Kent Biodiversity Action Plan

A framework for the future of Kent's wildlife

The
Kent Biodiversity Action Plan

A framework for the future of Kent's wildlife

Produced by Kent Biodiversity Action Plan Steering Group

c/o Kent County Council
Invicta House, County Hall, Maidstone,
Kent ME14 1XX. Tel: (01622) 221537

CONTENTS

1. BIODIVERSITY AND THE DEVELOPMENT OF THE KENT PLAN 1

1.1 Conserving Biodiversity 1
1.2 Why have a Kent Biodiversity Action Plan? 1
1.3 What is a Biodiversity Action Plan?

1.4 The approach taken to produce the Kent Plan 2
1.5 The Objectives of the Kent BAP 2
1.6 Rationale for selection of habitat groupings and individual species for plans 3

2. LINKS WITH OTHER INITIATIVES 7

2.1 Local Authorities and Local Agenda 21 7
2.2 English Nature's 'Natural Areas Strategy' 9

3. IMPLEMENTATION 10

3.1 The Role of Lead Agencies and Responsible Bodies 10
3.2 The Annual Reporting Process 11
3.3 Partnerships 11
3.4 Identifying Areas for Action 11
3.5 Methodology for Measuring Relative Biodiversity 11
3.6 Action Areas 13
3.7 Taking Action Locally 13
3.8 Summary 14

4. GENERIC ACTIONS 15

2.1 Policy 15
2.2 Land Management 16
2.3 Advice/Publicity 16
2.4 Monitoring and Research 16

5. HABITAT ACTION PLANS 17

3.1 Habitat Action Plan Framework 18
3.2 Habitat Action Plans 19

Woodland & Scrub 20
Wood-pasture & Historic Parkland 24
Old Orchards 27
Hedgerows 29
Lowland Farmland 32
Urban Habitats 35
Acid Grassland 38
Neutral & Marshy Grassland 40
Chalk Grassland 43
Heathland & Mire 46
Grazing Marsh 49
Reedbeds 52
Rivers & Streams 55
Standing Water (Ponds, ditches & dykes, saline lagoons, lakes & reservoirs) 58
Intertidal Mud & Sand 62
Saltmarsh 65
Sand Dunes 67
Vegetated Shingle 69
Maritime Cliffs 72
Marine Habitats 74

6. SPECIES ACTION PLANS **77**

6.1 Species Action Plan Framework 77
6.2 Species Action Plans 78

Water Vole 79
Otter 82
Dormouse 84
Serotine Bat 86
Nightingale 88
Great-crested Newt 90
Allis and Twaite Shad 92
White-clawed Crayfish 94
Heath Fritillary 97
Pearl-bordered Fritillary 99
Silver Spotted Skipper 101
Early Gentian 103
Late Spider-orchid 105

7. REFERENCES **107**

ABBREVIATIONS **109**

GLOSSARY **110**

APPENDICES

Appendix 1: Species of Conservation Concern in Kent

Appendix 2: Proposed Group Structure for Implementation Phase

Appendix 3: Distribution of Agricultural Land Classes 4 and 5 in Kent

Appendix 4: Location of Nationally Rare Plant Species in Kent

Appendix 5: Methodology for Determining Relative Biodiversity Across Kent

Appendix 6: Summary of 10 and 50 year targets for all habitat and species covered by action plans

Appendix 7: List of organisations consulted

1. BIODIVERSITY AND THE DEVELOPMENT OF THE KENT PLAN

Biodiversity is simply "the Variety of Life". It encompasses the whole range of animals, plants and micro organisms on earth, from the tiniest bug to the mightiest oak, along with the ecosystems in which they live.

1.1 CONSERVING BIODIVERSITY

Conserving biodiversity is not just about rare and threatened species and habitats, but the common-place as well. All those who care about the countryside are appreciating biodiversity. It is important for maintaining the quality of our lives and is intimately bound up with it.

Although the countryside may still appear visually attractive, it has become apparent that much of its richness and diversity has already been lost, and more is disappearing each year; some plants and animals that were once familiar are now rare, others have become extinct altogether. This century the UK has lost over 100 species including 7% of our dragonflies, 5% of our butterflies and more than 2% of our fish and mammals. Many more are in danger of disappearing, especially at the local level. Nature has an in-built propensity to change, continually evolving new variants and new species, but all of this occurs naturally over a length of time. The world is losing species at a faster rate now than ever before, as a result of human activity; evolution cannot compensate for losses at anything like the current rate and so biodiversity is declining fast.

There are many other reasons why we should conserve biodiversity:

- In the context of sustainability we should be handing on to future generations a world that is richer than the one we inherited;
- Species which evolved over thousands of years may be lost very quickly, and cannot be re-created;
- Natural processes help to protect our planet, e.g through regulating climate and air quality;
- In maintaining the productivity of our crops we rely upon a reservoir of their wild relatives and the pool of genetic material that they hold;
- In conserving the biodiversity of Kent not only will we be taking responsibility for the quality of our local environment, we will be contributing to global biodiversity.

1.2 WHY HAVE A BIODIVERSITY ACTION PLAN?

In June 1992 more than 150 heads of government attended the "Earth Summit" (United Nations Conference on Environment and Development) in Rio de Janeiro. One important outcome of this gathering was the Convention on Biological Diversity, signed by 153 countries including the UK and the EC.

This was the start of the UK Government's commitment to biodiversity and since then there have been a number of key stages in taking forward biodiversity issues in the UK:

First edition of "Biodiversity Challenge" issued by voluntary conservation sector as a discussion document (December 1993)

↓

UK Government published "Biodiversity: The UK Action Plan" (January 1994) and the UK BAP Steering Group was set up to prepare costed action plans for animals, plants and habitats.

↓

Voluntary conservation sector published "Biodiversity Challenge - an agenda for action in the UK"
(January 1995)

↓

Publication of "Biodiversity: The UK Steering Group Report" which includes costed targets and proposed actions for over 100 species and 14 habitats
(December 1995)

↓

UK Government endorses report (May 1996)

↓

Publication of "Biodiversity Action Plan for Kent"
(November 1997)

The Kent Biodiversity Action Plan (BAP) is the first step in the County's response to these national initiatives and is an important milestone for the County and its wildlife. It is a chance to set out what is of regional, national and international importance in Kent and is intended to take the UK Plan forward at a local level, addressing many of the challenges set by the national plan, drawing on local experts across the conservation spectrum. It is hoped that it will make a visionary but practical contribution to the implementation of the UK Plan.

1.3 WHAT IS A BIODIVERSITY ACTION PLAN?

The primary aim of this plan is to enable the conservation and enhancement of biodiversity in Kent and so contribute to the maintenance of national and global biodiversity. This Local BAP identifies where action needs to be taken to implement national targets for habitats and species, and it also identifies appropriate delivery mechanisms.

The Kent BAP summarises the information which is currently available regarding the county's biodiversity and the areas of deficiency in our knowledge. The Plan identifies those species and

habitats most under threat, and sets out an agenda for action. It takes all habitats and some of the most important species in Kent and sets out targets for the future, with proposed monitoring to assess results and record progress.

There are four key elements in the preparation of a BAP:

- **Audit** - to assess which species and habitats are most significant for nature conservation in Kent and establish their current status
- **Defining goals** - objectives for species and habitats, and measurable targets for their conservation
- **Deciding priorities** - identifying specific targets and defined areas for action (accepting that there are limitations, in terms of finance and time, to what can be achieved).
- **Implementation** - requires member groups in the Partnership to take responsibility for implementing the actions identified in the plans, including the monitoring and review process.

The Kent BAP includes targets which are based on the range of local conditions and thereby reinforce local distinctiveness - promoting the conservation of species and habitats characteristic of the local area. This approach complements the 'Natural Areas Strategy' currently being developed by English Nature, consolidating existing character.

Many of the proposed actions also complement the landscape guidelines for the different character areas in the county and the aims of heritage conservation, since biodiversity, landscape and heritage are all inextricably linked. It also provides a focus for local initiatives to fulfil local biodiversity conservation needs.

Through Local Agenda 21 local communities are being encouraged to consider how they wish their local environment to develop into the twenty-first century. The Kent BAP can promote the inclusion of biodiversity in their vision for a sustainable future and provide the base for developing the biodiversity component of Local Agenda 21.

1.4 THE APPROACH TAKEN TO PRODUCE THE KENT PLAN

The development of a Biodiversity Action Plan for Kent was a logical next step following the recommendations made by the Kent Wildlife Habitat Survey County_Report (1995), combined with the guidance given in the Biodiversity Action Plan Steering Group (BAPSG) Report on how biodiversity targets are to be achieved at the local level . It provides a framework for addressing issues arising from the Survey, as well as those relating to nationally and regionally rare and endangered species, and consolidates the approach already being adopted by all of the key agencies working for nature conservation in Kent. Having recently carried out a countywide survey, Kent is extremely well-placed to prepare a local BAP.

There is a long history of successful partnership action in Kent and the BAP builds upon this tradition. Following the successful model partnership which undertook the Kent Wildlife Habitat Survey between 1990 and 1995, the information from which largely underpins this document, a similar approach has been adopted for the development of the Kent BAP.

The partnership which convened to prepare and implement this plan includes members of all organisations which are key players with a responsibility for the conservation of biodiversity within Kent, including representatives of land managers. The partnership was established at the outset to encourage the development of a shared vision, and to encourage full commitment to the development and implementation of the plan.

The partnership process is essential to generate a sense of **ownership** of the plan. If all organisations and individuals, for whom this is a responsibility, work together, real and measurable improvements can be achieved.

The partnership currently includes:
Government bodies: English Nature, Environment Agency, Forestry Authority, MAFF, GOSE.
Local Government: Kent County Council, Dover, Tonbridge & Malling, Swale and Canterbury District Councils (nominated by KPOG to represent all Kent Local Authorities).
Independent wildlife organisations: Kent Wildlife Trust, RSPB
Land owners and managers: Country Landowners Association, National Farmers Union

Representatives from these bodies formed a steering group to oversee the development of the plan. Individuals and organisations from within the partnership contributed to the preparation of the habitat and species action plans, and a smaller working group drawn from KCC, EN and KWT produced the detailed Plan.

The Plan was widely consulted on and has received widespread support. (See *Appendix 7* for the full list of consultees).

1.5 THE OBJECTIVES OF THE KENT BAP

GOAL: To conserve and enhance biological diversity in Kent and to contribute to the conservation of national and global biodiversity

OBJECTIVES:

1) To maintain and, where practicable, to enhance:

- the overall populations and natural ranges of native species and the quality and range of wildlife habitats and ecosystems;
- internationally and nationally important and threatened species, habitats and ecosystems;
- species, habitats and natural and managed ecosystems that are characteristic of Kent;
- the biodiversity of natural and semi-natural habitats, where this has diminished over

recent decades.
2) To increase public awareness of, and involvement in, conserving biodiversity.
3) To identify priorities for habitat and species conservation in Kent and set realistic targets and time-scales for these.

These broad goals and objectives reflect those of the UK Plan.

The production of this plan provides an opportunity to reflect on Kent's place in national and international nature conservation. Kent is in a unique position, being the closest English county to mainland Europe, with a climate which has a closer affinity to the continent than to many other parts of the UK. As a result there are several species occurring here which are either on the edge of their northerly range in Kent, or have their UK stronghold here. The county also boasts a high proportion of coastal and estuarine habitat, with three internationally important estuaries, around 10% of England's ancient semi-natural woodland, and a chalk grassland resource of international importance.

The biodiversity of any area is inextricably linked with its landscape and heritage, since the three inevitably evolve together. Because of this close association, the objectives of the Kent BAP will help to preserve and re-enforce the landscape character and heritage of Kent in the same way in which, for example, the Landscape Guidelines for different areas of Kent will complement action for biodiversity in those areas.

This plan sets out the priority action required to protect and enhance the current biodiversity of Kent. Many of the proposed actions involve positive management to conserve Kent's wildlife (a widely acknowledged need, which was further confirmed by the Kent Wildlife Habitat Survey, 1995). Other actions associated with this include lobbying for change in agriculture and forestry practice, and in the incentives and markets which currently drive them, influencing policies and protection of sites through development plans and maximising any opportunities which the development process might offer.

These are all difficult challenges and require a balanced approach, but when set against sometimes conflicting objectives and a history of losses and degradation of biodiversity locally, nationally and globally, it cannot be too much to ask that efforts should be increased now, to ensure losses are stemmed and that we can pass on to future generations a Kentish wildlife legacy no less rich than we have at present.

1.6 RATIONALE FOR DEVELOPMENT OF THE KENT PLAN

The starting point for the development of the Kent Biodiversity Action Plan is the document "Biodiversity: The UK Steering Group Report" (1995), which clearly sets out the Government's goals for biodiversity into the next century. This comprises a series of Habitat Statements (with costed Habitat Action Plans for 14 specific habitats) and Species Action Plans for 116 species.

To complement the national plan and contribute to it at a local level a series of **Habitat Action Plans** (*Section 5)* and a number of individual **Species Action Plans** (*Section 6*) have been prepared covering the whole range of wildlife habitats that are present in Kent. In addition to these, but equally as important are the **Generic Actions** (*Section 4*) which cover a range of common issues and which, if addressed, would make a MAJOR contribution to sustaining and enhancing biodiversity in Kent.

It is generally accepted that the traditional management of semi-natural habitats (e.g. grazing, coppicing) should be sufficient to cater for the conservation of most species, including many rare and declining ones. Their conservation should be ensured by implementing the actions listed in the habitat action plans and for this reason **the Kent BAP is largely habitat based**.

In some cases man's (often recent) influence on the countryside has caused particular species to decline to dangerously low levels; for these a more targeted approach is necessary, so individual species action plans have or will be prepared to address these issues. Rare, declining or threatened species are not more important than any others, they simply require more urgent action. In most cases specific management for these species will in fact be beneficial to a wide range of wildlife.

HABITAT ACTION PLANS

Kent is fortunate in being custodian to a wide range of habitats, largely stemming from its varied geology and land use history. In preparing the plan it was decided that, rather than attempting to select individual habitats for consideration, ALL habitats should be included. This is the only approach which can adequately safeguard the range of biodiversity present in Kent.

The habitat groupings which have been used in the plans reflect those habitats occurring in Kent for which BAPSG habitat statements have already been prepared. Some habitats cover vast areas whilst others account for only a few hectares - from woodland and scrub which covers around 480 square kilometres to heathland and mire of which there is less than 1 square km in the whole county. However large or small, they all add to the richness of biodiversity in Kent.

All the habitats are important at least at a county level, some are nationally important and there are a number of habitats found in Kent which are of international significance (*Tables 1.1 and 1.2*). There are individual sites which are of greater importance than the overall resource, e.g. the River Beult (Rivers and streams) and Hothfield Common (Heathland and mire) which are nationally important and Stodmarsh (Reedbeds), and Blean Woods (Woodland and scrub) which are internationally important, but the value of the **overall** resource is shown here.

A further habitat action plan for Sandstone rock exposures will be prepared prior to the first review of the plan in 3 years time.

Habitat	Total Area (ha)	County	National	International
Woodland & Scrub	48,397		*	
Wood-pasture & Historic Parkland	~ 10,000	*		
Old Orchards	< 4,000	*		
Hedgerows	8,112 km	*	?	
Lowland Farmland	262,290	*	?	
Urban Habitats	?	*		
Acid Grassland	738	*		
Neutral & Marshy Grassland	18,282	*		
Chalk Grassland	2,416			*
Heathland & Mire	93	*		
Grazing Marsh	5,255			*
Reedbeds	363		*	
Rivers & Streams	6,003ha +1,138 km	*		
Standing Water	2,448ha +2,368 km	* (ponds)		* (ditches & dykes)
Intertidal Mud & Sand	10,308			*
Saltmarsh	1,395		*	
Sand Dunes	596			*
Vegetated Shingle	1,811			*
Maritime Cliffs	49 km			*
Marine	?			*

Table 1.1 Importance of the Kent habitat resource in a national and international context.

Habitat	Area in Kent	% of UK total
Shingle	1,811 ha	43% (*~4,200 ha in UK*)
Unimproved grazing marsh	2,286 ha	23% (*~10,000 ha in UK*)
Saline lagoons	265 ha	20% (*1,300 ha in UK)*
Reedbed	649 ha	13% *(5,000 ha in UK*)
Ancient semi-natural woodland	20,347 ha	6% (*~320,000 ha in UK)*
Chalk (calcareous) grassland	2,416 ha	6% (*40,000-50,000 ha in UK*)
Estuary	16,000 ha (Intertidal substrates & open water)	3% (*~581,240 ha in UK*)
Saltmarsh	1,395 ha (+ scattered salt marsh min. 75 ha)	3% (*~45,000 ha in UK*)

Table 1.2: Habitats for which Kent holds a significant proportion of the UK total (Kent covers only 1.3% of the land area of the UK)

SPECIES ACTION PLANS

Kent is host to a wide range of species. Its varied geology, land use and large area of coastline give rise to a range of habitat types; the dry, warm climate and proximity to mainland Europe add further variety. Several species occurring here are on the edge of their geographical range, particularly the orchids for which the county is famous. The populations of many species found in Kent are currently declining, but it is generally accepted that to cover them all in action plans is unrealistic.

As a first stage in selecting species for action it is important to know which of the species occurring in Kent are rare or declining. A number of criteria were used to compile lists, based on national and local priorities. The criteria used were:

1. All species on the BAPSG Short and Middle lists of globally threatened and declining species which occur in Kent.
2. All species on the BAPSG Long list which occur in Kent.
3. All known RDB 1 invertebrate species which occur in Kent.

4. RSPB Red and Amber lists of Birds of Conservation Concern which occur in Kent.
5. Nationally rare and nationally scarce plants which occur in Kent.
6. Species protected under the Wildlife & Countryside Act (1981) which occur in Kent
7. Species that are known to have become extinct in Kent in the last 100 years.

These lists are set out in *Appendix 1*. They provide a starting point for selecting those species for which individual action plans have been produced. In making the final selection a further criterion - Species for which habitat plans alone will not adequately cover their requirements - was also considered.

The lists were prepared using the best available knowledge and are **not comprehensive**. It is an acknowledged fact that data on species in the county is incomplete (hence the need for a co-ordinated biological records centre for Kent). The BAP itself will act as a focus for improving our knowledge, enabling us to address omissions in the data on groups such as invertebrates, fungi and lower plants at the next review of the plan.

The lists of species of conservation concern (*Appendix 1*) total over 350 species. Action plans have been written for 14 of the species which appear in these lists. Further species plans will be produced as more information becomes available. (Marsh warbler, medicinal leech, shining ram's-horn snail and three-lobed water crowfoot, all of which are on the BAPSG short list, will be the next four to be prepared.)

The eleven BAPSG short list species chosen have national plans and work at a local level should complement and/or deliver action proposed at the national level. These species range from those for which Kent is the national stronghold, and therefore has a unique responsibility in ensuring their conservation, to those which have experienced a national decline, but which are essential indicators of the quality and state of health of a habitat type or ecosystem (*Table 1.3*).

The serotine bat (BAPSG long list) was chosen in place of the pipistrelle (BAPSG short list) because the serotine has its stronghold in Kent. All bat species are declining throughout the UK, due to loss of roosts and feeding areas. By addressing the problems of education, awareness raising and habitat management associated with the serotine it is hoped that all bat species in Kent will benefit.

The species chosen also cover a range of taxonomic groups and habitat requirements (*Table 1.4*).

Species	UK priority (BAPSG list)	Local decline	Local rarity	Position in Geographical range	Locally distinctive	Specific issues not addressed through habitat plans
Water Vole	Short list	Declining rapidly	Scarce	Stronghold		Mink predation
Otter	Short list	Historic	Very Rare	Outlying		Road casualty and pollution
Dormouse	Short list	Stable	Common	Stronghold	✓	Population fragmentation
Serotine Bat	Long list	Declining	Rare	Stronghold	✓	House roosts
Nightingale	Long list	Stable	Common	Stronghold	✓	
Great Crested Newt	Short list	Declining	Scarce	Stronghold	✓	
Allis and Twaite shad	Short list	Unknown	Rare	Outlying		Lack of knowledge of specific requirements
White-clawed Crayfish	Short list	Declining	Scarce	Localised		Disease, competition from alien species
Heath Fritillary Butterfly	Short list	Stable	Rare	Highly localised / stronghold	✓	Tailored management
Pearl-bordered Fritillary	Short list	Declining rapidly	Rare	Highly localised		Tailored management
Silver Spotted Skipper	Short list	Stable	Rare	Highly localised	✓	Mobility
Early Gentian	Short list	Declining	Very Rare	Outlying		Small gene pool, isolated populations
Late Spider Orchid	Long list	Recent slight increase	Rare	Highly localised / stronghold	✓	Mobility

Table 1. 3: Status of Kent Biodiversity Action Plan species (see Glossary for definition of terms)

Action Plan Species	Preferred Habitat
Water vole	Rivers & streams, bankside vegetation, pasture
Otter	Rivers & streams, bankside trees, scrub and tall vegetation

Dormouse	Semi-natural broad-leaved woodland, hedgerows
Serotine	Buildings, mixed farmland, parkland, hedgerows,
Great-crested newt	Ponds, pasture, rough grassland
Allis and Twaite shad	Rivers, estuaries and seas
White-clawed crayfish	Rivers & streams
Nightingale	Woodland & scrub
Heath fritillary	Open areas in woodland
Pearl-bordered fritillary	Open areas in woodland
Silver-spotted skipper	Chalk grassland
Early gentian	Chalk grassland, disturbed ground
Late spider-orchid	Chalk grassland

Table 1.4 Preferred habitat of species included in Kent BAP

Whilst the Kent BAP is complementary to existing programmes, it acts as a much needed focus for ensuring that we all increase our efforts in promoting the conservation of biodiversity in Kent. For example two of the species included in the Kent BAP are also covered by national schemes - Early Gentian by Plantlife's "Back from the Brink" and Dormouse by Species Recovery Programme.

The dormouse has been included here because no action is being taken in Kent on the national plan, despite the fact that the county may be used as a donor for re-introductions to other parts of the UK. Early gentian is endemic in the UK and rare, even in other counties. It is included here to stimulate action in its former localities in Kent and ensure that seed from the Kent population is taken for the national seed bank which will help to preserve the genetic diversity of the remaining population.

There are other species which occur in Kent for which targeted action has been taking place over several years prior to the implementation of the UK BAP. These are covered by a number of national initiatives and as such are not singled out in this plan, though their needs are met, in part, by the actions detailed in the habitat action plans (*Table 1.5*).

Species	**Action Programme**	**Habitat**
Black-veined moth	Species Recovery Programme	Chalk grassland
Sussex emerald moth	Species Recovery Programme	Shingle
Essex emerald moth	Species Recovery Programme	Saltmarsh
Wartbiter cricket	Species Recovery Programme	Chalk grassland
Monkey orchid	Species Recovery Programme	Chalk grassland
Stinking hawk's-beard	Species Recovery Programme	Shingle
Meadow clary	Plantlife "Back from the Brink"	Chalk grassland
Ground pine	Plantlife "Back from the Brink"	Chalk grassland

Table 1.5 Species occurring in Kent which are not covered by individual species action plans but are part of national recovery programmes.

2. LINKS WITH OTHER INITIATIVES

The BAP process is not occurring in isolation and there are a number of independent but complementary initiatives evolving in parallel, which also influence nature conservation such as development plans, shoreline and estuary management plans, the Environment Agency's LEAPs (Local Environment Agency Plans), English Nature's Species Recovery Programme, the South East Otters and Rivers Project (SEORP), agri-environmental schemes, countryside management projects, Forest Design Plans and landscape guidelines.

Kent BAP targets and actions will be largely achieved through these initiatives so it is essential that they incorporate appropriate biodiversity targets and are committed to their implementation.

Local Agenda 21 and Natural Areas have been considered in more detail below. They can be used not only to implement the Kent BAP but also to provide an effective focus for action.

2.1 LOCAL AUTHORITIES AND LOCAL AGENDA 21

The conservation of biodiversity is a crucial aspect of sustainable development, and local action to maintain biodiversity is part of the process. For this reason Local Biodiversity Action Plans are seen as an integral part of the Agenda 21 process. A Local BAP is one way in which Local Authorities can meet the biodiversity requirements of LA21.

There are also a number of ways in which Local Authorities can make significant contributions to the Kent BAP whilst enhancing the biodiversity, and through this the quality of life of people living in their own area. These are listed below:

Land Use Planning
Local planning authorities have a key role to play in conserving the diversity of wildlife in Kent through the statutory planning process.

Structure and local plans should promote nature conservation and protect important natural "assets", in accordance with the statutory framework for safeguarding habitats and species under domestic and international law and the Government's planning policy guidance on nature conservation (PPG9).

