctions between one area and another. However, Natural Areas do not correspond to regional or county boundaries. The boundaries on the maps in the centre pages are the Natural Areas for the region.

The East of England Biodiversity Forum has carried out an audit of Local

Biodiversity Action Plans and has compiled all the various targets. Each county has tended to create its own unique set of Plans and Targets, which do not always relate to the same features or units, so some judgement has been employed.

Reviewing the “top down” national targets and the “bottom up” local targets, the East of England Biodiversity Forum has agreed a set of priority Regional Habitat Biodiversity Targets. This has required the input of a number of experts and has needed to take on board local understanding as well as high level aspirations. Because of the number and variety of local plans, it has been necessary to group habitats into broad descriptions.



Who has published this leaflet?

The regional targets have been agreed by the East of England Biodiversity Forum, a group of organisations “working together to promote the conservation and enhancement of the wealth of wildlife within the East of England.”

The East of England Biodiversity Forum has four central aims:

- 1 To provide a regional forum of expertise on biodiversity issues.
- 2 To ensure that biodiversity issues are integrated within regional structures and initiatives.
- 3 To provide a regional network for biodiversity issues and initiatives.
- 4 To act as a regional focus for national and local biodiversity issues.

East of England Biodiversity Forum

The **East of England Biodiversity Forum** is comprised of the Bedfordshire, Cambridgeshire & Peterborough, Essex, Hertfordshire, Norfolk and Suffolk Local Biodiversity Partnerships; Anglian Water; Countryside Agency; Department for Environment, Farming and Rural Affairs; East of England Biological Record Centre Forum; East of England Environment Forum; East of England Regional Assembly; English Nature; Farming and Wildlife Advisory Group; Forestry Commission; Government Office for the East of England; National Farmers Union; Royal Society for the Protection of Birds; and the Wildlife Trusts.

Photographic credits: Environment Agency, Forest Life Picture Library, Hertfordshire Biological Records Centre, Royal Society for the Protection of Birds and Steve Scott. Funding for this leaflet contributed by English Nature & the Environment Agency. Text © East of England Biodiversity Forum, May 2004. This leaflet has been printed on paper sourced from sustainably managed forests.

eastofenglandbiodiversityforum

For further information please contact East of England Biodiversity Forum Secretariat at: Government Office for the East of England, SDAT, Eastbrook, Shaffesbury Road, Cambridge, CB2 2DF email: jaigby.go-east@go-regions.gsi.gov.uk www.eastspace.net/biodiversity

The East of England Regional Habitat Biodiversity Targets

This leaflet details the Regional Habitat Biodiversity Targets for the East of England. It is aimed at decision-makers in regional and local government, at environmental organisations, and at land owners and managers and provides information for all those with an interest in delivering biodiversity in the region. The targets will influence policy and delivery, focussing the priorities and funding for the region.

What is biodiversity?

Biodiversity is the variety of life forms we see around us. It encompasses the whole range of mammals, birds, reptiles, amphibians, fish, insects and other invertebrates, plants, fungi, and micro-organisms which together form their natural habitats. Biodiversity is a key indicator of sustainable development.



What are biodiversity targets?

In June 1992 the Convention of Biological Diversity was signed by 159 governments at the Rio de Janeiro “Earth Summit”. It was the first treaty to provide a legal framework for biodiversity conservation. It called for the creation and enforcement of national strategies and action plans to conserve, protect and enhance biological diversity. In response, the UK government launched *Biodiversity: the UK Action Plan* in 1994. The UK Biodiversity Steering Group has published 436 Biodiversity Action Plans: 391 Species Action Plans and 45 Habitat Action Plans.

The Habitat Action Plans (HAPs) contain measurable UK targets to maintain, restore or create habitat, usually by 2010. A series of Local Biodiversity



Action Plans, usually at a county level, also exist. Local BAPs are a proven mechanism for focusing resources by means of local partnerships to conserve and enhance national and local biodiversity. These too have targets associated with them.

Many organisations now have these targets at the heart of their activity and the status of the targets has grown in importance.



The East of England priority habitat biodiversity targets



Lowland grass and Heath

UK HAPs included: lowland calcareous grassland, lowland dry acid grassland, lowland meadows, coastal and floodplain grazing marsh, and lowland heath

Maintain: 100% of existing resource
Restore: 100% in sympathetic management by 2010
Create: 2385 ha by 2010



Hedges

UK HAPs included: ancient and/or species rich hedgerows

Maintain: No loss of existing overall resource
Restore: 100% in sympathetic management by 2010
Create: 200km by 2010



Semi-natural woodland

UK HAPs included: lowland wood-pasture and parkland, lowland mixed deciduous woodland (most ancient woodland) and wet woodland¹.

Maintain: 100% of existing resource
Restore: 1700 ha by 2010
Create: 1400ha by 2010

¹ Note that this target does not include lowland beech and yew woodland. Climate change evidence for the East of England indicates that beech will be 'unsuitable' across much of the region.



Coastal

UK HAPs included: coastal saltmarsh, coastal sand dunes, coastal vegetated shingle, maritime cliffs and slopes, mudflats, saline lagoons, and sublittoral sands and gravels

Maintain: 100% of existing resource but allowing dynamic natural processes
Restore: 100% in sympathetic management
Create: 2300 ha by 2010



Note on priority habitats and Natural Areas

The habitats detailed on these pages are those considered to be priorities for the region to help achieve UK BAP targets. The Natural Areas highlighted are representative of the resource, but do not indicate where all of the resource is. This does not devalue local biodiversity priorities; **we need to improve biodiversity everywhere.** Many of the Natural Areas extend beyond the region and the majority of a particular habitat may be contained within other regions.

Target definitions

Maintain habitat.

Ensure that is no further loss in current habitat resource and quality, and that the physical processes required to maintain the habitat are operating.

Restore habitat.

Restore those areas of habitat which are degraded in quality to good condition, through positive management or the cessation of damaging practices.

Create habitat.

Increase the area of the habitat beyond its current extent. This includes the creation of lost habitat in areas where it formerly occurred. Wherever possible, habitat expansion should aim to link or extend existing areas of that particular habitat type.

www.eastspace.net/biodiversity



Reed beds and Fens

UK HAPs included: fens, reedbeds and lowland raised bogs

Maintain: 100% of existing resource but allowing dynamic natural processes
Restore: Identify key potential sites, from LBAPS
Create: 20,000 ha by 2010



Arable, Cereal Margins

UK HAPs included: cereal field margins

Maintain: No loss of overall resource
Restore: -
Create: 3500ha by 2010



East of England Biodiversity Audit

An East of England Biodiversity Audit was commissioned by the East of England Biodiversity Forum with the aim to better understand and illustrate the extent and distribution of UK Biodiversity Action Plan priority habitats and species within the East of England.

This was produced in October 2002 and gives a snapshot assessment of our biodiversity resource and their common threats. It will form the basis of further work by the Forum on the appropriateness of regional BAP targets and the prioritisation for BAP implementation.

There is no plan to publish the audit, but it can be viewed on-line at the regional observatory:

<http://www.eastofenglandobservatory.org.uk>

Regional Habitat Targets

The East of England Biodiversity Forum is distributing a leaflet highlighting the East of England Biodiversity Habitat Targets.

It is aimed at decision makers in regional and local government, at environmental organisations, land owners and land managers and provides information to all those with an interest in delivering biodiversity in the region.

The targets will influence policy and delivery, focussing the priorities and funding for the region.

[regional habitat targets](#)

Ecological consultants

Who should I commission for Ecological Surveys?

This section of the Biodiversity Guidance is unable to make individual recommendations on the choice of ecological consultants. The Institute of Ecology and Environmental Management (IEEM, <http://www.ieem.org.uk/>) is one of the main bodies in the UK to promote good practice and professionalism in ecology – membership of this organisation is a good indication that the person is suitably qualified to carry out ecological surveys to a high standard of competence.

One of the most efficient ways of searching for an ecologist is through the Internet. The following two websites give searchable directories of ecological consultants in the UK:

Environment Business Directory

e-mail: ebd@ifi.co.uk
tel: 0207 654 7100
<http://www.ifi.co.uk>

Environmental Consultants Directory

e-mail: post@ends.co.uk
tel: 0207 814 5300
<http://www.endsdirectory.com/search>

The following listing is an example of the environmental consultancies offering ecological survey work and mitigation/management advice in southern England. It is not an exhaustive list, nor is it endorsed by Essex Biodiversity Project.

Consultancy	Telephone	Address
East Anglia		
Atkins Consultants Ltd	01223 276002	Wellbrook Court, Girton Road, Cambridge CB3 0NA (alan.graham@atkinsglobal.com)
Carpenter Planning Consultants	01603 229400	1 Ferry House, Norwich, Norfolk NR1 1SW (gdavies@bidwells.co.uk)
Carter Jonas	01223 368771	6-8 Hills Road, Cambridge CB2 1NH (andrew.blackwell@carterjonas.co.uk)
Essex Ecology Services Ltd (EECOS)	01621 862986	Abbotts Hall Farm, Great Wigborough, Colchester, Essex CO5 7RZ (adrian.k@essexwt.org.uk)
Landscape Partnership	01394 380509	Ancient Mews House, Church Street, Woodbridge, Suffolk IP12 1DH (tjp@woodbridge.tjp.uk.com)
Liz Lake Associates	01279 647044	William Robinson Buildings, Woodfield Terrace, Stansted Mountfitchet, Essex CM24 8AJ (office@lizlake.com)
M and G Ecology	01621 742669	The Forge, Mundon, Maldon, Essex CM9 6PB
London		
Arup	0207 636 1531	13 Fitzroy Street, London W1T 4BQ (paul.jarvis@arup.com)
Atkins Consultants Ltd	0207 121 2363	Euston Tower, 26th Floor, Euston Road, London NW1 3AT (john.barker@atkinsglobal.com)
BDP Planning	0207 812 8000	16 Brewhouse Yard, London EC1V 4LJ (t-o'neil@bdp.co.uk)
Ecology Consultancy	0207 326 0007	PO Box 13313, London SW2 2ZR (enquiry@ecologyconsultancy.co.uk)
Entec UK Ltd	0207 843 1400	17 Angel Gate, London EC1V 2SH (granp@entecuk.co.uk)
Enviros	0207 421 6340	22-23 Greville Street, London EC1N 8SS (katherine.briggs@enviros.com)
Halcrow Group	0207 348 3096	Vineyard House, 44 Brook Green, Hammersmith, London W6 7BY
Hyder Consulting (UK) Ltd	0207 316 6000	29 Bressenden Place, London SW1E 5DZ (david.wilson@hyderconsulting.com)
Land Use Consultants	0207 383 5784	43 Charlton Street, London NW1 1JD (graham_j@london.landuse.co.uk)
Landscape Partnership	0207 515 4188	149 Cannon Workshops, Cannon Drive, West India Docks, London E14 4AS (tjp@london.tjp.uk.com)

Philip Cave Associates	0207 829 8340	5 Dryden Street, Covent Garden, London WC2E 9NB (principal@philipcave.com)
Scott Wilson	0207 798 5000	8 Greencoat Place, London SW19 1PL (martin.herbert@scottwilson.com)
Tellus 42	0208 691 4128	8 Ashburnham Grove, Greenwich, London SE10 8UH (regeneration@talk21.com)
URS Corporation Ltd	0208 944 3527	St George's House, 5 St George's Road, Wimbledon, London SW19 4DR (ian-charie@urscorp.com)
South East		
Applied Environmental Research Centre Ltd	01376 572582	Tey Grove, Elm Lane, Feering, Colchester, Essex CO5 9ES (aerc@aerc.co.uk)
Atkins Consultants Ltd	01372 756846	Woodcote Grove, Ashley Road, Epsom, Surrey KT18 5BW (paul.white@atkinsglobal.com)
Bishop Consultancy Ltd	01622 820775	Grove Barn, Grove Lane, Hunton, Maidstone, Kent ME15 0SE (abihopcon@aol.com)
Carpenter Planning Consultants	01245 250998	Mansard House, 107-109 New London Road, Chelmsford, Essex CM2 0PP (lmelin@bidwells.co.uk)
Chris Blandford Associates	01825 891071	The Old Crown, High Street, Blackboys, Uckfield, East Sussex TN22 5JR (dwatkins@cba.uk.net)
David Huskisson Associates	01892 527828	17 Upper Grosvenor Road, Tunbridge Wells, Kent TN1 2DU (dha@dha-landscape.co.uk)
David Lane Associates Ltd	01727 850907	3 College Street, St Albans, Herts AL3 4PW (admin@dlatownplan.com)
Entec UK Ltd	0118 903 6619	Atlantic House, Imperial Way, Reading, Berks RG2 0TD (hamib@entecuk.co.uk)
Hankinson Duckett Associates	01491 872185	Landscape Studio, Reading Road, Lower Basildon, Berks RG8 3NE (consult@hda-enviro.co.uk)
Henry Smith	01403 282510	50 Carfax, Horsham, West Sussex RH12 1BP (property@henrysmith.co.uk)
Judith Norris Ltd	01580 753672	Well Ho Farm Office, Potters Lane, Hawkhurst, Kent TW13 5BB (judith@judithnorris.co.uk)
Landscape Planning (South) Ltd	01206 752539	Unit 9, The Courtyards, Phoenix Square, Wyncolls Road, Colchester, Essex CO4 9PE
LDA Design	01865 887050	Worton Rectory Park, Worton, Cassington, Witney, Oxfordshire OX29 4SX

Mott MacDonald	0208 774 2723	St Anne House, Wellesley Road, Croydon, Surrey CR9 2UL (david.simpson@mottmac.com)
Reading Agricultural Consultants	01235 851515	Races Farm, Aston Tirrold, Oxfordshire OX11 9DJ (rac@racesfarm.demon.co.uk)
Robert Shaw Planning: Vail Williams	01483 572915	Robert Shaw House, 81 Portsmouth Road, Guildford, Surrey GU2 5BB (agrant@vailwilliams.com)
Robert Stebbings Consultancy Ltd	01733 340318	91 Thorpe Road, Peterborough PE3 6JQ
RPS	0800 587 9939	Mallens Court, 18 Milton Park, Abingdon, Oxfordshire OX14 4RP
Scott Wilson	01235 849710	3 Foxcombe Court, Wyndyke Furlong, Abingdon, Oxfordshire OX14 1DZ (paul.connelly@scotwilson.com)
Stats Ltd	01727 833261	Porterswood House, Porters Wood, St Albans, Herts AL3 6PQ (info@stats.co.uk)
Temple Environmental Consultants Ltd	0118 971 4339	Unit F, Fronds Park, Fronds Lane, Aldermaston, Reading, Berks RG7 4LH (graham.parry@btconnect.com)
Tony Thorpe Associates	0118 942 1855	The Studio, Durant Way, Tilehurst, Reading, Berks RG31 6TR (tony.thorpe@dsl.pipex.com)

Essex BAP species and habitats

By 1995 The UK Biodiversity Steering Group had published action plans for many species and habitats detailing how they were to be protected, sustained and increased.

It is, however, as a result of local action that species and habitats are ultimately conserved or lost. Therefore if many of the national action plans are to be implemented successfully much work has to take place at a local level and Essex is no exception.

There was therefore a real need for Essex to produce its own Biodiversity Action Plan. The Essex BAP, as it is now referred to, was published in 1999 and currently contains action plans for 25 species and 10 habitats.

Each action plan in the Essex BAP is much more detailed than the national plans with specific and focused objectives concentrating on those species and habitats that are confined to, or are characteristic of Essex, as well as those that have declined regionally, nationally or globally. It is only the successful implementation of the EBAP that will ensure that we maintain our rich variety of life in the county.

Plants:

Black poplar
Hog's fennel
Oxlip

Habitats:

Hedgerows
Ancient woodland
Cereal field margin
Coastal grazing marsh
Seagrass beds
Heathland
Old orchards
Reedbeds
Saline lagoons
Urban areas

Mammals:

Brown hare
Dormouse
Harbour Porpoise
Otter
Pipistrelle bat
Water vole

Birds:

Bittern
Grey Partridge
Skylark
Song Thrush
Stone Curlew

Other vertebrates:

Great Crested Newt
Allis and Twaite shad

Invertebrates:

Bright wave moth
Desmoulin's whorl snail
Fisher's estuarine moth
Heath fritillary
Hornet robberfly
Shining ramshorn snail
Shrill carder bee
Stag beetle
White clawed crayfish

Visit the Essex Biodiversity Project's website <http://www.essexbiodiversity.org.uk> to view the action plan and find out more. Open the download window to save an off-line copy of the Action Plan.

Alternatively, the Essex BAP can be obtained from public libraries, or a ring binder document containing all the plans can be purchased from Essex County Council.

Essex district BAP forums

Much biodiversity information is available, and hard work taking place at the local level.

Many local authorities have their own biodiversity forums or discuss biodiversity action at their wildlife or nature conservation forums.

A number of these also have their own Biodiversity Action Plans.

Local authority	Contact details	BAP status	Flagship species
Basildon	Marcus Hotten Basildon District Council Countryside Officer Wat Tyler Country Park, Pitsea	Basildon Wildlife & Countryside Forum meets regularly and deals with biodiversity issues. BAP to be published in 2005.	Devil's-bit scabious, Green-winged orchid, Dormouse, Scarce emerald damselfly, Barn owl.
Braintree	Melvyn Crow Braintree District Council	Braintree Wildlife Advisory Group meets regularly.	Black poplar, Skylark, Speckled wood butterfly, Sulphur clover, Otter.
Brentwood	Dave Bigden Brentwood Borough Council Countryside Manager Brentwood Borough Council Town Hall, Ingrave Road, Brentwood CM15 8AY		Hornbeam, Kingfisher, Water vole, Heather, Orange fox-tail, Wood ants.
Castle Point	Castle Point BC Kiln Road, Thundersley Benfleet, Essex SS7 1TF	Biodiversity criteria incorporated into County Wildlife Sites review in 2003.	Wild service tree, Dormouse, Hartwort, Bearded tit, Great crested newt, Marbled white butterfly, Heath fritillary butterfly
Chelmsford	Luke Bennett Chelmsford Borough Council Corporate Strategy Officer Chelmsford BC, Civic Centre, Duke Street, Chelmsford, Essex CM1 1JE	Chelmsford Biodiversity Forum meets regularly. Published BAP available on Chelmsford Borough Council website.	Song thrush, Water vole, Great crested newt, White Admiral butterfly, Common spotted orchid.
Colchester	Jerry Bowdrey Colchester Borough Council Curator of Natural history Colchester Museum 14 Ryegate Road, Colchester CO1 1YG	Colchester Biodiversity Steering Group meets regularly. Colchester BAP available.	Beautiful demoiselle, Great crested newt, Sea holly, Stag beetle, Lesser Calamint.