Local authorities should be concerned not only with designated areas but also with other land of conservation value in the wider countryside and the possible provision of new habitats.

Produce Local Nature Conservation Strategies containing policies which can be included in the Local Plan and demonstrate a commitment to the Kent BAP. (Coastal districts should formulate coastal nature conservation strategies.)

Land Management
LA owned land should be managed in an environmentally sustainable way. Nature conservation should be a priority on land which has a nature conservation designation.

Local Authorities are able to support initiatives in the wider countryside, on privately owned land, through Countryside Management Projects. They should continue to support these.

Carry out a Biodiversity audit of LA land holdings and formulate management plans for those which, in properly accounting for other uses, maintain and enhance their biodiversity.

Carry out a Biodiversity audit of other land and establish priorities for a rolling programme of advising and informing owners on the enhancement of habitats and species.

Local Agenda 21
Safeguarding of biodiversity should be recognised as a key component of sustainable development and incorporated into Local Agenda 21.

The Kent BAP should be "cascaded" down so that District and Parish BAPs or Nature Conservation Strategies are formulated, to promote the Kent plan at all levels of LA21.

Encourage Parish Councils and community groups to be aware of local biodiversity, in the context of the Kent BAP, and take up action where possible. E.g. village greens and ponds, community woodlands and orchards.

Records
Adequate records should be kept to enable the identification and monitoring of all sites and features of natural interest, and to inform the decision making process on land use and management.

Support the establishment of a Kent Biological Records Centre to collect, analyse and disseminate habitat and species data; to provide BAP monitoring mechanism; and to take on some of long-term goals of Kent BAP.

Secure funding for review of Kent Wildlife Habitat Survey, to monitor habitat status.

Resources
Existing financial resources for nature conservation should be maintained at least at current levels, and preferably increased.

Species Protection
Biodiversity conservation requires action directed at species as well as habitats. Species protection policies should be included in Local Plans, and species action plans in the Kent BAP should be supported, where appropriate.

(Whilst species conservation is important the cost of single species conservation should be balanced against habitat conservation and ensure that the action taken is providing the best value for money.)

Education/Recreation/Interpretation
Local Authorities should continue to promote and develop the principle of sustainability and to foster greater understanding and appreciation of nature conservation through education, interpretation, training and the provision of information to the community.

Local Authorities should produce information/ educational material describing the biodiversity of their district and highlighting its importance. They should also carefully consider the balance between the need for recreation and the wildlife value of a site (e.g. less "tidying" of long grass, dead wood, nettles etc.).

Partnerships
Continue to work with and support partnership between statutory agencies, voluntary sector, Parish Councils and community organisations, to promote biodiversity.

It is recognised that many local authorities (and other organisations) are already engaged in a range of initiatives to benefit biodiversity in their areas. This Plan is intended to identify priorities and ensure a consistent approach, to ensure that resources are used as effectively as possible.

2.2 ENGLISH NATURE'S "NATURAL AREAS STRATEGY"

The Kent BAP has a key role to play in delivering goals for the conservation of wildlife, both in the local and national context. English Nature's "Natural Areas Strategy" sets out clear objectives for the maintenance of the full range of species and habitats expected to occur in a landscape, based on national priorities, and set in a wider context than traditional administrative boundaries. A Natural Area is a discrete geographical area, defined by the physical factors of geology, soils, topography and climate, modified by land use. There is a strong link between the historical and cultural development of a particular area, which both defines and supports the wildlife and natural features characteristic of that area.

The Kent BAP is pivotal in ensuring delivery of the local nature conservation goals described for these Natural Areas, set in a national context. Most of the habitat action plans refer to broad categories of habitat, which often occur in a number of Natural Areas. This is particularly true of woodland, which occurs as a major feature in 5 of the 6 terrestrial Natural Areas. Nature conservation goals for woodland may vary between Natural Areas, reflecting differences in plant communities and structure due to the physical factors described above. Other habitats are confined to a single Natural Area, such as chalk grassland, which only occurs in the North Downs Natural Area. In this case the conservation goals are likely to be similar across the whole Natural Area.

While none of these Natural Areas are wholly within Kent a key component in the delivery of their nature conservation goals is in the strength that can be drawn from partnerships which are often locally defined. The Kent BAP draws heavily on such local partnerships and will seek to promote the conservation of wildlife through partnership, for the benefit of Kent's wildlife, in the context of Natural Areas.

Natural Areas in Kent	**Priority Habitats**	**Priority Species**
Greater Thames Estuary	Coastal and floodplain grazing marsh, saline lagoons, reedbeds	Allis and Twaite shad, Brown hare, great crested newt, otter, water vole
North Kent Plain	Reedbeds, chalk rivers, woodland, unimproved grassland, sand dunes	Heath fritillary, pearl-bordered fritillary, shining ram'shorn snail, Desmoulin's whorl snail, bittern, otter, white-clawed crayfish, dormouse, pipistrelle bat, great crested newt, bright wave moth.
North Downs	Chalk grassland and scrub, chalk rivers, woodland, arable weed communities	Early gentian, silver spotted skipper, brown hare, dormouse, pipistrelle bat, white-clawed crayfish, water vole, great crested newt, pearl-bordered fritillary, stag beetle
Wealden Greensand	Lowland heathland, woodland	Three-lobed water crowfoot, dormouse, pipistrelle bat
Low Weald	Hay meadows, Mesotrophic lakes	Brown hare, dormouse, great crested newt, otter, pearl-bordered fritillary, pipistrelle bat, water vole
High Weald	Hay meadows, Lowland heathland, woodland	Brown hare, dormouse, devil's bolete, great crested newt, high brown fritillary, pipistrelle bat, water vole, three-lobed water crowfoot
Romney Marshes	Coastal and floodplain grazing marsh, reedbeds, vegetated shingle, sand dunes	Brown hare, great crested newt, otter, water vole, *Bembidion argenteolum*, medicinal leech, shrill carder bee
North Kent Coast	Chalk coast, saline lagoons, shingle structures, maritime cliff and slope, intertidal mud and sand, subtidal reefs, chalk cliffs and caves	Turnstone, chalk cliff algae
East Kent Coast	Chalk coast, sand dunes, maritime cliff and slope, intertidal mud and sand, subtidal reefs, chalk cliffs and caves	Bright wave moth, sanderling, ringed plover, grey plover
Folkestone to Selsey Bill	Vegetated shingle, hard cliffs, soft cliffs, intertidal mud and sand	Ivell's sea anemone, starlet anemone

(EN, 1996)

N.B All of these Natural Areas except the North and East Kent Coast extend into other counties.

3. IMPLEMENTATION

It is hoped that the Kent BAP will stimulate a new, more focused approach to the conservation of biodiversity in the county. It is an opportunity to initiate new projects (and extend or enhance existing ones) and to demonstrate what can be achieved through a collaborative, co-ordinated approach.

The circle of involvement will extend beyond existing partners, to include communities and businesses, and to educate and raise awareness amongst the wider population - however, as a starting point it is essential that the members of the partnership take their part in initiating the process.

Some mechanism to monitor the state of biological diversity in Kent is essential - to measure success in working towards the targets set, as well as identifying any shortfalls which may require additional effort. With time, and as a result of actions taken, issues and necessary activity to address these will change. This is the first Kent BAP and has attempted to encompass all the relevant issues though some omissions are inevitable. Refining the plans is an iterative process and, with a proper review procedure, any omissions or errors (for example in targets for the amount of habitat which can realistically be created/managed) can be rectified.

It is essential at the outset to recognise the long-term nature of many of the management proposals made in this Plan. Any action will take several years to be truly effective and it may take even longer for any measurable successes to be identified through monitoring programmes.

For all these reasons a regular review and reappraisal of the goals and achievements of the plan is essential, to ensure that it is still addressing the priority issues.

3.1 THE ROLE OF LEAD AGENCIES AND RESPONSIBLE BODIES

The lead agencies and responsible bodies identified for the individual plans and actions have an important role to play in encouraging action which works towards the aims of the Plan. They are not expected to take sole responsibility for a habitat, species or action and this by no means precludes action towards the same goals by other groups, not named specifically by the plan.

One of the major roles of a lead agency will be in information gathering. It is proposed that during the first year of the Plan they collate baseline data on action and achievements towards individual targets or set up systems for future monitoring, where these are currently lacking. These can be built upon in subsequent years.

As a further means of co-ordinating and monitoring action six sub-groups have been set up (woodland, grassland, urban, farmland, freshwater and coastal habitats). These groups should enable lead agencies and responsible bodies to take a consistent approach to achieving the targets set out in the specific action plans. (The group structure for the implementation phase is set out in more detail in *Appendix 2*.)

ACTION PLAN	LEAD AGENCY
Woodland and scrub	FA/KWT
Wood-pasture	EN/KCC
Old orchards	KCC/KOLG
Hedgerows	KCC/CLA
Lowland Farmland	KCC/CLA
Urban Habitats	LAs/Civic & amenity groups
Acid Grassland	EN/KWT
Neutral & Marshy Grassland	EN/KWT
Chalk Grassland	EN/KWT
Heathland & Mire	EN/RSPB
Grazing Marsh	EN/RSPB
Reedbeds	EN/RSPB
Rivers & streams	EA/CMPs
Standing Water	EN/KCC
Intertidal Mud & Sand	EN/RSPB
Saltmarsh	EN/RSPB
Sand Dunes	EN/KWT
Vegetated shingle	EN/RSPB
Maritime Cliffs	LAs/NT
Marine	EN/KFC Marine Group
Water vole	EA/KWT
Otter	EA/KWT
Dormouse	EN/KWT
Serotine bat	EN/Kent Bat Group
Nightingale	EN/KOS
Great-crested newt	EN/KRAG
Allis & Twaite Shad	EA
White-clawed crayfish	EA/KWT
Heath fritillary	EN/KWT
Pearl-bordered fritillary	EN/BC
Silver spotted skipper	EN/KWT
Early gentian	EN/Plantlife
Late spider orchid	EN/WCCP

Table 3.1: Lead agencies in Kent for habitat and species action plans

Each lead agency should:

- Produce a statement which details its role in, and specific commitment to implementing the individual action plans. This can be extended to cover individual specific actions for which it is named as a responsible body.
- Collate baseline data on action and achievements towards individual targets. (Requires liaison with other initiatives currently being developed to ensure consistent approach and prevent duplication of effort.)
- Set up systems for future monitoring, where these are currently lacking.

When developing a programme of action, reference will be made to the key actions which have been identified by the steering group and presented as "Priority Actions for the first 3 years of the Kent Biodiversity Action Plan" (*see separate document*).

Action need not come exclusively from this list and individual groups are best placed to judge what is the most appropriate action for themselves to take.

3.2 ANNUAL REPORTING PROCESS

- Steering Group to meet once per year.
- Responsible bodies to report to lead agency once per year, prior to steering group meeting.
- Lead agency to produce annual summary for steering group meeting (statutory and non-statutory leads to agree which will compile report).
- Review of individual plan priorities (if necessary) following steering group meeting, and notify responsible bodies.
- Review BAP in 3 years and reassess priorities, species for target action, work towards targets etc.

3.3 PARTNERSHIPS

The Kent BAP provides an excellent vehicle on which to build new partnerships and strengthen existing ones. To be successful it must have the support of landowners and managers, since they control such a large proportion of the land in the county their co-operation will be essential to the success of the plan.

Equally important is the opportunity to forge links with businesses and industry. There is great potential for forming partnerships to work on individual actions or plans, e.g. through sponsorship of a particular species or habitat, or a one-off project. All responsible bodies should be aware of the potential funds which may be available through this process and should pursue opportunities for partnership with business whenever these arise.

3.4 IDENTIFYING AREAS FOR ACTION

Positive action anywhere in the county and on any scale will be welcomed, as it will make its own contribution to biodiversity. Whilst this will always be the case there are a number of simple criteria which, if met, will significantly increase the value of an equivalent amount of effort:

- Work is especially valuable where it will ensure the survival of a threatened habitat or species, one which is rare, irreplaceable or declining rapidly.
- The management or creation of a habitat which creates a **buffer** around or a **link** between existing habitats or populations is more valuable than that undertaken in isolation.

A variety of approaches could be taken to aid the process of targeting and co-ordinating effort to ensure that resources are allocated to those areas which will give the best possible value for money. Current land use or constraints could be used without reference to the distribution of habitats or species. For example:

- Areas in which targeting may not be appropriate include land of a high agricultural grade (1 or 2) with low biodiversity, except where this would link or buffer existing good habitats or key species.
- Areas which may be particularly appropriate for creation are those such as Land Liable to Flood and low quality agricultural land in general (Grade 4 and 5), where less productive forms of management are unlikely to severely affect returns from the land (see map in *Appendix 3*).
- Other areas to consider are those with special status, such as ESAs, where mechanisms are in place to promote biodiversity, and SNCIs which, despite a recognition of their wildlife value, currently have no specific mechanism to encourage their management.
- Much of the land in urban areas is unavailable for more typical habitat management or creation, however, it should not be forgotten that the social importance of the Urban habitat resource is immeasurable, in terms of the number of people who can benefit, in these areas of high population.

Whilst these criteria could provide a useful starting point for looking at the county, Kent is fortunate to have a comprehensive audit of wildlife habitats throughout the county in the form of the Kent Wildlife Habitat Survey.

By using this it has been possible to:

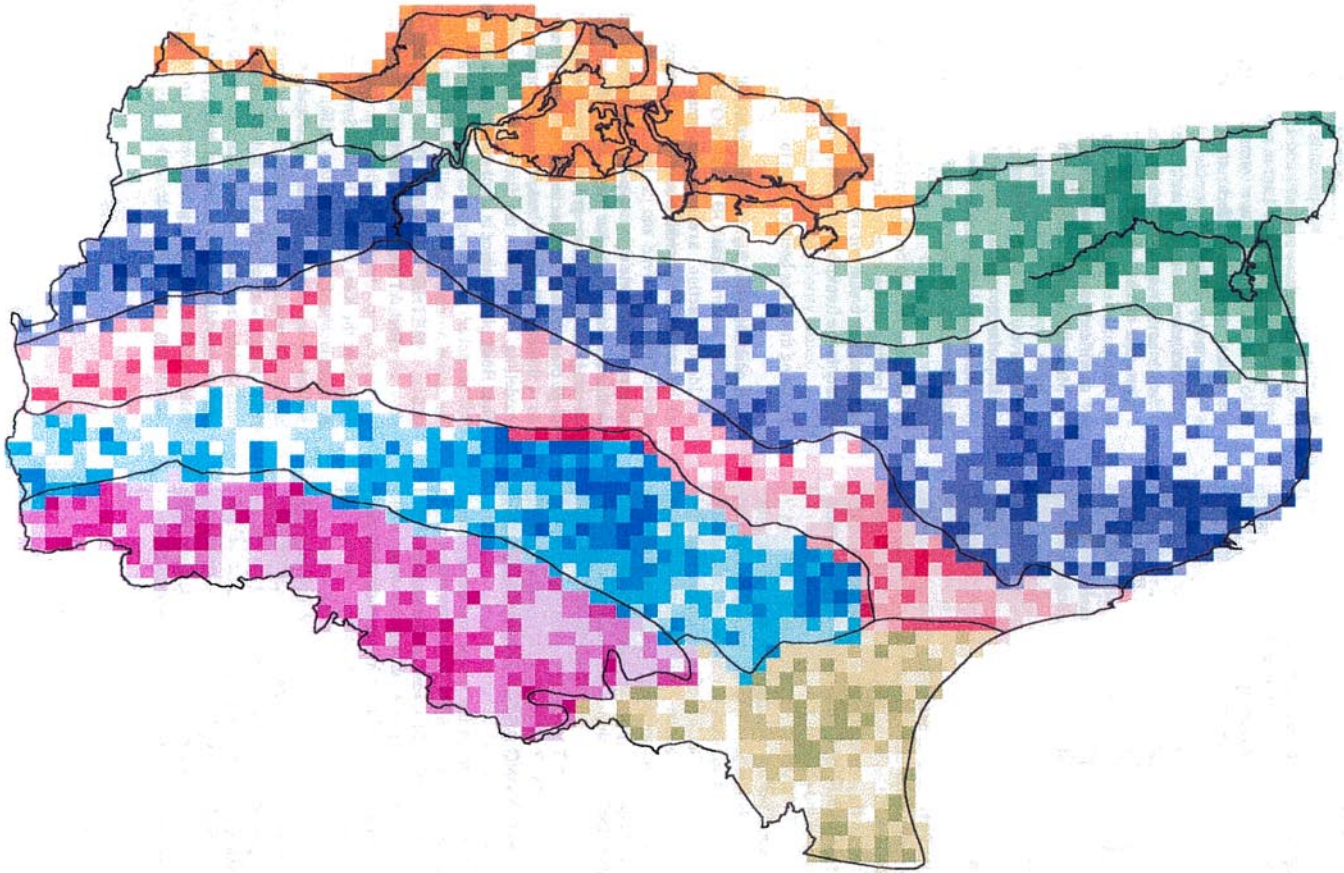
1. Locate **areas of high and low relative biodiversity** within Natural Areas
2. Identify **action areas** - the areas of "greatest potential" for increasing overall biodiversity.

There is incomplete data on species distribution in Kent, with a bias towards higher plants and birds and a lack of coverage of invertebrate groups (which account for a large proportion of the species occurring in the county), so at this stage they have not been incorporated into the modelling. (For data on the distribution of rare and Red Data Book plant species in Kent see *Appendix 4*).

3.5 METHODOLOGY FOR MEASURING RELATIVE BIODIVERSITY

Data from the Kent Wildlife Habitat Survey is held on a Geographical Information System (GIS) in the form of habitat areas (e.g. grassland, woodland, shingle and sand) and lengths (hedges, cliffs, ditches and streams). The system is able to quickly and easily analyse large sets of data, and enables the information to be analysed on an individual 1x1 km square basis (over 4,000 in total) across Kent, giving an overview of the relative biodiversity of different areas.

Figure 3.1 Relative Biodiversity within Natural Areas



Note: Relative Biodiversity values are only comparable within each Natural Area and not between Natural Areas

The habitat criteria for area and length used to assess relative biodiversity in Kent were:

- **Extent** (i.e. total area/length of semi-natural habitat - *measured value*)
- **Quality** (weighting applied to each habitat type to take account of rarity, re-creatability etc. and the coarseness of the habitat groupings used in Phase 1 survey which, for example, have ancient semi-natural woodland and recent secondary woodland both recorded as "semi-natural broad-leaved woodland" - *arbitrary value*)
- **Diversity** (i.e. the number of different habitats present - *measured value*)

(See *Appendix 5* for methodology)

Figure 3.1 illustrates the range of relative biodiversity present in the county on a Natural Area basis. By representing the data in this way potential action areas within each Natural Area can be identified, without being influenced by the other relatively richer or poorer Natural Areas. Because of the way the data has been presented in *Figure 3.1* it is important to note that relative biodiversity **between** the different Natural Areas is **not** comparable.

The data confirms that many areas which are already recognised as being of international or national importance do have a high level of biodiversity (e.g. the Thames, Swale and Medway estuaries, Sandwich Bay and Dungeness). Interestingly the map also reveals a number of areas with apparently high biodiversity which have not previously been recognised as particularly important (for example Romney and Chislet Marshes, and much of the High and Low Weald) as well as areas of deficit (the highly productive land of Thanet and the North Kent Plain).

3.6 ACTION AREAS

The map of relative biodiversity (*Fig 3.1*) has been displayed with the darkest shading within each Natural Area representing the highest relative biodiversity. The darkest areas should already be rich in wildlife and whilst they require ongoing effort to maintain their high quality they do have limited potential for improvement and hence biodiversity gain. They should be acting as the sources from which species can recolonise adjacent areas, through the buffers and links which can be created.

The "action areas" - the areas of greatest potential are the slightly paler areas. Action in these areas could easily and cost effectively improve them and result in real gains for biodiversity in Kent, since a foundation of medium to high biodiversity, on which to build, is already there. Where the intermediate areas lie around or between areas of high biodiversity they provide an ideal opportunity for creating valuable links and buffers, as previously discussed.

It is important to realise that action, even in the areas with greatest potential, can only take place through voluntary agreement with the land owner, and is more likely to be forthcoming where agri-environmental grant schemes are available to support it.

3.7 TAKING ACTION LOCALLY

Action should not be discouraged ***anywhere*** which supports biodiversity, encourages local involvement or raises awareness, and action for particular habitats or species will need to take place where these already exist, or have potential to expand. However, where resources are limited, it is suggested that these action areas should, in general, have priority.

Examples of Best Practice

- Always consider the most appropriate use for an area of land (e.g. on former arable land on the scarp of the North Downs re-creation of grassland would be more appropriate than planting woodland).
- Create grassland habitat in areas adjacent to existing semi-natural grasslands to create buffers or links.
- Plant new woodlands adjacent to or linking existing ancient woodlands.
- Do not plant trees on areas of existing semi-natural habitat such as chalk grassland, remnant heathland, sand dunes or grazing marsh.
- Establish/retain uncropped and grassland field margins adjacent to water courses to enhance bankside vegetation and act as buffers (e.g. on grazing marsh ditches).
- Establish pesticide and herbicide free buffer zones along the margins of arable fields, especially where this is adjacent to high quality habitat such as chalk grassland, species-rich hedgerows and water courses.

Local Authorities may find it helpful to use this approach within their own districts, to identify their own local priority action areas. By considering the ***local*** situation action can be effectively targeted to reinforce the character of Natural Areas at the local level whilst providing best value for money in terms of relative biodiversity.

Though this strategy is relatively simplistic, and ignores other aspects of land use planning, it should provide a useful framework for focusing positive land management and habitat creation efforts and incentives where they are likely to be most cost effective.

3.8 SUMMARY

Applying the framework set out above, a hierarchy of zones for focusing action emerges:

1. Maintaining and protecting those **core areas** which have the highest biodiversity, along with SSSIs and SNCIs.
2. Enhancing and extending habitats and species in **action areas**, wherever possible creating links and buffers to core areas.
3. Encouraging local activities and raising awareness on **local sites and species**, especially where these will appeal to and involve local communities, engaging business /industry wherever possible.

4. GENERIC ACTIONS

In the course of preparing the habitat and species action plans it became evident that there were a number of common issues which, if addressed, would make a major contribution to sustaining and enhancing biodiversity in Kent. Some require continued implementation of existing measures or further strengthening of policies which are beginning to incorporate biodiversity objectives, and others which require a considerable change of direction or emphasis.

4.1 POLICY

To succeed the BAP needs to be endorsed and owned by a wide range of organisations and individuals. Each BAP partner should "champion" the relevant key elements of the plan and take them forward.

1. Each BAP partner should produce a statement detailing its role in and specific commitments to the BAP and, where possible, assign responsibility to a member of staff to ensure its implementation. (All)
2. Each BAP partner should incorporate biodiversity targets into its own decision making and planning procedures as a means of championing elements of the Plan. (All)

Development plans have a major role to play in protecting important habitats and species from unsuitable development. It is therefore essential that our intentions towards such issues are clearly defined in these documents, in order that they can be effective in protecting the biodiversity of Kent.

Development continues to erode the remaining habitats in Kent. Where possible developments should avoid semi-natural habitats and minimise their overall impact on the environment. A tough stance on planning conditions is required, as advocated by Government (PPG 9) with potential for securing funding for long-term management of sites. Where losses are unavoidable replacement habitat should be provided which will ADD TO the overall quality of habitats in Kent.

2. Continue to comply with PPGs, RPGs and legislation relating to nature conservation in preparing development plans and determining planning applications. Seek to address deficiencies where these exist. (LAs, KCC)
3. Incorporate site protection policies for SNCIs in all development plans. (LAs, KCC)
4. Protect remaining semi-natural habitats, whether designated or not, through policies, strategies and development plans. (LAs, KCC)
5. Local Authorities (and Parish Councils) to develop Nature Conservation Strategies or local Biodiversity Action Plans. (LAs, Parish Councils)
6. Other organisations to develop 'functional' or 'organisational' BAPs setting out action which they have the responsibility or resources to deliver. (All)
7. Secure appropriate habitat compensation for all unavoidable loss of semi-natural habitat and provide guidance to planners on best mechanism to achieve objective. (Target efforts to links and buffers round existing habitats, created on land not currently of nature conservation interest.) (KCC, LAs, EN, KWT, RSPB)
8. Each Local Authority should identify and designate some of its own land holdings as Local Nature Reserves (LNRs). (LAs, EN)

Financial incentives are vital in ensuring that farming and forestry is carried out in an environmentally sensitive way. Current key mechanisms for this are via Environmentally Sensitive Area payments (ESA), Countryside Stewardship (CS) and Woodland Grant Scheme (WGS). Large sums of money are spent each year in Arable Area Payments which currently have no environmental obligations attached. These payments are much higher than equivalent agri-environmental funding and therefore offer little or no incentive to take up grants available through existing schemes. (E.g. the take-up of arable reversion payments in the North Kent Marshes ESA covered only 13% of the eligible land in 1996.) There are other areas within Kent which would benefit greatly from extensification - the North Downs, parts of the Weald, Romney Marsh, Stour Marshes and Hacklinge Marshes.