Local authority	Contact details	BAP status	Flagship species
Epping Forest	Paul Hewitt Epping Forest Countrycare Civic Offices, High Street, Epping CM16 4BZ		Tree pipit, Stag beetle, Cowslip, Ancient trees, Wild service tree, Skylark, Yellowhammer, Great crested newt.
Essex County Council	Emma Simmonds Countryside & Ecology Officer Essex County Council, County Hall Chelmsford, Essex CM1 1LF	A number of PSA targets relating to biodiversity. Support of county BAP through the Essex Biodiversity Project.	
Harlow	Darren Fazackerley Harlow District Council Mead Park Depot, Riverway, Harlow CM20 2SE Andrew Tomlins Harlow Biodiversity partnership	Harlow Biodiversity partnership meets regularly.	
London Borough of Havering	London Borough of Havering Mercury House, Mercury Gardens Romford RM1 3RX	Havering Wildlife Partnership meets regularly. Havering BAP available.	
Maldon	Peter Garrett Maldon district council Countryside & Coasts Manager Maldon DC Princes Road, Maldon, Essex CM9 5DL	Maldon Wildlife Liaison Group meets regularly. Maldon BAP published.	Shrubby sea-blight, Reed bunting, Common seal, Elm, Ground lackey moth, Grey partridge.
Rochford	Rochford District Council Council Offices, South Street, Rochford SS4 1BW		Heath fritillary, common cow wheat, Hornbeam, Wild service tree.
Southend	Paul Terry Southend Borough Council Environmental Officer Southend on Sea BC Civic Centre, Victoria Avenue Southend on Sea SS2 6ER	Biodiversity and Environmental Awareness Working Party meet regularly. Published BAP available from Southend BC's website.	Dark-bellied brent goose, Deptford pink, Marbled white butterfly, Water vole.

Local authority	Contact details	BAP status	Flagship species
Tendring	Tendring District Council Council Offices, Weeley, Essex CO16 9AJ		Corn bunting, Sand martin, Ringed plover, White admiral butterfly, Marsh mallow.
Thurrock	Thurrock Council Civic Offices, New Road, Grays RM17 6SL	Thurrock Biodiversity Advisory Group meet regularly. Draft BAP written.	
Uttlesford	Sarah Nicholas Uttlesford District Council Council Offices, London Road Saffron Walden CB11 4ER	Uttlesford Nature Conservation Working Group meets regularly. Annual action plans for biodiversity produced.	

The Essex Landscape

The Boulder Clay Plateau

The Chalk

The Bagshot Hills and Former Heathlands

The London Clay

The Tendring Loams

The South East Essex Hills

The Thames Terraces

The Marshes

In Essex the traditional landscape character is of arable fields interspersed with small woods, hedgerows, ditches and lanes. There are variations of landscape character with soil type which is mainly a matter of landscape history and land use rather than plant species. In many places agricultural intensification and the loss of elms has resulted in a deterioration of traditional landscape quality. Road verges provide an opportunity to add a further network of vegetation and it is important that planting fits the existing landscape character in terms of both species and form.

Field boundaries contain hedgerow trees, standards and pollards. In more fertile areas field sizes have been enlarged this century and new hedges need to be established to recreate traditional landscape character. Woodland generally small scale and traditionally managed as coppice with standard trees grown for larger timber. The local tradition is for hedgerows to be coppiced rather than laid.

Regional landscape character within Essex

Eight regions have been identified of a general geomorphological, historical and landscape character. Generalisations are inevitable and exceptions within regions are equally inevitable and must be borne in mind. It is considered however that a degree of simplification is necessary in coming to terms with the marked differences that occur regionally in Essex.

The regions are:

1 The Boulder Clay Plateau

This region comprises at least one third of Essex and consists of a thick till of chalky clay soils left behind by the Anglian phase of the Ice Age (c.250,000 BC). The plateau is dissected by numerous rivers and rills, and sprinkled with spring lines all of which formed the basis for scattered settlement of villages, greens, hamlets and farms. The soils are a rich, crop producing resource appreciated as far back as the Iron Age when Cunobelin, King of the Trinovantes, depicted an ear of bearded wheat on his coinage.

Villa estates abounded in the Roman period and with the revival in trade and the growth of London in the Middle Ages it long remained a prosperous farming area until the agricultural depressions set in towards the end of the last century. The farming changes following the Agriculture Acts of the early 1950s brought a return of prosperity, but the haste and reductionist aims of agricultural improvement wrought extensive damage to the fabric of the landscape. Factors other than "improvement" were not then a part of national thinking or policy. As a result there is considerable variety in the landscape quality even within a parish. A farm where changes were handled with sensitivity may adjoin one reduced to a prairie with every hedge and tree eliminated, though perhaps retaining a woodland protected by a Tree Preservation Order.

Landscape features such as roads, lanes and field boundaries relate to topography and soil type, and fit the landscape in a way that planned landscapes often may not. The pattern suggests change and evolution over a very long period of time. The wide range of trees and shrubs occurring on these soils assist hedgerow dating along the lines developed at Monks Wood. In studies of Bovingdon Hall, Bocking, 43.5 kilometres of hedgerow were carefully dated and showed that 12.8 kilometres appeared of Saxon or early medieval date (pre-1350) and 17.7 kilometres were late medieval or Tudor. It may be that hedges dated as Saxon are older still, but that the limitation of number of species available would not show an earlier origin. Observations of other areas on the boulder clay where hedges are plentiful also suggest a similar age pattern. This dictates that great care is needed in conservation work and in particular the creation of new features to ensure harmony with a landscape of considerable antiquity.

A traditional feature of this dissected plateau landscape is the apparent coalescence of trees and woods to create the illusion of continuous wooded skyline, with the farmed land of the foreground and middle distance appearing as the fertile land won from the primary wooded cover. This character has been much eroded and its restoration might be a long term aim.

2 The Chalk

The chalk which underlies the geology of Essex emerges in the extreme north-west to form an escarpment close to the Cambridgeshire border. This was traditionally open field country, largely enclosed late and still showing strip farming in some parishes as late as the Tithe Maps of the 1840s. Nevertheless, its farming history and pre-history is similar to that of the boulder clays, and there is a legacy of winding lanes and scattered ancient woods. The topography is rolling particularly in the Cam valley and its open character above flood plains should be maintained. The juncture of the chalk with the boulder clays is shown well in the large parish of Saffron Walden where the intimate landscape of the Cam valley floor gives way to open chalkland fields until reaching the clay plateau where it changes to ancient enclosed field patterns with species rich hedges and moated sites.

Typical species remain Ash, Oak and Hazel rather than those species more typical of other base rich soils in southern England.

3 The Bagshot Hills and Former Heathlands

A transition zone separates the boulder clay plateau from the lower levels of the London clay to the south-east, effectively bisecting the county roughly below the line of the Roman road from London to Colchester, now the A12. It stretches through several ridges – Epping Forest, Hainault, Thorndon, Galleywood, Danbury

The Boulder Clay Plateau

The Chalk

The Bagshot Hills and Former Heathlands

The London Clay

The Tendring Loams

The South East Essex Hills

The Thames Terraces

The Marshes

to Tiptree, mostly crowned with wooded areas, some ancient and some secondary on former common land. Much of this topography has been described by Jermyn as the "Bagshot Hills", the furthest limits of the glaciers and the southern boundary of the pre-glacial Thames. Northwards of Tiptree the wooded hills give way to the former heathlands shown by Chapman and Andre: A map of the County of Essex from an Actual Survey (1777) embracing the land east and north of Colchester as far as Dedham, on soils derived from glacial outwash and loams.

The wooded hills comprise some of the best landscapes in Essex and are high in wildlife carrying capacity and abundant in Sites of Special Scientific Interest (SSSI), nature reserves and country parks. The former heathlands, by contrast, are uninteresting in landscape terms with the straight lines and planned characteristics of late enclosure, although rich in archaeology.

On the former heathlands consideration could be given to the recreation of areas of heathland.

4 The London Clay

South and east of the Mid-Essex region lies the London clay, rising from the South Essex plain, stretching from Thurrock to Rochford, to the gently rising topography of the Dengie peninsula and the land to the north east of Maldon. It is the largest Essex region after the boulder clays but very different in character and history. It is inherently less fertile, lacking the chalk content, and its heavy nature has

traditionally made arable farming difficult leading to sparse settlement and an emphasis on pasture, and the general arable use today is recent in historical terms. A rich but relatively small area of brickearths occurs in Rochford but the landscape character remains similar. The proximity of the coast gave a ready access for sea-borne goods to markets as London grew, bringing a symbiosis; the coastal vessels evolving into the Thames and Blackwater barges brought produce to London and returned with "muck" to spread fertility on the clay fields and "inned" marshes.

The field patterns and boundaries of this region display the characteristics of early planned landscapes in marked contrast to the evolved landscape of the boulder clays. Arrangements of the fields follow a roughly rectilinear pattern except where crossed by main water courses; some abut boundaries stretching for several miles. Superficially they resemble the patterns of late enclosure (mid 18th to 19th century) as seen in the counties of the English Midlands or the North Essex heaths. But it is clear that they are ancient, probably Roman or even earlier. In time, an accumulation of archaeological evidence will enable them to be dated with more confidence as sites are studied and evaluated.

A characteristic of this region is the dominance of elm. For historical, pre-historical and biological reasons, elm is the dominant tree of the area providing both the shrub and tree content of hedgerows. The variety of species apparent on the calcareous soils does not occur and the

hedgerow dating on this basis is not applicable. The recent strain of Dutch Elm disease has virtually destroyed the once considerable population of standing trees in the farmed landscape. Life often continues in the suckering root structures of the hedgerows, but new growth tends to be re-infected once the growth becomes woody. This brings a dilemma for the landscape planner; on the one hand, should a regular coppice regime be maintained to preserve the elm hedges and await a mutation that will allow these interesting trees with extraordinary local variation to grow again into standard trees as appears to have happened in the past or, on the other hand, should the landscape be re-structured to provide amenity, interest and game cover on a shorter time scale? Over much of the area a balance is recommended; to maintain elm survival, particularly on the major boundary hedges, but also to plant in a way which respects the basic rectilinear character of the landscape pattern.

5 The Tendring Loams

The Tendring plateau is bounded by the magnificent drowned estuary of the Stour to the north, the Colne to the south, and the North Sea to the east. It has some delicate and beautiful creeks and small valleys, and some clusters of woodland (many ancient), but much of the plateau has an open, almost treeless character.

6 The South East Essex Hills

The Langdon and Hockley hills rise from the South Essex plain. Both are well wooded although much urbanised; at

Benfleet many woods are virtually hidden in the urban fabric.

7 The Thames Terraces

A series of gravel terraces abut the Thames estuary in the Grays Thurrock area. The landscape has suffered from a long history of mineral extraction, urban sprawl and Elm Disease and there is relatively little remaining of the historic landscape. The Thames Chase Community Forest Project promotes the establishment of new woodland particularly within this area.

8 The Marshes

Extensive areas on the coast are former marshlands, now productive arable land, but still known as the Essex Marshes. As the coast has slowly sunk (and continues to do so), sea walls have been built and raised, the land has been won and also lost to incursions. In the Middle Ages the marshlands teemed with sheep, there were few roads and transport tended to be by boat or barge. A quality of remoteness still persists in these flat, open landscapes with saltings, mud flats, sands and shingle beaches beyond the sea wall.

Hedgerows are absent and would be alien in this landscape; trees begin at the point where the marsh ceases and the land begins to rise. Trees were planted around the decoy ponds of which one, the Marshhouse is clearly viewed from St. Peters at Bradwell 4 kilometres away and stands like an oasis. At one time there were many more and perhaps some could be restored or re-created. It was only on these sites and around farmsteads that

The Boulder Clay Plateau

The Chalk

The Bagshot Hills and Former Heathlands

The London Clay

The Tendring Loams

The South East Essex Hills

The Thames Terraces

The Marshes

tree planting occurred. This character should be maintained and there should be no woodland, spinney or hedgerow planting.

Planning and landscape policy

Landscape is now enshrined as a primary design concern and a legitimate area of planning authority intervention. PPG1 in Annex A: para 5 – Design Considerations – states that the aim of design control should be that development results in a “benefit in environmental and landscape terms”.

In terms of general planning policy the principal of protecting the “natural beauty, amenity and traditional quality of the Essex Landscape” is fundamental (Structure Plan Policy NR 10). In addition, in the Dedham Vale ANOB “no development shall take place.. which conflicts with conservation of the area and measures for its management and enhancement (NR11).

In Special Landscape Areas the location, siting, design, materials and landscape treatment must be in keeping with the area in which the development is proposed (NR12). In Landscape Improvement Areas proposals will be expected to show that measures have been taken to help restore and enhance damaged landscapes (NR 13). The restoration of derelict land (NR13A), the use of native trees and shrubs (NR14), the protection of existing vegetation (NR15 and NR16) and the conservation of Protected Lanes are also important considerations. In landscape terms the

restrictions on development in the Coastal Protection Belt (NR18) are concerned with the effect on the open and rural character and wildlife.

With regard to nature conservation, any proposals which would adversely and materially affect National Nature Reserves and Sites of Special Scientific Interest will be refused (NR6). Any development prejudicial to the retention and management of important wildlife habitats and their inter-relationship will also normally be refused (NR8).

There are some sections of the Essex landscape where proposals will be unacceptable in landscape terms. Mostly proposals will be such that by careful design they can be incorporated into the landscape in such a way as they make a positive contribution to the landscape character of an area.

A CD of the ‘Essex Character Assessment (County Scale)’ can be obtained from the Electronic Information Service, Essex County Council, PO Box 11, County Hall, Chelmsford CM11 LX.

The Essex and Southend Replacement structure Plan is to be superseded by the Regional Spatial Strategy RSS14 *The East of England Plan*. Please refer to RSS14 for the latest guidance or policy information relating to landscape and associated issues, eg. renewable energy.

- ❑ **Durham Wildlife Trust**
Rainton Meadows, Chilton Moor, Houghton-le-Spring, DH4 6PU
- ❑ **Essex Wildlife Trust**
Abbotts Hall Farm, Great Wigborough, Colchester, CO5 7RZ
- ❑ **South & West Wales Wildlife Trust**
Fountain Road, Tondur, Bridgend, CF32 0EH
- ❑ **Gloucestershire Wildlife Trust**
Robinswood Hill Country Park, Reservoir Road, Gloucester, GL4 6SX
- ❑ **Gwent Wildlife Trust**
16 White Swan Court, Church Street, Monmouth, Gwent NP25 3NY
- ❑ **Hampshire & Isle of Wight Wildlife Trust**, Woodside House,
Woodside Road, Eastleigh, Hampshire, SO50 4ET
- ❑ **Herefordshire Nature Trust**
Lower House Farm, Ledbury Road, Tupsley, Hereford, HR1 1UT
- ❑ **Herts & Middlesex Wildlife Trust**
Grebe House, St Michael's Street, St Albans, AL3 4SN
- ❑ **The Isles of Scilly Wildlife Trust**
Carn Thomas, Strand, St Marys, Isles of Scilly TR21 0PT
- ❑ **Kent Wildlife Trust**, Tyland Barn, Sandling, Maidstone, ME14 3BD
- ❑ **Lancs, Manchester & North Merseyside Wildlife Trust**
The Barn, Darkeley Drive, Bamber Bridge, Preston, PR5 6BY
- ❑ **Leicestershire & Rutland Wildlife Trust**
Washbrook Lane, Oadby, Leics, LE2 5JJ
- ❑ **Lincolnshire Wildlife Trust**
Manor House Street, Horncastle, Lincs LN9 5HF
- ❑ **London Wildlife Trust**, 47-51 Great Suffolk Street, London SE1 0BS
- ❑ **Manx Wildlife Trust**, The Courtyard, Tynwald Mills, St Johns,
Isle of Man IM4 3AE
- ❑ **Montgomeryshire Wildlife Trust**
20 Severn Street, Welshpool, Powys SY21 7AD
- ❑ **Norfolk Wildlife Trust**, 22 Thorpe Road, Norwich NR1 1RY
- ❑ **Northumberland Wildlife Trust**, St Nicholas Park, Jubilee Road,
Newcastle upon Tyne, NE3 3XT
- ❑ **North Wales Wildlife Trust**, 376 High St, Bangor, Gwynedd, LL57 1YE
- ❑ **Nottinghamshire Wildlife Trust**
The Old Ragged School, Brook Street, Nottingham, NG1 1EA
- ❑ **Radnorshire Wildlife Trust**
Warwick House, High Street, Llandrindod Wells, Powys LD1 6AG
- ❑ **Scottish Wildlife Trust**
Cramond House, Kirk Cramond, Cramond Glebe Rd, Edinburgh, EH4 6NS
- ❑ **Sheffield Wildlife Trust**, 37 Stafford Road, Sheffield, S2 2SF
- ❑ **Shropshire Wildlife Trust**
193 Abbey Foregate, Shrewsbury, Shropshire SY2 6AH
- ❑ **Somerset Wildlife Trust**
Fyne Court, Broomfield, Bridgwater, TA5 2EQ
- ❑ **Staffordshire Wildlife Trust**
Wolseley Bridge, Nr Rugeley, Stafford, ST17 0WT
- ❑ **Suffolk Wildlife Trust**
The Green, Ashbocking, Nr Ipswich IP6 9JY
- ❑ **Surrey Wildlife**, Trust School Lane, Pirbright, Woking, GU24 0JN
- ❑ **Sussex Wildlife Trust**, Woods Mill, Shoreham Rd, Henfield, BN5 9SD
- ❑ **Tees Valley Wildlife Trust**
Kirkleatham Old Hall, Kirkleatham, Redcar, Cleveland, TS10 5NW
- ❑ **Ulster Wildlife Trust**, 3 New Line, Crossgar, Co. Down, BT30 9EP
- ❑ **Warwickshire Wildlife Trust**, Brandon Lane, Coventry, CV3 3GW
- ❑ **The Wildlife Trust of South & West Wales**
Welsh Wildlife Centre, Cilgerran, Cardigan, SA43 2TB
- ❑ **Wiltshire Wildlife Trust**
Elm Tree Court, Long Street, Devizes, SN10 1NJ
- ❑ **Worcestershire Wildlife Trust**
Lower Smithe Farm, Smithe Hill, Hindlip, Worcester, WR3 8SZ
- ❑ **Yorkshire Wildlife Trust**, 10 Toft Green, York, YO1 6JT

Climbing plants

These will give height and interest as well as shelter for birds and nectar and sunspots for insects.

Honeysuckle	<i>Lonicera periclymenum</i> 'Serotina'
Ivy	<i>Hedera helix</i>
Persian Ivy	<i>Hedera colchica</i> 'Dentata'

Trees and Shrubs

Honey locust	<i>Gleditsia triacanthos</i> 'Sunburst'
Guelder Rose	<i>Viburnum opulus</i> 'Nanum'
Roses	<i>Rosa</i> 'Roserie de la Hay', <i>Rosa</i> 'Cecile Brunner', <i>Rosa</i> 'Madame Gregoire Staechalin', <i>Rosa</i> 'White Cloud'
Azalea	<i>Azalea narcissiflorum</i>
Lavender	<i>Lavendula stoechas</i> 'James C'
Red berried Elder	<i>Sambucus racemosa</i> 'Plumosa Aurea'

Other good trees for a small garden:
birch, bird cherry, crab apple, holly,
rowan, hazel.

Other shrubs: alder buckthorn (food
plant of brimstone butterfly), broom,
buddleia, dogwood, spindle).

Grasses, sedges and ferns

Non aggressive plants in herbaceous
plantings:

Quaking grass	<i>Briza media</i>
Wood meadow grass	<i>Poa nemoralis</i>
Wood sedge	<i>Carex sylvatica</i>

Ferns at base of walls in shade:

Harts-tongue fern	<i>Phyllitis scolopendrium</i>
Male fern	<i>Dryopteris filix-mas</i>
Soft shield fern	<i>Polystichum setiferum</i>
Maidenhair spleenwort	<i>Asplenium trichomanes</i>

Herbaceous plants

The following are used in this garden and are designed to
give a variety of height and colour (mainly blues, pinks and
whites) throughout the year as well as nectar bearing
qualities for insects.

Alkanet	<i>Anchusa azurea</i> 'Dromore'
Allium	<i>Allium cristophii</i>
Arum lily	<i>Zantedeschia aethiopica</i>
Bistort	<i>Polygonum bistorta</i>
Brunnera	<i>Brunnera macrophylla</i> 'Dawson's White'
Bugle	<i>Ajuga reptans</i>
Cardoon	<i>Cynara cardunculus</i>
Chinese rhubarb	<i>Rheum palmatum</i> 'Atrosanguineum'
Clustered bellflower	<i>Campanula glomerata</i>

Columbine
Comfrey
Common daisy
Coral flower
Cornflower
Crane's bill
Crane's-bill
Dame's-violet
Early purple orchid
Fleabane
Foam flower
Foxglove
Heart's-ease
Hepatica
Iris
Italian lords and ladies

Lesser periwinkle
Masterwort
Mind-your-own-business
Mint
Musk mallow
Orchid primrose
Ox-eye chamomile
Ox-eye daisy
Persicaria
Pineapple mint

Aquilegia vulgaris 'Nivea'
Symphytum 'Goldsmith'
Bellis perennis
Heuchara 'Raspberry Regal'
Centaurea cyanus
Geranium sanguineum
Geranium 'Ann Folkard'
Hesperis matronalis
Orchis mascula
Erigeron karvinskianus
Tiarella wherryi
Digitalis purpurea 'Mixed'
Viola tricolor
Hepatica nobilis
Iris 'Jane Phillips'
Arum italicum ssp.
italicum marmoratum
Vinca minor 'La Grave'
Astrantia major
Soleirolia soleirolii
Mentha sp
Malva moschata
Primula vialii
Anthemis tinctoria 'E.C. Buxton'
Leucanthemum vulgare
Persicaria affinis
Mentha suaveolens 'Variegata'



Wildflower plantings in a wildlife garden in Billericay Essex
photo - John Hall

Plantain lily
Polypody

Quamash
Ragged Robin
Red campion
Rosebay willowherb
Scabious
Selfheal
Spreading bellflower
Stinging nettle
Thistle
Viper's-bugloss
Wallflower
White bellflower

Yellow flag

Hosta 'Halcyon'
Polypodium interjectum
'Cornubiense'
Camassia cusickii
Lychnis flos-cuculi
Silene dioica
Epilobium angustifolium
Nautia macedonica
Prunella vulgaris
Campanula patula
Urtica dioica
Cirsium rivulare 'Atropurpureum'
Echium vulgare
Erysimum 'Bowles' Mauve'
Campanula carpatica
'Bressingham White'
Iris pseudacorus (for large ponds only)

The Wildlife Trusts ask all gardeners:

- to protect wild plants and habitats in the countryside
- to use timber products from sustainable sources
e.g. certified FSC (Forestry Stewardship Council)
- to use alternatives to peat based compost
- to use alternatives to metaldehyde slug pellets and insecticides
- not to use wild dug plants such as bluebells and primroses
- not to use surface stripped limestone pavement rocks
- not to use invasive non-native plants such as Japanese
knotweed, Azolla waterfern, Swamp stonecrop.

Going to Chelsea Flower Show

RHS Chelsea Flower Show is sited in the grounds of
The Royal Hospital Chelsea, London.

It is a very busy event. Tickets must be booked in advance by
phoning 0870 906 3781. The Wildlife Trusts' Gateway Garden
will be on Serpentine Walk at Chelsea or you can see it on
BBC Television during Chelsea Flower Show and if you think
ours is one of the best gardens then vote for us in the *People's
Choice Award* either on interactive TV or the BBC website
www.bbc.co.uk/gardening

Stephen Hall lives in Brentwood Essex. He is
a garden designer with Giles Landscapes
of Welney. 2004 will be his third entry
at Chelsea Flower Show having won a
Bronze in 2002 and Silver in 2003.
Stephen trained as a garden designer
through Writtle College and University
of Greenwich. He gains inspiration
from Gertrude Jekyll and Christopher
Lloyd. His passion for wildlife has resulted
in his working with Essex Wildlife Trust.



Stephen Hall
photo - Daniel Bridge



UK Office
The Kiln, Waterside, Mather Road, NEWARK,
Nottinghamshire NG24 1WT
Telephone 01636 677711
Facsimile 01636 670001
Email enquiry@wildlife-trusts.cix.co.uk
Website www.wildlifetrusts.org

The Wildlife Trusts' Gateway Garden



Garden design Stephen Hall
Plants supplied Tomlins Nursery of Brentwood
Contractors Giles Landscapes of Welney
Sponsors Cory Environmental Trust in Thurrock
Produced by Essex Wildlife Trust for the
Royal Horticultural Society
Chelsea Flower Show 2004
www.essexwt.org.uk
www.rhs.org.uk/chelsea
Graphic design First Floor Design
design@ffd.demon.co.uk
Print 80% recycled paper
Jenner Print, Tiptree



The Wildlife Trusts Gateway Garden

Chelsea Flower Show 2004

...bringing wildlife
to your garden

Sponsored by



The Wildlife Trusts' Gateway Garden

Chelsea Flower Show 2004

We get great pleasure from the wildlife which visits our gardens. Many of us try to do what we can on our own patch to support the environment. All this effort is worth it. There are 15 million gardens in the UK adding up to two million acres. That is a massive and varied wildlife resource, particularly at a time when wild plants and animals are declining in the countryside.



Peacock butterfly. Adults feed on nectar and caterpillars on nettles, photo - David Corke

The Wildlife Trusts' Gateway Garden demonstrates ideas which homeowners could use when creating a garden, particularly where there is new build housing. Here you may begin with boundary walls and perhaps poor soils and unwelcome builder's rubble. Attractive and useful features such as the lych gate, trellis work, the pool and slab work path give the structure and, together with climbers and herbaceous planting, there will be interest and relaxation for you throughout the year.

Balanced with this are the strong environmental credentials with materials from sustainable sources, homemade compost and a wide range of wildlife gardening tips. We have used many native plants as well as cultivated varieties which are known to be attractive and good for wildlife. It is also important that children can learn in the garden to care for wildlife, hence many of the design features. With large numbers of new homes proposed across the country there are many ideas to take away and personalise for new homeowners.

Bat bricks and boxes

These slotted bricks can be built into walls to provide summer roosts or alternatively a wooden bat box can be attached to the wall, e.g. for pipistrelle bats.*



Bat box photo - Daniel Bridge



Wren pocket photo - Daniel Bridge

Bird nesting

Blue tits and nuthatches will use boxes with a 28mm hole, house sparrows and great tits 32mm. Robins will use half front boxes, wrens the woven pocket and house martins the eave boxes. All boxes need to be in the shade and out of reach of cats. Other birds like song thrush* need dense shrubs or climbers on trellises.



Tit box, Robin box, House martin eave box photo - Daniel Bridge



Waxwing - more unusual winter visitor which feeds on berries photo - Alan Williams



Grass roofed lych gate

Here we have used grass turfs which provide an interesting feature and habitat for insects. Alternatively, use stoncrop turf - either way you may need to water it in mid summer but probably won't need to mow it!

Compost heap and nettles

The two usually go together. You can compost all garden waste together with any uncooked kitchen vegetable waste. It is likely that hedgehog, grass snake or slow worm will set up home, feeding on the slugs, snails, etc in the compost. The Nettles are the food plant for the caterpillars of the large garden butterflies, such as small tortoiseshell, comma, red admiral and peacock.



The stronghold for the Common Frog is now in gardens photo - John Court

Hibernaculum

By the shelving edge of the pool is a pile of flags and moss - covered logs partially covered by poor soil and with planting around. This is the ideal hibernating spot - a hibernaculum for newts and frogs from the pool, or lizards and grass snakes which will come out to sun themselves.

Stag beetle stamp

Half cover an old tree stump in the ground for wood beetle larvae like the stag beetle.*

Wildlife pool

Choose a sunny location. Dig at least 80cm at the deepest point shelving out to a shallow edge. Line with old carpet to protect the butyl liner which needs extending back behind the retaining walls under the edge pavours.

Line the base of the pond with inverted turfs or make planting pockets for water plants before filling with water. (If you can, then intercept one of your down spouts into a water butt so you can top up with rainwater rather than using tap water.) Leave to settle for a week before introducing water plants. (Please do not introduce any pond animals - they will arrive of their own accord if the pond is right for them, e.g. dragonfly, damselfly, water boatman, diving beetle, common frog, great crested newt*.) The stepping stones are on supports and give added interest and access for pond dipping to investigate the pond animals. (If you have small children then the pond would need to be fenced.) Good examples of water plants - on the marshy edge: water mint, yellow flag, ragged robin, brooklime, purple loosestrife, marsh marigold. In the water: fringed water lily, Potamogeton pond weed. Oxygenators: hornwort, spiked water milfoil.

Bumblebee pots

Sink a few clay flower pots upside down in the ground and bumblebees will use the drainage hole to build their nest within.



Song thrush, the epitome of an English garden, makes use of a garden pond and eats lots of slugs and snails. Stones provide a thrush anvil photo - Bob Glover

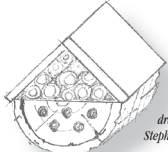
Bird feeding

Provide a range of foods such as nuts in hanging feeders, seed and food scraps on bird table (here we have used an upturned tree stump) and fat mix in a half coconut shell. Clean up and move the feeding point regularly to prevent disease and predators.

Cover photo - Great spotted woodpecker on garden feeder - Alan Williams



Hedgehog. Uses compost heap and feeds on slugs and snails photo - Essex Wildlife Trust



drawing - Stephen Hall

Insect box

The drilled wooden block is used by solitary bees. Lacewings and ladybirds, which eat greenfly and blackfly, use the pack of canes.

Ragged Robin. Plant of pond edges photo - Essex Wildlife Trust



Greater Water boatman. Many pond animals like this are insects which can fly in and colonise quickly photo - Heather Angel



Chrysalis of brimstone butterfly whose caterpillars feed on alder buckthorn photo - David Corke

Reply Slip

Yes I want to support the work of The Wildlife Trusts
I would like the following type of membership

- | | |
|---|------|
| <input type="checkbox"/> Individual Member | £24* |
| <input type="checkbox"/> Joint Members, at same address | £30* |
| <input type="checkbox"/> Family Members, i.e. joint members + up to four children under 16yrs | £36* |

*These are annual national promotion rates

Name _____

Address _____

Postcode _____

Signature _____

Date _____

Please select your local Wildlife Trust below and send this form to their address,

£

together with your cheque made payable to that Trust for the correct amount.

- ☐ Tick box if you are a UK tax payer and would like tax to be reclaimed by the Trust on your subscription under the Gift Aid Scheme.

Your local Wildlife Trust will send your membership literature to you direct.

Please tick one of the Wildlife Trusts below

- | |
|--|
| <input type="checkbox"/> Alderney Wildlife Trust, Victoria Street, St Anne, Alderney, GY9 3AA |
| <input type="checkbox"/> Avon Wildlife Trust, 32 Jacob's Wells Road, Bristol, BS8 1DR |
| <input type="checkbox"/> Beds/Cambs/Northants Wildlife Trust
3b Langford Arch, London Road, Sawston, Cambridge, CB2 4EE |
| <input type="checkbox"/> Berks, Bucks, Oxon Wildlife Trust
1 Armstrong Road, Littlemore, Oxford, OX4 4XT |
| <input type="checkbox"/> Birmingham & Black Country Wildlife Trust
28 Harborne Road, Edgbaston, Birmingham, B15 3AA |
| <input type="checkbox"/> Brecknock Wildlife Trust, Bethel Square, Brecon, Powys, LD3 7AY |
| <input type="checkbox"/> Cheshire Wildlife Trust
Grebe House, Reaseheath, Nantwich, CW5 6DG |
| <input type="checkbox"/> Cornwall Wildlife Trust, Five Acres, Allet, Truro, Cornwall TR4 9DJ |
| <input type="checkbox"/> Cumbria Wildlife Trust, Plumgarths, Crook Road, Kendal, LA8 8LX |
| <input type="checkbox"/> Derbyshire Wildlife Trust
East Mill, Bridgefoot, Belper, Derbyshire DE56 1XH |
| <input type="checkbox"/> Devon Wildlife Trust, 35-37 St David's Hill Exeter, Devon EX4 4DA |
| <input type="checkbox"/> Dorset Wildlife Trust, Brooklands Farm, Forston, Dorchester, DT2 7AA |

continued overleaf

Habitat creation, restoration and enhancement

Introductions

Grasslands

Ponds

Shrubs and trees

Hedgerows

Gardens

Woodlands

Background

Only a small proportion of Essex's wildlife resource is protected by statutory designations (SAC, SPA, SSSI, NNR, LNR). While these may cover the most important wildlife habitats in the county, they are insufficient to maintain the overall biodiversity of Essex.

As agricultural damage to wildlife habitats declines through increased understanding, shifting financial incentives and the fact that there are fewer sites left to damage, the impact of development takes on a proportionately greater significance. In the past 50 years 20 per cent of the woodland lost in Essex was due to some sort of development.

Introductions, re-introductions and re-stocking

Application sites in areas otherwise deficient in wildlife offer us the opportunity to alleviate declines in biodiversity elsewhere. Choice of species is important as inappropriate species introductions have a range of adverse impacts on existing habitats and species:

- Direct competition with native species within the habitat,
- Spreading of the non-native species into different habitats,
- Genetic contamination of native species,
- Interbreeding with closely related native species,

- Introduction and spread of diseases affecting native species.
- Expansion of the introduced species beyond any practical method of control.

Despite this a considerable number of species establish themselves as members of the native habitats without any apparent deleterious effect. Those species that establish themselves to the detriment of native species or habitats, particularly those that threaten UK Biodiversity Action Plan priority species or habitats, should not be considered. See 'Invasive species' below for more information.

Translocation as 'compensation'

Developers increasingly propose translocation as a viable solution to the ecological damage that will be caused by development. However the translocation of habitats or communities is a 'last resort' and is not an acceptable alternative to 'in situ' conservation. As a result translocation should only be adopted where the biodiversity value of the site is clearly outweighed by other planning considerations and no other feasible mitigation or compensation options exist.

Translocation of native species strictly refers to the reintroduction and re-stocking of native species within their current or recent historic range, either for species that still occur in the UK, or those that have now become extinct. Translocation also relates to the

introduction of native species beyond their current or recent historic range.

The rate of success with re-introduction of rare species is currently very low and in reality considerable thought, planning and resources are required to achieve success. Scientifically based re-introduction programmes are invariably lengthy, complex and expensive. Re-introduction and re-stocking should therefore only be considered where it will be used as a conservation tool, and when habitat management and natural colonisation cannot achieve the desired result.

Provenance

Until now re-introductions and re-stocking have been carried out on a huge scale without any real concern, as new woods are planted and wildflower meadows created. Recently, questions have been raised about the genetic provenance of the material used.

The IUCN Guidelines state that the source population (for reintroductions or re-stocking) should be closely related genetically to the original native stock and show similar ecological characteristics to the original population ie. in terms of morphology, physiology, behaviour and habitat preference. However, in many cases translocation has been so widespread over the centuries that for many common species there is no longer such a thing as 'local stock'. Examples include the oak tree (*Quercus spp.*) and

the red squirrel (*Sciurus vulgaris*). More recent examples include the birdsfoot trefoil (*Lotus spp.*) and kidney vetch (*Anthyllis vulneraria*) stock used in wildflower mixes which are physically clearly very different from native plants. It is important to ensure that the source population is genetically and ecologically appropriate, without being unduly prescriptive as to its exact location of origin.