9. Promote the case for an increase in grant-aid on national agri-environmental schemes, in line with current levels for agricultural subsidies. (All)
10. Seek reform of negative aspects of CAP (e.g. environmental conditions attached to Arable Area Payments, improvements to set-aside scheme) and lobby for extension of present agri-environmental policies and schemes and the new Arable Incentive Scheme. (All)
11. Form a steering group that will lobby additional agri-environmental schemes in Kent (High Weald Forum, KCC, KWT, EN, RSPB)
12. Support new and existing schemes which promote biodiversity (ESA, WGS/WIG, CS, RES/WES, Rural Action). (All)

Many of the key sites in Kent for habitats and species are already afforded some protection by their SSSI or SNCI status but the countryside is not static; distribution and numbers of some species fluctuate and, with appropriate management, habitats improve in quality.

13. Ensure all key sites with nationally rare or scarce species are protected, at least as SNCIs, within 10 years. (KWT, EN)

4.2 LAND MANAGEMENT

Key players in land and water management, especially land owners and managers, local authorities and statutory bodies, have an important role in protecting biodiversity and should incorporate this into their normal working practices.

1. All undeveloped land owned or managed by BAP partners should be managed with nature conservation in mind (and all appropriate areas should have a nature conservation management plan within 10 years). (All)
2. Actively promote uptake of grant schemes for habitat management and creation such as CS, WGS/WIG, ESA, WES and RES. (CMPs, FWAG, FRCA/MAFF, FA, EN, KCC, LAs, EA)
3. Habitat creation/extension and land purchase for this purpose should be targeted towards those areas, identified as having high biodiversity or greatest potential for increasing biodiversity. (EN, MAFF, KWT, RSPB, LAs, KCC, CMPs, FWAG)

Existing initiatives make a valuable contribution to the maintenance and enhancement of biodiversity in Kent, and continuation of these is essential, to enable them to build on previous successes and plan for substantial long term gains.

4. Continue to support, and where possible expand existing mechanisms which provide advice on and facilitate positive management, of semi-natural habitats (e.g. CMPs, FWAG, BTCV, ESA, CS and EN management agreements). (LAs, KCC, EN, CoCo, EA, MAFF, LAs)

4.3 ADVICE/PUBLICITY

Little pro-active advice is given to landowners because of lack of resources and the time-consuming nature of the process. CMPs and FWAG contribute to this but can not cover the whole county (and may not currently have biodiversity targets as a core aspect of their work). The increasing need for environmental standards to be met and the ability to trace the origin of produce is leading to landowners seeking advice from FWAG, FRCA and MAFF on how to improve the environmental cost of production, putting further demands on these already over-stretched services. Ideally all landowners of SSSIs and SNCIs should be contacted and offered management advice within 10 years.

1. Positive management statements to be agreed for all SSSIs within 10 years. (EN)
2. Provide financial support to secure an SNCI liaison officer post to enable all SNCI owners to be contacted and offered advice within 10 years. (KWT, KCC, EN, EA, LAs, CoCo)

Community involvement is essential to the success of the Kent BAP and the Local Agenda 21 process is an ideal vehicle for this.

4. Campaign to raise awareness of biodiversity, the importance and rarity of the habitats and species covered by the Kent BAP, and the scope for co-operative and local action. (All)
5. Ensure that biodiversity is incorporated into LA21. (LAs)
6. Develop and support environmental education initiatives. (LAs, KCC)
7. Develop links with businesses and promote partnerships. (CMPs, LAs, KCC, RSPB, KWT, EN, EA)

4.4 MONITORING AND RESEARCH

There is a need to expand and update the information available on the county's biodiversity, not only for species and habitats but also regarding the scale and success of management, habitat creation and any negative management. The current lack of knowledge, especially of many species groups, needs to be addressed urgently.

1. Support the establishment and maintenance of a Local Biological Records Unit for the county (which will facilitate monitoring of Kent BAP targets) (All)
2. Support a review of the Kent Wildlife Habitat Survey beginning in the year 2000. (KCC, All)
3. Produce a Red Data Book for Kent. (EN, KWT, RSPB, KOS, KBG, KFC, KRAG)
4. Monitor success of and uptake of grant schemes, and habitat creation and restoration projects, to enable effective targeting of grants and action. Share best practice. (MAFF, FA, KCC, EN, KWT, CMPs)
5. Set up monitoring and feedback systems for action taken for biodiversity in project areas. (CMPs).
6. Monitor all BAPSG Short and Middle list species, particularly those which act as direct indicators of habitat quality, and any re-introductions, and publish regular (10 yearly) reports on their status. (EN, EA, KWT, KOS, KFC, RSPB)
7. Assess loss and damage to SNCIs over last 10 years and review and update SNCI list in the light of the KWHS. (KCC, KWT)
8. Support a 3 year review of BAP achievements against targets in 2000. (All)
9. Assess the potential for income generation from sustainably produced countryside products, which will lead to the re-instatement of traditional management practices. (High Weald Forum, KCC, RDC)

5. HABITAT ACTION PLANS

Action plans have been prepared for 20 broad habitat groupings, all of which are of conservation concern at least at the county level (see Section 1.6). There are a number of habitats for which Kent has a significant proportion of the UK total and which we therefore have a particularly important role in safeguarding and enhancing. These are:

Habitat	Area in Kent	% of UK total
Shingle	1,811 ha	43% (*~4,200 ha in UK*)
Unimproved grazing marsh	2,286 ha	23% (*~10,000 ha in UK*)
Saline lagoons	265 ha	20% (*1,300 ha in UK*)
Reedbed	649 ha	13% (*5,000 ha in UK*)
Ancient semi-natural woodland	20,347 ha	6% (*~320,000 ha in UK*)
Chalk grassland	2,416 ha	6% (*~40-50,000 ha in UK*)
Estuary	16,000 ha (Intertidal substrates & open water)	3% (*~581,240 ha in UK*)
Saltmarsh	1,395 ha (+ scattered salt marsh min. 75 ha)	3% (*~45,000 ha in UK*)

Table 5.1 Habitats for which Kent holds a significant proportion of the UK total

In The UK Steering Group Report costed national habitat action plans have already been prepared for 14 habitats 8 of which occur in Kent:

National Habitat Action Plan	National Targets (by 2010)
Reedbeds	Maintain and improve 5,000 ha of existing reedbed and re-establish 1,200 ha
Saline lagoons	Maintain and enhance all existing 1,300 ha and create 120 ha
Cereal field margins	Maintain, improve and restore 15,000 ha
Chalk rivers	Maintain/enhance 700 km
Fens	Maintain/restore 1,200 ha
Ancient and/or species rich hedgerows	Halt losses, favourable management of 50% (95,000 km), maintain number of hedgerow trees
Lowland heathland	Maintain and improve all existing 58,000 ha, re-establish 6,000 ha
Coastal and floodplain grazing marsh	Maintain existing, restore 10,000 ha and create 2,500 ha from arable

Table 5.2 National targets for habitats with costed national action plans

And costed plans will be produced for 24 others within the next few years. Those which occur in Kent are:

Lowland beech woodland
Wet woodlands
Lowland wood pastures and parklands
Lowland hay meadows
Lowland dry acid grassland
Lowland calcareous grassland
Eutrophic standing waters
Maritime cliff and slope
Coastal vegetated shingle structures
Coastal saltmarsh
Coastal sand dune
Estuaries
Chalk coasts (littoral and sub littoral)
Maerl beds (open coast)

The 20 habitat action plans for Kent provide the framework for not only the long-term survival of the habitat itself, but also of the plants and animals which depend upon it. They will complement the national plans and contribute towards achieving the national targets.

The prime objectives are essentially the same for each habitat. To:

i) halt the loss of habitat,
ii) enhance the quality of the remaining habitat and
iii) increase the area where possible, by creation/re-creation.

5.1 HABITAT ACTION PLAN FRAMEWORK

Each plan has been presented in a standard format. Below is a general guide to the contents of each of the sections.

1. CURRENT STATUS

Sets out the state of the resource in Kent at present, putting this in an historical and a national context. Divided into the following sections:

1.1 **IMPORTANCE** - Why is the habitat important in Kent?

1.2 **TRENDS** - Historic factors affecting the habitat

1.3 **AREA/EXTENT**- How much of the resource exists in Kent (and nationally)

1.4 **DISTRIBUTION**- Where in Kent the habitat occurs

2. CURRENT FACTORS AFFECTING THE HABITAT -THREATS/ISSUES

Factors which adversely affect the habitat and any current
or future projects, legislation, incentives etc. which could directly or indirectly have a negative effect on the habitat.

3. CURRENT ACTION/MECHANISMS

Conservation action currently underway which is directly or indirectly benefiting the habitat:

3.1 **PROTECTION** - Includes formal designations, legislation, development plan policies.

3.2 **MANAGEMENT** - Includes current grant schemes, positive management e.g. in nature reserves, and management plans to benefit wildlife.

4. KEY SPECIES

Important species which are associated with the habitat:

Notables - Rare species which rely upon the habitat
Standard Bearers/Quality Indicator Species - species which you would expect to find in most good examples of the habitat

Retrievables - Species which were formerly found in Kent in association with the habitat but which have recently become extinct, or are on the verge of extinction through small population size and restricted distribution, and which could be re-established in Kent if correct conditions were created.

5. OBJECTIVES/TARGETS

Objectives: What the plan sets out to achieve

Targets: Defines 10 and 50 year targets which should be reached for the habitat

6. PROPOSED SPECIFIC ACTION

The actions which are required if the objectives and targets are to be met. The proposed actions are listed under the following categories:

6.1 **POLICY**

6.2 **LAND MANAGEMENT**

6.3 **MONITORING AND RESEARCH**

(Each target has the organisations responsible for its implementation listed after it).

7. RESPONSIBLE BODIES

Lists those organisations in Kent which have a role to play in implementing the plan.
Also names a Lead Agency who will be instrumental in achieving the objectives of the plan.

8. COMPLEMENTARY UK PLANS

Lists those costed action plans which have been or will be produced by the UK BAPSG and which relate to the respective Kent BAP plans.

5.2 HABITAT ACTION PLANS

Habitat action plans have been prepared under the following headings:

	Page No.
WOODLAND AND SCRUB	20
WOOD-PASTURE AND HISTORIC PARKLAND	24
OLD ORCHARDS	27
HEDGEROWS	29
LOWLAND FARMLAND	32
URBAN HABITATS	35
ACID GRASSLAND	38
NEUTRAL & MARSHY GRASSLAND	40
CHALK GRASSLAND	43
HEATHLAND & MIRE	46
GRAZING MARSH	49
REEDBEDS	52
RIVERS & STREAMS	55
STANDING WATER (Ponds, Ditches & Dykes, Saline Lagoons, Lakes and Reservoirs)	58
INTERTIDAL MUD & SAND	62
SALTMARSH	65
SAND DUNES	67
VEGETATED SHINGLE	69
MARITIME CLIFFS	72
MARINE HABITATS	74

Note: For ease of reference a summary of the 10 and 50 year targets for all habitats is given in Appendix 6.

WOODLAND AND SCRUB

Woodlands comprise broad-leaved, mixed and conifer woodlands which can be either semi-natural or planted in origin. Dense scrub is included in this plan, as a natural stage in the development of secondary woodland and as an important habitat in its own right. Broad-leaved woodlands can usefully be sub-divided into ancient semi-natural woodland, ancient replanted woodland, plantations and secondary semi-natural woodland, depending upon their historic origins.

The local geology, topography, soil type and environmental conditions give rise to identifiable sub types or communities, each with a distinctive and characteristic flora. Planted sweet chestnut coppice woodlands are a significant woodland type in Kent.

Past and present management is reflected in woodland features including pollards, coppice stools, standard trees, and high forest (and wood pasture - see separate BAP). The majority of Kent broad-leaved woodlands have a coppice or coppice with standards structure, with about 70% of both being sweet chestnut coppice. The other main coppice species include hornbeam, ash, hazel and sycamore. The principal standard is pedunculate oak. About 33% of high forest woodland in Kent is broad-leaved (FA - 1982).

1. CURRENT STATUS

1.1 IMPORTANCE

Woodland and scrub together cover 15 % of the county land area and make up over half of all semi-natural habitat in Kent. Semi-natural broad-leaved woodland covers 8.6% of the county (30% of the semi-natural habitats in Kent). Many rare and scarce species of plant, invertebrate and other animal are dependent on this habitat and it is therefore one of the most important habitats from a biodiversity standpoint.

Kent contains a significant amount of England's ancient woodland (10% of the total ancient semi-natural woodland resource). The Kent semi-natural woodland is therefore of national importance. The Blean hornbeam woods are also a proposed SAC of international importance. There are woodland National Nature Reserves (NNR) at Blean and Ham Street Woods and Northward Hill. Bluebell woods in the UK are of international importance because of their very limited distribution across north-west Europe. (The UK has more than 25% of the worlds total).

Plantations on ancient sites often retain important relict flora in the rides and glades. All woodlands have environmental amenity value, and managed woodlands are important for reducing dependence on unsustainable foreign imports.

1.2 TRENDS

Broad-leaved woodland in Kent has diminished, between 1961 and 1990, by 10% (3,314 ha). Most of the losses were to agriculture and development, though this trend has lessened recently (LCCK 1961-1990, 1995). Felling regulations post 1985 have a presumption against conversion of woodland to agriculture. Large losses have occurred next to urban areas, such as the Medway Towns, in particular. About 4,072 ha of Ancient Woodland has been grubbed up in Kent since 1920 (EN, 1994).

It is estimated that 40% of coppice is currently managed (FA - *pers. comm*) The amount of young managed woodland has increased from under 3,000 ha in 1960 to just under 5,000 ha in 1990 due to replanting after the Great Storm of 1987. The largest increases were recorded in West Kent. Coniferous woodland has increased by 52% (1,044 ha) between 1961 and 1990 (LCCK, 1995).

1.3 AREA

HABITAT		hectares
Semi-natural	**Broad-leaved**	33,735
	Mixed	699
	Conifer (Yew)	0.1
	Total	**34,435**
Plantation	Broad-leaved (excluding Orchard)	5,749
	Mixed	2,168
	Conifer	3,655
	Total	**11,832**
Recently felled		**890**
Dense scrub		**1,240**
All Woodland		**48,397**

Of the semi-natural broad-leaved woodland approximately 1,270ha is sweet chestnut coppice.

ANCIENT WOODLAND	ha
Semi-natural	20,347
Replanted	8,949
Total	29,951

[Figures from Provisional Inventory of Kent's Ancient Woodland (1994) and KWHS (1995)]

1.4 DISTRIBUTION

Broad-leaved and coniferous woodland distribution is uneven in the county. Related to Natural Areas it is

densest in the High and Low Weald, North Downs and the Blean. Tunbridge Wells and Ashford boroughs have the highest cover of semi-natural woodland (see KWHS Table 15.8 for further details). Mixed semi-natural (yew) woodland is concentrated on the North Downs and in the North Kent Agricultural Belt.

2. CURRENT FACTORS AFFECTING THE HABITAT - THREATS/ISSUES

1. Direct land-take losses for development.
2. Lack of appropriate management (e.g. coppicing, thinning and ride maintenance), often due to lack of market for woodland products.
3. Fragmentation leading to increased edge effects and limiting genetic viability of less mobile species, fragmentation of ownership and uncoordinated management.
4. Lack of regeneration, (especially of coppice) due to overgrazing and deer damage.
5. Continued availability of grant-aid for re-planting of conifers where cleared from ancient woodland.
6. Unfavourable economic status of woodlands in terms of management costs and availability of grant aid.
7. Need for an agreed system of certification to be agreed and implemented which recognises UK wood products from sustainable sources, produced using best practise management.

3. CURRENT ACTION/MECHANISMS

3.1 PROTECTION

Certain key areas are formally designated and protected. For example, 108 sites are wholly or partly SSSI. However in area terms only 16% (4,655 ha) of ancient woodland is formally designated (SSSI). (EN, 1994).

Designation	Percentage of semi-natural broad-leaved woodland
SSSI	13.6
(SAC)	(1.2)
SNCI	38
Total	51.6

About 5,185 ha or 18% of the remaining ancient woodland is under some form of conservation management or status (ie. SAC, LNR, NNRs, Kent Wildlife Trust, Woodland Trust and RSPB Reserves).
Some Local Plans have specific ancient woodland policies, and others have general woodland policies. Some also advocate planting of native trees. Local Authorities also serve Tree Preservation Orders (TPO) on threatened trees and woodlands.

3.2 MANAGEMENT

Management plans are in place for all NNRs and most Kent Wildlife Trust, RSPB and WT reserves. 99 ha of woodland is managed under EN management agreements.

The FA promotes and grant-aids woodland creation and management via the Woodland Grant Scheme (WGS). Higher payments are available for community woodlands and planting on better agricultural land. New projects under the Woodland Improvement Grant (WIG) include capital grants for woodland biodiversity (e.g. coppice for butterflies, available 1996-98 in certain areas of East Kent and the High Weald) and under-managed woods. Between 1988 and 1994 schemes were approved for approximately 5,000 ha of woodland (3,884 ha of broad-leaved re-stocking, 682 ha of new broad-leaved planting, 411 ha of conifer re-stocking and 78 ha of new conifer).

Forest Enterprise manages 3,600 ha of woodland (around 50% of which is broad-leaved) for commercial production, amenity and nature conservation. Surveys and management recommendations were made by the Kent Wildlife Trust for all FE holdings during 1986-1988.

Advice and practical help on woodland management and planting, is available from a number of organisations, e.g. BTCV and CMPs. The Weald WoodNet scheme currently puts suppliers in touch with markets.

The Kent Rural Regeneration Project has bid for funding for woodland regeneration through management, employment and marketing of produce.

4. KEY SPECIES

Notables
Dormouse
Butterflies and moths: heath fritillary, silver washed fritillary, pearl bordered fritillary, purple emperor, white admiral, duke of burgundy, scarce merveille du jour, triangle and plume prominent, sub-angled wave.
Birds: Hawfinch, wood warbler, redstart, firecrest, hobby, goshawk, crossbill and nightjar.
Plants: Hay scented buckler fern, helleborines, lady orchid, fly orchid, birds nest orchid, small-leaved lime, butcher's broom, herb paris, box.

Standard Bearers/Quality Indicator Species
Coppice -Nightingale, bluebell, wood anemone
High Forest -Lesser spotted woodpecker.
Coniferous -Yew, long-eared owl, tree pipit.

Retrievables
Wood white, high brown fritillary, small pearl bordered fritillary, lesser belle moth and Clifden non pareil moth, Tunbridge filmy fern.

5. OBJECTIVES/TARGETS

- To retain all ancient semi-natural woodland, to restore positive conservation management and enhance to a more semi-natural character woodlands on ancient replanted sites (e.g. diversify sweet chestnut plantations, retain some standard trees, allow some neglected coppice to develop into high forest), with a priority given to SSSI/SNCI woodlands.
- Creation of new native woodland on greenfield sites of no current wildlife or archaeological value.
- Implement best practice in woodlands, with increasing biodiversity as a key aim.
- Establish a small number of large, minimal intervention woodlands
- To manage some areas of scrub, in the long-term, alone or in association with other habitats.

Woodland cover targets

	Present	10 year	50 year
Ancient semi-natural woodland	20,347	no change	no change
Other semi-natural woodland	14,000	15,500	23,500
Plantation conifer (not to replace broad-leaved woodland)	3,655	4,000	5,000
20-year set-aside scheme land planted with woodland	-	5%	-

	Present	10 years	50 years
SSSI	?	All	All
SNCI	?	35%	75%
Ancient semi-natural woodland (20,839 ha)	?	25%	50%
Coppice (where historic management)	40%	50%	75%
Restore ancient replanted woodland (8,059 ha)	-	25%	50%

Management targets

Species targets

	Present	10 year	50 year
Heath Fritillary	Approx. 16 colonies	20 colonies	30 colonies
Pearl-bordered Fritillary	3-8 poor colonies	15 colonies	Widely found
Duke of Burgundy fritillary	3+ colonies	5 colonies	15 colonies
Nightingale	approx. 1,000 pairs	10 % increase	25% increase
Dormouse	?	10% increase 100 boxes in 10 woods	25% increase 100 boxes in 50 woods
Firecrest	?	Stable population	Expanding population

10 Year Targets

- All woodland owned/managed by BAP partners to have an up-to-date management plan, targeting biodiversity.
- Establish current extent and distribution of firecrest in Kent.
- Establish woodland owners/managers group as focus for Kent wood products industry.
- Have in place a certification system to identify locally produced timber harvested from a sustainable source.

50 Year Targets

- Form at least one large woodland complex in total covering around 3,000 ha (most probably around the Blean, Orlestone or the west of the Weald) including parts which are managed as "natural, limited intervention" areas.
- Create a large community woodland in North Kent.

(See also targets and actions in Dormouse, Nightingale, Heath fritillary and Pearl bordered fritillary action plans)

6. PROPOSED SPECIFIC ACTION

6.1 POLICY

1. Encourage development of wood markets. E.g. increase use of local charcoal; establishment of biomass plants under NFFO (using wood other than from arable short rotation coppice); support Weald Woodnet and Woodland Enterprise Centre (Flimwell); change own use to home-grown timber, certified as from a sustainable source where possible; raise awareness of unsustainable logging in UK and abroad (KCC, FA, FE, WT, EN, CMPs, CLA, NFU, KWT, RSPB).
2. Review current grant-aid, e.g. inclusion of biodiversity targets for WGS, target restoration of Ancient replanted woods and review permitted re-planting of conifers on ancient woodland and other designated sites. (FA, EN, KWT, RSPB, KCC)
3. Lobby for amendments to TPO legislation such that these can be determined solely on nature conservation as well as amenity value, as is currently the case. (KWT, KCC, RSPB, LAs, Kent Tree Officers Group)

6.2 LAND MANAGEMENT

1. Promote natural regeneration after harvesting ancient replanted woods where semi-natural elements remain. (FA,KCC, KWT, FWAG)
2. Establish links between woods and buffer zones around woods, concentrated in areas identified as target areas for planting e.g. by using MAFF Habitat Scheme. New planting should avoid areas of existing wildlife or archaeological interest and should reflect landscape character of local area. (All)
3. Promote positive management of ancient semi-natural woodland, and replanting with or regeneration of native species. (FA, WT, KCC, CMPs, EN, KWT, RSPB)
4. Ensure North-west Kent community woodland forms part of "Green Grid" development. (FA, CoCo, LAs, Groundwork)
5. Target carr and wet woodland for management and expansion. (EA, FA, CLA, KWT)
6. Set up local provenance nurseries to provide local, native stock for planting schemes. (Commercial nurseries, CMPs, BTCV, LAs, Tree Wardens, Schools and Community groups)
7. Exclude stock/deer from woodland with high wildlife interest, the value of which is threatened by grazing or deer damage. (EN, FA, CMPs, FWAG, CLA, NFU)

6.3 MONITORING AND RESEARCH

1. Set up a sample monitoring system to measure biodiversity effects associated with WGS (not currently assessed).(FA)
2. Identify target areas for woodland planting, including buffers and links, and for reinstatement of coppicing and promotion of abandoned coppice to open canopy high forest, where appropriate. (FA, FE, KWT, RSPB, EN, WT)
3. Undertake sample ground survey and NVC of ancient woodlands to define category types and ensure important sub-communities are represented fully in SSSI and SNCI series, and to allow for tailored management. (EN)

(Species)

1. Monitor key species, especially dead wood invertebrates. (KFC)
2. Initiate 50+ woodland butterfly transects. (KWT, EN, RSPB, CMPs)
3. Set up a programme/advisory group to consider the conservation targets for woodland butterflies and moths. (EN, KWT, BC)

7. RESPONSIBLE BODIES

FA, FE, MAFF, KCC, LAs, EN, CLA, NFU, KWT, WT, RSPB, CMPs, FWAG, MOD, NT, BTCV, BC, Groundwork.

Lead Agency: Forestry Authority / Kent Wildlife Trust

8. COMPLEMENTARY UK PLANS

UK action plans for **Lowland Beech woodland** and **Wet woodland** are in preparation. (No national leads have been agreed as yet.) There is a broad habitat statement for **Broad-leaved and yew woodland**.