Invasive species

Reasonable precautions should be taken to avoid accidental translocations of organisms (eg. on materials or equipment being transferred between sites). This is especially important to prevent the movement of aggressive invasive plants such as New Zealand pigmyweed (*Crassula helmsii*), floating pennywort (*Hydrocotyle ranunculoides*), Japanese Knotweed, Sycamore, Goats Rue and Rhododendron, as well as diseases such as crayfish plague *Aphanomyces astaci*.

Grasslands

It has been estimated that altogether 99 per cent of the county's flower rich hay meadows have been lost since 1900, as a result of changing farming methods, and also as industry, housing, new roads, gravel digging, rubbish disposal and leisure activities all expanded to take up precious space. Today, practically all flower-rich grassland remaining in the county is confined to old road verges,

Introductions

Grasslands

Ponds

Shrubs and trees

Hedgerows

Gardens

Woodlands

village greens and commons, railway embankments, woodland rides and glades, churchyards, nature reserves and other similar areas. These will only remain flower-rich for as long as they are properly managed.

Native flowers are the backbone to many aspects of biodiversity in Essex. Their quality and quantity are important in providing an important home and feeding place for many species of birds, mammals and invertebrates which depend on the mix of grasses, rushes, sedges and flowers. Species of insects, especially butterflies and moths, depend on one particular species of plant as a food source in the larval stage, and an abundance of nectar producing flowers in the adult stage.

To maintain or improve grassland habitats for insects depends to a great extent on soil type and structure and on the type of grasses and herbs present. The variety of invertebrate communities in grasslands equals or exceeds the variety shown by grassland plant communities.

Large areas of grassland can be created, alongside new roads, railways, around housing and industrial estates.

Grassland management

Grasslands tend either to be over-managed with a low diversity sward or under-managed and left to become scrub or are planted up with non-native species of shrub and tree. Such grassland holds little value for wildlife. The nutrient status and moisture content of the soil are other important factors influencing which plants

grow where, as different species have widely varying limits of tolerance to differing soils. Low nutrient status is important in promoting plant diversity.

The main function of grassland management is to remove cut material to avoid the development of a thick 'thatch' that effectively smothers weaker, smaller plants and to create colonising gaps. A key challenge is getting the balance right. From a biodiversity viewpoint, grassland management should maximise the opportunities for plants to flower, set seed, and for as wide range of invertebrates as possible to establish viable populations on the site. At the same time it should prevent the grassland from changing into scrub or woodland.

Rotational cutting retains standing stems, increases sward height and structural diversity, and can ensure a range of flowering stages. Traditional cutting would take place after mid-July, although in some cases an early cut in April can reduce vigorous, coarse grass species.

Small amounts of scrub can be of interest depending on the objectives for the site. By achieving this, a structural mosaic of this type, the greatest range of wild flowers, invertebrates and other animals will find the specific conditions they need to survive. Leaving some grassland uncut, perhaps around the edge of a development site, benefits wildlife.

Creating grassland

Hay-meadow creation could be achieved by using freshly cut 'green' hay. The source

site should have about half the area of the receiver site so that it is spread quite thinly. To eliminate any worries of depleting the seed bank at the source site limit the extraction to once every five years. Alternatively bale only a fifth of the field.

One of the disadvantages of using freshly cut 'green' hay is that it must be transported and spread on the same day. It will rapidly heat up if left overnight in heaps and bales and the high temperature will reduce seed viability. Some species may take several years to appear. However, common knapweed (*Centaurea nigra*), oxeye daisy (*Leucanthemum vulgare*), lesser trefoil (*Trifolium dubium*), common birds foot trefoil (*Lotus corniculatus*) and ribwort plantain (*Plantago lanceolata*) have been shown to have a high success of becoming established.

Strewing green hay requires the seed to be sown at the end of July when the hay is made. The result of this unusual sowing date is that many plants have developed beyond their seedling stage into quite large plants before winter. Later sowing is less likely to work however.

Grassland's value for invertebrates

The structure of the soil beneath grassland can play a major part in the invertebrate fauna and is also critical in determining its drainage properties. In order to support the greatest possible range of invertebrates grassland must have a good range of successional stages and vegetation structures. Only a large site can hold all of these features in any quantity.

However sites should be able to support a good range of growth forms and stages of all plant species such as plants flowering and setting seed, with seed heads remaining throughout the winter, and plants forming dense tussocks.

Cutting is an effective way of maintaining grasslands. Since cutting tends to produce a uniform sward and invertebrate conservation requires variety any cutting regime must ensure that variation in vegetation structure is introduced and maintained. There are several ways of ensuring this variety is produced in grassland: variation in the timing and frequency of cutting; cutting selected areas in any one year; varying the height of the cut. Therefore, cutting part of the grassland annually and the remainder ad hoc several times a year during the growing season would give the sward a varied structure.

The suitability of an area for any one insect species may depend not only on the presence or absence of its food plants, but also on the height of the sward. Some butterflies lay their eggs on grasses or other low growing plants and are thus vulnerable to close cropping by animals or by mowing. These two factors are often interrelated, since sward height can determine whether or not a particular insect food plant will grow.

The cutting regime for the area of rough grassland should be once in early spring (late March to early April) and once in autumn (late August to September). Cutting should be irregular to allow a good structural diversity to exist in the

Introductions

Grasslands

Ponds

Shrubs and trees

Hedgerows

Gardens

Woodlands

grassland sward as this will benefit the invertebrate community. Any cuttings should be removed to prevent thistles, docks, brambles and scrub from taking over. Furthermore some dead plants should be left standing to allow certain species to survive the winter.

Ponds

Ponds are a valuable focus for wildlife. They are very different from other habitats because water is a magnet for a variety of wildlife and provides a place for birds to drink, bathe and collect mud. At least 3,000 species live in ponds with around 200 rare, endangered or vulnerable species. It has been estimated that there has been a 75 per cent loss of ponds during the 20th century, and we are still losing 1 per cent per year due to drainage, infilling or incorrect management, inappropriate management, pollution and invasive species.

Shrubs and trees

Shrubs and small trees contribute greatly to habitat diversity. As well as being aesthetically pleasing, they have a vital function in providing shelter for wildlife. Many shrubs and trees are the food plants for a huge number of insects. In addition they provide song posts, protection from predators, nesting, feeding and roosting sites for many birds.

Hedgerows

The value of a hedgerow for insects lies partly in their varied structural components and also in the diversity of plant

species that they support. In short, a hedgerow offers a variety of micro-habitats distributed both vertically and horizontally. A hedge comprising a variety of native shrubs will produce blossom for pollen and nectar feeding insects, leaves and shoots for a wide variety of other plant feeding insects, as well as berries for birds and small mammals.

The shrubs and bushes most usually planted for the body of the hedge include hawthorn, blackthorn, and field maple depending on soils. Other species can be used occasionally in small numbers to add interest. The following species are commonly used:

- Dog and field rose
- Holly
- Hornbeam
- Dogwood
- Crab apple
- Elder
- Spindle
- Guelder rose
- Alder and purging Buckthorn
- Wild privet

In addition to the woody plants making up the main body of the hedgerow, there are many smaller ones, including grasses, and other herbaceous species which provide habitats for a wide variety of insects. Also, insects from a wide variety of larval habitats depend on pollen and nectar in their adult stages and these food sources are provided virtually all year round by the wide variety of hedgerow plants with their different flowering seasons.

There are several different methods of

hedgerow management that can be employed to ensure that the hedgerow supports a variety of insects. Once established, hedgerows should be trimmed every two to three years; only a proportion of total hedgerow length in any given area should be cut in any single year; to ensure that species over-wintering on the branches are not completely eliminated and to ensure adequate provision of nesting sites for birds; the time of the cutting should be outside times when the hedge is in foliage, flower or when large quantities of fruit still remain.

Wildlife gardens

Insects, song birds, reptiles, amphibians, hedgehogs and small mammals can be encouraged into gardens at little cost. Case Study 1 has information on the Wildlife Trusts' Gateway Garden, containing wildlife features and planting lists.

One of the keys to attracting insects to an area, as with most other wildlife, is to provide food. Butterflies are only one very small part of our insect fauna. The easiest way to achieve diversity is to divide the plot into a 'formal' section and a 'wild' section. By planting a range of flowering plants, a source of nectar will be available throughout the spring, summer and autumn for a range of different insects and invertebrates.

Attracting butterflies to breed is more complicated. This is because the female butterfly is choosy about the types of plants on which she will lay her eggs as different caterpillars eat different types of plants. The larvae of most butterflies found

in the United Kingdom have a limited range of food plants. The egg-laying habits of butterflies and moths vary considerably among different species, some laying their eggs singly on twigs, others in variously sized batches on the upper or underside of leaves, whilst others just drop them on the ground during flight.

The easiest group of butterflies to attract is the nettle feeders. Nettles can be grown in a sunny location. To prevent them from spreading they can be planted in tubs which can be sunk into the ground. The nettles need to be cut down in late June or early July to allow the next generation of butterflies to use the re-growth. The stems of the nettles should then be placed in a large tub and allowed to decompose, either in water or water could be added later on, and then this could be sprayed on the tree nursery at a later date.

Woodlands

Native woodland, especially if it is ancient, is still one of the richest and most treasured habitats as they are able to support an abundance and varied flora and fauna. The term ancient is applied to presently wooded sites that have maintained their woodland cover continuously since around 1600. However these areas have become increasingly scarce. Woodland that is more recently established, either through planting or through natural succession, is referred to as secondary in its origin. Although usually inferior in ecological terms to ancient woodland, secondary woodlands are still of considerable value to a wide range of plants, birds, mammals and invertebrates.

Introductions

Grasslands

Ponds

Shrubs and trees

Hedgerows

Gardens

Woodlands

The invertebrates

Woodlands provide an excellent habitat. Each layer has a special community of plants and animals associated with it. There is a wide range of micro-habitats and types of food suitable for insects available in the woodland. Consequently many kinds of insects are present. However the abundance and diversity can be enhanced if the structural diversity of the woodland is increased. The type of woodland, succession stage and human impact upon a woodland provides many opportunities for wildlife. Woodlands support possibly the richest invertebrate fauna of any habitat in Britain. This stems in part from the continuous history both of the habitat and of many individual woodlands, and also from the former abundance of the habitat together with the complexity of its structure.

Herbivorous species feeding on the foliage of trees, shrubs and low plants, and the predators and parasites that attack them, are usually the most obvious of invertebrates in woodlands. However, they may form only a minority of the total assemblage. Some invertebrates live on the trunks and branches of trees. Others are associated with sap runs that form when a tree is damaged. A large number develop in dead wood: some remain there for the whole of their lives: others live there only as larvae and as adults are free-living and may fly to another micro-habitat. Some spend the whole of their lives high in the tree canopy. A large number live amongst leaf litter and soil on the woodland floor.

The main aims of conservation in woodland are to retain as many possible niches. Trees and shrubs are the most conspicuous element of the woodland flora and the most important structural components of woodland.

In a well structured woodland, different trees will be of different heights and have different densities of foliage. Plants growing in different circumstances support quite different assemblages of invertebrates. Some invertebrates prefer plants growing in shade. A far greater number are confined to plants in warm sunny conditions. Young trees or re-growth after cutting can support a quite different assemblage of invertebrates to mature trees.

The commonest tree and shrub species are the most important for invertebrates. Oak and willows support the greatest number of invertebrate species. Other important trees and bushes of lowland broad-leaved woodlands are aspen, ash, birch, blackthorn, bramble, elms, field maple, hazel, hawthorn and rose. Hornbeam and beech support rather few foliage feeding invertebrates but the dead wood of these trees can support a rich fauna.

Scaloping involves the creation of small clearings along the woodland margin. Scallops of 30 metres by 20 metres have been employed for butterfly conservation but areas a fraction of this size may be valuable for many invertebrates. The area within the scallop may be coppiced or mown. For the creation of a circular walk a curved or irregular pathway is better than a straight one.

Like deadwood, flat stones or bricks lying on the soil surface provide sites for hibernation of insects or act as a refuge. This is especially important for ground beetles, which are very useful as natural pest agents.

The deliberate removal of ivy from trees on any conservation site should not be considered. It is extremely rare for ivy to damage a tree on which it grows and the wildlife value of the ivy far outweighs any damage done. The only possible excuse for ivy removal is to protect a valuable and fragile specimen tree.

The dead wood resource

Standing dead timber is an important resource. Dead wood provides a habitat for many insects and may also be used as a hibernation site by small mammals, such as hedgehogs. The retention of deadwood, especially sizable stems, helps protect local populations of vulnerable insect species that are often deprived of this habitat by extensive tidying-up or firewood gathering. Some deadwood should be located in shaded areas.

The invertebrates associated with the decay of timber are very diverse and of exceptional value for conservation. Dead wood occurs in a wide range of forms. It can vary in size from massive trunks to fine twigs. However dead wood in each circumstance will support its own distinctive assemblage of invertebrates. Most woodland contains dead wood in the form of fallen branches, fallen and standing trunks, dead branches and fallen twigs. It is important that all these types

of dead wood should be retained in reasonable quantity. The simplest rule about dead wood is that it should be left where it is to undergo natural decay processes. However if it becomes unsafe and dangerous then it should be removed.

Log piles can provide a useful habitat and will eventually gather an interesting invertebrate community. The size and proportions of log piles will clearly depend on its location and on the size, nature and quantity of material to be incorporated. It is best to create several piles of different aspect scattered through the site rather than to make a single very large one. In successive years when management operations create more log piles new piles are best made adjoining or within easy reach of the old ones. In addition some logs should be left scattered throughout the woodland.

Piles of brashing and other fine material will support a wide range of invertebrates. If piles of brashing and finer branches are to be created a few piles are better than many smaller ones. A loose pile of brashing will contain fewer niches for invertebrates than one which is closely packed. The close packing will provide relatively moist conditions in the centres of the bundles and the narrow spaces between the twigs and branches will provide safe shelters. This approach can also be used to create and maintain 'dead hedges' – often used as part of coppice management in woodland.

Key Players – their roles and responsibilities

Local planning authorities

- Take biodiversity issues into account when determining planning applications as set out in PPS9.
- Ensure biodiversity issues are taken into account in preparation of Local Development Frameworks and supplementary Documents, etc.
- Monitor planning conditions and obligations.

Developers

- If the presence of a protected species or Biodiversity Action Plan species or habitats is known or suspected, provide the local planning authority with survey results, an assessment of the development's impact and a mitigation strategy if necessary.
- If required, apply for a licence from Defra.
- Comply with the legislation, planning conditions and licensing conditions as necessary.
- Integrate biodiversity into development proposal designs.

English Nature – Essex, Herts and London Area team

- Provide generic advice to developers and consultants regarding surveys and mitigation.
- Give advice to local planning authorities on generic protected species issues and designated sites.

- Provide general advice to local authorities regarding planning applications and forward planning matters such as local development frameworks.

English Nature national team

- Give advice to Defra over licence applications for European Protected species and biodiversity. Also over licence development activities affecting badger setts.

English Nature's interactive map site:
<http://www.natureonthemap.org.uk/>

English Nature's main website –licensing/protected species section:
<http://www.english-nature.org.uk/science/licensing>

Department for Environment, Food and Rural Affairs – European Wildlife Division

- Determine licence applications for European Protected species.

Defra – Area Team

- Determine license application, for example, damage to property and to plot for species such as badgers. Link to Defra website

Multi-Agency Geographic Information for the Countryside (MAGIC):
<http://www.magic.gov.uk/website/magic/>

Biological Records

Draft PPS9 states "Plan policies and planning decisions should be based upon up-to-date information about the environmental characteristics of their areas. These characteristics should include the relevant biodiversity and geological resource of the area."

Many biological resources exist for Essex. However, they are located in many different places, held by numerous people and organisations and may or may not be easy to obtain. This is currently being addressed and it is hoped that biological and geological records will eventually be available from a central location and will be more easily accessible to all.

Contact 01245 437660/437655 or emma.simmonds@essexcc.gov.uk or martin.wakelin@essexcc.gov.uk to keep up to date with the Biological Records Initiative for Essex (BRIE).

The National Biodiversity Network (NBN) is a project to build the UK's first network of biodiversity information. Look at: <http://www.nbn.org.uk/> or <http://www.searchnbn.net/>

Essex Field Club County Recorders

The County Recorders gather and hold data on Essex wildlife species and hold the most comprehensive county datasets. They provide this data to planners, statutory agencies, developers and consultants in

relation to a wide range of issues including proposed development sites.

Look on EFC website or the link to the Essex Biodiversity Project website where they are listed:
<http://www.essexfieldclub.org.uk/recorderlist.htm>
<http://www.essexbiodiversity.org.uk/record-holders.htm>

Natural History Museums

The museums at Colchester, Chelmsford, Saffron Walden and Southend-on-Sea hold local records, knowledge and expertise.

Chelmsford Museum
Old Cemetery Lodge
1 Writtle Road
Chelmsford, Essex CM1 3BL
01245 615120

Colchester Natural History Museum
c/o 14 Ryegate Road
Colchester CO1 1YG
01206 282936

Saffron Walden Museum
Museum Street
Saffron Walden
Essex CB10 1JL
01799 510333

Southend Museums Service
Central Museum, Victoria Avenue
Southend-on-Sea SS2 6EW
01702 434449

Local Interest Groups and Natural History Societies

There are a number of local groups of expertise that hold records and have much local knowledge and expertise. They are generally run by volunteers. Extra time would therefore need to be allowed in retrieving data. These include:

Essex Wildlife Trust
The Joan Elliot Visitor Centre
Abbotts Hall Farm
Great Wigborough
Colchester CO5 7RZ
admin@essexwt.org.uk

Bats

Essex Bat Group
Roger and Silvia Jiggins (secretaries)
r.jiggins@btconnect.com
01376 324311
John Dobson
148 Main Road
Danbury
Essex CM3 4DT
johndobson@mammals.fsnet.co.uk

Amphibians and Reptiles

Essex ARG
essex_arg@hotmail.com

Badgers

North East Essex Badger Group
Renee Hockley-Byam, (Chairman)
Bridge Cottage
Bradwell
Braintree CM77 8ED
01376 563210
Badger Hotline 07751 572 175 (24 hr)

NEEBG covers all of Tendring, Braintree, Colchester and Maldon, plus eastern part of Uttlesford and northern part of Chelmsford Borough.

Epping Forest District Badger Group
(covers Harlow area)
<http://www.eppingforestbg.org.uk>
Paul Cook
160 Borders Lane
Loughton
Essex IG10 3SB
020 8508 1593 (24hr)
07881 815992 (Mob)
EppingForestBG@aol.com or
PaulC@essexwt.org.uk

Birds

The Essex Bird Watching Society
See contacts page at
<http://www.essexbirdwatchesoc.co.uk>

Natural History Societies

Colchester Natural History Society
C/o Colchester Museums
14 Ryegate Road
Colchester CO1 1YG
01206 282936

Suggested Format for Mitigation Plan

A Contents

B Introduction

- | | |
|---|--|
| <p>B1 Background to development [location, ownership, general landuse, type of and need for the proposed development, planning history, land allocation in Local Plan (or equivalent), etc]</p> | <p>B2 Consideration of alternative solutions [eg consideration of other sites, or site layouts, and why they have been discounted]</p> |
|---|--|

C Survey and site assessment

- | | |
|---|---|
| <p>C1 Pre-existing information on species and habitats at survey site</p> <p>C2 Status of species and habitats in the local/regional area</p> <p>C3 Objective(s) of survey</p> <p>C4 Survey area</p> <p>C5 Habitat description [based on daytime visit(s);</p> <p>C6 Field survey</p> <p style="margin-left: 20px;">C6.1 Methods</p> <p style="margin-left: 20px;">C6.2 Timing</p> <p style="margin-left: 20px;">C6.3 Weather conditions</p> <p style="margin-left: 20px;">C6.4 Personnel</p> | <p>C7 Results [to include raw data, any processed or aggregated data, and negative results as appropriate; record other species and habitats observed]</p> <p>C8 Interpretation and evaluation</p> <p style="margin-left: 20px;">C8.1 Presence/absence</p> <p style="margin-left: 20px;">C8.2 Population size class assessment</p> <p style="margin-left: 20px;">C8.3 Site status assessment [combining quantitative, qualitative, functional and contextual factors]</p> <p style="margin-left: 20px;">C8.4 Constraints [factors influencing survey results]</p> <p>C9 Map(s) of survey area [with habitat description, and any other features sampled; summary of survey results marked on map if appropriate. Map should show area beyond site as appropriate to movement of species on an Ordnance Survey (or similar) base-map]</p> <p>C10 Cross-referenced photographs of key habitat features [if appropriate]</p> |
|---|---|

D Impact assessment

- | | |
|---|---|
| D1 Pre- and mid-development impacts | D5 Summary of impacts at the site level |
| D2 Long-term impacts [habitat loss, modification, fragmentation, etc] | D6 Summary of impacts in a wider context |
| D3 Post-development interference impacts [disturbance, etc] | D7 Map(s) to show impacts [clear indication of which areas would be affected and how] |
| D4 Other impacts | |

E Mitigation and compensation

- | | |
|---|--|
| E1 Mitigation strategy [overview of how the impacts will be addressed in order to ensure no detriment to the maintenance of species and habitats at a favourable conservation status] | E5 Post-development site safeguard |
| | E5.1 Habitat management and maintenance [either set out details here, or if complex give outline here and give details as an annexed stand-alone plan] |
| | E5.2 Monitoring |
| | E5.3 Mechanism for ensuring delivery [eg section 106 agreement; include who will undertake the work, and reporting details] |
| E2 Receptor site selection | E6 Work schedule [phasing diagram to include all works associated within section E, and to indicate construction works timing] |
| E2.1 Existing species status [give survey data] | |
| E2.2 Location, ownership and status | E7 Map to show location of receptor site in relation to development site |
| E2.3 Existing habitat status Habitat description, size, boundaries | E8 Map to show capture and exclusion works |
| E3 Habitat creation, restoration and/or enhancement [as appropriate] | E9 Map to show habitat creation, restoration and/or enhancement |
| E3.1 Aquatic habitats | |
| E3.2 Terrestrial habitats | E10 Map to show post development management [if appropriate] |
| E3.3 Integration with roads and other hard landscapes | |
| E3.4 Integration with other species/ habitat requirements | E11 Diagram to show capture/ exclusion apparatus [only required if non-standard techniques are proposed] |
| E4 Capture, exclusion and translocation of species and habitats | |
| E4.1 Timing, effort, methods, layout of capture/exclusion methods, translocation | |

F Summary

F1 Summary of development and mitigation [NB to include overall consideration of any licensing criteria: effect on conservation status, purpose, and alternatives]

G References

H Annexes

H1 Management and maintenance plan

H3 Pre-existing survey report(s).

H2 Section 106 agreement/planning permission/other planning documents as appropriate

Planting design

Planting should be designed in such a way as to reflect the typical or traditional, indigenous landscape character of the adjoining area. All else being equal a well designed scheme should represent a net gain in visual and habitat terms.

Planting should be structured to reflect and complement the landform and any variation in soil types. A clear structure should be created using woodland blocks, hedges, more open scrubland, grassland areas and other landscape and habitat types. Indigenous species of plant material should be used in mixtures and proportions which are likely to simulate natural models. A degree of ecological diversity is also to be encouraged both to create a good range of habitat and provide a range of seed sources for subsequent natural regeneration. This diversity should be reflected in a variety of planting mix types which relate to habitat types.

The selection of species mixtures can be critical and the following guidelines, based on experience of management problems in semi-natural plantings, should be noted.

- Limit the dominants for each area to one or two species.
- Avoid selecting tree species as a nurse. Use additional shrub species such as Acer campestre or Crataegus monogyna.
- If a tree nurse species is required to create 'high forest' use Betula or Alnus to a maximum of 20 per cent. Pinus or Larix should be avoided.
- Avoid mixing Salix or Populus directly with other tree species. Their vigour will create problems of competition.
- The major part of any mixture should comprise a limited number of species, but smaller amounts of numerous other species may be added to provide a seed source from which they can find their own population balance.
- Have a clear view of how any mixture is likely to develop over time and how it might be managed in the future to achieve a desired result.

Where feasible consideration should be given to the establishment of advance structural planting, and provision made for planting within the period of the main contract.

Planting design must take into account ease of future management and resources for future management – otherwise it will not be sustained.

Species choice

In general, tree and shrub cover together with crops, are the basic materials of a landscape that lacks rocks and dramatic topography. Trees make contrasts with open land, form spaces, and give variety of texture, and colour, and express seasonal change. Without them, the inland Essex landscape becomes bleak and uninteresting. Traditional trees express historical continuity.

The following tables, developed by Essex County Council, are given as a guide to current practice developed over many years and based on considerable knowledge of the Essex landscape and experience of establishing and managing semi-natural planting.

The following indigenous species are common in Essex and should to a greater or lesser degree form the main content of planting schemes.

Indigenous species		distribution	notes
Acer campestre	Field Maple	wide	small tree, woodland component
Carpinus betulus	Hornbeam	localised	clay soils
Cornus sanguinea	Dogwood	wide	hedge
Corylus avellana	Hazel	wide	woodland, hedges
Crataegus monogyna	Hawthorn	wide	
Fraxinus excelsior	Ash	wide	wetter sites
Hedera helix	Ivy	wide	
Ilex aquifolium	Holly	wide	
Populus tremula	Aspen	localised	invasive
Prunus avium	Wild Cherry	localised	more acid soils
Prunus spinosa	Blackthorn	wide	sometimes difficult to establish but can become invasive
Quercus petraea	Sessile Oak	localised	lighter soils
Quercus robur	Pendunculate Oak	wide	woodland
Rosa arvensis	Field rose		
Rosa canina	Dog Rose	wide	clay soils

The following species because of certain characteristics should be used only with caution.

Indigenous species		distribution	notes
Acer pseudoplatanus	Sycamore		very invasive
Aesculus hippocastanum	Horse Chestnut		tends to drop limbs
Alnus glutinosa	Alder	wet areas	woodland nurse
Betula pendula	Silver Birch	localised	short lived, woodland nurse
Betula pubescens	Downy birch	localised	short lived, woodland nurse
Castanea sativa	Sweet Chestnut	localised	chestnut woodland areas
Cytisus scoparius	Broom	localised	short lived, fire hazard
Fagus sylvatica	Beech	localised	tends to drop limbs
Populus alba	White Poplar	localised	not in mixtures
Populus canescens	Grey Poplar	localised	over competitive
Populus nigra	Black Poplar	localised	over competitive
Rosa rubiginosa	Sweet Briar		
Salix alba	White Willow		short lived, over competitive
Salix alba var. caerulea	Cricket-bat willow		short lived, over competitive
Sambucus nigra	Elder		short lived, over competitive
Ulex europaeus	Gorse	localised	short lived, fire hazard
Ulmus procera	English elm		subject to disease
Taxus baccata	Yew		poisonous

The following species are indigenous to Essex but are relatively rare and their over extensive use might influence natural distribution.

Indigenous species		distribution	notes
Euonymus europaeus	Spindle Tree		
Frangula alnus	Alder Buckthorn		
Ligustrum vulgare	Wild Privet	localised	chalk soils
Malus sylvestris	Crab Apple		
Rhamnus catharticus	Buckthorn		
Sorbus torminalis	Wild Service Tree	uncommon	
Viburnum lantana	Wayfaring Tree	localised	chalk soils
Viburnum opulus	Guelder Rose		
Tilia cordata	Small-leaved Lime		

The following species are examples of species not indigenous to Essex but and are therefore to be used only with caution.

Indigenous species		distribution	notes
Acer platanoides	Norway Maple		
Prunus padus	Bird Cherry	planted	
Prunus laurocerasus	Laurel	planted	evergreen content in screen plots
Robinia pseudoacacia	False Acacia		
Sorbus aria	Whitebeam	uncommon	
Sorbus aucuparia	Rowan	uncommon	acid soils
Pinus sylvestris	Scots Pine	planted	
Quercus ilex	Holm Oak		
Larix decidua	Larch	planted	

Good forage plants for invertebrates can also be incorporated into the planting design:

Ballota nigra	Black Horsehound
Daucus carota	Carrot
Lotus corniculatus	Bird's-foot Trefoil
Medicago sativa	Lucerne
Odontites verna	Red Bartsia
Trifolium pratense	Red Clover

When considering the mix of plants to be used in any area of planting it is important for reasons of nature conservation and visual appropriateness to base the choice and proportions of species on indigenous habitat types. The type of habitat most suitable will be dependant on what natural models are found in the adjacent landscape, site and soil conditions and the function the planting has to perform. The most important are,

Woodlands

Natural models can take many physical forms and fall into several woodland classes. High forest, open woodland belts, coppice with standards all have different characteristics. On the road verge a coppice structure, with a high proportion of shrub species, has relevance.

Hedges

Hedges or hedge like linear planting areas can be used to create continuity with the adjacent landscape, ecological corridors and efficient visual screens. The traditional tree cover of Essex outside woodlands lies largely in hedgerows, thus new hedges should generally include a proportion of tree species.

Open scrubland/ Wood Pasture

Wood pasture is a traditional form of vegetation management on grazing land where the establishment of standard trees is encouraged and protected with enclosing shrubby species. It's current equivalent is often the result of natural regeneration on wasteland and on established road verges. It is preferable to the planting of widely spaced individual trees, the shrubby species giving shelter to the developing tree.

Grassland

Unimproved, species rich grassland is a diminishing habitat and where soils are suitable it is possible to encourage diverse swards. English Nature prefer to see this achieved by natural regeneration and a grass mix comprising non vigorous grass species sown at a low density will allow other species to colonise, if there is a seed source available. Bee and pyramidal orchids have colonised motorway embankments in Essex. However, If no seed sources are available it may be desirable to use commercial or specially collected seed.

Wetlands

Washland particularly presents opportunities to create natural habitats where engineering constraints allow.

Principles of enhancing and creating biodiversity

This section outlines some basic principles involved in creating and enhancing biodiversity. You can also refer to **Habitat creation, restoration and enhancement** for a habitat by habitat description of points to be aware of.

However please bear in mind this is a complex subject area and you should refer to existing publications for more detailed information relevant to the site in question (see Reading and references).

Basic principles:

Retain existing semi natural habitats:

- Making the most of what occurs on site is ecologically sound, more likely to flourish with management than 'imposed' habitats and tends to be more cost effective as a result.
- Replacement/new habitat takes many years to stabilise and gain the value of an established habitat.
- Use ecological survey to assess and evaluate what biodiversity resource exists on and around the site. Some habitats tend to be more valuable in ecological terms than others eg. unimproved grassland has greater ecological value than that which has been more intensively managed. Avoid creating a new habitat at the expense of an existing valuable one.
- Introduce management to existing semi-natural habitats where ecological survey shows they have deteriorated:
 - Clear out a proportion of a silted up pond as a first step to positive management.
 - Mow an area of semi-natural grassland as a hay meadow.
 - See Reading and references for more ideas.
- Identify UK and Essex BAP habitats and species for retention and enhancement and/or management.

- Aim to create blocks of habitat that are connected. The larger they are, the better. Large blocks of habitat suffer less from the effects of disturbance (artificial light, noise, etc) as a smaller proportion of their area is vulnerable. They provide shelter to a greater wealth of wildlife as a result.

Look for the local area's ecological clues:

- Essex's geology and soils largely determine what plants and trees grow where. Consult appropriate soil and geology maps. Create habitats that are appropriate for the area.
- Check the geology and soils for your site. Look up English Nature's Natural Area maps for information at a landscape scale. For detailed information on semi-natural habitats refer to the National Vegetation Classification publications.
- Choose plant species native to lowland England and suitable for the soil type on your site. Use local sources for plant material – see Planting Design.
- Avoid:
 - Importing topsoil or
 - Using fertilisers or peat.
 - Using non native species

- Need additional information? See Designing for biodiversity.

Check how the application site's biodiversity resource 'fits' in the wider landscape:

- Consider the site's biodiversity resource in terms of habitat elements: eg. grassland, scrub, woodland, hedge, ditch, reedbed, open water.
- Assess how these elements relate to similar resources in the local area and identify where elements on site can offer a link or 'stepping stone' between similar semi-natural habitats in the wider area.
- Look up English Nature's Natural Area maps for more information about broad habitat characteristics at a landscape scale.

Designing for Biodiversity
[UK BAP habitats and species](#)
[Essex BAP habitats and species](#)
[Habitat creation, restoration and enhancement](#)
[More about the Essex Landscape](#)
[Planting design](#)

Biodiversity conservation – statutory obligations

Since the production of the Guide, the new Government Planning Guidance has been published. This comprises:

Planning Policy Statement 9: Biodiversity and Geological Conservation

<http://www.communities.gov.uk/index.asp?id=1143832>

Circular 06/05: Biodiversity and Geological Conservation

<http://www.communities.gov.uk/index.asp?id=1144318>

The Good Practice Guide

http://www.communities.gov.uk/pub/843/PlanningforBiodiversityandGeologicalConservationAGuidetoGoodPractice_id1164843.pdf

Appropriate survey seasons

Survey	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Scoping walkover	optimal	optimal	optimal	optimal	optimal	optimal	optimal	optimal	optimal	optimal	optimal	optimal
Phase 1 habitat	sub-optimal	sub-optimal	sub-optimal	optimal	optimal	optimal	optimal	optimal	optimal	sub-optimal	sub-optimal	sub-optimal
Botanical	sub-optimal	sub-optimal	sub-optimal	sub-optimal	optimal	optimal	optimal	sub-optimal	sub-optimal	sub-optimal	sub-optimal	sub-optimal
Badgers	sub-optimal	optimal	optimal	optimal	sub-optimal	sub-optimal	sub-optimal	sub-optimal	sub-optimal	sub-optimal	sub-optimal	sub-optimal
Wintering birds	optimal	optimal	optimal	sub-optimal	sub-optimal	sub-optimal	sub-optimal	sub-optimal	sub-optimal	sub-optimal	optimal	optimal
Breeding birds	sub-optimal	sub-optimal	optimal	optimal	optimal	optimal	sub-optimal	sub-optimal	sub-optimal	sub-optimal	sub-optimal	sub-optimal
Reptiles	sub-optimal	sub-optimal	sub-optimal	optimal	optimal	sub-optimal	sub-optimal	sub-optimal	sub-optimal	sub-optimal	sub-optimal	sub-optimal
Amphibians	sub-optimal	sub-optimal	optimal	optimal	optimal	sub-optimal	sub-optimal	sub-optimal	sub-optimal	sub-optimal	sub-optimal	sub-optimal
Invertebrates	sub-optimal	sub-optimal	sub-optimal	optimal	optimal	optimal	optimal	optimal	sub-optimal	sub-optimal	sub-optimal	sub-optimal
Water voles	sub-optimal	sub-optimal	optimal	optimal	sub-optimal	sub-optimal	sub-optimal	sub-optimal	optimal	optimal	sub-optimal	sub-optimal
Otters	optimal	optimal	optimal	optimal	optimal	optimal	optimal	optimal	optimal	optimal	optimal	optimal
Bats – summer roosts*	sub-optimal	sub-optimal	sub-optimal	sub-optimal	optimal	optimal	optimal	optimal	sub-optimal	sub-optimal	sub-optimal	sub-optimal

unsuitable time of year for surveying
 sub-optimal time of year for surveying
 optimal time of year for surveying (best practice)

*Hibernating bats can be found November to February

Based on chart courtesy of
English Nature

What is Sustainable Development?

At its heart is the simple idea of ensuring a "better quality of life for everyone, now and for generations to come".

The widely accepted Brundtland definition is "development which meets the needs of the present without compromising the ability of future generations to meet their own needs".

The UK Government's four key objectives to be achieved simultaneously are:

- 1 social progress which recognises the needs of everyone;
- 2 effective protection of the environment;
- 3 prudent use of natural resources; and
- 4 maintenance of high and stable levels of economic growth and employment.