LOWLAND WOOD-PASTURE AND HISTORIC PARKLAND

Wood-pasture, as the name suggests, is a habitat derived from the grazing of stock within a woodland. The trees provide both shelter and a supply of wood, which is generally obtained by pollarding the trees (cutting them above browsing height). The term wood-pasture is also used to describe historic deer parks and landscaped parkland where the trees are thinly scattered, as well as sites with a high density of trees. It is a particularly important habitat for dead-wood invertebrates.

The tree species present influence the invertebrates and lichens which are likely to occur. The most common tree species found in wood-pasture in Kent are hornbeam and oak, though beech, ash and sweet chestnut do occur. Generally oak has a high diversity of associated species, hornbeam has few and sweet chestnut is particularly poor in lichens (because of its acid bark). Where exotic species have been planted these are likely to be of less wildlife value than native species.

1. CURRENT STATUS

1.1 IMPORTANCE

In 'Priorities for Habitat Conservation in England' [EN Research Report No. 97 (1994)] ancient parkland and wood-pasture is considered to be the highest priority (and most valuable) woodland habitat type.

South-east England has one of the highest proportions of this habitat in Western Europe. In Kent it is of county and probably national importance because of the communities of lichens, invertebrates (especially dead wood species), fungi and hole-nesting birds which are associated with it. It is also important at a county level for the areas of unimproved (mainly acid) grassland which occur.

The Kent resource is likely to be small, but a large proportion of the known sites are of high conservation value, as reflected in their SSSI or SNCI status. Parkland areas of wood-pasture are also likely to be of significance as historic landscapes.

1.2 TRENDS

Wood-pasture - This habitat was widespread in the lowlands from medieval times until the early 19th century but much has been lost due to conversion to other types of woodland and agriculture. In several of the remaining areas, lack of management has led to the development of secondary woodland around the old trees.

Parkland - The loss of mature parkland trees and a failure to replace them is causing a gradual decline in the quality and extent of this habitat. There has been some recent planting in response to significant losses in the 1987 storm and Countryside Stewardship Scheme incentives but there remains a generation gap between these and the ancient trees. Much parkland has been ploughed or improved, resulting in the loss of the grassland flora. It also leads to damage to tree roots by the plough and to the lichens from fertiliser and herbicide spray.

1.3 AREA

Not known. The main priority should be to establish this. There are no figures on the area of ancient parkland in Britain, nor even a complete list of sites. (The area nationally is estimated at 20,000-50,000 ha with 10 000-20 000 ha in working condition. i.e. grazed at appropriate levels). Historic parks and gardens in Kent account for 11,435ha at 411 sites. Of these, 63 sites are over 50ha in extent and are likely to be historic parkland. These cover 9,177ha.

1.4 DISTRIBUTION

Very little 'true' wood-pasture remains in Kent today and it is unlikely that there was ever a great deal. Some wooded commons still have remnants, though the majority of areas which can be identified today are in historic parks associated with large houses (eg. Knole, Hatch Park, Chilston and Lullingstone Parks).

Remnants of wood-pasture and parkland occur at scattered localities throughout the county, in those areas which are associated with historic estates. Of the `true' wood-pasture the majority occurs on the Greensand, mainly around Sevenoaks and Folkestone. The northern section of Shepway district, around Folkestone, seems to be particularly rich in this habitat. There are 9 SNCI sites in this area which still have wood-pasture, parkland or relics of these.

2. CURRENT FACTORS AFFECTING THE HABITAT - THREATS/ISSUES

1. Lack of appropriate management - (i.e. pollarding, grazing) leading to shading of lichens and invertebrates and break-up of old trees.
2. "Generation gap" - Absence of younger trees of the appropriate species to replace the most valuable ancient trees as they die (continuity of old trees).
3. Damage to trees by ploughing, compaction etc. in arable management.
4. Colonisation by alien species (e.g. Rhododendron and sycamore)
5. Pollution (e.g. from herbicide and fertiliser drift, acid rain) affecting lichens
6. Full extent and condition of resource not accurately known - there is a need for co-operation between nature conservation and heritage personnel to define and manage the resource.
7. Felling of large old trees for safety in open access areas.

3. CURRENT ACTION/MECHANISMS

3.1 PROTECTION

- Of the **known** remnants of this habitat most are protected by some form of designation. Six are included in SSSIs and a further 12 in SNCIs. Other areas of parkland or true wood-pasture exist which have yet to be identified, however, the best examples are probably already designated.
- A small number of sites are under some form of conservation care - the area at Scords Wood is managed by NT with Countryside Stewardship funding and parts of Hatch Park are being reinstated with input from EN.
- There are specific policies in some Local Plans (e.g. Dover DC) in addition to those which apply to ancient woodland and TPOs. Policies relating to landscapes of historic interest will also apply to parkland areas.

3.2 MANAGEMENT

- Parkland habitat and wood-pasture is an historic landscape targeted by the Countryside Stewardship scheme for grant-aid. (65 ha in 2 agreements - 1996).
- EN have management agreements on key wood-pasture sites (and Site Management Statements are being prepared for all SSSIs to encourage appropriate management.)
- Project groups can provide advice and help with management (Countryside Management Projects, BTCV).
- FA also offer grants for woodland management and establishment in designed landscapes, and control the issuing of felling licences (required for the removal of more than 5 cubic metres of timber per quarter).

4. KEY SPECIES

Notables
Lichens - Parmelia acitabulum, Lecanactus spp., Pertusaria spp.

Standard Bearers/Quality Indicator Species

Hole-nesting birds - All woodpeckers, nuthatch, treecreeper, jackdaw, stock dove.
Lichens - In the lowlands 70+ species which are seldom, if ever, found outside old wood-pasture. Any site with a variety of these epiphytic lichens.
Invertebrates - (especially those associated with dead wood and continuity of woodland habitat).

Retrievables
?

5. OBJECTIVES/TARGETS

- Retain the best examples of wood-pasture in the county.
- Reinstate positive management of key areas of wood-pasture and parkland to ensure the survival of the old trees and their associated micro-habitats.

10 Year Targets

- Identify and survey all known sites in the county, concentrating on specialist groups such as invertebrates and lichens, to produce an inventory of wood-pasture sites in Kent and their wildlife value.
- Ensure important examples have some form of protection and secure positive management of at least 10 key sites.
- All wood-pasture managed by BAP partners to have a management plan, targeting biodiversity.
- Instigate a programme of replacement planting on or adjacent to all key wood-pasture sites.

50 Year Targets

- Ensure that maturing (pollard) trees of same species are present in areas identified **now** as requiring replacement trees for the long-term survival of the associated rare and scarce species.
- Increase area of wood pasture by targeting (i) areas where wood-pasture is known to have occurred historically, especially where relict grassland and invertebrate communities are thought to persist, and (ii) areas adjacent to existing sites.

	Present	10 years	50 years
Area in Countryside Stewardship	65ha	200ha	
Grazing management restored	?		
Sites planted with replacement trees	?		

(Targets to be set once inventory established)

6. PROPOSED SPECIFIC ACTION

6.1 POLICY

1. Ensure all key sites are protected once these are known (EN, KWT, LAs)
2. Lobby for amendments to TPO legislation such that these can be determined solely on nature conservation as well as amenity value, as is currently the case. (LAs, KWT, EN, KCC)
3. Promote co-ordinated working between nature conservation and heritage personnel to manage resource. (KCC, EN, LAs, FA, NT, EH)

6.2 LAND MANAGEMENT

1. Promote planting programmes to ensure replacement trees are established on key sites. (FRCA, CMPs, KCC, LAs, FA, KWT, EN, FWAG)

6.3 MONITORING AND RESEARCH

1. Prepare an inventory of wood-pasture sites in the county. (KCC)
2. Conduct surveys to establish accurately the status and distribution of key species associated with this habitat (* feed back into section 4 and 5 once notables / retrievables and actions needed to safeguard are known). (KFC)
3. Monitor key species once these have been identified. (KFC, KWT)
4. Identify areas which require replacement tree planting to secure long-term survival of rare species. (CMPs, KWT, KCC)
5. Contribute to national register of veteran trees by identifying such trees in Kent. (EN, NT, CMPs, KWT, KCC)

7. RESPONSIBLE BODIES

EN, KFC, NT, KWT, KCC, FA, CMPs, FRCA, FWAG

Lead Agency: KCC Heritage and Kent Gardens Trust?

8. COMPLEMENTARY UK PLANS

A UK action plan for **Lowland Wood-pastures and Parkland** is in preparation. (No lead is proposed as yet.) There is a broad Habitat Statement for this habitat.

OLD ORCHARDS

The term traditional, or old orchard, usually refers to those with large trees that greatly contribute to the local landscape and are grown on a vigorous rootstock at a low planting density. Exceptions, such as traditional Kentish cobnut plats, are also covered by this plan.

1. CURRENT STATUS

1.1 IMPORTANCE

Old orchards are a distinctive, yet rapidly disappearing, part of the County's heritage. They make a significant contribution to biodiversity and local distinctiveness; not simply in terms of the varieties of orchard trees, but also in terms of the local landscape and culture. They can support a greater variety of wildlife than the more commercial orchards due to less intensive management and features associated with old orchards such as: the lichen and invertebrate populations on old trees, the underlying grassland, the bird and mammal populations that use the orchard, the surrounding hedgerows and windbreaks.

1.2 TRENDS

In Kent, it is estimated that 90% of the County's traditional orchards (and two-thirds of the total orchard cover) have disappeared since the 1950s. Nearly half of all orchards (41.6%) were lost between 1961 and 1990 (LCCK). The losses have mainly been attributed to changes in the rural economy leading to intensification of the horticultural industry out of necessity to compete with cheap imports from overseas. Many have been grubbed and converted to arable or improved grassland (grants of up to £4,600/ha available between 1985 and 1995 encouraged this). Traditional orchards are costlier to maintain and harvest than the dwarf, closely packed "bush" varieties, hence they continue to decline in extent and quality.

1.3 AREA/EXTENT

The total area of orchard is estimated to be approximately 12,000 ha and old/traditional orchards account for no more than 30% of these. Cobnuts were recorded as around 70 ha (KWHS, 1995) but the actual figure is likely to be 100-120 ha.
(More accurate figures for the area of new and old orchard and plat in Kent will be available once the GIS orchard project is complete).

1.4 DISTRIBUTION

Old orchards are concentrated in two main areas: the North Kent Fruit Belt (between Rochester and Faversham) and the Mid-Kent Fruit Belt (in the central areas of the High and Low Weald and Greensand).

2. CURRENT FACTORS AFFECTING THE HABITAT - THREATS/ISSUES

1. Agricultural and horticultural intensification (e.g. conversion to more profitable crops, use of fertilisers /herbicides /pesticides.
2. Neglect of traditional management practice due to high cost and lack of extensification support through the CAP, and especially following storm damage of 1989/90.
3. Development threats (e.g. housing, roads), change of use.
4. Lack of financial support - there are currently no grants available for management, only restoration. These orchards were developed for commercial reasons and will only survive if they remain profitable.
5. Use for horse grazing and the resulting damage to old trees and the ground flora of plats.

3. CURRENT ACTION

3.1 PROTECTION

- The number of sites protected within Sites of Special Scientific Interest and Sites of Nature Conservation Interest is **very small**. Only two orchards occur in SSSIs and eight in SNCIs (Jon Shelton, 1994).
- Landscape protection - only general landscape policies are mentioned in the Kent Structure Plan (Third Review May 1993), affording no specific protection to help retain landscape character in the main fruit growing areas.

3.2 MANAGEMENT

- Old orchards are eligible for Countryside Stewardship as historic landscapes. (In 1996 95ha under 20 agreements).
- Rural Action can assist with the establishment of community orchards (at new and existing sites).

4. KEY SPECIES

Notables
Mistletoe, bullfinch
Plats: Dormouse

Standard bearers/Quality Indicator Species
Lichens
Owls, woodpeckers, dead wood invertebrates
Unimproved grassland species
Plats: Nuthatch, toothwort, moschatel, bluebell.

Retrievables
Wryneck

5. OBJECTIVES/TARGETS

- Halt the continuing loss of old orchards
- Restoration and enhancement of existing traditional orchards (especially in the main fruit growing areas).
- Creation of more community orchards.
- Creation of new orchards and plats along traditional lines.

10 Year Targets:
- Double the amount of old orchard under traditional management.
- Establish one community orchard per year.

6. PROPOSED SPECIFIC ACTION

6.1 POLICY

1. Lobby for inclusion of traditional orchards in any Agri-Environmental packages or proposed changes to the CAP. (KOLG, KCC, CLA)

6.2 LAND MANAGEMENT

1. Encourage uptake of and target Countryside Stewardship to increase positive management of existing sites (trees, grassland and boundaries). (MAFF/FRCA)
2. Promote the creation of new community orchards, planted along traditional lines (CMPs, Rural Action, Parish Councils, Groundwork).

6.3 MONITORING AND RESEARCH

1. Establish current extent of traditional orchards (area and distribution) (KCC)
2. Identify new sources to fund land purchase for community orchards (e.g. Millennium/Lottery funding). (CoCo, KOLG, CMPs, Groundwork, KRCC)
3. Investigate the potential for marketing apples and cobnuts, such as supporting a new cider orchard initiative which uses old/traditional orchards. (KOLG, KRCC, KCC, CoCo)
4. Produce a `Kent Orchard Book' - to promote cultural heritage and awareness of old orchards. (KCC, KOLG)

7. RESPONSIBLE BODIES

MAFF/FRCA, FWAG, NFU, CLA, KOLG, CMPs, KRCC, KCC, CoCo, Parish Councils.

Lead Agency: KCC and KOLG

8. COMPLEMENTARY UK PLANS

There is no equivalent national plan proposed.

HEDGEROWS

Hedgerows include all boundary lines of trees and shrubs. They may be ancient or recent in origin, species-rich or poor and may just be relics where only a straggling line of trees or shrubs remains. Many are of significant cultural and historic importance. Field margins are a valuable integral part of the hedgerow habitat.

1. CURRENT STATUS

1.1 IMPORTANCE

In intensively farmed areas, hedges can be the most significant semi-natural habitat, forming essential links between other semi-natural habitats. They are an essential refuge for a great many woodland and farmland plants and animals and are especially important for butterflies, moths, farmland birds, bats and dormice. Ancient and/or species-rich hedgerows can be rich in relict ancient woodland species and because of its "ancient landscape", which escaped the Enclosures of 1720-1840, Kent is likely to have a significant number of these, as well as many others of historic and cultural value. Over 600 plants, 1,500 insects, 65 birds and 20 mammals are known to live or feed in hedgerows.

1.2 TRENDS

Nationally hedgerow loss is estimated as 5% p.a., with 21% of English hedges lost between 1984 and 1990. Hedgerow losses in Kent are likely to be on a similar scale. A pilot study of four Kent parishes found that hedgerow loss between 1945 and 1990 ranged from 28% to 42%. Though the rate of loss has slowed recently at least 1,746km of field boundaries have still been lost in Kent over the last 20 years (KWHS, 1995).

Losses have been due to agricultural intensification (e.g. increased field size), built development and also neglect. Two-thirds of Kent's hedgerows (62.6%) are no longer intact and stock-proof (KWHS, 1995). Lack of, or inappropriate management is therefore a major problem. This is a result of the declining role of hedgerows in modern farming, loss of traditional skills and reduction in the agricultural labour force. In addition to this Dutch elm disease severely affected many of the hedges in the North Kent Marshes.

1.3 AREA/EXTENT

	Total length(km)	% of all hedges
Intact hedges	3,035	37.4
Hedges with trees	2,962	36.5
Species-rich hedges	1,145	14.1
Total length of hedgerow	8,112	100

It has been estimated that nationally 42% of hedges are ancient and/or species rich (ie. pre Enclosure Acts 1720-1840 or with 5 or more woody species or a rich basal flora, BAPSG, 1996) and, whilst the figure for Kent may not be as high as this, it is likely to be closer to 25-35% than the 14.1% which are acknowledged. (14.1% is a minimum figure and does not take account of hedges which were not visited by
the surveyor or hedges with low shrub diversity but a rich base flora. Ancient hedgerows are not included in this total, except where they were recorded as having a variety of shrub species.)

1.4 DISTRIBUTION

Hedgerows are distributed throughout the county, with the highest concentration in the central Low Weald. Other parts of the Low Weald, the High Weald and the eastern North Downs also have significant amounts. (30% of all hedgerows in Kent are in the Low Weald.) Hedgerows are less frequent in the coastal marshes.

Those hedgerows adjacent to roads, green lanes, tracks and wooded ground are the most likely to be species-rich - many have historic and cultural links.

2. CURRENT FACTORS AFFECTING THE HABITAT - THREATS/ISSUES

1. Hedgerow removal and damage due to changes in agricultural practices.
2. Lack of or inappropriate management - too frequent and badly timed cutting (62.6% of the total length of hedgerow in Kent has been recorded as defunct/no longer stock-proof), damage to field margins which provide a transition from hedge to crop.
3. Lack of available funding for management and replanting.
4. Hedgerow loss to development.
5. Fragmentation of remaining network.
6. Loss of hedgerow trees - at risk from ploughing and other agricultural operations.

3. CURRENT ACTION/MECHANISMS

3.1 PROTECTION

The Environment Act 1995 introduced an enabling power to protect "important hedgerows". DoE regulations outlining these powers for LAs came into force in June 1997. The Conservation (Natural Habitats, etc) Regulations 1994, recognises that such linear features are essential for the migration, dispersal and genetic exchange of wild species.

It is currently a condition of set-aside payments to protect adjacent features such as hedgerows.

TPOs can be served by LAs on hedgerow trees but only where they are deemed to be significant landscape features.

3.2 MANAGEMENT

Article 10 of EC Habitats Directive requires member states to encourage management of hedges in their land-use planning and development policies. (Despite this, very few hedgerows are managed well and even fewer are still managed in the traditional way by laying or coppicing.)

Incentives for more positive management include Countryside Stewardship for restoration of hedgerows (MAFF) (under which only 8.6 km of hedgerow were managed in 1995) and Kent Countryside Grants, which currently provide grants for small-scale planting and gapping up.

4. KEY SPECIES

Notables
Dormouse.
Grey partridge, hobby.
Butchers broom, wild service tree, mature elm

Quality indicator species
Whitethroat, linnet, yellowhammer
Hedgehog, shrews, woodmice, voles.
Midland hawthorn, alder buckthorn, spindle

Negative indicators
Cow parsley

Retrievables
White letter hairstreak, brown hairstreak

5. OBJECTIVES/TARGETS

- Prevent further hedgerow losses.
- Reinstate positive management and restoration of existing hedges, with a priority given to ancient and species-rich hedges.
- Extend the hedgerow cover to create links between isolated woodland and hedge fragments.
- All planting to use plants of native stock (where possible of local provenance).
- Maintain current stock of hedgerow trees and establish new ones where absent.

Targets

	Present	10 years	50 years
Total length of hedgerow	8,112 km	9,000 km	15,000 km
Sympathetic- management of ancient/species-rich hedges	?	50%	100%
Planted and tagged hedgerow trees	?	500	5,000

(See also targets and actions in lowland farmland and dormouse action plans)

6. PROPOSED SPECIFIC ACTION

6.1 POLICY

1. Implement the Hedgerow Regulations, for important hedgerows threatened with removal, once legislation is in place. (LAs, KCC)
2. Lobby to have sympathetic management of hedgerows and field margins made a condition of all agricultural grant-aid. (EN, KWT, RSPB, KCC)

6.2 LAND MANAGEMENT

1. Promote positive management of hedgerows through the uptake of Countryside Stewardship for management, restoration and planting of hedgerows. Target this to maintain strong network of hedges in key areas (Low Weald, High Weald, North Downs), and to link existing areas of semi-natural habitat. (KCC, CMPs, EN, KWT, FWAG, MAFF, CLA, NFU)
2. Organisations and individuals who have responsibility for hedgerow management to implement best practice (including 3 year cutting of hedges, avoiding bird nesting season, planting of trees, and farming and management practices which protect hedges and field margins from the effects of fertilisers and pesticides). (CMPs, KCC, BTCV, FWAG, CLA, NFU, MAFF, MOD)
3. Initiate a scheme which builds upon the existing tree warden scheme and extends it to include tagging and planting of hedgerow trees and general hedgerow management. (BTCV, CMPs, LAs, Parish Councils)

6.3 MONITORING AND RESEARCH

1. Monitor up-take of grant schemes, and relative success, to facilitate effective targeting of grants and action. (MAFF, KCC)
2. Investigate the practicality of establishing registers of ancient and species-rich hedgerows (those defined as important by the Environment Act 1995). (KCC, LAs)
3. Set up or identify a demonstration farm to show examples of best practice in hedgerow management and to provide details of cost/benefit for different approaches to management. (FWAG, FRCA)
4. Review success, or otherwise, of Hedgerow Regulations in protecting hedgerows after 3 years. (KCC, LAs)

7. RESPONSIBLE BODIES

MAFF/FRCA, FWAG, CLA, NFU, KCC, CMPs, BTCV, MOD.

Lead Agency: KCC / CLA

8. COMPLEMENTARY UK PLANS

There is a costed UK action plan for **Ancient and/or species rich hedgerows**. The national lead for this is MAFF.
There is also a broad Habitat Statement for **Boundary features**.

LOWLAND FARMLAND

This action plan covers arable, set-aside and improved grasslands. (Semi-natural grasslands, orchards, ponds, hedgerows and copses, whilst being an integral part of lowland farmland, are covered individually in other plans.)

1. CURRENT STATUS

1.1 IMPORTANCE

Agricultural land dominates the land cover in Kent. As the matrix for much of the land of special wildlife value, the management of agricultural land has a fundamental impact on the health of the wider environment. Locally, as in North Kent Marshes and Walland Marsh it is important for wintering wildfowl.

1.2 TRENDS

Overall the area under some form of agriculture (approx. 68% of the county) has stayed roughly the same since 1961, with only a small decrease of around 1,700 ha due to new development and to a lesser extent to scrub and secondary woodland growth (LCCK, 1995).

Within this broad category, which includes arable, grassland, orchards, hops (and heathland) there have been changes from arable to grassland and vice versa, the area of arable reaching a peak around 1972, at the expense of grassland, but this trend has since been reversed. There has been a significant decline in the area of orchard particularly in the North Kent Agricultural Belt, where this has been converted to arable.

1.3 AREA/EXTENT

	Area (ha)	Percentage of Kent
Arable	139,641	36%
Grassland	100,734	26%
Orchard	20,164	5%
Hops	1,751	0.5%
Total	262,290	67%

(Taken from LCCK, 1995)

2. CURRENT FACTORS AFFECTING THE HABITAT - THREATS/ISSUES

1. Paucity of agri-environment funding, CAP policy of production-led payments..
2. Use of pesticides/herbicides
3. Conversion from hay to silage and move towards earlier cuts
4. Trend towards autumn sown cereal crops leading to lack of winter stubbles and dense spring growth
5. Use of non-native, aggressive monocultures creating species-poor grassland swards
6. Drainage schemes
7. Removal and lack of management of headlands, hedgerows and ditches.
8. Over-intensification/over-grazing
9. Conflict of interests due to lack of recognition of the wildlife value of some arable areas
9. Loss of traditional skills in land management

3. CURRENT ACTION/MECHANISMS

3.1 PROTECTION

- Some substantial areas of arable and improved grassland are included in SSSIs (5,330 ha) and SNCIs (6,400 ha).
- Grade 1, 2 and 3a agricultural land is given stronger protection from development by MAFF than lower grades (as reflected in PPG 7 and Local Plans).

3.2 MANAGEMENT

- Set-aside requirements (11%-18% of arable area), linked to Arable Area Payment Scheme - has some conservation gains especially in non-rotational and 20 year set-aside.
- Countryside Stewardship grants for reversion to and management of target habitats within farmed landscape.
- North Kent Marshes ESA scheme for arable reversion, water level management and re-introduction of grazing to grazing marsh.
- Management advice is available from FWAG and FRCA.
- Water Level Management Plans.

4. KEY SPECIES

Notables
Wintering and passage waterfowl and waders - wigeon, brent geese, Bewick's swan.
Rare arable weeds - shepherd's needle, rough marsh-mallow, corn chamomile, ground pine.

Standard Bearers/Quality Indicator Species
Harvest mouse, brown hare.
Skylark, linnet, corn bunting, goldfinch, song thrush, bullfinch, lapwing, turtle dove, barn owl, grey partridge, reed bunting.
Stinking chamomile, corn parsley.

Retrievables
Quail, cirl bunting.