(A better quality of life: A strategy for sustainable development in the UK. DETR 1999)

Effective protection of the environment not only requires protection of species and habitats, but also management and aftercare of areas that are to be retained, enhanced or created.

We should hand on to the next generation an environment no less rich than the one we ourselves inherited.

UK BAP species and habitats

All the information you need on UK BAP species and habitats can be found on the UKBAP website <http://www.ukbap.org.uk>

This is designed to support the implementation of the UK Biodiversity Action Plan (UK BAP) on behalf of the UK Biodiversity Partnership and the UK Government.

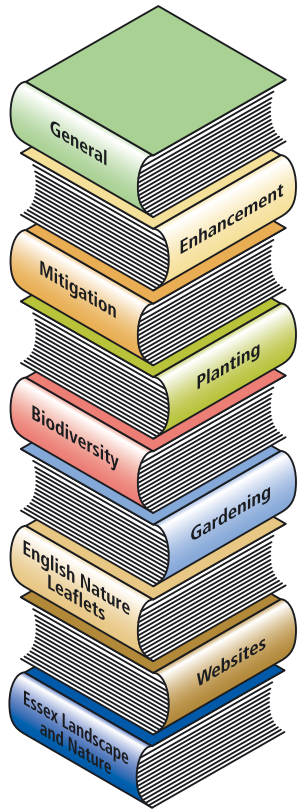
The UK BAP

- is the UK Government's response to the Convention on Biological Diversity (CBD) signed in 1992
- describes the UK's biological resources
- commits a detailed plan for the protection of these resources
- has 391 Species Action Plans, 45 Habitat Action Plans and 162 Local Biodiversity Action Plans with targeted actions

Management and implementation of the UK BAP is the responsibility of several groups. Visit the website to find out how the UK BAP is managed, who these groups are and what work they do here.

On this website you can also:

- Access the species, habitat and local action plans that comprise the UK BAP
- Identify and contact Lead Partners and LBAP officers
- Download reports, data, guidance notes and documents
- Explore the factors affecting the decline of species or habitats
- Find out about current UK BAP research programmes
- Read the summary of the 2002 Reporting round, view the results and drill down into the underlying data UK Biodiversity Action Plan tracking progress.



Reading and references

General

Andrews, J and Rebane, M (1994) *Farming and wildlife – A practical management handbook*. RSPB.

Benstead, P, Drake, M, José, P, Mountford, O, Newbold, C and Treweek, J (1997) *The wet grassland guide: managing floodplain and coastal wet grasslands for wildlife*. RSPB, Sandy.

Benstead, PJ, José, PV, Joyce, CB and Wade PM (1999) *European wet grassland: guidelines for management and restoration*. RSPB, Sandy.

Brooke, CE (1996) *Natural conditions – A review of planning conditions and nature conservation*. The RSPB, Sandy.

Byron, H (2000) *Biodiversity and environmental impact assessment: A good practice guide for road schemes*. RSPB, WWF-UK, English Nature and the Wildlife Trusts, Sandy. ISBN 1 901930 24 6.

Coleshaw, T (Ed) (1999) *Practical solutions handbook – 2nd edition*. English Nature, FACT and GAP.

Construction Industry Research and Information Association (CIRIA) (1999) *Environmental good practice on site*. CIRIA 502 London.

Department of the Environment (1995) *Preparation of environmental statements for planning projects that require environmental statements*. HMSO, London.

Department for Environment, Food and Rural Affairs (DEFRA) (2002) *Working with the grain of nature: A biodiversity strategy for England*. DEFRA publications, London (PB7718).

English Nature, John Handley (Ed) (2003) *Accessible green space – A review and toolkit for their implementation*. English Nature.

English Nature (1995) *Habitat creation – a critical guide*. English Nature, Peterborough.

English Nature (1999) *Biodiversity: Making the links*. EN, Peterborough.

English Nature (1999) *Grassland management handbook*. EN and WT.

English Nature (2000) *A species handbook for local authorities: Guide notes for consideration of protected species within local planning*. English Nature, Peterborough.

English Nature (2001) *The upland management handbook*. EN.

English Nature (2002) *A handbook of earth science conservation techniques*. EN, Earth Sciences in Great Britain.

English Nature (2002) *Revealing the value of nature*. EN.

English Nature (2003) *The herbicide handbook*. EN and FACT.

English Nature (2003) *Development control, local authorities and protected species surveys*. EN Research Report No 479.

English Nature (2003) *The scrub management handbook*. EN and FACT.

English Nature (2004) *Nature's place*. EN.

English Nature, Helen Read (Ed) (2000) *Veteran trees*. EN.

The Wildlife Trusts, English Nature, Countryside Council for Wales and Scottish National Heritage (1999) *Lowland grassland management handbook*. EN.

Gilbert OL and Anderson P (1998) *Habitat creation and repair*. OUP.

Helliwell DR (1996) *Case studies in vegetation change: Habitat transfer and habitat creation*. Reading Agricultural Consultants.

Institute of Terrestrial Ecology (ITE) (1997) *Ecology and Twyford Down*. ITE, Furzebrook Research Station, Wareham.

Joint Nature Conservation Committee, Entwistle, AC (2001) *Habitat management for bats*. JNCC.

Jordan, WRJ, Gilpin, ME and Aber JD (1987) *Restoration ecology*. Cambridge University Press.

Kirkby, P (1992) *Habitat Management for Invertebrates – A Practical handbook*. RSPB and JNCC.

Nature Conservancy Council (1988) *Site Management Plans for Nature Conservation: a working guide*. NCC.

Oxford, MJ (2000) *Developing Naturally: A handbook for incorporating the natural environment into planning and development*. ALGE & English Nature. ISBN 0 9540717 0 0.

Rodwell, J and Patterson, G (date?) *Creating new native woodlands. Forestry Authority and Forestry Commission Bulletin*, The Stationery Office.

RSPB (1996) *Sustainable development: The importance of biodiversity*. RSPB, Sandy.

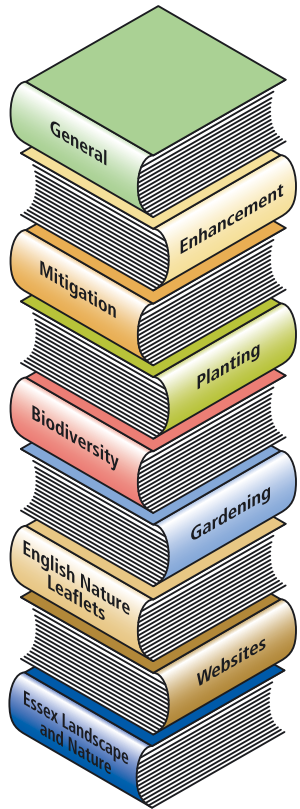
RSPB (2004) *Habitat creation handbook for the minerals industry*. RSPB.

RSPB (2004) *Habitat management publications*. RSPB.

RSPB, NRA and RSNC (1995) *The New Rivers and Wildlife Handbook*. RSPB.

Sutherland WJ (2000) *Conservation Handbook*. Blackwell Science.

Sutherland WJ and Hill DA (Eds) (1995) *Managing habitats for conservation*. CUP.



Tait J, Lane A and Carr S (1988) *Practical Conservation: Site Assessment and Management Planning*. Open University and Nature Conservancy Council.

The Wildlife Trusts (1999) *The RIGS handbook*.

Treweek, J (1999) *Ecological assessment*. Blackwell Science, Oxford.

Habitat Enhancement and Creation

Adams CE and Maitland PS (1998) *The Ruffe population in Loch Lomond, Scotland: its introduction, population expansion and interaction with native species*, International Association for Great Lakes Research, v24, pp 247-262.

Gault C (1997) *A Moving Story – species and community translocation in the UK: a review of policy, principle, planning and practice*. WWF-UK.

Pollard S (2000) *Advice note on species re-introduced with ballast water*, Marine Conservation Society.

Taylor LR (1986) *Synoptic dynamics, migration and the Rothamsted Insect Survey*, *Journal of Animal Ecology*, v55, pp 1-38.

The Wildlife Trusts (1998) *Guidelines on Killing Wild Animals*

IUCN (1995) *Guidelines for Re-introductions*.

IUCN (1987) *Position Statement on Translocation of Living Organisms*.

Anderson, PA (2003) *Habitat Translocation – a Best Practice Guide* C600. Construction Industry Research and Information Association (CIRIA). ISBN: 0-86017-600-2

This best practice guide sets out minimum standards for habitat translocations. While researched originally for the Highways Agency, this guide has been broadened to apply to any construction project. This guide does not promote translocations, as translocation should be regarded as a last resort for all sites of high nature conservation value. Instead, it seeks to set high standards to help avoid some of the failures found in past translocation projects. The guide should raise standards and reduce the risks that emanate from poor practice.

Baines, C and Smart, J (1991) *A guide to habitat creation*. Packard Publishing Ltd. ISBN: 1-85341-031-4

Habitats covered include woodlands hedgerows grassland wetland and wasteland with sections on interpretation and education. Pocket size guide.

Briggs, J (2001) *Creating small habitats for wildlife in your garden*. Guild of Master Craftsman Publications. ISBN 1 86108 188 X

Everyone can play a part in conservation and enjoy the delights of a garden which

attracts wildlife. Space needn't be a limiting factor. The author devotes a chapter to paved yards, patios and balconies.

Buckley, GP (ed) (1995) *Biological Habitat Reconstruction*. Bellhaven Press ISBN (unknown)

Covers the concepts strategies and ecological principles used in the restoration of habitats together with the techniques of transplantation and enhancement of existing habitat types. Essential for developers, public authorities, industrialists, farmers and others who are aware of their responsibilities in restoring and conserving species-rich environments.

Carr and Bell (1991) *Practical conservation: Boundary habitats*. Hodder & Staunton. ISBN 0340533676

Well-managed boundaries can be rich in wildlife as they often combine a variety of habitat types such as woodland scrub grassland aquatic and cultivated areas. This book is a well informed and practical guide to their conservation.

Entwhistle et al (2001) *Habitat management for bats*. JNCC. ISBN 1 86107 528 6

In the UK, bat numbers have declined rapidly in recent years. This publication provides clear advice on how to manage areas to benefit foraging bats and help stem the decline of these intriguing animals.

Gilbert, OL and Anderson, PA (1998) *Habitat creation and repair*. Oxford University Press. ISBN 0-19-854966-0

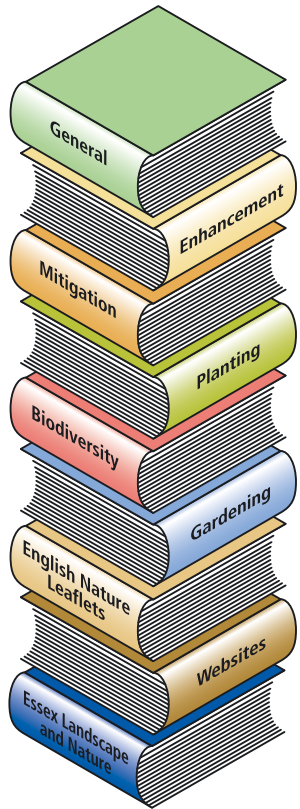
The book covers the ethics and principles of habitat creation and repair to the practical detail of designing habitats for wildlife. The chapters span all the major habitat types found in the British Isles, giving advice on whether habitat creation is the course to follow then covering all steps from site survey through to final design and scheme realisation.

Helliwell, DR (1996) *Case studies in vegetation change. Habitat transfer and habitat creation* Reading Agricultural Consultants. ISBN 0-9597931-2-4

These case studies are based on the author's experiences concerning habitat translocation and creation. These include: changes to an undisturbed permanent pasture over six years, moving woodland, grassland and marshland soils in an attempt to recreate the original habitats, and seeding 20 ha of chalk marl spoil from the Channel Tunnel. Written by a practitioner in the hope that it will be of use to others working in the same field.

Kirby, P (2001) *Habitat management for invertebrates*. National Power/JNCC/RSPB. ISBN 0 901930 30 0

It is vitally important that a site is managed in the interests of all its inhabitants, both plant and animal but rarely is sufficient attention paid to the needs of the invertebrates. This book provides guidelines



for reserve managers to assist them in taking account of the particular habitat requirements without actually knowing which species are present.

Parker, DM (1995) *Habitat creation: A critical guide*. English Nature. ISBN: 1-85716-150-5

This critical guide has been produced to inform a wide audience about the current position of habitat creation in Britain. It has been written to examine both the potential and actual problems of habitat creation and to present good practice in the planning, construction and management of habitat creation projects.

Sutherland, WJ and Hill, DA (eds) (1995) *Managing habitats for conservation*. Cambridge University Press. ISBN 0 521 44776 3

This comprehensive work outlines the problems and solutions of sound management habitat by habitat based on scientific principles and practical experience. Each contributor is an acknowledged expert for the habitat concerned and the team of consultants is made up of highly qualified individuals, some of which are household names in the world of conservation and ecology.

Warren, A and French JR (2001) *Habitat conservation: Managing the physical environment*. Wiley. ISBN 047198499X

The four main areas studied by conservationists are resources, pollution, aesthetic

heritage and nature. This textbook is the first book written in recent years to cover conservation from a physical environmental viewpoint.

White, GJ and Gilbert, JC (eds) (2003) *Habitat creation handbook for the minerals industry*. The RSPB, Sandy. ISBN 1 901930 37 8

The Habitat creation handbook for the minerals industry is a practical guide to the creation of priority Biodiversity Action Plan habitats on redundant mineral workings.

Mitigation

Bat Conservation Trust (1997) *Bats and trees*.

Canter et al (Eds) (1995) *Proceedings of the international conference on habitat fragmentation, infrastructure and the role of ecological engineering, 17-21 Sept 1995, Maastricht and the Hague*.

English Nature (1993) *Otters and river habitat management*.

English Nature (1993) *Facts about reptiles*.

English Nature (1994) *Roads and nature conservation: Guidance on impacts, mitigation and enhancement*. English Nature, Peterborough.

English Nature (1994) *Nature conservation in environmental assessment*. English Nature, Peterborough.

English Nature (1995) *Badgers – guidelines for developers*. English Nature, Peterborough.

English Nature (1996) *Great crested newts – guidelines for developers*. English Nature, Peterborough.

English Nature (1999) *Water vole – guidance for planners and developers*. English Nature, Peterborough.

English Nature (2002) *Badgers and development*. EN, Peterborough.

English Nature on behalf of the Barn Owl Trust (2002) *Barn Owls on site: A guide for developers and planners*. EN, Peterborough.

English Nature (2002) *Bats in roofs: A guide for surveyors*.

English Nature (2003) *Focus on bats*.

English Nature (2003) *Great crested newt mitigation guidelines*. English Nature, Peterborough.

Hawk and Owl Trust *Barn owls and major roads*.

Langton, T, Beckett, C and Foster, J (2001) *Great crested newt conservation handbook*. Froglife, Halesworth. ISBN 0952110644.

Mitchell-Jones, AJ (2004) *Bat mitigation guidelines*. English Nature, Peterborough.

Treweek, J and Thompson, S (1997) *A review of ecological mitigation measures in UK environmental statements with respect to sustainable development*. International Journal of Sustainable Development and World Ecology, 4:40-50.

Native Planting/Landscaping

Flora Locale (1999) Technical Note 1: *An overview concerning the sourcing and use of native plants*.

Flora Locale (1999) Technical Note 2: *Designing and planning a project*.

Flora Locale (1999) Technical Note 3: *Planting strategies for ecological restoration*.

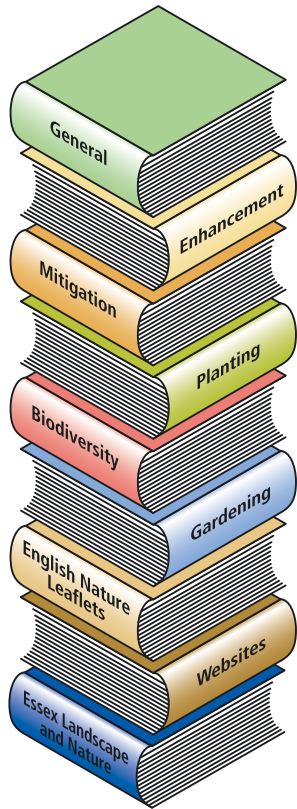
Flora Locale (1999) Technical Note 4: *Sourcing strategies for native plant schemes*.

Flora Locale (1999) Technical Note 5: *Types of native plant material currently available*.

Flora Locale (1999) Technical Note 6: *Who can supply native plants?*

Flora Locale (1999) Technical Note 7: *Specifications for native plants*.

Flora Locale (2000) Technical Note 8: *Buying native plants*.



Frances J and Dixie G (1996) *Planting mixes based on the National Vegetation Classification*. High Value Horticulture Ltd, The Street, Sutton Waldron, Blandford, Dorset.

Other Biodiversity Guidance

Town and Country Planning Association (TCPA) (2004) *Biodiversity by design: A guide for sustainable communities*. Downloadable at: http://www.tcpa.org.uk/content_files/TCPA_biodiversity_guide_lowres.pdf

Cambridgeshire County Council (2001) *Biodiversity Checklist for Land Use Planners in Cambridgeshire and Peterborough*. Downloadable at: <http://www.camcnty.gov.uk/sub/cntryside/biodiv/cc/bioplan/bplanchecklist.pdf>

Biodiversity Supplementary Planning Guidance for Norfolk. Downloadable at: <http://www.norfolkbiodiversity.org/pdf/Guidelines.pdf>

Mayor of London (2002) *Connecting with London's nature: The Mayor's biodiversity strategy*. GLA. ISBN 1 85261 385 8.

Design for Biodiversity: A guidance document for development in London. Downloadable at: http://www.lda.gov.uk/upload/pdf/Design_for_Biodiversity.pdf

Royal Town Planning Institute (RTPI) (1999) *Planning for biodiversity: Good practice guide*. RTPI, London. ISBN 1 9023311 12 4.