5. OBJECTIVES/TARGETS

- Maintain the existing areas of semi-natural habitat within the farmland matrix and create new areas increase where possible (e.g. field margins, number of ponds, woodland shaws, hedges, wet grassland).

farmland and connect fragmented populations, where appropriate.
- Increase the number of farms operating under whole-farm plans, integrated crop management and Good Agricultural Practice (GAP).
- Reduce agricultural pollution, especially entering waterways.

(See also targets in hedgerow, woodland, grassland, standing water and old orchard action plans)

Targets

	Present	10 years	50 years
Area of semi-natural habitat	?	Stable	Increasing
Conversion of improved to semi-improved grassland	?	1,000 ha	5,000 ha
Arable to semi-improved grassland or woodland	?	1,000 ha	10,000 ha
Farmland bird populations	Declining	Stable	Increasing

6. PROPOSED SPECIFIC ACTION

6.1 POLICY

1. Seek reform of negative aspects of CAP (e.g. environmental conditions attached to Arable Area Payments and improvements to set-aside scheme. (EN, KWT, RSPB, CLA, NFU, FWAG, KCC)
2. Promote the case for extension of and increased grant aid on current national agri-environmental schemes to competitive levels, in line with current levels for agricultural subsidies and wider availability of the Arable Improvement Scheme introduced in 1997. (EN, KWT, RSPB, CLA, NFU, FWAG, KCC)
3. Promote the uptake of existing agri-environmental initiatives such as ESA, organic farming and Countryside Stewardship (All)
4. Lobby for additional agri-environmental schemes for North Downs, Weald, Romney Marsh etc. (KCC, EN, CLA, LAs)
5. Protect key areas of seasonally inundated arable land which are important for bird over wintering and breeding birds and ensure these are identified in Local Plans (EN, KWT, KOS, KCC, LAs)
6. Promote good farming practice which protects water supply from pollution e.g. by nitrates. (EN, FWAG, FRCA, KWT, RSPB)
7. Review land management policy on BAP partner land holdings (All)

6.2 LAND MANAGEMENT

1. FRCA, FWAG and other field officers to promote Good Agricultural Practice (GAP) and uptake of Countryside Stewardship options for habitat creation on cultivated field margins and field boundaries, sympathetic management of boundary habitats, diversity of cropping management, "conservation headlands". Targeting these to link existing semi-natural areas and in those areas known to support important species. (FRCA, FWAG, CMPs, KWT, EN)
2. All sites with nationally rare or scarce arable weeds to be protected and managed appropriately. (EN, KWT, MOD, FWAG)
3. Promote the use of more specific pesticides and targeted use, rather than broad-spectrum spraying. Regulate use of herbicide in or near water. (FWAG, MAFF, NFU, CLA, EA, CMPs)
4. Identify or establish groups of farms willing to pursue joint biodiversity action, targeting those areas with greatest potential for improvement, e.g. 'hot spots' for farmland birds such as Romney Marsh. (FWAG, FRCA, KCC, CLA, NFU)
5. Promote use of buffer zones adjacent to water courses. (EA, MAFF/FRCA, FWAG)

6.3 MONITORING AND RESEARCH

1. Conduct pilot project to assess effects of set-aside on biodiversity (FRCA/MAFF)
2. Monitor all nationally rare and scarce arable weed species (EN, KFC)
3. Monitor key farmland animal species (EN, RSPB, KOS, KFC, WATCH)
4. Monitor uptake of agri-environmental schemes and review regularly. (MAFF/FRCA, FWAG)

7. RESPONSIBLE BODIES

MAFF, FRCA, CLA, NFU, KCC, FWAG, EN, KWT, KOS, RSPB, EA, MOD.

Lead Agency: CLA and KCC.

8. COMPLEMENTARY UK PLANS

There is a costed UK action plan for **Cereal field margins**. The national lead is MAFF. There is also a broad Habitat Statement for **Improved grassland**.

URBAN HABITATS

Urban habitats can be divided into five overlapping categories:

(i) Remnants of ancient natural systems. There are ancient woodlands, riverbanks and coastal habitats in many towns in Kent.

(ii) Pre-industrial rural landscapes. In Kent these include remnants of hedgerows, species-rich meadows and parklands.

(iii) Managed green spaces. These include town parks, pocket parks, amenity grassland, allotments and private gardens.

(iv) Naturally seeded areas or derelict industrial sites.

(v) Man-made structures which can form important breeding and roosting sites and support small ephemeral plants (buildings, bridges, etc.)

1. CURRENT STATUS

1.1 IMPORTANCE

The conservation importance of urban habitats lies as much in the opportunities that they provide for people to have a close contact with wildlife as in the protection of scarce species. In Kent there are large conurbations close to several important sites, particularly around the coast, but there are also areas of deficiency.

1.2 TRENDS

The area of towns has increased considerably during this century and is likely to increase in the future. The area of Kent covered by urban land has increased by 25% in the past 30 years (LCCK, 1995). This puts increasing pressure on the remaining open and undeveloped areas within urban conurbations - the areas which are most likely to support wildlife.

There is little information on the distribution of wildlife habitats in towns, but there is likely to have been a decline, with intensification of development and deterioration in air and water quality.

1.3 AREA/EXTENT

In 1990 the area of urban land in Kent was 47,239 ha (over 12% of the county) (LCCK) and this is still increasing. The amount of open space within these areas has not been accurately measured.

1.4 DISTRIBUTION

The most extensive urban areas are the Medway towns, North West Kent and Maidstone area but there are other large towns such as Tunbridge Wells, Tonbridge, Sevenoaks, Ashford, Canterbury and the coastal towns of Folkestone, Dover, Deal, Ramsgate, Margate, Whitstable and Herne Bay. Within these there are public parks and recreation areas, remnants of semi-natural habitats, gardens, churchyards and cemeteries, schools grounds and grassed road verges which make up the majority of urban habitats.

2. CURRENT FACTORS AFFECTING THE HABITAT - THREATS/ISSUES

1. Loss of urban wildlife habitats to development.
2. Declining quality of water and air.
3. Declining population of urban trees (threatened by cabling, vandalism and cuts in public expenditure).
4. Decline in expenditure on public parks.
5. Increased awareness and community involvement in local wildlife projects, often supported in partnerships by local authorities.
6. Perception that Public Open Space must be kept "neat", over-tidying and over-management.
7. Fragmentation of remaining habitats.
8. Local authority expertise increasing and some in Kent employ an officer with some ecological expertise.
9. Expected large-scale development in North Kent (Thames Gateway) will put pressure on green space in urban areas, but could also offer opportunity.
10. Private ownership of some public green spaces in towns which may also have development potential.

3. CURRENT ACTION/MECHANISMS

3.1 PROTECTION

- Policies to safeguard public open space and green corridors are incorporated into many district Local Plans
- Tree Preservation Orders
- Designation of Local Nature Reserves and Green Belt.
- Areas within and around some towns are designated as SSSI or SNCI. (These include parts of the Medway-Swale estuary SSSI, the Thanet Coast and Tankerton Slopes, where the nationally rare Hog's Fennel occurs).

3.2 MANAGEMENT

- Management of public green space by LAs
- Local Agenda 21 and community/volunteer initiatives
- Groundwork and Countryside Management Projects
- Learning through Landscapes (Schools)
- Private sector sponsorship schemes (British Gas, Shell, BT)
- Creation of green corridors/riverside walks where appropriate.

4. KEY SPECIES

Notables

Bats (other than pipistrelle)

Quality Indicator Species

All reptiles and amphibians
Peacock, small tortoiseshell, red admiral orange tip and holly blue butterflies
Pipistrelle bat, hedgehog
Nesting house martin and swift

Retrievables

Meadow brown, ringlet and gatekeeper butterflies.

5. OBJECTIVES/TARGETS

- Retain current extent of habitat and diversity of species in urban areas.
- Manage existing areas in ways which are sympathetic to wildlife.
- Create accessible wildlife habitat in every urban community.
- Raise awareness and understanding of wildlife issues amongst general public.

10 year targets

- Establish an urban wildlife officer/warden in each major urban area (perhaps modelled on tree wardens).
- Establish garden wildlife promotion and award scheme.
- All major developments to incorporate provision of wildlife habitat.
- Establish Green Grid in Kent Thameside.

50 year targets

- Secure long-term private/public sector partnerships to manage green space in urban areas.
- Achieve widespread community `ownership' and management of local wildlife spaces.
- Create a large community woodland in North Kent.

	Present	10 years	50 years
Wildlife space within 200m of urban dwellings	?	50% houses	75% houses
Primary schools with local wildlife area	?	50%	100%
Urban public trees	?	10% increase	50% increase
Urban land managed for wildlife	?	10% increase	50% increase
Urban LNRs	?	20	100
Interpretation of existing sites	?	50%	100%
Number of people involved in community wildlife initiatives	?	10% increase	25% increase
Number of gardens managed for wildlife	?	100	1000

(See also targets and actions in standing water (ponds) and old orchard plans)

6. PROPOSED SPECIFIC ACTION

6.1 POLICY

1. Secure inclusion in Local Plans of policies to safeguard urban wildlife areas (LAs)
2. Ensure biodiversity incorporated as key part of LA21 and sustainable development. (LAs)
3. Designate Local Nature Reserves. (LAs)
4. Secure habitat compensation for loss of any semi-natural habitat in urban areas, and for habitat creation to be incorporated into any proposals for major development. (LAs, KCC, KWT)
5. Formulate and implement tree strategies for urban areas and encourage extension of parish Tree Warden scheme into urban areas. (LAs, BTCV)
6. Use native species, preferably of local provenance, wherever possible in planting schemes. (LAs, KCC, Developers and Lanscape Consultants)
6. Promote establishment of Nature Conservation Orders similar to TPOs to protect other features of importance. EN, KWT, RSPB, KCC, LAs)

6.2 LAND MANAGEMENT

1. Encourage community and schools involvement in the management of existing green corridors, and promote community 'ownership' of all local wildlife sites. (LAs, KWT, CMPs, Groundwork, Parish Councils, FA)
2. Create, safeguard and manage Green Grid in North West Kent through partnership, as pilot for Thames Gateway, through local plans and planning frameworks. (LAs, CoCo, KCC)
3. Set up wildlife gardening initiatives and award scheme, sponsored by industry. (Groundwork, LAs, CMPs)
4. Increase the number of private/public sector partnerships to manage green space in urban areas (Groundwork, CMPs, BTCV, LAs, business)
5. Establish Community Woodland in North West Kent (FA, CoCo, LAs)

6.3 MONITORING AND RESEARCH

1. Collate baseline data on urban wildlife resource and identify areas of deficiency in Kent's urban areas. Involve schools in survey and evaluation. (LAs)
2. Use Green Grid project as a pilot to identify opportunities and costs of implementing proposed targets. (KCC, LAs)
3. Monitor a range of indicator species, decided through LA21 process. (LAs)

7. RESPONSIBLE BODIES

LAs, KCC, EN, KWT, BTCV, Groundwork, CMPs, FA, Parish councils, local businesses, community groups.

Lead Agency: All LAs / Civic & Amenity Groups

8. COMPLEMENTARY UK PLANS

There is no equivalent national plan proposed.

LOWLAND ACID GRASSLAND

Acid grassland occurs on acid rocks such as sandstones and superficial deposits such as sands and gravels and peat. Lowland acid grassland is usually found within mosaics of other habitats such as lowland heath and mire communities, though all of these communities are extremely rare in Kent, and it is more commonly associated with parkland. High quality acid grasslands are usually found in the larger sites, which are maintained by appropriate grazing.

1. CURRENT STATUS

1.1 IMPORTANCE

The current extent of acid grassland in the lowlands is not accurately known but it is becoming increasingly rare in Britain. It can provide an important reservoir of rare species. However, in Kent the habitat is fragmented and is unlikely to be of national importance.

1.2 TRENDS

Lowland acid grassland is declining in extent nationally. The most serious losses were post-war, to agricultural intensification and forestry plantation. Formerly planting for commercial forestry has been targeted at this habitat but recent FE/FA policies have moved away from this.

1.3 AREA/EXTENT

There are only 737.5 ha of acid grassland in Kent, which is only 0.2% of the county area (KWHS, 1995). Of this, less than 420 ha were identified as unimproved, and the remainder as semi-improved.

1.4 DISTRIBUTION

Acid grassland in Kent is generally confined to the Greensand Ridge and Western High Weald. Large areas, of county importance, occur in historic parkland at Knole Park and Old Park SSSIs. These two sites account for 44% of all the acid grassland in Kent. Areas recorded at Dungeness are atypical and have affinities to a number of other habitats (coastal and dune grassland and heath and lichen/bryophyte heath). The majority of sites are small (1-2 ha in extent) and isolated.

2. CURRENT FACTORS AFFECTING THE HABITAT - THREATS/ISSUES

1. Fragmentation, scarcity and isolation of remaining habitat
2. Direct loss of habitat through development and agricultural intensification.
3. Lack of management, bracken and gorse encroachment.
4. Inappropriate management and damage to habitat from herbicide, pesticide and fertiliser.
5. Reliance on rabbit populations to maintain the grazing pressure (and hence quality) of some sites.

3. CURRENT ACTION/MECHANISMS

3.1 PROTECTION

- The three largest sites are designated as SSSI (75% of Kent resource)
- A number of sites have non-statutory designations as SNCIs, LNRs etc. which are recognised in Local Plans.

3.2 MANAGEMENT

Management (not mutually exclusive)	Percentage of unimproved acid grassland sites	Percentage of semi-improved acid grassland sites
All grazing (except rabbits)	29%	36%
Rabbit grazed	53%	28%
Mowing	9%	28%
Amenity uses	10%	14%
Unmanaged	10%	25%

(Figures refer to number of site records NOT total area) (KWHS, 1995)

Countryside Stewardship is available for management of historic landscapes, such as parkland, where acid grassland may occur and for acid grassland as a separate habitat. At least one of the large acid grassland sites is receiving payments through this scheme. Acid grassland in churchyards is currently eligible for small grants from EN under the Living Churchyard scheme.

4. KEY SPECIES

Notables
Bird's foot, upright chickweed, annual knawel, small cleavers, clustered clover, *Hypnum jutlandicum* (moss)

Standard bearers/Quality Indicator Species
Adder, common lizard, solitary/burrowing bees and wasps
Anthills
Hair-grass (*Aira* spp.), heath bedstraw, harebell, waxcap fungi, *Pleurizium scheiberi* (moss)

Negative indicators
Bracken, birch

Retrievables
Greater broomrape

5. OBJECTIVES/TARGETS

- To maintain the current area of acid grassland in the County.
- To secure positive, traditional management of the remaining acid grassland sites.
- To increase the area of acid grassland.

Targets

	Present	10 year	50 year
Unimproved acid grassland	420	450	750
Semi-improved acid grassland	318	400	600
Continuous bracken cover	139	89	69
SSSI acid grassland with optimal management	?	100%	100%
SNCIs acid grassland with optimal	?	25%	50%
management	-	2 - 3 sites of 10-	5 - 6 sites
Creation of buffers and habitat blocks		20ha	

6. PROPOSED SPECIFIC ACTION

6.1 POLICY

6.2 LAND MANAGEMENT

1. Optimal management of SSSI sites to be agreed with owners. (EN)
2. Promote uptake of Countryside Stewardship in areas where quality of existing acid grassland can be restored and those adjacent to existing high quality sites. (MAFF/FRCA, CMPs, FWAG, KCC)
3. Owners of all sites over 2ha of unimproved acid grassland to be visited and offered management advice. (KWT, EN, CMPs)
4. Acid grassland used for amenity purposes to have areas, at least around the edges, sympathetically managed. (LAs, KCC)
5. Retain existing areas of acid grassland within woodland complexes e.g. Mereworth, Bedgebury and Blean. (FA, EN, RSPB, KWT, Mereworth estate, WT)

6.3 MONITORING AND RESEARCH

1. Conduct desk study to identify target areas for creation/extension. (KCC)
2. Monitor success of Countryside Stewardship, creation and improvement projects and share best practice. (MAFF/FRCA, FWAG, CMPs)

7. RESPONSIBLE BODIES

EN, MAFF/FRCA, KWT, FWAG, High Weald CMP, ADAS, KCC, LAs, RSPB, FA, WT.

Lead Agency: EN / KWT

8. COMPLEMENTARY UK PLANS

A UK action plan for **Lowland dry acid grassland** is in preparation. (No lead has been agreed as yet.)
There is also a broad Habitat Statement for **Acid grassland**.

NEUTRAL and MARSHY GRASSLAND

Neutral grasslands are mostly found within enclosed field systems on moist mineral soils with a pH of between 5 and 6.5. Suitable soil conditions occur widely over level and slightly undulating ground throughout the British lowlands. Unimproved neutral grasslands have been very prone to modern agricultural improvement and as a consequence are now very scarce. They are used for both hay production and grazing.

(See separate action plan for grazing marsh.)

1. CURRENT STATUS

1.1 IMPORTANCE

Neutral grasslands represent over 20% of all semi-natural habitats in the county but their quality and extent is very variable. Unimproved and species-rich semi-improved neutral grasslands are especially valuable habitats and lowland wet grassland is an important habitat for birds. Because so little high quality neutral grassland remains in Kent it is of county, rather than national, importance. Marshy grassland is rare in Kent and is of county importance as a habitat.

1.2 TRENDS

Neutral and marshy grasslands in Kent are declining in extent and quality. Unimproved neutral grasslands have suffered a dramatic loss nationally : 97% has been lost since the 1930's (UK BAPSG), mostly to agricultural improvement. Local losses are likely to have been similar.

1.3 AREA

There are 17,980 ha of neutral grassland (outside grazing marsh) in Kent, accounting for over 80% of all semi-natural grasslands and 302ha of marshy grassland.

Type of neutral grassland	Area (ha)
Unimproved	531
Species-rich semi-improved	453*
Species-poor semi-improved	7,438*
Other semi-improved	9,559*
Total semi-improved	17,449
Marshy grassland	302

(KWHS, 1995. * Estimated area)

1.4 DISTRIBUTION

Neutral grasslands are widely distributed across Kent, and are not totally absent from any area. The remaining unimproved neutral grasslands are located mainly in the Low and High Weald Natural Areas. These are in sites with areas ranging from less than 1 ha to one site larger than 16 ha. Most are less than 4 ha in size.

Marshy grassland is spread through most of the county, but notably absent from the North Downs. It occurs along the Gault Clay and the lower reaches of the Great Stour at Chislet Marshes, the High and Low Weald and North Kent Marshes. The individual areas are extremely small and fragmented (at 214 sites with an average size of only 1.4 ha).

2. CURRENT FACTORS AFFECTING THE HABITAT - THREATS/ISSUES

1. Loss through agricultural improvement (ploughing / reseeding / fertilising / herbicide use) and development
2. Lack of traditional management (e.g. silage rather than hay making, over-grazing, particularly by horses).
3. Damage through ignorance of site value (e.g. by tree planting, neglect or over grazing).
4. Habitat fragmentation, (isolation of small sites threatens management economics).
5. Changes in the rural economy (hobby farmers, "horsey-culture").
6. Improved local drainage (marshy grasslands).
7. Neutral grassland of low quality is often targeted for development because it is not especially valuable for agriculture or nature conservation. This reduces the pool of neutral grassland which has potential for restoration.
8. Marshy grasslands are often small parts of larger fields which creates problems for management and targeting action.

3. CURRENT ACTION/MECHANISMS

3.1 PROTECTION

Certain key areas are formally designated and protected. There are 9 neutral grassland sites in Kent which have SSSI status, covering an area of 66.7ha. A further 29 are designated as SNCI.

Only 5% of all unimproved neutral grassland has neither SSSI or SNCI protection. Of the marshy grassland resource 38% is SSSI and 28% SNCI.

3.2 MANAGEMENT

	Grazed	Mown	Total managed
Unimproved	61%	12%	73%
Semi-improved	42%	16%	58%
Marshy	43%	>1%	43%

(KWHS, 1995. Note: Figures refer to percentage of sites NOT area of land)

Of the 9 sites (15%) which have SSSI status, 7 are currently under positive management and most are supported by some sort of management agreement.

Countryside Stewardship is available for management of this habitat in the High and Low Weald, river valleys and Romney Marshes.

4. KEY SPECIES

Notables
Green-winged orchid, adder's tongue fern, fox sedge, dyers' green weed
Marshy - Oval, greater tussock, carnation and brown sedge, early marsh orchid.

Standard Bearers/Quality Indicator Species
Pepper saxifrage, common spotted orchid, sneezewort, yellow rattle.
Marshy - southern marsh orchid, greater bird's-foot trefoil, cuckoo flower, meadowsweet, ragged robin, common sedge.
Anthills.

Retrievables
Small pearl bordered fritillary, marsh fritillary.
Bog pimpernel.

5. OBJECTIVES/TARGETS

- To prevent the further loss of species-rich neutral grassland.
- To secure positive, traditional management of the remaining unimproved neutral grassland sites in the county, and wherever possible to extend this to the species-rich semi-improved sites.
- To create and restore habitats by promoting appropriate management of those improved grasslands in proximity to valuable neutral grassland areas, enlarging areas and creating links between existing fragments.
- Develop and support initiatives to seek out economic uses of meadow products (such as native seed) (e.g. High Weald seed harvester).
- To halt the further loss of semi-improved areas to development.

Targets

Area Targets	Present	10 year	50 year
Unimproved	531	No further losses	550
Well managed unimproved	(20%)	100%	100%
Species-rich semi-improved	453 ha	600 ha	1,000 ha
Well managed species-rich semi-improved	?	40%	100%
Marshy grassland	300 ha	400 ha	500 ha (incl. one major flood plain grassland initiative)
Well managed marshy grassland	?	50%	90%
Number of seeding projects	?	?	?

6. PROPOSED SPECIFIC ACTION

6.1 POLICY

1. Ensure native seed, (of local provenance if available) is used in all habitat creation projects. (All, KCC Highways and KCC Landscape)
2. Lobby for KCC Highways and Environment Programme to continue funding of Road Verges Project. (KWT, EN, KCC)

6.2 LAND MANAGEMENT

1. Promote positive management of species-rich neutral and marshy grasslands through SSSI management agreements and offering management advice to owners. (EN, KWT, CMPs, FWAG, LAs, KCC)
2. Create new sites and restore degraded meadows, adjacent to existing rich meadows and woodlands of known invertebrate interest (e.g. Blean, Hamstreet, Orlestone), using seed harvester to transfer seed from known herb-rich sites. (FWAG, EN, MAFF, CMPs).
3. Implement one major flood plain wet grassland creation initiative. (Kentish Stour CMP, EA, EN).
4. Neutral and marshy grassland sites used for amenity purposes to manage areas, at least around edges, more sympathetically. (LAs, KCC, Parish Councils)

6.3 MONITORING AND RESEARCH

1. Identify potential areas for creation/extension of habitat including flood plains. (KCC, KWT, EN, EA, FWAG)
2. Monitor meadow improvement and creation projects and share best practice. (EN, FWAG, MAFF/FRCA, CMPs)
3. Carry out selective review of improved, semi-improved and unimproved neutral and marshy grassland sites to check integrity. (KCC, EN, KWT)
4. Investigate and promote economic uses of seed and herb products from meadows. (FWAG, KCC, EN, KWT).

7. RESPONSIBLE BODIES

EN, MAFF/FRCA, KWT, FWAG, KCC, LAs, CLA, NFU, EA, Parish Councils.

Lead Agency: EN and KWT

8. COMPLEMENTARY UK PLANS

A UK plan for **Lowland hay meadows** is in preparation. (No lead has been agreed as yet.)
There is also a broad Habitat Statement for **Unimproved neutral grassland**.

CHALK GRASSLAND

Chalk grassland consists of a mixture of indigenous grasses and herbs, occurring on thin, well-drained, nutrient-poor soils, overlying chalk. They are among the richest types of vegetation (in terms of the number of plant species) and they support a diverse invertebrate fauna. The range of plant communities which make up chalk grassland include the classic herb-rich, short downland turf and much taller grassland vegetation, each of which support a different range of plants and animals.

1. CURRENT STATUS

1.1 IMPORTANCE

The UK is thought to hold half the world's extent of chalk grassland. Kent contains some 5% of the UK resource. This is reflected in a large proportion being designated as SSSI and four areas being put forward as candidate SACs.

It supports many nationally rare species, at the edge of their northern distribution, particularly orchids and invertebrates.

1.2 TRENDS

There has been a significant decline in extent and quality of chalk grassland post-war. The central North Downs has lost the majority of its unimproved chalk grassland to agricultural intensification or scrub development.

1.3 AREA

Unimproved	1503 ha
Semi-improved	913 ha
Total	**2416 ha**

374 ha of the total area is associated with scattered or dense scrub.