Wildlife Gardening

Andrews, J. (1995) *The Country Diary Book of Creating a Wild Flower Garden*. Claremont Books

Baines, C. (2000) *How to Make a Wildlife Garden*. Frances Lincoln Ltd

Baines, C. (1986) *The Wild Side of Town*. Book Club Associates

Baines, C. & Smart, J. (1991) *A Guide to Habitat Creation*. Packard Publishing Ltd

Bardsley, L. (2003) *The Wildlife Pond Handbook*. New Holland Publishers (UK) Ltd

Beckett, K. & G. (1979) *Planting Native Trees and Shrubs*. Jarrold

Bell, G. (1994) *The Permaculture Garden*. HarperCollins Publishers

Bennett, J. (1997) *The Wildlife Garden: Month-by-month*. David & Charles

Bennett, J. (1998) *Wild About the Garden*. Boxtree

Berrisford, J. (1973) *The Wild Garden*. Faber & Faber

Briggs, J. (2002) *Creating Small Habitats for Wildlife in Your Garden*. Guild of Master Craftsmen Publications Ltd

British Dragonfly Society (1996) *Dig a Pond for Dragonflies*. British Dragonfly Society

British Dragonfly Society (1993) *Managing Habitats for Dragonflies*. British Dragonfly Society

Brookes, J. (1994) *Planting the Country Way*. BBC Books

Brookes, J. (1998) *The New Garden*. Dorling Kindersley Ltd

Buchner, G. & Hoogvelt, F. (1978) *Nature on Your Side: how to keep pests out of the garden and home*. Pan Books Ltd

Burton, R. (1998) *Birdfeeder garden*. Dorling Kindersley Ltd

Cameron, R.A.D., Jackson, N. & Eversham, B. (1986) *A Field Guide to the Slugs of the British Isles*. Field Studies Council

Cawdell, P. (1987) *Starting a Butterfly Garden*. SGC (School Garden Company Books)

Chambers, J. (1987) *Wildflower Garden*. Elmtree Books / Hamish Hamilton Ltd

Chinery, M. (1978) *The Natural History of the Garden*. Fontana Books

Chinery, M. (1986) *Garden Creepy-Crawlies*. Whittet Books

Chinery, M. (1999) *Garden Wildlife of Britain and Europe*. Collins Nature Guides. HarperCollins

Doyle, S. (2002) *The Wildlife Trusts Guide to Garden Wildlife*. New Holland Publishers (UK) Ltd

Du Feu, C. (2nd ed. 1993) *Nestboxes. BTO Guide No. 23*. British Trust for Ornithology

Ernst, R. S., & Simpson, N.B. (3rd ed 1996) *The Naturalist's Garden: how to garden with plants that attract birds, butterflies and other wildlife*. Globe Pequot Press

Flowerdew, B. (2000) *Bob Flowerdew's Complete Book of Companion Gardening: how nature can help your plants*. Kyle Cathie Ltd

Genders, R. (1976) *Wildlife in the Garden*. Faber & Faber Ltd

Gibbons, B. & L. (1992) *Creating a Wildlife Garden*. Hamlyn

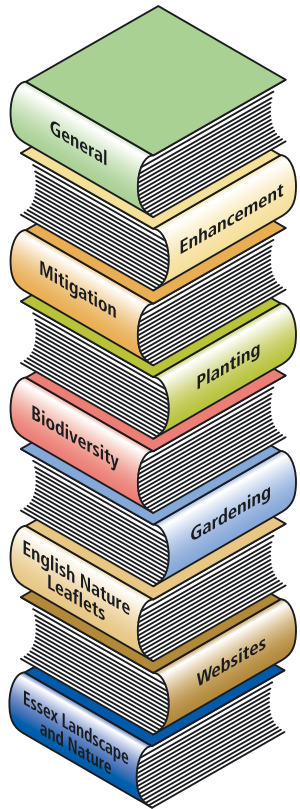
Gibbons, B. (2002) *Green Guide: garden wildlife of Britain and Europe*. New Holland Publishers (UK) Ltd

Glue, D. ed (1982) *The Garden Bird Book*. Macmillan

Golley, M., Moss, S. & Daly, D. (1996) *The Complete Garden Bird Book*. New Holland Publishers (UK) Ltd

Greenoak, F. (2001) *The Natural Garden*. Mitchell Beazley

Hamilton, G. & Owen, J. (1992) *The Living Garden*. BBC Books



Hammond, N. ed (1982) *Gardening with Wildlife*. Royal Society for the Protection of Birds

Harper, P., Light, J. & Madsen M. (1994) *The Natural Garden Book: gardening in harmony with nature*. Gaia Books Ltd

Hessayon, D.G., Dr. (1990) *The Bio Friendly Gardening Guide*. pbi Home & Garden Ltd

Hill, F. (1998) *Wildlife Gardening: a practical handbook*. Derbyshire Wildlife Trust

Huntington, L. (2000) *The Wild Garden*. Cassell's Garden Directories. Cassell

Jackman, L. (1992) *The Wild Bird Garden*. Souvenir Press

Jefferson-Brown, M. (1994) *Wild Flower Gardening*. Royal Horticultural Society

Johnson, H. & P. (1999) *The Birdwatcher's Garden*. Guild of Master Craftsmen Publications Ltd

Kitto, D. (1988) *Composting, the Organic Natural Way*. Thorsons

Lewis, P. (2003) *Making Wildflower Meadows*. Frances Lincoln Ltd

Loomes, B. (1993) *Bird Gardening*. Dalesman Publishing Company Ltd

McHarg, I.L. (1992) *Design with Nature*. Wiley

Mabey, R. (1989) *Food for Free*. Collins

Mackenzie, D. (1997) *Bird Boxes and Feeders for the Garden*. Guild of Master Craftsmen Publications Ltd.

Matthews, N. (1992) *Garden for Birds*. SGC (School Grounds Company Books)

Moore, N. (2002) *Oaks, Dragonflies and People: creating a small nature reserve and relating its story to wider conservation issues*. Harley Books

Moss, S. & Cottridge, D. (1998) *Attracting Birds to Your Garden*. New Holland Publishers (UK) Ltd

O'Toole, C. (2002) *Bumblebees: their natural history and how to attract them to the garden*. Osmia Publications, Banbury

Owen, J. (1991) *The Ecology of a Garden: the first fifteen years*. Cambridge University Press

Palmer, J. (1985) *The Garden as a Nature Reserve*. Dryad Press

Pears, P.M. & Stickland, S. (1995) *Organic Gardening*. Royal Horticultural Society

Phillips, R. (1983) *Wild Food*. Pan Books Ltd

Pilkington, G. (1999) *Gardening for Wildlife*. Alfresco Books

Porter, V. (1996) *RSPCA Guide to Garden Wildlife*. HarperCollins

Rees, Y. (1994) *Practical Wildflower Gardening*. The Crowood Press

Reilly, A. (1993) *Gardening Naturally*. Pion

Robinson, W. (5th ed 1994) *The Wild Garden*. Sagapress/Timber Press

Rothschild, M. & Farrell, C. (1983) *The Butterfly Gardener*. Michael Joseph

Shepherd, A. & Galant, S. eds (2002) *The Little Book of Slugs*. Centre for Alternative Technology Publications

Sibley, P. (1989) *Starting a Wildlife Pond*. SGC (School Garden Company Books)

Soper, T. (1968) *The Bird Table Book*. Pan Books Ltd

Spedding, S. and G. (2003) *The Natural History of a Garden*. Timber Press

Starling, A. & Loosley, P. (1991) *Wildflowers in the Garden*. SGC (School Garden Company Books)

Steel, J. (2001) *Plants for Wildlife – Wildflowers: a descriptive list of over 140 wildflowers to attract wildlife to your garden* Osmia Publications. Available from <http://www.wildlife-gardening.co.uk>

Steel, J. (2001) *Wildflowers for Wildlife: plants to make your garden wildlife friendly*. Osmia Publications. Available from <http://www.wildlife-gardening.co.uk>

Stevens, J. (1994) *The National Trust Book of Wild Flower Gardening*. Dorling Kindersley Ltd

Stevenson, V. (1985) *The Wild Garden*. Frances Lincoln Ltd

Stickland, S. (1996) *The Small Ecological Garden*. Search Press

Stocker, L. (1995) *The Complete Garden Bird*. Leopard Books

Thompson, P. (1991) *Country Gardening Country Style*. David & Charles

Thompson, S. (2nd ed 1996) *Bats in the garden*. SGC (School Garden Company Books)

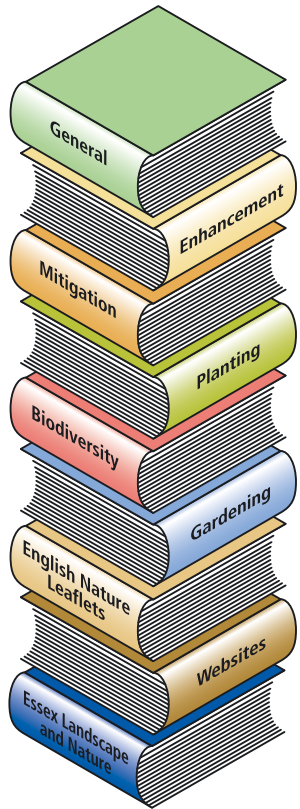
Thurman, P. (1994) *Plants for the Wildlife Garden*. Pavilion Books Ltd

Vegan Organic Trust (2001) *Gardening for Wildlife: how we can make our gardens and allotments more attractive to wildlife*. Information Sheet No. 6. Available from 58 High Lane, Chorlton, Manchester M21 9DZ. 0161 860 4869 veganorganic@supanet.com.

Vegan Organic Trust (2002) *The Vegan Organic Grower's Guide to Beetles*. Information Sheet No.7. Other details as above.

Verner, Y. (1998) *Creating a Flower Meadow*. Green Books Ltd

Walters, M. (1993) *Wild and Garden Plants*. The New Naturalist Library. HarperCollins



Whitefield, P. (1993) *Permaculture in a Nutshell*. Permanent Publications

Wilson, R. (1981) *The Back Garden Wildlife Sanctuary Book*. Penguin Books

Additional publications

The following free leaflets are available from The Enquiry Service, English Nature 01733 455101 or enquiries@english-nature.org.uk

Amphibians in Your Garden: your questions answered.

Reptiles in Your Garden: your questions answered.

Help Save the Bumblebee... get more buzz from your garden.

Plants for Wildlife-friendly Gardens.

Wildlife-friendly Gardening: a general guide.

Websites

The Association of Local Government Officers (ALGE) website offers a range of guidance publications to Local Government on Biodiversity www.alge.org.uk

Baker Shepherd Gillespie has material on recent changes in planning law relating to biodiversity www.bsg-ecology.com

Bat Conservation Trust <http://www.bats.org.uk>

British Trust for Ornithology – garden bird watch project <http://www.bto.org/gbw>

Butterfly Conservation <http://www.butterfly-conservation.org>

Centre for Alternative Technology <http://www.cat.org.uk>

British Dragonfly Society <http://www.dragonflysoc.org.uk>

Centre for Alternative Technology Publications <http://www.ecobooks.co.uk>

English Nature <http://www.english-nature.org.uk>

Flora locale – promotes the use of native plants in large-scale projects <http://www.floralocale.org>

Froglife – an environmental charity for the conservation of amphibians and reptiles in Britain and Ireland <http://www.froglife.org>

Henry Doubleday Research Association; the organic association <http://www.hdra.org.uk>

Herpetological Conservation Trust, dedicated to the conservation of reptiles and amphibians <http://www.herpconstrust.org.uk>

Be Nice to Nettles Project <http://www.nettles.org.uk>

The Postcodes Plants Database <http://www.nhm.ac.uk/science/projects/fff>

Landlife – wildflowers and wildlife charity <http://www.landlife.org.uk>

The Mammal Society <http://www.mammal.org.uk>

National Wildflower Centre <http://www.nwc.org.uk>

Peaterring Out: a list of nurseries and garden centres by county that operate peat-free <http://www.peaterringout.com>

Permaculture Magazine, solutions for sustainable living <http://www.permaculture.co.uk>

Plantlife – Britain's principal wild plant charity <http://www.plantlife.org.uk>

The Ponds Conservation Trust <http://www.pondstrust.org.uk>

The Royal Horticultural Society <http://www.rhs.org.uk>

The Royal Society for the Protection of Birds <http://www.rspb.org.uk>

Veggieglobal and Looking-Glass site <http://www.veggieglobal.com>

Jenny Steel's wildlife gardening site <http://www.wildlife-gardening.co.uk>

The UK Wildflower Directory <http://www.wildflowerlinks.co.uk/>

The national body of the county wildlife trust movement <http://www.wildlifetrust.org.uk>

CONE: an innovative local authority organisation in NE England <http://www.workingwithwildlife.co.uk/>

Essex

Corke, D (1984) *The nature of Essex*. Barracuda Books or Corke, D. (1986) *The nature of Essex: the wildlife and ecology of the county* (2nd Ed) Buckingham.

Essex Planning Officers' Association (2005) *The Essex Guide to Environmental Impact Assessment*. <http://www.phplanning.mysite.wanadoo-members.co.uk>

Hunter, J (1999) *The Essex landscape: a study of its form and history*. Essex Record Office Publications. ISBN 1-898529-15-9

Lucy, G (1999) *Essex rock*. Essex Rock and Minerals Society. ISBN 0 9534832 0 7

This Glossary is based largely upon Byron (2000) Biodiversity and Environmental Impact Assessment: A Good Practice Guide for Road Schemes RSPB, WWF-UK, English Nature and the Wildlife Trusts, as well as Biodiversity Supplementary Planning Guidance for Norfolk.

A-C

D-F

G-I

J-L

M-O

P-S

T-V

W-Z

Glossary

Ancient Woodland

Land identified by English Nature that has been continuously wooded since 1600 supporting rare plants and animals. Since almost all such woodlands have been managed by humans, they are more correctly referred to as semi-natural ancient woodlands.

Appropriate Assessment

Under the Habitats Directive an appropriate assessment needs to be undertaken in respect of any plan or project which either alone, or in combination with other plans or projects, would have a significant effect on a European designated site, and which is not directly connected with the management of the site for nature conservation.

Avoidance

Measures taken to avoid adverse impacts, such as locating the main development and its working areas and access routes away from areas of high ecological interest, fencing off sensitive areas during the construction period, or timing works to avoid sensitive periods. Also includes alternative and 'do nothing' options.

Backland

Land that is behind existing development with no, or very limited, road frontage. Usually applied to describe land previously or currently in use as rear gardens to

existing residential properties. Many small-scale planning applications are now of this type.

Baseline Conditions

The conditions that would pertain in the absence of the proposed action. Sometimes referred to as a 'do nothing' scenario.

Biodiversity

Biological Diversity. The total range of the variety of life on Earth, or any given part of it. This includes diversity within species, between species and of ecosystems.

Biodiversity Action Plan (BAP)

A framework for achieving the conservation of biodiversity, based on the targeting of resources towards priority habitats and species. A cross-sectoral partnership identifies priorities and establishes an action plan for the conservation and sustainable use of locally and nationally important biodiversity. BAPs can be prepared at a national level such as the UK BAP or at a county level such as the Essex BAP, where the latter is known as a Local Biodiversity Action Plan (LBAP).

Broad Habitat

Broad Habitat Statements provide summary descriptions of all habitats found within the UK and are identified in the Broad Habitat Classification. For example, natural habitat types such as broadleaved

woodlands and rivers and streams, through to urban settings. In addition to a general description of the habitat type these Statements identify the current issues affecting the habitat and the broad policies that can be put in place to address these.

Brownfield Site

Previously developed land that is, or was, occupied by a permanent structure and associated fixed-surface infrastructure.

Buffer Zone

An area or zone that helps to protect a habitat from damage, disturbance or pollution. It is an area (human-made or natural) that is managed to protect the 'integrity' of that area.

Community Forests

A joint initiative between the Countryside Agency and the Forestry Commission to promote the creation, regeneration of well-wooded landscapes around major towns and cities.

Compensation

Measures taken to offset/compensate for residual adverse effects which cannot be entirely mitigated. These usually take the form of replacing (or at least trying to) what will be lost. For example, the relocation of important grassland or heathland habitats from the development site to another area identified as suitable

(using techniques such as soil or turf transfer), or the creation of new habitats.

Conditions

Stipulations attached to a planning permission to limit or direct the manner in which a development is carried out.

Convention on Biological Diversity

This Convention was signed by the Prime Minister and 150 other Heads of State or Governments at the Earth Summit in Rio de Janeiro in June 1992. Under Article 6A of the Convention signatories must develop national strategies, plans or programmes for the conservation and sustainable use of biological diversity.

Corridor

A strip of a particular type that differs from the adjacent land on both sides. Corridors have several important functions, including conduit, barrier and habitat.

Countryside Agency

Organisation responsible for advising HM Government and taking action on issues affecting the social, economic and environmental well-being of the English countryside.

DEFRA

Department for Environment, Food and Rural Affairs – formerly the Ministry of Agriculture, Fisheries and Food (MAFF).

A-C

D-F

G-I

J-L

M-O

P-S

T-V

W-Z

Development Plan Document (DPD)

Spatial planning documents covering a range of policy areas that will undergo a process of consultation and are subject to alteration following independent examination. (see LDD)

Direct Impact

An outcome that is directly attributable to a defined action.

Disturbance

Disruption of normal process or behaviour.

Ecosystem

A community of interdependent organisms and the environment they inhabit, such as ponds and pond life.

English Nature (EN)

A national body funded by the Government to promote and give advice on England's wildlife and natural features. Under Government reforms, English Nature will soon merge with parts of DEFRA and the Countryside Agency under the new name of Natural England.

Environment Agency (EA)

Government agency with responsibility for environmental protection and improvement, its main functions cover pollution prevention and control, water resources, flood defence, conservation, fisheries, navigation and recreation.

Environmental Impact Assessment (EIA)

A process of predicting and evaluating the effects of an action or series of actions on the environment, then using the conclusions as a tool in planning and decision-making.

Environmental Statement (ES)

The written output of an Environmental Impact Assessment (EIA) with the primary purpose of informing decision makers of the likely significant environmental impacts of a project. The Environmental Statement must contain a non-technical summary to enable non-experts to understand the findings.