1.4 DISTRIBUTION

Chalk grassland has a precise distribution which mirrors the geology. It is found along the dip and scarp slopes of the North Downs, with outliers along the Thanet Coast.

2. CURRENT FACTORS AFFECTING THE HABITAT - THREATS/ISSUES

1. Neglect and scrub encroachment. (28% of sites currently unmanaged and 20% are threatened by scrub invasion).
2. Losses to development.
3. Loss to agriculture and gradual or rapid decline due to use of fertilisers, herbicides, ploughing and seeding.
4. Habitat fragmentation.
5. Recreation - these areas are often popular for informal recreation.

3. CURRENT ACTION/MECHANISMS

3.1 PROTECTION

	Unimproved chalk grassland	**Semi-improved chalk grassland**
SSSI	40% (605 ha)	14% (127 ha)
SNCI	42% (624 ha)	34% (306 ha)
Total	82%	48%

Four areas (Wye and Crundale Downs, Queendown Warren, Lydden and Temple Ewell Downs and Folkestone and Etchinghill Escarpment) are candidate SACs.

3.2 MANAGEMENT

Many key areas are under conservation management, particularly by the Kent Wildlife Trust and White Cliffs Countryside Project. SSSI sites totalling 3,108 ha are managed under management agreements with EN.

In 1995 there was about 845 ha of chalk grassland under Countryside Stewardship (49 agreements). 29% of unimproved and 44% of semi-improved chalk grassland is currently grazed.

4. KEY SPECIES

Notables
Adonis, chalkhill and small blue butterflies, straw belle moth, restharrow moth, 6 RDB micro moths.
Early spider orchid, late spider orchid, burnt tip orchid, musk orchid, man orchid.

Standard Bearers/Quality Indicator Species
Marbled white and brown argus butterflies, rufous grasshopper, roman snail.
Pyramidal and fragrant orchids, squinancywort, salad burnet, common rockrose, thyme, horseshoe vetch, burnet saxifrage, dropwort, sheep's fescue.

Retrievables
Stone curlew, wartbiter cricket, grayling, black veined moth, silver spotted skipper.
Early gentian, monkey orchid, Kentish milkwort, meadow clary, ground pine, slender bedstraw, frog orchid.

5. OBJECTIVES/TARGETS

- To ensure that all unimproved and semi-improved chalk grassland is under optimal management.
- To increase the extent of unimproved chalk grassland in the county.
- To create links between existing areas along the spine of the North Downs.

Area Targets (ha)

	Present	10 year	50 year
Unimproved (from semi-improved)	1,503 ha	1,800 ha	2,500 ha
Semi-improved (from arable and improved)	930 ha	1,200 ha	1,500 ha

Management Targets

	Present	**10 year**	**50 year**
SSSI under positive management	?	100%	100%
SNCI under positive management	?	25%	75%
Number of unmanaged chalk grassland sites	28%	10%	0%
Area under chalk grassland Stewardship option	845 ha	1,700 ha	-

Species Targets

	Present	**10 year**	**50 year**
Adonis Blue	3 large populations	5 large populations	Widespread
Silver-spotted skipper	2 populations	5 large colonies	Widespread
Black-veined moth	5 colonies	10 colonies	15 strong colonies
Late spider orchid	200 plants on 6 sites	250 plants on 6 sites	500 plants on 10 sites
Ground pine	3 weak colonies	3 strong colonies	5 strong colonies
Wartbiter	1 weak colony	3 strong colonies	8 strong colonies
Stone curlew	Extinct	Suitable habitat available	Breeding

(See also targets and actions in silver-spotted skipper, early gentian and late spider orchid action plans.)

6. PROPOSED SPECIFIC ACTION

6.1 POLICY

1. Seek EC funding for major chalk downland creation project. (CMPs, KWT, AONB officer)

6.2 LAND MANAGEMENT

1. Offer Wildlife Enhancement Funding (WES) to SSSI owners not already in grant schemes, where appropriate. (EN)
2. Ensure retention and promote enhancement of grassland in abandoned chalk quarries. (LAs)

6.3 MONITORING AND RESEARCH

1. Survey and protect, where appropriate, as SNCIs, all unimproved chalk grassland over 2 hectares in size. (KWT)
2. Establish former extent of habitat and identify key areas for restoration/creation. (KCC, EN, KWT)
3. Monitor key notable species and the results of any restoration schemes. (EN, KWT, Plantlife)

7. RESPONSIBLE BODIES

EN, KWT, CMPs, LAs, KCC, FWAG

Lead Agency: EN and KWT

8. COMPLEMENTARY UK PLANS

A UK plan for **Lowland calcareous grassland** is in preparation. (No lead has been agreed as yet.) There is a broad Habitat Statement for **Calcareous Grassland**.

HEATHLAND and MIRE

Lowland heathland is characterised by the presence of plants such as heathers (Calluna vulgaris, Erica cinerea and E.tetralix) and gorse (Ulex spp.), and is generally found below 300m altitude. It should ideally contain a mosaic of heather of different ages, some scattered trees and scrub, areas of bare ground, wet heath, bog and open water. There are a number of birds, reptiles, invertebrates, plants, bryophytes and lichens which are characteristic of this habitat.

Kent is at the eastern edge of the main heathland blocks of southern England and the remaining heathlands in Kent are less rich than, for example, the heathland of Dorset.

1. CURRENT STATUS

1.1 IMPORTANCE

Lowland heathland is a priority habitat for conservation because it is a rare and threatened habitat in the UK, and Europe as a whole.

Kent holds a very small amount of heathland and mire compared to other south-eastern counties (less than 1% of SE heathland resource). These small fragments do not support the rare species associated with the large tracts remaining in Dorset, Hampshire and Surrey. However, it is important to maintain the distribution of lowland heathland across its range to minimise the risk of species extinction.

In Kent only Hothfield Common is designated of national importance for heathland and mire habitat.

1.2 TRENDS

There has been a huge decline in heathland from an estimated 1,910 ha in 1798, to 419 ha in 1946 and only 87 ha present now. This level of loss is reflected in neighbouring counties. Losses historically have been to woodland and urbanisation. This represents a 95% decline in the last two hundred years.

More recently there has been a move towards re-creation, with schemes underway in a number of areas (Tudeley Woods, Blean, Scords Wood)

1.3 AREA/EXTENT

There is currently only 87 ha of heathland in Kent, of which at least some may prove to be ephemeral - developed after woodland felling, and may be shaded out through regeneration/replanting.

Mire is extremely rare with just 6.2 ha existing, including 2.9 ha of fen valley mire at the only recorded site - Hothfield, 1.4 ha of fen flood plain mire at its only site Ham Fen, and several very small acid flushes totalling just 1.9 ha.

1.4 DISTRIBUTION

Almost 70% of this habitat occurs at just 4 sites: Dartford Heath (26.6 ha) on drift deposits in north-west Kent, Blean Woods (14.7 ha) on London Clay, Bedgebury Woods (13.4 ha and 0.4 ha of acid flush) on Tunbridge Wells sands and Hothfield Common (4.9 ha plus 2.9 ha of fen valley mire) on the greensand. Of the remaining small areas of heathland, most occur on the Tunbridge Wells Sands in the High Weald. There are also areas such as Wrotham Golf Course and Hosey Common on the Greensand.

Over 70% of the mire resource is found in the Ashford area, with small areas in Dover and Tunbridge Wells (see KWHS, 1995). Acid flushes occur at Gibbins Brook, Hatch Park and Packing Wood (Ham Street Woods) SSSIs and Bedgebury (Louisa Lake), Angley Wood, and Sweet William Wood SNCIs.

2. CURRENT FACTORS AFFECTING THE HABITAT - THREATS/ISSUES

1. Loss of habitat through lack of traditional management, especially grazing, and natural succession.
2. Fragmentation, with unviable remnants (both genetically and for management) remaining.
3. Availability and quality of water to maintain wet heath and mire systems due to abstraction, low rainfall and potential climate change.
4. Increasing recreational pressure.
5. Acid deposition from sulphur and nitrogen oxides produced by traffic and industry (increased nutrient inputs) affecting species composition in favour of grasses.

3. CURRENT ACTION/MECHANISMS

3.1 PROTECTION

Hothfield Common is an SSSI, as is part of Combwell Wood and Blean Wood. 8 further areas are designated as SNCIs. 8 heathland sites therefore have no protection.
All mires are within SSSIs or SNCIs.
FA supports the restoration of lowland heath where it will result in significant conservation gain and does not grant-aid new planting on lowland heath.

3.2 MANAGEMENT

289 ha (9 agreements) was under Countryside Stewardship in 1995 - largely for habitat creation, though heathland is not a target habitat in Kent. The RSPB at Tudeley Wood, Pembury have instigated a large-scale creation of heathland under Countryside Stewardship (roughly 35 ha, from set-aside and cleared conifers).

Other areas are under positive management by Kent Wildlife Trust, EN, RSPB, LAs, commoners and CMPs. Kent Wildlife Trust management plan for Mereworth includes heathland restoration. The road verges along the A21 and Pembury by-pass are being managed for heathland. Some management is benefiting heathland indirectly as at Bedgebury Forest where FE manage certain areas for nightjars. Groundwork Kent Thameside manage Dartford Heath for people and wildlife, on behalf of Dartford Borough Council.

The EN Lowland Heathland campaign aims to create new areas and bring existing areas into appropriate management (some funding may be available), and FA have produced guidelines promoting heathland regeneration within forests.

4. KEY SPECIES

Notables
Petty whin, coral necklace, bog asphodel, star sedge, common cotton grass, round-leaved sundew, saw sedge, cross leaved heath, three lobed crowfoot, heath spotted orchid.
Small heath bumble bee, *Adrena laponica* (solitary bee - found at Raspit Hill), nightjar, keeled skimmer and golden ringed dragonfly.

Standard Bearers/Quality Indicator Species
Stonechat, common lizard, adder, grass snake, four spotted chaser dragonfly.
Dwarf gorse, bell heather, bilberry (especially in woodland glades), heath bedstraw, purple moor grass, sphagnum mosses, yellow sedge, common lousewort.

Negative Indicators
Bracken, birch

Retrievables
Dartford warbler, woodlark, silver studded blue, stone curlew.

5. OBJECTIVES/TARGETS

- To protect and enhance all remaining heathland and mire.
- To significantly increase the area of heathland via habitat creation/restoration.
- To link, via stepping stones of habitat, areas of heathland/acid grassland in the High Weald and Greensand areas.

Heathland targets

	Present	**10 years**	**50 years**
Area	87 ha	200 ha	400 ha
Blocks over 10 ha	1	4	8
Area under Countryside Stewardship	289 ha	400 ha	-
Heather species		50% cover on all sites	75% cover
Silver studded blue	Occasional sightings	1 colony	3 strong colonies
Dartford warbler	Extinct	Return as breeding species	20 pairs

6. PROPOSED SPECIFIC ACTION

6.1 POLICY

1. All boroughs with heathland and mire to develop heathland strategies. (LAs)
2. Encourage development of an incentive scheme that would support the removal of conifers and secondary woodland from former heathland sites where some interest still remains. (EN, KWT, RSPB)
3. All remaining unprotected heathland blocks of suitable quality to be designated as SNCI. (KWT)

6.2 LAND MANAGEMENT

1. Conservation organisations to pursue purchase or lease of land for large-scale creation projects. (RSPB, KWT).
2. Promote take-up of Countryside Stewardship. (CMPs).
3. Create "stepping stones" to form links between existing heathland areas in Kent and those in Surrey and Ashdown Forest. (HWCP, RSPB, TWBC, Highways Agency, EN, NT, KWT, FE, CMPs)
4. Restore Gibbins Brook acid flush (WCCP).

6.3 MONITORING AND RESEARCH

1. Monitor success of heathland creation and mire restoration schemes and share best practice. (MAFF, RSPB, EN, Groundwork, KWT, CMPs)
2. Investigate the possibility of re-introducing heathland species (such as silver studded blue) when suitable habitat is achieved. (EN, RSPB)
3. Survey for Dartford warbler, woodlark and nightjar as part of 10 yearly national programme. (RSPB, KOS)

7. RESPONSIBLE BODIES

MAFF, RSPB, CMPs, EN, FE, FA, NT, KWT, LAs, Groundwork.

Lead Agency: RSPB and EN

8. COMPLEMENTARY UK PLANS

There is a costed UK action plan for Lowland heathland. The national lead is English Nature.
There is no equivalent national plan for lowland mire habitats.

GRAZING MARSH

Grazing marsh is defined as periodically inundated pasture or meadow with ditches, containing standing brackish or fresh water. It has a demonstrable affinity to earlier saltmarsh, often with rills.

(The grazing marsh in Kent includes areas of unimproved, semi-improved and improved neutral grassland.)

1. CURRENT STATUS

1.1 IMPORTANCE

Kent contains a small proportion of the total UK grazing marsh (3%) but almost 25% of the semi-natural grazing marsh (of which there is estimated to be only about 10,000 ha in the UK). It is internationally important for its populations of breeding, wintering and passage migrant birds, recognised in the SPA/Ramsar status of some areas.

Grazing marsh, though low in floral diversity, supports a number of rare and specialised species: The ditches are especially rich in invertebrates and aquatic and marginal plants.

1.2 TRENDS

In the Greater Thames estuary nearly 70% has been lost in conversion to improved pasture or arable since the Second World War (Doody et al 1993). In the Thames Gateway area of Kent 54.8% of grazing marsh existing in 1961 had been lost by 1990, almost 53% of this to arable land (LCCK). Romney Marsh has lost 48% in last 60 years, with the major interest now restricted to the ditches.

The economic pressure on farming which prompted this loss has diminished but there are still threats from development (on Sheppey and at Dartford in particular).

1.3 AREA

Grassland type	Area
Unimproved neutral grassland	2,286 ha
Semi-improved neutral grassland	2,335 ha
Improved grassland	615 ha
Marshy grassland	13 ha
Amenity grassland	6 ha
Total	**5,255 ha**

(KWHS,1995)

1.4 DISTRIBUTION

Recognised grazing marsh is concentrated along the Greater Thames estuary, in the Swale estuary, Dartford marshes, and on Walland and Romney Marshes, with small areas at Sanwich Bay, Stodmarsh and north of Dymchurch on the south east coast. A recent survey of the Romney Marsh area has identified 246 fields in this area, a total of 845.5 ha, as being old pasture (Reeves, 1995). More detailed survey may confirm that these are intact grazing marsh.

2. CURRENT FACTORS AFFECTING THE HABITAT - THREATS/ISSUES

1. Direct land-take from development.
2. Agricultural intensification - conversion to improved grassland or arable.
3. Grazing/mowing regimes - timing of work in relation to breeding/flowering period of important species, lack of management or overgrazing.
4. Water level management and availability of water - drainage schemes and ground water abstraction, potential effects of low rainfall and climate change, fencing instead of maintaining ditches.
5. Coastal processes - potential sea level rise.
6. Water quality - pollution by herbicide, pesticide and fertiliser, and run-off from roads and development.
7. Disturbance e.g. wildfowling and other forms of recreation.
8. Indirect impact of development on hydrology, viability of remaining farmland, and increased recreational pressure, particularly near urban fringe.

3. CURRENT ACTION/MECHANISMS

3.1 PROTECTION

SSSI	88% (4,635 ha)
SNCI	7% (356 ha)
Total	**95%**
Undesignated	5% (263 ha)

A substantial proportion of the SSSI grazing marsh resource is also designated as SPA/Ramsar sites.

EA, water companies and Internal Drainage Boards (IDBs) have a statutory duty in discharging their functions to further nature conservation in and around

waterways. (Water Resources Act 1991 and Land Drainage Act 1991).

3.2 MANAGEMENT

The main areas of quality grazing marsh in North Kent are included in the North Kent Marshes ESA (95% of grazing marsh), which encourages sensitive management. Currently out of 11,600 ha of land which are eligible 4,359 ha (38%) have been entered into the scheme. ESA management tiers and prescriptions were reviewed in 1997 to take account of biodiversity issues. Other areas, mainly KWT nature reserves, are in the Reserve Enhancement Scheme. EN management agreements are also in place for 3,108 ha (59%) of grazing marsh.

Water level management plans are being drawn up by EA and IDBs for some areas of grazing marsh, initially concentrating on SSSIs and Estuary Management Plans have been prepared for Medway/Swale and Thames estuaries.

4. KEY SPECIES

Notables

Small red goosefoot, stinking goosefoot, sharp-leaved and fen pondweeds, lesser water plantain, marsh mallow, greater water parsnip.
Marsh mallow moth, hairy dragonfly, great silver diving beetle, marsh harrier, snipe, avocet.

Standard Bearers/Quality Indicator Species

Divided sedge, strawberry clover, sea barley, slender hare's-ear, breeding waders and wildfowl - redshank, lapwing, teal and pochard, wintering wigeon and hen harrier, brown hare, water vole.

Retrievables

Scarce emerald damselfly, shining ram's horn snail (*Segmentina nitida)*

5. OBJECTIVES/TARGETS

- To retain, and enhance the management of, the present extent of semi-natural grazing marsh.
- To create new habitat, especially from degraded improved grazing marsh and arable conversion.
- To increase the area entered into ESA scheme, especially Tiers 1a and 1b (i.e. water level mangement and breeding wader options).

Targets

	Present	**10 year**	**50 year**
Unimproved	2,286 ha	2,500 ha	3,000 ha
Semi-improved	2,335 ha	2,800 ha	3,500 ha
Conversion from amenity/improved	626 ha	800 ha	3,000 ha
Area grazed	?	+50%	+75%
Breeding redshank	150 pairs (1993)	200 pairs	300 pairs
Breeding lapwing	300 pairs (1993)	400 pairs	600 pairs
Wintering wigeon	10-15,000 (1993)	20,000	
SSSI with positive management statement	3,108 ha	All	
Area managed under Tier 1a and 1b requirements of ESA scheme	1,254ha	1,500ha	

(See also targets and actions for saltmarsh, intertidal mud & sand and for ditches and dykes in standing water action plan)

6.1 POLICY

1. Lobby for adjustment of boundaries of ESA to encompass all grazing marsh in North Kent. (EN, KWT, RSPB)
2. Ensure that 1,500ha of the North Kent Marshes are managed according to Tier 1a and 1b requirements by 2005 (MAFF/FRCA)
3. Identify those areas within ESA which would benefit most from Tier 1A agreement (EA, EN, MAFF/FRCA, RSPB, FWAG)
4. Lobby for grant-aid for this habitat outside of ESA (KWT, RSPB, EN)
5. Protect all remaining grazing marsh (EN, KWT, KCC, LAs)
6. Implement Estuary Management Plans for Medway / Swale and Thames Catchment Management Plans and North Kent LEAP, ensuring that these contain biodiversity targets for grazing marsh. (LAs, EA)
7. Establish a series of LNRs and wildlife parks on grazing marsh, especially near urban areas. (RSPB, KWT, LAs, EN, land owners)

6.2 LAND MANAGEMENT

1. Complete and implement water level management plans on all grazing marsh by 2005. (Operating Authorities)
2. Target Countryside Stewardship field boundary and waterside landscapes scheme to all grazing marsh outside ESA. (MAFF/FRCA).
3. Investigate feasibility of grazing grassed sea walls where appropriate. (EA, EN)

6.3 MONITORING AND RESEARCH

1. Review status of remaining grazing marsh (in light of North Kent Marshes survey and report on Romney Marsh Level (Reeves, 1995)) (EN, KCC)
2. Establish extent of interest in Chislet Marshes and prepare an action plan (CCC, TDC)
3. Research into autecology of *Carex divisa* (Kent universities/ colleges)
4. Monitor biodiversity targets within ESA. (MAFF/FRCA)

7. RESPONSIBLE BODIES

EN, EA, MAFF/FRCA, KWT, LAs, IDBs, KOS, RSPB.

Lead Agency: EN and RSPB

8. COMPLEMENTARY UK PLANS

There is a costed UK action plan for Coastal and floodplain grazing marsh. The national lead is English Nature.

REEDBEDS

Reedbeds are wetlands dominated by stands of common reed (Phragmites australis). This habitat includes `reed swamp', which retains some water throughout the year and 'reed fen' which become dry in the summer. Reedbeds generally incorporate areas of open water and ditches and occasionally, small areas of carr and wet grassland.

1. CURRENT STATUS

1.1 IMPORTANCE

Reedbeds in the UK are of geographical importance in a global context. They are a nationally scarce habitat with only 5,000 ha in total and only 50 sites greater than 20 ha in extent. Reedbeds support characteristic communities of nationally uncommon birds and invertebrates and are amongst the most important habitats for birds in the UK.

Kent has a small but significant proportion (approximately 7%) of Britain's reedbeds and the Stodmarsh SSSI forms one of the largest tracts of reed in the country (149 ha in total). This area is of international significance for the diverse range of wildlife associated with it. 5 of the 6 RDB birds associated with this habitat occur in Kent: Bittern, marsh harrier, bearded tit, Savi's warbler and Cetti's warbler.

1.2 TRENDS

The area of reedbed has been declining steadily since the end of WW2 due to drainage and lack of management. A net loss of 5-10% of reedbed in England between 1979 and 1993 has been estimated (RSPB 1994) with activities such as grazing, waste tipping and built development implicated. For the UK as a whole, losses between 1945 and 1990 were estimated by Bibby etc (1989) at 10-40%.

1.3 AREA

Size (ha)	From KWHS - includes estuary and marsh reedbed and large `linear' reedbeds along dykes	Number of reedbeds (Coastal and linear reed strips not included - from RSPB national study)
2-4.9	36	3
5-9.9	12	3
10-19.9	3	
20-39.9	2	1
40+	2	2

There are 363 ha of reedbed in Kent (in blocks greater than 2 ha, as recorded by KWHS). The largest is Stodmarsh SSSI (149 ha), with nearby Preston Marshes (22 ha) and Holborough and Burham Marshes (24 ha in total) also covering significant areas.

1.4 DISTRIBUTION

The majority of this habitat in Kent is found within the river floodplains of the Great and Little Stour to the north-east of Canterbury. Other smaller beds occur around the coastal marshes and ditches throughout the low-lying areas, including the South Thames Estuary and Marshes, Sandwich Bay and Hacklinge Marshes, Sevenoaks Gravel Pit SSSI, the Swale SSSI, Medway Estuary and Marshes SSSI and Walland Marsh SSSI.

2. CURRENT FACTORS AFFECTING THE HABITAT - THREATS/ISSUES

1. Neglect: lack of or inappropriate management leading to accumulation of plant material and scrub development
2. Loss due to drainage schemes and conversion to agricultural production
3. Coastal process with the predicted loss of habitat through relative sea level rise
4. Loss through waste tipping and building development
5. Rarity and fragmented nature of habitat and critically small populations of several dependent species
6. Potential threats from abstraction, drought and climate change.

3. CURRENT ACTION/MECHANISMS

3.1 PROTECTION

Of the reedbeds greater than 2 ha in Kent, 80% are within SSSIs. No protection is offered to small, isolated sites or reed occurring (sometimes in large linear tracts) in ditches outside the SSSI series.

3.2 MANAGEMENT

The Stodmarsh NNR is directly managed by English Nature and management of the Westbere Lakes and Preston Marshes SSSIs are supervised by English

Nature. A further 78 ha of land has been purchased adjoining the Stodmarsh NNR and it is planned to convert approximately 50% of this to reedbeds. The small reedbed within the Swale NNR is also managed. Areas in the Swale and Holborough Marshes are managed by the Kent Trust but no other areas within Kent are known to receive any direct management.

Some funding is available through Countryside Stewardship in the Romney Marshes and river valleys and the ESA scheme on North Kent Marshes.

4. KEY SPECIES

Notables
Marsh harrier, Savi's warbler, Cetti's warbler, bearded tit, bittern, hen harrier. Twinspot wainscot moth, reed dagger and rare micro moth species.

Standard bearers/Quality Indicator species
Reed warbler, sedge warbler, reed bunting, water rail, four spot chaser.

Retrievables
Bittern.

5. OBJECTIVES/TARGETS

- To maintain the existing areas of reedbed.
- To implement management of water levels and reed in all important reedbeds.
- Expand existing reedbeds and explore other areas (in particular marginal farmland) where new reedbeds could be created.
- To arrest the decline of the bittern population and increase numbers.
- Create areas of reedbed along the River Medway to replace those which have been lost historically.