Essex Biodiversity Action Plan (Essex BAP)

Published in 1999, this document lists all 25 priority species and 10 priority habitats in Essex. It includes details of current status of habitats/species and the principal factors causing loss or decline. Actions are listed with a view to halt and/or reverse decline. Specific organisations are identified to take a lead role in implementing these action plans. The Essex BAP comes up for review in 2006.

Essex Biodiversity Project (EBp)

The Essex Biodiversity Project is an informal partnership of more than 40 individuals, nature conservation organisations, statutory agencies, voluntary interest groups, businesses,

schools, community groups and local authorities working together for the biodiversity of Essex.

Essex Coastal Protection Belt

Prepared by Essex County Council in 1984, comprising coastal land identified as having national ecological importance that should be protected against unfavourable development.

Essex Design Guide

Prepared by Essex County Council, the Design Guide forms the basis for the design of housing development in the county.

Essex Wildlife Trust

Non-Government organisation (NGO), the principal nature conservation charity in Essex.

Fauna

A collective term for all kinds of animals.

Flora

A collective term for all kinds of plants.

Green Belt

Specially designated area of countryside protected from most forms of development in order to stop urban sprawl and the coalescence of settlements, preserve the character of existing settlements and encourage development to locate within existing built-up areas.

Greenfield Site

An area of previously undeveloped land, ie. not used for built development.

Habitat

A place in which a particular plant or animal lives, feeds or breeds. Often used in a wider sense, referring to major assemblages of plants and animals found together, such as grasslands or woodlands.

Habitat Action Plan (HAP)

A conservation plan for a habitat based upon the knowledge of its ecological and other requirements, which identifies the actions needed to stabilise and improve its status.

Habitats and Birds Directives

The European Union requires Member States to designate and protect some of the most important areas for wildlife under these two Directives. They are or will be classified as Special Protection Areas (SPAs) and/or Special Areas of Conservation (SACs). These sites are also Sites of Special Scientific Interest (SSSIs) but meet specific criteria for international importance. In the case of marine SACs, the SSSI designation only applies down to the low water mark.

Habitat Creation

The construction of communities of native species of wildlife conservation value on areas of land with no significant ecological

interest, carried out on areas which are bare or support a simple community, such as an arable field, an area of rye grass or a site where extensive earth moving has taken place; all such sites have low conservation value.

Habitat Enhancement

A similar approach to that of habitat creation but with due regard to the existing ecological value of the area. Generally applied to poorer habitats lacking management that would benefit from improvement. For example, a gappy hedge could be infilled with new plants, a partly-coniferised woodland could be replaced with indigenous broad-leaved tree species or an over-grown, neglected pond could be de-silted and re-profiled.

Habitat Fragmentation

The process of isolation whereby areas of habitat become broken into smaller parts as a result of external factors such as road building, housing development and agriculture.

Habitat Restoration

The re-establishment of a damaged or degraded system or habitat to a close approximation of its pre-degraded condition.

Hedgerow Regulations 1997

Regulations administered by local authorities brought in to that protect important hedgerows that are administered by local authorities.

Indigenous Species

A species that is native to a particular region.

Indirect Impact

An impact that is attributable to a defined action or stressor, but that affects an environmental or ecological component via effects on other components. Indirect effects are often, but not necessarily, time-delayed or expressed at some distance from their source.

Integrity

The coherence of a site's ecological/geological structure and function across its whole area that enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it is designated.

Introduced Species

A species introduced from one region to another geographical region. This definition may be broadened to include non-UK exotic or alien species (eg. mink, Japanese Knotweed). Introduction may be deliberate (eg. a biological control mechanism) or unintentional (eg. accidentally or unknowingly released).

Local Biodiversity Action Plan (LBAP)

National term use to describe county or district/borough/unitary biodiversity action plans.

Local Development Document (LDD)

Planning documents with development plan status, known as Development Plan Documents (DPDs), and Supplementary Planning Documents (SPDs).

Local Development Framework (LDF)

The Local Development Framework is part of the new Development Plan System, introduced by the Planning and Compulsory Purchase Act 2004. The LDF consists of a number of documents called Local Development Documents, which set out the planning policy for local authority areas. There are two types of Local Development Documents (LDD), some are statutory, and some are non-statutory.

Local Nature Reserves (LNRs)

A place that is of special nature conservation interest locally. LNRs are declared and managed by local authorities (in consultation with English Nature) under the National Parks & Access to the Countryside Act 1949. Generally such LNRs are well suited to public access and interpretation.

Local Provenance

Seeds or plants that can be tracked back to a wild site, but the parents are of unknown origin, such as an oak tree that may have been planted in native woodland. However, the parent plants appear native and well adapted to the site in which they grow. Local provenance can

also be used as a supplementary term to describe planting material of native origin that is destined for use in the same local area as it was collected.

M11-Stansted Corridor

A corridor of land running either side of the M11 from London to Cambridge encompassing Stansted Airport. It is zoned as an area for development growth, which includes housing, industry, airport expansion, infrastructure and economic regeneration. Strategic frameworks are being progressed to deliver sustainable communities (eg. Stansted/M11 Corridor Development Options Study).

Material Consideration

In principle, any consideration that relates to the use and development of land that is capable of being a planning consideration. Such matters should be taken into account in deciding a planning application or on an appeal against a planning decision (refusal).

Mitigation

Measures taken to reduce adverse impacts, eg. modifications or additions to the design of development, such as the creation of reed bed silt traps to prevent polluted water running directly into ecologically important watercourses. The preservation of 'wildlife corridors' between habitats that would be separated by a proposed development may reduce the possible effects on some fauna.

A-C

D-F

G-I

J-L

M-O

P-S

T-V

W-Z

A-C

D-F

G-I

J-L

M-O

P-S

T-V

W-Z

Mosaics

An irregular pattern of habitats and linking corridors, which form an overall mosaic of habitats.

National Nature Reserve (NNR)

A site of national importance for its nature conservation value declared under the National Parks & Access to the Countryside Act 1949, and managed to protect wildlife and natural features. NNRs provide opportunities for scientific research and most have some public access.

Native Origin Plant

Planting material collected from parents whose wild origin has been documented and is known by the supplier. An example might be Ox-eye Daisy grown as a wildflower crop from parent plants that have been grown from seed collected from an ancient wildflower meadow.

Native Species

Species that occur naturally in an area, and therefore have not been introduced by humans either accidentally or intentionally.

Nature Conservation

The preservation, management and enhancement of natural plant and animal communities, and occasionally modified vegetation, as representative samples of their kind.

Net Gain

The point at which the quality and quantity of habitats or species improves compared to their original condition, ie. improvements over and above those required for mitigation/compensation.

No Net Loss

The point at which habitat or biodiversity losses equal their gains, both quantitatively and qualitatively.

Planning Gain

The principle of a developer agreeing to provide additional benefits or safeguards, often for the benefit of the community, usually in the form of related development supplied at the developer's expense. For example, an offer of a nature conservation area adjacent to housing.

Planning Policy Guidance (PPG) and Planning Policy Statements (PPS)

A series of documents issued by the Office of the Deputy Prime Minister (ODPM) setting out Government policy and advice on planning issues such as nature conservation (PPG9). A separate series of notes is issued dealing with minerals planning. Under new planning reforms PPGs will be gradually phased out, with updated and streamlined Planning Policy Statements (PPSs) taking their place.

PPS9 on Biodiversity and Geological Conservation is at the draft stage and subject to ongoing public consultation.

Precautionary Principle

Where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. This general environmental definition applies to biodiversity and its protection.

Priority Habitat

Priority Habitat Action Plans provide more detailed descriptions for 45 specific types of habitats such as native pine woodlands, upland oakwoods and lowland wood pasture and parkland. They set out detailed actions that can be taken by a number of agencies in order to safeguard and enhance these habitats. These Action Plans are national; several apply to Essex.

Protected Species

Plant and animal species protected under the Conservation (Natural Habitats &c.) Regulations 1994 (the "Habitats Regulations"), the Wildlife & Countryside Act 1981 (as amended), or other species protected under legislation specific to them (eg. badgers). Covers species such as Great Crested Newts, reptiles, bats, badgers, certain plants and birds.

RAMSAR Site

A wetland site of international importance, designated under the Ramsar Convention of Wetlands of International Importance, especially as a waterfowl habitat.

Regional Spatial Strategy (RSS)

Identification and definition of policies relating to the development and use of land in the region prepared by the regional planning body (EERA) and approved by the First Secretary of State.

Saved Policies

Under the transitional arrangements, adopted structure and local plans will be saved, ie. retain their development plan status, for three years from their adoption.

Scope

Determination of the scope of an Environmental Impact Assessment (EIA), ie. the range of issues that need to be covered.

Screening

Determination of whether or not an Environmental Impact Assessment (EIA) is necessary.

Section 106 Agreement (S106)

Also referred to as planning obligations, these are legal agreements between a local planning authority and a developer, or offered unilaterally by a developer, ensuring that certain works related to the development are undertaken, usually under Section 106 of the Town & Country Planning Act 1990.

A-C
D-F
G-I
J-L
M-O
P-S
T-V
W-Z

Semi-Natural

Relating to vegetation that has been modified by humans but is still of significant nature conservation interest because it is composed of native plant species, is similar in structure to natural types and supports native animal communities.

Site of Special Scientific Interest (SSSI)

An area of land or water notified under the Wildlife & Countryside Act 1981 (as amended) as being of national importance for nature or geological conservation. The statutory designation applies throughout Great Britain.

Special Area of Conservation (SAC)

A site of international importance designated by UK Government under the EU Habitats Directive 92/43 on the conservation of natural habitats and of wild fauna and flora.

Special Protection Area (SPA)

A site of international importance for birds designated under the EU Directive on the Conservation of Wild Birds, which requires special measures to be taken to conserve the habitats of particular species.

Species

A group of organisms of the same kind that reproduce among themselves but are usually reproductively isolated from other groups of organisms.

Species Action Plan (SAP)

A conservation plan for a species based upon the knowledge of its ecological and other requirements, which identifies the actions needed to stabilise and improve its status.

Stepping Stone

An ecologically suitable area where an animal temporarily stops while moving along a heterogeneous (varied) route.

Strategic Environmental Assessment (SEA)

A similar technique to Environmental Impact Assessment (EIA) but normally applied to policies, plans, programmes and groups of projects. Strategic Environmental Assessment (SEA) provides the potential opportunity to avoid the preparation and implementation of inappropriate plants, programmes and projects and assists in the identification and evaluation of project alternatives and identification of cumulative effects. SEA comprises two main types: sectoral SEA (applied when many new projects fall within one sector) and regional SEA (applied when broad economic development is planned within one region).

Succession

The natural process by which a series of plants colonise a substrate over time, such as a change from grassland/heathland to scrub to woodland.

Supplementary Planning Document (SPD)

Supplementary Planning Documents are used to provide further detail to policies and proposals contained in a Development Plan Document. The SPD is not part of the statutory Development Plan, unlike the Development Plan Document. However, the SPD will form part of the Local Development Framework (LDF), and will be an important consideration in determining planning applications. SPD may cover a range of issues and can be thematic or site specific. For example, an SPD can be a design guide (such as this one), development brief or a topic or issue based document. SPD must be consistent with national and regional planning policies as well as the Development Plan Documents in the Local Development Framework (LDF).

Supplementary Planning Guidance (SPG)

Additional advice issued by a local planning authority expanding on its statutory policies (to be superseded by SPD above).

Sustainability Appraisal (SA)

Sustainability Appraisal is a process used to audit how sustainable development is being incorporated into strategies prepared by organisations. The purpose of the Sustainability Appraisal, as part of the new planning system, is to encourage sustainable development by improved integration of sustainability considerations

throughout the preparation and adoption of new local planning policies.

Sustainable Construction Techniques

The use of design and construction methods and materials that are resource efficient (eg. energy and water) and that will not compromise the health of the environment or the associated health of the building occupants, builders, the general public or future generations. These include designing 'green' or eco-friendly buildings, using locally sourced, non-toxic materials, re-using or recycling materials, employing local builders, managing the construction site to minimise construction waste, installing high-efficiency appliances and landscaping the finished development.

Sustainable Use

A use that can be continued through time without significantly changing the populations, species and habitats being used.

Sustainable Development

A widely used international definition is 'development which meets the needs of the present without compromising the ability of future generations to achieve their own needs and aspirations'. This Brundtland definition (1987) has been adapted by UK Government into 4 key objectives:

- Social progress which recognises the needs of everyone;

- Effective protection of the environment;
- Prudent use of natural resources; and
- Maintenance of high and stable levels of economic growth and employment.

The challenge of sustainable development is to meet all four objectives at the same time.

Sustainable Drainage Systems (SDS)

These water management systems are designed to control the quantity and improve the quality of run-off water from developments through the use of rills, swales, porous membranes/surfaces, gravel filters, water bodies, balancing ponds and reedbeds. Positive benefits include improved flood control and enhancements for wildlife, landscape and amenity value of developments.

Thames Gateway

A corridor of land running either side of the Thames from London to the estuary mouth at Southend-on-Sea. It is zoned as an area for redevelopment and economic regeneration. Strategic frameworks are being promoted to deliver sustainable communities in South Essex (eg. Greening the Gateway).

The Planning and Compulsory Purchase Act 2004

Came into force at end of September 2004. It has fundamentally reformed the planning system, by introducing LDFs to replace the current system of local, structure and unitary development plans.

The reform aims to speed up plan preparation, enhance community involvement in planning, strengthen policy content, and achieve a better focus on implementation.

Translocation

The removal and relocation of an individual, a population, a community or a habitat from one location to another.

Tree Preservation Order (TPO)

A legal order made by a local planning authority that makes it an offence to cut, top, lop, uproot or wilfully damage or destroy a tree without the authority's consent.

Wildlife Corridor

A linear habitat (or habitats) that links two or more areas of wildlife significance, which facilitate the movement or dispersal of targeted species through rural or urban environments. Multifunctional corridors are now being promoted that are not only of benefit to wildlife, but also designed for recreation, access, healthy pursuits, walkers, horse riders, cyclists, etc.

Wildlife Site

Sites identified in Essex (including Thurrock and Southend) that are complementary to statutory sites (eg. SSSIs), but are protected, maintained and enhanced for their existing wildlife resource which is of local or county importance. These sites were previously known as Sites of Importance for Nature Conservation

(SINCs). Future naming of these sites as 'Local Sites' is proposed by DEFRA.

This Glossary is based largely upon Byron (2000) *Biodiversity and Environmental Impact Assessment: A Good Practice Guide for Road Schemes* RSPB, WWF-UK, English Nature and the Wildlife Trusts, as well as *Biodiversity Supplementary Planning Guidance for Norfolk*.

A-C

D-F

G-I

J-L

M-O

P-S

T-V

W-Z

Acknowledgements

This guide was produced by the Planning Group of the Essex Biodiversity Project and has involved the following people:

Chairs – Antony Muller (Natural England)
Tony Morton (Uttlesford DC).

Members – Liz Beighton and Carol Brown (Chelmsford BC), Gen Broad (Essex Biodiversity Project), Emma Simmonds (Essex County Council), Phil Sturges and Andrew May (Essex Wildlife Trust), Charlie Williams and Chris Keeling (Natural England), Lorna McLean (Rochford DC), Sarah Nicholas (Uttlesford District Council).

Thanks to those who have given us their permissions to use their material in our case studies: Stephen Hall of Giles Landscapes, Penny Anderson Associates Ltd, Donald Purkiss Associates, Mineral Services Ltd. and Roger Evans Associates.

We are also grateful to the helpful comments we received on draft guidance from: **Geoff Boyton** Brentwood Borough Council, **Richard Bird** and **Peter Huxtable** British Aggregates Association, **Theo Labuda** CPREssex, **Will Akast** and **Sarah Boyd** Environment Agency, **Ian White** Epping Forest District Council, **Helen Crabtree** Essex & Suffolk Water, **Silvia** and

Roger Jiggins Essex Bat Group, **Paul Sztumpf**, **Catherine Bailey**, **Martin Wakelin** and **Peter Unthank** Essex County Council, **Peter Harvey** Essex Field Club, **John Hall** Essex Wildlife Trust, **Lorna Maclean** Hampshire and Isle of Wight Wildlife Trust, **Keith Wharmby** Lafarge Aggregates, **Liz Lake** Liz Lake Associates, **Renee Hockley-Byam** North East Essex Badger Group, **Yasmine Hamid** RSPB South East Essex Local Group, **Martin Scott** Southend Borough Council, **Cllr Judy McMahon** Southend Borough Council, **Paul Wilkinson** The Wildlife Trusts and **Clare Lambert** Thurrock Council.

Essex Biodiversity Project

Essex Biodiversity Project, a group of more than 40 nature conservation organisations, statutory agencies, voluntary interest groups, businesses, community groups and local authorities working together for the biodiversity of Essex.

Funding members:



Supporting members: Braintree District Council • British Trust for Conservation Volunteers • Butterfly Conservation • Castle Point Borough Council • Colchester Borough Council • Conservators of Epping Forest • Dedham Vale & Stour Valley Project • Essex Amphibian and Reptile Group • Essex Bat Group • Essex Birdwatching Society • Essex Estuaries Initiative • Essex Field Club • Essex Farming and Wildlife Advisory Group • Game Conservancy Trust • Havering Borough Council • Lee Valley Regional Park • Peoples Trust for Endangered Species • Royal Horticultural Society • Royal Society for the Protection of Birds • Southend Borough Council • Thames Chase Community Forest • Thames Estuary Partnership • The National Trust • The Suffolk Coasts & Heaths Unit • Writtle College.

Essex Biodiversity Project, c/o Joan Elliot Visitor Centre
Abbotts Hall Farm, Great Wigborough
Colchester, Essex CO5 7RZ
www.essexbiodiversity.org.uk

Gen Broad
Biodiversity Coordinator
01621 862981
genevieveb@essexwt.org.uk

Mark Iley
Biodiversity Project Officer
01621 862975
marki@essexwt.org.uk

Designed by Hickory Hollow.

Design funded by Essex County Council and Essex Biodiversity Project.

2007 website update funded by Uttlesford District Council.