(See also standing water and rivers and streams action plan targets and action)

Targets

	Present	10 year	50 year
Creation of reedbed	(Stodmarsh extension)	2x 20 ha blocks (possibly on the Medway)	200 ha
Management of reedbeds >10 ha	?	All	All
Bittern	Regular sightings	1-2 breeding pairs	5 breeding pairs
Bearded tit	54-68 pairs	100 pairs	200 pairs

6. PROPOSED SPECIFIC ACTION

6.1 POLICY

1. Lobby for expansion of existing schemes such as ESA and Countryside Stewardship to encourage reedbed creation. (KWT, RSPB, EN, KCC)
2. Promote inclusion of reedbed habitat in after-use schemes as a condition of mineral extraction sites. (KCC, EN, KWT, EA, RSPB)
3. Promote the reed industry - (thatching, fuel, construction). (KRCC, Countryside Forum)

6.2 LAND MANAGEMENT

1. Offer positive management advice to owners to bring into optimal management all remaining substantial (>2 ha) areas of reedbed, targeting SSSIs and SNCIs. (EN, KWT, CMPs,)
2. Promote positive management of all SSSI reedbeds through management statements (EN).
3. Target existing funding towards securing appropriate water level control, rotational reed harvesting and ditch management. (EN, MAFF/FRCA)

6.3 MONITORING AND RESEARCH

1. Conduct CBC in all important reedbed areas (KOS, RSPB, EN, KWT)
2. Review extent of reedbed in Kent and potential sites for creation using aerial photography, taking account of landscape and archaeological interest. (KCC, RSPB, EA)
3. Investigate use of reedbeds as an option for effective and environmentally sensitive water treatment systems where this does not compromise their nature conservation

importance (EA, Water Companies, KRCC)

7. RESPONSIBLE BODIES

EN, KWT, RSPB, KOS IDBs, EA, CMPs, KCC, KRCC.

Lead Agency: EN and RSPB

8. COMPLEMENTARY UK PLANS

There is a costed UK action plan for Reedbeds. The national lead is English Nature.

RIVERS AND STREAMS

Rivers in their natural state are dynamic systems continually modifying their form. They can have a variety of features, supporting a diverse range of plants and animals (riffles and pools for aquatic species, and exposed sediments such as shingle banks and sand bars which are important for some invertebrates). Marginal and bankside vegetation supports a range of plants and animals, waterways act as a link between other fragmented habitats. Rivers and streams are also valued for fisheries and as very significant landscape and historic feature.

1. CURRENT STATUS

1.1 IMPORTANCE

Kent contains part or all of 5 main river catchments - the Thames, the Darent, the Medway, the Great Stour and the Rother, all of these being very significant elements of the character of Kent. They are wildlife corridors and support flora and fauna assemblages of significance, some of which are rare and of national significance. The estuaries of the Thames, Medway (and Swale), Stour and Eastern Rother are all internationally important.

1.2 TRENDS

The running water habitat in Kent has, as elsewhere, been under significant pressure as a water resource and because of flood risk. Because of pressures on land, flood defence initiatives to protect building on flood plains have increasingly restrained natural river dynamics. Canalisation and culverting continue to threaten the character of water courses in urban areas.
The water resource has in some instances been severely diminished by abstraction from aquifers and from the rivers themselves. The quality of water flowing into rivers has begun to improve recently but it is still a limiting factor in some reaches.

1.3 AREA

There are 6,003 ha of Kent covered by running water rivers and large dykes, a large proportion of this being found in the county's estuaries.
Streams and running water ditches and dykes amount to 1,138 km.
(KWHS, 1995)

1.4 DISTRIBUTION

Running water is widespread throughout the County, with interactions between topography, geology and rainfall dictating its precise distribution. The areas which are least well endowed with surface rivers and streams are the North Downs, Sheppey and Thanet. In other parts of Kent, particularly the High and Central Low Weald and Romney Marsh, rivers and streams are significant and valuable features.

2. CURRENT FACTORS AFFECTING THE HABITAT - THREATS/ISSUES

1. Abstraction (ground water and river) resulting in low flows and reduced dilution of pollutants
2. Modifications to shape and course (Culverting/canalisation, infilling and impoundment, land drainage and flood defence works
3. Severance of headwaters from source
4. Changes in water quality (eg. eutrophication, pollution). High proportion show apparent degradation - high nitrate levels and pollution from problem discharges.
5. Management of the river channel and bank side vegetation - lack of low intensity grazing of banks.
6. Spread of invasive plant and animal species
7. Development and disturbance, including recreation.
8. Effects of agricultural practices.
9. Reduced water levels due to drought and climate change.

3. CURRENT ACTION/MECHANISMS

3.1 PROTECTION

Many key stretches of main river are designated and protected as SSSIs or as SNCIs (KWHS records 10% of river target notes SSSI and 26% SNCI). The River Beult SSSI is a particularly good example of a lowland clay river. The estuaries of the Thames, Medway, Swale and Stour are designated as SPA/Ramsar sites.

Since the formation of the Environment Agency (formerly NRA) stricter monitoring and controls have been enforced, with changes in abstraction licences and fines for polluters. Discharge consents and abstraction licensing procedures under the Water Resources Act 1991 and works consent procedures (under the Land Drainage Act 1991) are administered by the Environment Agency.

EA have produced fisheries strategies for the Rivers Medway and Great Stour. Strategies for the Darent and Rother are preparation.

3.2 MANAGEMENT

The Environment Agency has produced river catchment management plans and are currently preparing water level management plans (for internationally important wildlife sites as a first priority), as a means of reconciling competition for water resources.

The River Beult is the subject of a pilot MAFF Habitat Scheme to protect and enhance its interest through the management of its margins. Countryside Management Projects operate successfully in all three of the main river valleys, the Darent project being established in response to unacceptable water resource pressures.

Grants to landowners are now available from MAFF through Countryside Stewardship and for the North Kent Marshes Environmentally Sensitive Area.

The EA, under the provisions of the water Resources Act 1991, can part fund schemes to enhance flows and the river environment, e.g. The Darent Valley Enhancement Project which has species targets as a measure of success. Local Environment Agency Plans (LEAPs) are being prepared to supersede the current Catchment Management Plans and should be complete by 1999.

4. KEY SPECIES

Notables
White-clawed crayfish, white legged damselfly
Salmon, kingfisher, water vole, otter

Standard Bearers/Quality Indicator Species
(Positive)
Brown trout, dace
Mayflies, caddis flies, water shrimp
Un-branched bur-reed, flowering rush, yellow water-lily

(Negative)
New Zealand pygmyweed (*Crassula helmsii)*, water fern *(Azolla filiculoides)*, chinese mitten crabs, american bullfrog, introduced crayfish species

Retrievables
Otter

5. OBJECTIVES/TARGETS

- To manage all catchments and maintain in a condition which supports the full potential range of flora and fauna, through improved water quantity and quality, and physically respecting and conserving the dynamic nature of rivers, their micro-habitats and their associated floodplains.

10 year targets

- No net reduction in number of headwaters or length of watercourse except by natural processes
- Maintain and enhance characteristic biological diversity and natural features of rivers
- . To improve the quality of fisheries and access to rivers for all migratory fish species.
- Increase numbers of otters in Stour and Medway
- Achieve quality bankside habitat every 1km of target rivers
- Complete 50 km of in-stream enhancement (EA, CMPs, LAs, Landowners)
- Create two major floodplain wetlands (EN, EA, LAs, Landowners)

50 year targets

- Identify and protect target unpolluted headwaters
- Achieve quality bankside habitat every 1km of main river
- Return of Otter to all Kent catchments
- Protection and maintenance of minimum residual flows even in drought environments to ensure biodiversity safeguards.

(See also targets and actions in reedbeds, water vole and otter action plans)

6. PROPOSED SPECIFIC ACTION

6.1 POLICY

1. Continue to apply tight controls on abstractions to safeguard minimum residual flows. (EA)
2. Use Regulation and Consultation procedures to resist net loss and adverse impact to water courses and to seek enhancements. (EA, LAs, KWT).
3. Review and enforce discharge authorisations in problem areas. (EA)
4. Promote incorporation of significant benefits to conservation in water resource initiatives, including abstraction controls. (EA, EN, KWT, KCC, RSPB)
5. Develop and implement strategies to protect headwaters (EA)
6. Require all water resource initiatives to provide significant positive benefits to conservation, including abstraction controls. (EA)
7. Set and achieve Water Quality targets for rivers (DoE)

6.2 LAND MANAGEMENT

1. Promote buffer zones and wildlife corridors through existing schemes and projects (EA, EN, KWT, KCC, CMPs, FWAG)
2. Promote best management practice for waterways and good agricultural practise (GAP). (FWAG, FRCA/MAFF, CMPs, EA, EN)

6.3 MONITORING AND RESEARCH

1. Identify environmentally acceptable flows (EA)
2. Research vulnerability of biological communities to stress (EA)
3. Identify and survey headwater streams (EA)
4. Establish existing `naturalness' of streams and rivers (EA)

7. RESPONSIBLE BODIES

EA, EN, MAFF/FRCA, LAs, CMPs, FWAG, KWT, KCC, IDBs, DoE

Lead Agency: EA and CMPs

8. COMPLEMENTARY UK PLANS

There is a costed UK action plan for Chalk Rivers. The national lead is Environment Agency. There is also a broad Habitat Statement for Rivers and streams.

STANDING WATER

Standing open waters include natural systems such as lakes, pools and saline lagoons as well as man-made waters such as ditches and dykes, ponds, reservoirs and gravel pits, ranging from very large water bodies to small features (usually ponds) a few metres across. Nutrient status and salinity determines the range of fauna and flora.

1. CURRENT STATUS

1.1 IMPORTANCE

Kent supports a relatively large area of standing water, being rich in ponds (many of historic significance) and with particularly large areas of low-lying land drained by a network of dykes and ditches. Those on the North Kent Marshes and Sandwich and Walland support important invertebrate fauna and are of international importance. Other areas are internationally important water bodies for birds (e.g. Stodmarsh NNR, Cliffe Pools SSSI, and Dungeness cSAC). Saline lagoons at Cliffe and Murston make up 10% of the British saline lagoons, which are listed as a priority habitat in the EC Habitats Directive. The Royal Military Canal is an internationally important heritage site.

1.2 TRENDS

The area of open freshwater in Kent has more than doubled in the last 30 years (LCCK) largely due to the creation of one large new reservoir at Bewl and to the flooding of former gravel workings. This hides a significant decline in the number of ponds and ditches. On Romney Marsh 80% of ponds have been lost in the last twenty years.

1.3 AREA

Type of water body	Extent
Lakes and reservoirs	370
Canals	2
Ponds	5,000 (with open water)
Saline lagoons	265 ha
Total area	2,448 ha
Total length of ditches and dykes	2,368 km

1.4 DISTRIBUTION

Standing water is ubiquitous in Kent. Lakes are concentrated along the river valleys of the Darent, Medway, Stour and at Dungeness, mainly as a legacy of mineral exploitation. Reservoirs are mostly small farm reservoirs, but include small water company resources and the two main ones at Bewl and Bough Beech. There are two canals; the Royal Military Canal and Thames and Medway Canal at Higham. Ponds occur throughout Kent, but are very characteristic of and frequent in the Central Low Weald and the High Weald.

2. CURRENT FACTORS AFFECTING THE HABITAT - THREATS/ISSUES

1. Loss of ponds and ditches through lack of management due to build up of organic matter and excessive shading, and direct loss through infilling and urbanisation.
2. Lowering of water table and reduced water volumes due to abstraction of surface and ground water, or drainage.
3. Pollution; eutrophication due to fertiliser run-off in agricultural areas (especially ditches on Romney Marsh and Chislet Marshes), chemicals and sewage.
4. Conversion to intensively managed ponds for wild fowling, and fisheries (farm diversification).
5. Disturbance, recreation and poor management of potential conflicts between these and other demands on the resource.
6. Intensification of adjacent land-use (ploughing, chemical inputs, etc., destroying semi-natural buffer habitat, increasing water-borne sediment and nutrient levels.
7. Invasive alien species such as Canadian pondweed, water fern, New Zealand pigmyweed and parrots feather.
8. Climate change resulting in reduced water levels and drought stress and predicted sea level rise causing direct loss of saline lagoons and increasing salinity in some coastal freshwater bodies.
9. Redundancy of ponds in current farming system (arablisation of surrounding land and provision of mains water supply).

3. CURRENT ACTION/MECHANISMS

3.1 PROTECTION

	SSSI	SNCI	Total
Lakes	9% of target notes	21% of target notes	30% of target notes
Reservoirs	7% of target notes	10% of target notes	17% of target notes
Canals (area)	Part	Part	c. 95%
Ponds	4% of target notes	10% of target notes	14% of target notes
Saline Lagoons (area)	100%	-	100%
Total standing water area	37%	19%	56%
Total standing water length	27%	12%	39%

EA, water companies and IDBs when carrying out their functions and LAs have a statutory duty to further conservation and to conserve and enhance features of special interest.

3.2 MANAGEMENT

The main reservoirs are owned and managed by the Water Companies. Several areas are under conservation management by EN, KWT, RSPB and through CMPs. Some areas within SSSIs, particularly the ditches and dykes of the marsh areas, are managed through management agreements and site management statements with EN. Water level management plans are in preparation to manage the ditches and dykes of the internationally important sites.

Grant aid is available under the Countryside Stewardship waterside landscapes option and in the North Kent Marshes the Environmentally Sensitive Area for ditch and pond restoration. Small grants are currently available through Pond Week organised by Southern Water.

The Kent Ponds Initiative will restore or create uo to 25 ponds in 1997/98. This partnership between EA, EN, CMPs and KCC will also concentrate on awareness raising and training on ponds. The Heritage Ponds Project is funding 10 ponds in Kent under a pilot project in 1997/98 and in early 1998 bids for funding over 4 years for 600 ponds (in the UK) can be submitted.

4. KEY SPECIES

Notables

Plants - nodding bur-marigold, water violet, galingale, brackish water-crowfoot, sharp-leaved pondweed, fen pondweed, lesser water plantain, least bur-reed, fringed water lily, water soldier.
Invertebrates - shining ram's-horn snail *(Segmentina nitida)*, great silver diving beetle, hairy dragonfly, medicinal leech.
Great crested newt.
Breeding Great crested grebe Wintering tufted duck and pochard

Standard bearers/ Quality indicator species

Oxygenating plants, frogbit.
Dragonflies and damselflies, water beetles, water snails.
Amphibians, water vole, waders and wildfowl, fish such as roach, bream and pike.

Negative indicators

New Zealand pigmyweed, water fern, parrot feather, blanket weed, fat duckweed, Canadian pondweed.
American bullfrog.

Retrievables:

Osprey, otter.

5. OBJECTIVES/TARGETS

- Retain the current area of standing open water in Kent.
- Enhance the conservation interest of existing water bodies by appropriate management, particularly those which support important species or communities.
- Increase the number of ponds and ditches with open water.
- To maintain ground water supplies and increase to historic levels.

(See also targets and actions in Rivers and Streams, Reedbed and Great-crested newt action plans)

Targets

	Present	10 years	50 years
No. of ponds	c. 5,000 known to be holding water, possibly 10,000 in total(KWHS)	No further losses 100 restored 100 created	 500 restored 500 created
Former mineral workings managed for wildlife		4 new sites created	10 new sites
Water level management plans for ditches and dykes	In preparation for SPA and SAC areas	Prepare and implement for SSSIs	Prepare and implement for all marsh areas
Buffer strips adjacent to ditches and dykes	?	100 km	500 km
Native Amphibian populations	Declining	Stable	Increasing

6. PROPOSED SPECIFIC ACTION

6.1 POLICY

1. Promote inclusion of pond protection policies into all Local Plans. (LAs, KCC, KWT, EN, EA)
2. Lobby for legislation (similar to Hedgerow Regulations) requiring LA authorisation to fill in a pond. (EN, KWT, RSPB, KCC)
3. Seek to maintain availability of some form of pond improvement grant to facilitate restoration and creation. (EA, EN, KCC, LAs, CMPs)
4. Promote creation of buffer strips adjacent to all water courses as a condition of agricultural support grants. (EA, EN, KWT, RSPB, KCC, FRCA, FWAG)
5. Implement integrated management plan for Cliffe Pools (RSPB, KCC, BCI) and prepare integrated management plans for other large water bodies. (Owners - water companies, LAs, business)
6. Complete water level management plans for all remaining standing water ditch systems. (Operating Authorities)
7. Promote creation of wetland habitat as a condition for mineral extraction sites. (KCC, LAs, EN, KWT, RSPB)
8. Develop a zoning policy for all bodies of standing water used for recreation. (Landowners/Managers)

6.2 LAND MANAGEMENT

1. Provide advice to owners on all management issues relating to standing water. (EN, KWT, EA, FWAG, CMPs)
2. Promote best management practice for waterways and good agricultural practice (GAP) to minimise pollution from adjacent farmland. (FWAG, EA, CMPs, MAFF/FRCA, EN)

6.3 MONITORING AND RESEARCH

1. Review of pond losses - (interim sample study 1998). (KCC)
2. Establish schools/community surveys "Ponds in your parish" (e.g. who has the most and where are they all?) and develop "Adopt a pond" community awareness project at district or parish level (similar to Tree Warden scheme). (LAs, Parish Councils, Kent Rural Community Council)
3. Develop a standardised pond recording form. (KCC)
3. Assess pond types in Kent - selective study in Natural Areas 1998/9. (EN)
4. Establish a saline lagoon water monitoring project. (BCI)
5. Continue research into value of buffer zones around water courses. (EA)

7. RESPONSIBLE BODIES

EA, KCC, LAs, EN, KWT, RSPB, CMPs, FWAG, FRCA, KAPC, KRCC, BCI.

Lead Agency: EN and KCC

8. COMPLEMENTARY UK PLANS

There is a costed national action plan for **Saline lagoons**. The national lead is English Nature. UK action plans are also in preparation for **Eutrophic standing waters** and **Aquifer fed naturally fluctuating water bodies**. (No leads are proposed for these plans as yet.)

INTERTIDAL MUD AND SAND FLATS

Intertidal soft sediments are predominantly mixtures of mud, sand and gravel. The majority of this habitat is found within the county's bays and estuaries where a large proportion of the sediment consists of mud and muddy sand. Areas of more mobile, cleaner sands are common around the open coast.

1. CURRENT STATUS

1.1 IMPORTANCE

The county's intertidal sand, gravel and mudflats often support a diverse invertebrate fauna such as worms, molluscs and crustaceans, particularly in the sheltered bays and estuaries.

These sheltered sediments also support *Zostera* spp. (eelgrass) and several species of annual algae which, along with the abundant fauna, provide an important food resource for birds. The sheltered waters and food attract internationally and nationally important numbers of wintering waders and wildfowl. They are also essential refuelling stations for many migratory species, such as avocet, black-tailed godwit, dunlin, wigeon and brent goose. This resource also provides essential spawning and nursery areas for a number of fish species such as sea bass.

1.2 TRENDS

The area of intertidal mud and sand flats has suffered extensive historical losses since about 5000 BP, as sea level has risen in a series of phases, though generally at a much slower rate recently. In Hampshire it is estimated that the area of mudflat has been reduced by 30% since 1870 and similar losses are likely to have occurred in Kent. This trend is expected to continue, with predictions that sea levels will rise by 6mm per year which has severe implications for the ability of Kent to retain current, internationally important numbers of wintering and breeding birds.

1.3 AREA/EXTENT

Kent has 10,308 ha of intertidal mud and sand flats which is approximately 5% of the national total.

1.4 DISTRIBUTION

The largest and most important areas of intertidal mud and sandflats are found in the estuaries of the Greater Thames (Thames, Medway and Swale) and Sandwich and Pegwell Bays. In addition, Lade Sands, on the east side of the Dungeness peninsula supports nationally important numbers of sanderlings.

Site	Area of intertidal mud and/or sand (ha)
Medway Estuary SSSI	2,803
The Swale SSSI	2,042
South Thames Estuary SSSI	2,459
Sandwich and Pegwell Bay SSSI	567

2. CURRENT FACTORS AFFECTING THE HABITAT - THREATS/ISSUES

1. Sea-level rise due to the "sinking coastline"(isostatic fall of the south east of England) and global warming.
2. Land claim for development
3. Physical disturbance of nature conservation and heritage interest from (Capital and maintenance) dredging and use of mobile bottom-fishing gear.
4. Pollution from both land-based and sea sources - sewage, industry and agricultural run-off. Nutrient enrichment leading to algal blooms, metals and organic pollutants accumulating in sediments and fauna
5. Sea defences
6. Intertidal fisheries such as cockle dredging, bait digging and wildfowling
7. Recreational pressure - powerboats, landing and access points

3. CURRENT ACTION/MECHANISMS

3.1 PROTECTION

All the major estuaries listed above are internationally important and have been notified as SSSIs, SPAs and Ramsar sites. The only exception is the Thames Estuary and Marshes which is awaiting formal designation as an SPA and Ramsar site (which proposed status carries the same degree of protection).
In addition the UK government has made a commitment to promoting sustainable use of the coast.

Crown Estates, EN and BASC have formed a joint wildfowling and conservation group to provide an effective way of managing these issues on the coast. In 1995 they formally introduced a wildfowling lease application procedure.

3.2 MANAGEMENT

Estuary Management Plans are currently in preparation for the Thames and the Medway and Swale estuaries as a result of EN's Estuaries Initiative. These plans should provide a framework for managing the wide-range of different (and sometimes conflicting) interests and user groups. Shoreline Management Plans are also being prepared for a number of areas. There is a LNR steering group which oversees the management of Sandwich and Pegwell Bay. The National Trust mange 220 hectares at Sandwich & Pegwell Bay.

Trials are taking place in the Medway Estuary to see whether it is possible to use dredged material to recharge mudflats. (This could potentially solve the problems of finding new land-based dredging disposal sites, retain sediment within the estuary and reverse the current loss of saltmarsh.)

4. KEY SPECIES

Notables
Avocet, brent goose, grey plover, *Cymenella torquata* (a polychaete worm), *Zostera noltii* and *Z. angustifolia*.

Standard Bearers/Quality Indicator Species
Dunlin, ringed plover, curlew, black-tailed godwit, pintail, sanderling, knot, oystercatcher, bar-tailed godwit.
Razor shell (*Ensis siliqua*), polychaetes, bivalves, gastropods.

Negative Indicators
Enteromorpha blooms

Retrievables
Allis and Twaite shad
Zostera marina

5. OBJECTIVES/TARGETS

- To maintain the area of intertidal mud and sandflats ensuring no net loss, except to natural processes (sea level rise).
- Ensure that the quality of habitat is improved by better coastal zone planning.
- To promote the management of estuaries within the framework of SAC and other coastal zone strategies which permit the natural functioning of the estuary.
- Identify and implement opportunities for intertidal habitat creation to compensate for habitat losses, including those due to sea-level rises.

Area Targets (ha)

Present	10 year	50 year
10,308	10,300	10,300

Species Targets

	Present	10 year	50 year
Grey plover	13,900	)	)
Dunlin	74,700	) Maintain	) Maintain
Sanderling	1,200	)	)
Avocet	680	)	)

(See also targets and actions in saltmarsh, shingle and marine habitat action plans)

6. PROPOSED SPECIFIC ACTION

6.1 POLICY

1. Consider option for use of more natural sea defences in future coastal schemes. (EA)
2. Require an assessment of effect on coastal processes prior to all new developments and post-implementation monitoring and assessment of effects. (KCC, LAs, EN, EA)
3. Extend SMP into Medway/Swale and Thames estuaries. (EN, KWT, RSPB, LAs)
4. Promote review of and increased powers for coastal and other authorities to safeguard habitat. (EA, EN, KCC, KWT, RSPB)
5. Lobby to halt increase in number of mud moorings. (EN, KWT, RSPB, KCC)
6. Wildfowling and nature conservation bodies to build on work of joint group on wildfowling and conservation to produce wildfowling strategies for all internationally important coastal habitats (to address the need for data exchange and provision of refuges). (EN, CLA, RSPB, KWT, BASC/ KWCA, Crown Estates)
7. Review and enforce by-laws for bait digging. (LAs, KCC)
8. Lobby for unsustainable commercial harvesting of cockles to be stopped. (KCC, EN, RSPB, KWT)

6.2 LAND MANAGEMENT

1. Implement Estuary Management Plans for all internationally important estuaries, ensuring these contain biodiversity targets for intertidal habitats. (LAs, EN).
2. Fully implement Shoreline Management Plans. (LAs)
3 Create an estuary project officer post to raise awareness of disturbance issues, funded by estuary users. (EN, RSPB, Port Authorities, KWT)

6.3 MONITORING AND RESEARCH

1. Continue Wetland Bird Scheme counts and low-tide wader counts of all internationally important estuaries once every 5 years (BTO, RSPB, KOS)
2. Investigate sediment budgets and coastal processes in estuaries and use to develop dredging disposal strategies, research alternative solutions to problems of deep water ports (and the scope for managed retreat in Kent). (EN, Ports Authorities, MAFF, EA)
3. Investigate opportunities for managed retreat. (EN, EA)
4. Review status of Inner Thames Estuary. (EN)
5. Monitor water quality and sediment pollution. (EA)
6. Investigate abundance and distribution of *Zostera* species along North Kent coast and ways to reverse the decline. Consider a strategy for re-establishment, possibly from Essex populations. (KFC, EN, RSPB, EA, KCC)
7. Monitor occurrence of Enteromorpha bloooms in Medway estuary and investigate ways of preventing these. (EA, MAFF)
8. Assess potential for saltmarsh creation on land used for dredging disposal. (EN, EA, Ports Authorities, MAFF)

7. RESPONSIBLE BODIES

EN, RSPB, MAFF, EA, LAs, KWT, MAFF, KCC, NT, CLA, BTO, KOS, BASC, KWCA, Port Authorities, Crown Estates.

Lead agency: EN and RSPB

8. COMPLEMENTARY UK PLANS

UK plans for **Estuaries** and **Deep mud** are in preparation. (No leads have been proposed for these as yet.) there is a broad Habitat Statement for **Estuaries**.

SALTMARSH

Saltmarsh is a highly productive habitat which develops along sheltered coasts with soft, shallow shores, which provide protection from strong wave action. It represents a transition from sand and mudflats on the lower marsh, where vegetation is frequently flooded by the tide, through to the upper saltmarsh where the plant communities are less frequently inundated. The intimate relationship between saltmarsh and other coastal habitats (shingle structures, sand dunes, intertidal flats) means that their management cannot be divorced from actions to conserve these.

1. CURRENT STATUS

1.1 IMPORTANCE

The saltmarshes of Kent are internationally important habitats for wintering and passage birds and breeding waders. They also support a wide range of specialist invertebrates, many of which are nationally rare or scarce.

1.2 TRENDS

As part of natural coastal processes saltmarsh is constantly building and eroding from different areas. Historically the rate of erosion in Kent has exceeded that of formation, resulting in a net loss, mainly due to sea level rise. A survey of losses to erosion between 1973 and 1988 revealed a 15% loss in the Swale, 18% in the South Thames and 21% in the Medway (Burd, 1992). There have also been losses to reclamation for development

1.3 AREA

There are 1,395 ha of saltmarsh habitat in Kent, along with further small scattered fragments which are either forming of being eroded.

1.4 DISTRIBUTION

95% of saltmarsh in Britain is found in estuaries and Kent is no exception to this. The majority of saltmarsh is in the Medway/Swale estuary and Sandwich Bay (the estuary of the River Stour). There are a few small areas along the southern edge of the Dungeness foreland.

Estuary	Approximate Area (ha)
Medway	754
Swale	414
Sandwich Bay	99
South Thames	78

2. CURRENT FACTORS AFFECTING THE HABITAT - THREATS/ISSUES

1. Sea-level rise and coastal squeeze due to isostatic fall of south-east and global warming.
2. Land claim for development
3. Disruption of sediment dynamics through coastal defence works and dredging - navigational and aggregate dredging and disposal of dredged material.
4. Pollution from both land based and sea sources - industry, agriculture and sewage.
5. Recreational pressure - landing and access points, paths through sensitive areas.

3. CURRENT ACTION/MECHANISMS

3.1 PROTECTION

The main areas of this habitat are notified as SSSI (96%) with the majority also being designated as SPA and Ramsar, there is also a small amount (2%) which is SNCI. In addition to this the UK government has made a commitment to promoting sustainable use of the coast (PPG20).

3.2 MANAGEMENT

Estuary Management Plans (EMPs) are in preparation for the Thames and Medway/Swale estuaries to provide a framework for managing the wide-ranging and sometimes conflicting interests. (Shoreline Management Plans (SMPs) are also being prepared for a number of areas.)

Funding is available from MAFF under the Habitat Scheme Saltmarsh Option for habitat creation in Kent.

Trials are taking place in the Medway estuary on using dredged material to recharge mudflats. (This could potentially reduce the rate of saltmarsh loss by retaining sediment within the estuary system.)

4. KEY SPECIES

Notables
Breeding common tern, little tern, Mediterranean gull, redshank. Ground lackey moth.

Salicornia perennis, S.pusilla and other scarce glassworts, *Inula crithmoides, Puccinellia fasciculata.*

Standard Bearers/Quality Indicator Species
Roosting waders - dunlin, curlew, knot, sanderling, oystercatcher, bar-tailed and black tailed godwit, ringed plover.
Saltmarsh grass, glassworts, sea aster, sea lavender, sea purslane.

Retrievables
Essex emerald moth

5. OBJECTIVES/TARGETS

- To prevent further loss of habitat, except to natural processes.
- To improve the quality of the remaining habitat.
- To promote the management of estuaries (within the framework of EMPs, SMPs and other coastal zone strategies) which permit the natural functioning of the estuary.

Targets

	Present	10 Years	50 Years
Area	1395 ha	no net loss	
Area in MAFF Habitat Scheme Saltmarsh Option	?	10 ha	
Breeding redshank	400 pairs	400 pairs	350-400 pairs
Essex emerald	Extinct in Kent?		Re-established

(See also targets and actions in intertidal flats and grazing marsh action plans.)

6. PROPOSED SPECIFIC ACTION

6.1 POLICY

1. Consider option for more natural sea defences to be used in future schemes. (EA)
2. Lobby for SMPs to be extended to Medway/Swale and Thames estuaries. (EN, KWT, RSPB)
3. Ensure an assessment of effect of all new developments on coastal processes and post-implementation monitoring and assessment of effects. (KCC, LAs, EN)
4. Adopt principle of allowing coastal processes to operate as naturally as possible. (KCC, EN, LAs, EA)

6.2 LAND MANAGEMENT

1. Implement EMPs for all internationally important estuaries, ensuring that these contain biodiversity targets for saltmarsh. (LAs, EN)
2. Promote MAFF Habitat Scheme Saltmarsh Option. (EA, MAFF/FRCA, FWAG, EN, CMPs)
3. Produce dredging disposal strategies for Thames and Medway/Swale estuaries. (EN, Port Authorities, LAs,)

6.3 MONITORING AND RESEARCH

1. Monitor numbers of birds using internationally important sites regularly (as part of Wetland Bird Scheme). (KOS, RSPB)
2. Review extent and distribution of saltmarsh every 10 years to establish main areas where erosion is occurring and investigate options to reduce this. (KCC, EN)
3. Research options for managed retreat. (Possibilities should become evident once SMPs are completed) (EA, EN)
4. Monitor the spread of Spartina anglica and devise a strategy for reduction, should this become necessary. (EA, EN, MAFF)

7. RESPONSIBLE BODIES

MAFF, EN, EA, RSPB, KCC, LAs, KWT, KOS, Ports Authorities

Lead Agency: EN and RSPB

8. COMPLEMENTARY UK PLANS

UK action plans are in preparation for **Coastal saltmarsh** and **Estuaries**. (No leads have been agreed for these at present.) There are already broad habitat statements for **Saltmarsh** and **Estuaries**.

SAND DUNES

Sand dunes form on the coast where there is an adequate supply of sediment and a beach which dries out at low tide, allowing the sand grains to be blown inland. A healthy dune system has a clearly zoned succession of habitats including embryo, mobile and fixed dunes, dune slacks and dune grassland or heath. Where the sediment supply is exhausted the fore-dunes disappear and the zonation of habitats can become very compressed, especially where the land behind the dunes is under pressure from other land-uses.Sand dunes are a diminishing habitat in Europe and are rare in the UK (47,118 ha). They are complex systems which are fragile and near-natural in development. In Kent, the major formations are at Sandwich Bay and Romney Warren.

1. CURRENT STATUS

1.1 IMPORTANCE

The dunes in Kent are the only major dune system in south-east England apart from those at Camber in East Sussex, and coastal sand dune types are listed on Annex 1 of the EC Habitats Directive. Sandwich Bay is internationally important.

The dunes are important for the higher plants, invertebrates and migrant passerines which they support. (A large proportion of the national population of lizard orchid and bedstraw broomrape occur at Sandwich Bay).

1.2 TRENDS

In Europe as a whole dune habitats are declining due to tourism-orientated development and port/industry activity. In Kent dune systems have only fully developed at Romney Warren and Sandwich Bay and pockets of embryonic sand dune occur scattered around the coast. Both of the major Kent systems are artificially stabilised, at Romney Warren natural processes have been halted by the erection of a sea wall and at Sandwich management of the golf courses has interrupted further dune development. (The area of dune in Sandwich Bay may have increased slightly due to spit development.)

1.3 AREA

There is a total of 596ha of dune in Kent, 1.25% of the UK total. This can be broken down into:

Sub-Habitat	ha	Naturalness	Location
Open Dune	255.0	Near-Natural	Sandwich Bay, other small sites
Dune Slack	9.6	Near-Natural	Sandwich Bay
Dune Scrub	0.4	Near-Natural or planted	Sandwich Bay
Coniferised Dune	3.7	Planted/ Artificial	Sandwich Bay
Dune Grassland	327.3	Semi-natural	Sandwich Bay, Romney Warren

1.4 DISTRIBUTION

Dune systems occur at Sandwich Bay and Romney Warren, and there are embryo systems (probably constrained by coastal squeeze) on the eastern tip of the Isle of Grain and Kingsgate Bay and Foreness Point in Thanet district.

2. CURRENT FACTORS AFFECTING THE HABITAT - THREATS/ISSUES

1. Fossilisation of dune systems, through coastal defence works and "coastal squeeze", (e.g. beach feeding with shingle at Sandwich removing supply of sand for dune development).
2. Sea-level change associated with global warming and isostatic rise.
3. Direct loss to development, intensive agriculture and tree planting.
4. Indirect loss through lack of grazing management and scrub development.
5. Over abstraction lowering water table and threatening dune slack habitat.
6. Disturbance and erosion through recreational use and inappropriate management.

3. CURRENT ACTION/MECHANISMS

3.1 PROTECTION

All dune slack, open dune, dune scrub and the majority of dune grassland is designated as SSSI. Only 51 ha of dune grassland at Sandwich are unprotected. Most of the SSSI area at Sandwich Bay also has Ramsar, SPA, and cSAC status.

In PPG20 the government has made a commitment to promote the sustainable use of the coast.

3.2 MANAGEMENT

The majority of sites are managed as golf courses and/or for nature conservation. Royal St.George's golf course works closely with EN and KWT and there is an agreed management programme for the course. A small part of Romney Warren is grazed under a Countryside Stewardship agreement.

4. KEY SPECIES

Notables
Plants - Lizard orchid, bedstraw and sea-holly broomrapes, marsh helleborine, yellow bartsia, sand catchfly, sharp rush, sea spurge, marsh helleborine.
Invertebrates - pygmy footman, restharrow and bright wave moths, grey bush cricket.

Standard Bearers/Quality Indicator Species
Strandline/Fore Dune: Sea rocket, sea-holly;
Dune Slack: Southern marsh orchid, adder's tongue;
Dune Grassland: Common stork's-bill, lady's bedstraw, buck's-horn plantain, sea campion, marram grass, suffocated clover.

Retrievables
Natterjack toad

5. OBJECTIVES/TARGETS

- Ensure no net loss of the existing resource.
- Encourage a return to near-natural coastal processes where appropriate.
- Manage the resource in a positive manner, to maintain and enhance the biodiversity which is associated with dune systems.

10 year targets:

- Retain existing habitat, with representation of all elements of a natural dune system.
- Reinstate grazing management in appropriate areas.
- Remove conifers from area of dune.
- Complete and implement water level management plans for areas of dune to ensure no adverse impact on their nature conservation interest.

50 year targets:

- Allow reversion to natural processes of sea defences and dune formation in parts of Romney Marsh and Wantsum/ Sandwich Bay/ Hacklinge Marshes.

6. PROPOSED SPECIFIC ACTION

6.1 POLICY

1. Review Coastal Recreation Strategies and implement Shoreline Management Plans (LAs)
2. Consider enforcing protective bye-laws as necessary (LAs)
3. Establish and enforce guidelines for groundwater integrity (EA)

6.2 LAND MANAGEMENT

1. Maintain current management for lizard orchid and extend to other areas. (Golf Course, KWT, EN)
2. Reinstate grazing management in appropriate areas. (Landowners, EN)

6.3 RESEARCH AND MONITORING

1. Identify and survey embryo dune systems and investigate potential to allow natural systems and existing fossilised systems to develop. (EN, LAs)
2. Monitor the effects of grazing management. (EN, KWT, CMPs)
3. Monitor populations of rare species such as lizard orchid and bedstraw broomrape. (EN)

7. RESPONSIBLE BODIES

EN, Landowners, EA, KWT, Sandwich Bay LNR Steering Group, Golf Course Wildlife Trust, Dover and Shepway DCs.

Lead Agency: EN and KWT

8. COMPLEMENTARY UK PLANS

UK plans for **Coastal sand dunes** and **Estuaries** are in preparation. (No lead is proposed as yet.) Broad Habitat Statements have already been prepared for these habitats.

VEGETATED SHINGLE

Shingle beaches form in high energy environments, where the sea can pile up pebbles onshore, above the tide line. In southern England much of the shingle is composed of flint which has come from the erosion of chalk cliffs. Two types of shingle beach occur in Kent; fringing beaches (strands of shingle in contact with the land) and cuspate forelands (series of large, parallel ridges, formed as shingle piles up against a fringing beach or spar).

Vegetation establishes on stable coastal shingle where there is a matrix of finer material such as sand or silt. Shingle vegetation is characterised by a wide range of plant communities, dependent on the age of the shingle deposits, their distance from the coast, size of the pebbles, and the depth of the water table. Grassland, heath, scrub and lichen and moss-dominated vegetation develops on old, stable shingle structures further inland.

1. CURRENT STATUS

1.1 IMPORTANCE

Kent holds a large proportion of Britain's stable and semi-vegetated shingle, with 40% of the UK total of 4,200 ha occurring at Dungeness alone. Shingle is known to be a scarce habitat in Europe and the rest of the world (although there are no figures available) and is listed on Annex I of the EC Habitats Directive.

The cuspate foreland of Dungeness is of international significance. It is important both for the total area of shingle, and the fact that it has the most diverse range of plants and animals of any British shingle beach (due to the unusual distance to which the shingle stretches inland and the great age of some of the areas). Some of the collections of plants growing together are thought to be unique on a **global** scale. The invertebrate fauna is particularly rich, with a number of species occurring here and nowhere else in Britain. One species of leaf-hopper appears to be endemic to Dungeness. The site is of international significance for its sea-birds and waterfowl, although most of these are associated with the gravel pits on the site.

1.2 TRENDS

Figures for the loss of shingle habitat are only available for Dungeness, where they are reasonably well documented. Losses may be caused by direct destruction (ie. gravel extraction or building for instance) or due to disturbance which leaves the shingle in situ but can result in long-term destruction of vegetation. By 1958 42% of the shingle habitat on this site had been destroyed. By 1984 this figure had increased to 57.5%, and it has continued to increase since then.

Although this habitat would formerly have been used for occasional grazing, particularly when areas of adjacent grazing marsh were flooded, very little shingle is actively grazed today. This does not appear to have caused any obvious deleterious change to the habitat, except for the shingle wetlands which have changed from open fen communities to reedswamp and closed willow scrub.

1.3 AREA

Vegetated shingle = 1,074 ha
Total shingle = 1,811 ha

1.4 DISTRIBUTION

83% of all shingle and 90% of vegetated shingle habitat is found at Dungeness, with smaller patches scattered around the Kent coast including Hythe Ranges, Kingsdown, Plumpudding Island and around the Isle of Grain.

2. CURRENT FACTORS AFFECTING THE HABITAT - THREATS/ISSUES

1. Gravel extraction.
2. Development, particularly for power generation - Nuclear and Wind
3. Disturbance, compaction and destruction of vegetation and ridge system and disturbance of ground nesting birds as a result of military training and uncontrolled recreational access. (Vehicles being a particular problem.)
4. Coastal processes - impact of coastal defences on sediment supply and natural development, sea level rise.
5. Lack of management of shingle wetlands which were formerly grazed.
6. Ground water abstraction.

3. CURRENT ACTION/MECHANISMS

3.1 PROTECTION

The majority of Dungeness is notified as an SSSI. A large proportion of the SSSI is a candidate SAC and parts are awaiting confirmation of designation as SPA. The remainder of the beach and Hythe Ranges are SNCI. Plumpudding Island and Shellness are SSSI/SPA and Shellness is also part of a NNR, part of Kingsdown beach is SSSI.

3.2 MANAGEMENT

310 ha of shingle is owned and positively managed by the RSPB at Dungeness. The remaining areas of shingle are either used for military training, are included in the Dungeness Power Station compound, or have open access with no active management. Management agreements with EN are in place for appropriate management of certain areas within the Dungeness SSSI.

4. KEY SPECIES

Notables

Stinking hawk's-beard, *Cladonia mitis* (lichen), Nottingham catchfly, sea pea.
Medicinal leech, toadflax brocade and pigmy footman moths, plus a large number of other rare invertebrates.

Standard bearers/Quality Indicator species

Sea kale, lichen turf, sheep's bit, shepherd's cress, thrift, brown sedge, suffocated clover, prostrate and dwarf forms of broom, holly and blackthorn with abundant lichens. Linnet, great-crested newt.

Retrievables

Sussex emerald and scarce chocolate tip moths. Breeding little tern, stone curlew, Kentish plover and Dartford warbler. Least lettuce.

5. OBJECTIVES/TARGETS

- To retain the current area of vegetated shingle and its existing interest, with the proviso that patterns of coastal evolution may erode shingle from the site.
- Re-establish areas of vegetated shingle on blocks of old shingle, damaged during the war, and not recovered.
- Restore open fen communities to suitable wetland areas.
- Cease beach feeding at Dungeness and allow natural coastal processes to recommence once nuclear power station is decommissioned.
- Restore water levels to earlier levels in 10 years

Targets

	Present	10 years	50 years
Undamaged vegetated shingle (Dungeness)	631	635	650
Undamaged vegetated shingle (rest of Kent)	433	433	433
Stinking Hawk's-beard population	?	Maintain	Double

6. PROPOSED SPECIFIC ACTION

6.1 POLICY

1. Establish Dungeness NNR covering as much of the shingle as possible. (EN)
2. Implement bye-laws on Dungeness to safeguard site from vehicle damage. (LA, EN)
3. Implement Beachy Head to South Foreland Shoreline Management Plan incorporating soft sea defence measures, (and explore possibility of a return to natural coastal evolution at Dungeness, after the Nuclear Power Stations are completely decommissioned.) (LA, MAFF, EA)

6.2 LAND MANAGEMENT

1. Implement revegetation projects on degraded shingle areas (RSPB, EN, MAGNOX, Nuclear Electric, MOD)
2. Edges of gravel pits to be sealed with silt, to reduce loss of water from the Dungeness SSSI (RSPB, Minerals companies, LAs).
3. Continue to control abstractions from site to prevent further lowering of water table and begin restoration to earlier levels. (EA, EN, RSPB)
4. Clear scrub and reed swamp from some of "open pits" which were known to support rare and specialist species. (RSPB, EN)
5. Manage by deliberate disturbance small areas of already damaged shingle for the benefit of Sussex emerald moths. (EN, MAGNOX, Nuclear Electric)

6.3 MONITORING AND RESEARCH

1. Conduct regular aerial photographic monitoring of disturbance to shingle ridges at Dungeness. (EN)
2. Monitor populations of rare species. (EN)

7. RESPONSIBLE BODIES

EN, RSPB, Shepway District Council, Magnox, Nuclear Electric, MOD, EA, MAFF, Minerals companies, Romney Marsh Countryside Project .
Lead Agency: EN and RSPB

8. COMPLEMENTARY UK PLANS

A UK action plan for **Coastal vegetated shingle structures** is in preparation. (No lead has been proposed as yet.) There is a broad Habitat Statement for **Shingle above high tide mark** and **Coastal strandline habitats**.

MARITIME CLIFFS

Sea cliffs are formed by slippage and/or erosion by the sea. The vegetation which develops along maritime cliffs is determined by the geology, and degree of exposure to wind and salt spray. This vegetation forms a transition from maritime to terrestrial communities.

In Kent there are hard (chalk) and soft (mainly London Clay, with some Gault Clay, Thanet Beds and others) maritime cliffs, some of which have crevice and ledge vegetation and cliff-top grassland.

1. CURRENT STATUS

1.1 IMPORTANCE

The Thanet Coast is internationally important for its examples of marine splash zone/intertidal algae. Other areas are of regional importance for cliff breeding birds. Rare plants such as wild cabbage, Nottingham catchfly and early spider orchid occur on the cliff-tops and crevices. There are bat roost sites in the caves and some rare invertebrates associated with the cliff-top grassland and soft sandy cliffs.

They are nationally important sites for studies of geology, geomorphology/coastal processes and fossils.

1.2 TRENDS

Historically cliff habitat has been subject to indirect impacts through interference with the natural erosion cycles (which create the caves and splash zones) by artificial sea defences on the seaward side or foot of the cliff. This has been due to development in coastal locations for ports and fisheries and the growth of seaside resorts in Victorian times. This is particularly true of the cliffs around Dover, Folkestone and much of the Isle of Thanet.

1.3 AREA

Hard cliff = 35.2 km
Soft cliff = 13.4 km
Total = 12.7% of coastline
(KWHS, 1995)

1.4 DISTRIBUTION

Hard cliff is predominantly in the east of the county, from Folkestone to Kingsdown and around the coast of Thanet.
Soft cliff occurs in the north; London Clay is found on Sheppey, while near Reculver Woolwich, Reading, Thanet and Oldhaven beds are found together with London Clay, and there are small pockets of soft cliff at Copt Point, Folkestone (Gault) and Pegwell Bay (Thanet Beds).

2. CURRENT FACTORS AFFECTING THE HABITAT - THREATS/ISSUES

1. Stabilisation by: concretion of face of hard cliffs, anti-slumping works on soft cliffs (destruction of cliff), back-filling of sea caves for stabilisation, covering of geological exposures.
2. Sea defence works affecting coastal processes (e.g. rock groynes at Reculver causing severe erosion)
2. Development (on cliff-top or below face, divorcing cliff from sea/natural processes.
3. Cultivation of cliff-top zone.
4. Lack of management of cliff-top grassland and scrub development.
5. Inappropriate Coastal Zone Management

3. CURRENT ACTION/MECHANISMS

3.1 PROTECTION

The natural cliff faces have statutory protection (SSSI or cSAC) with the exception of Minster Cliffs, Sheppey (SNCI) and minor cliff ledges, e.g. south of Elmley, Sheppey. Cliffs on either side of Dover are designated Heritage Coast (national landscape protection). The cliffs between Reculver and Bishopstone and at Folkestone Warren are LNRs. There is Local Plan protection of undeveloped coast in all coastal districts and PPG20 also advocates this.

3.2 MANAGEMENT

Areas of cliff-top grassland are positively managed by NT and White Cliffs CMP around Dover. The Government and EN policy is to encourage non-statutory Shoreline Management Plans which take account of natural processes, land use and conservation interests in decision making. The cliff-top around Reculver is managed as a Country Park by Canterbury City Council.

4. KEY SPECIES

Notables
Hard cliff: breeding peregrine, kittiwake, fulmar.
Terrestrial plants - Hoary Stock, Sea Stock.
Soft cliff: digger wasps (*Ectemnius ruficornis* and *Alysson lunicornis)*, breeding Sand Martin, natural colonies of house martin.

Standard Bearers/Quality Indicator Species
Hard cliff: Rock Samphire; wild Cabbage, Nottingham catchfly, thrift, buck's-horn plantain, rock sea-lavender.
Soft cliff: Fennel, common spotted-orchid, invertebrates.

Retrievables
Chough, peregrine, juniper, fiery clearwing moth.

5. OBJECTIVES/TARGETS

- Protect sea cliffs from further development and pollution.
- Return to a natural coastline where possible. (Further extension of seawalls should be resisted.)
- Create a buffer of semi-natural habitat (minimum 1 field width) along all cliff-top areas which are not already developed.

Targets

	Present	10 years	50 years
Continuous buffer along undeveloped cliff top	?	50%	100%
Royal Marine Rifle Range infrastructure	-	Removed	-
Peregrine	2 pairs	4 pairs	10 pairs
Chough	-		Breeding

6. PROPOSED SPECIFIC ACTION

6.1 POLICY

1. Lobby for strengthening of Local Plan policies for undeveloped coast in line with PPG20 and Government commitment to promote sustainable use of the coast (KWT, KCC, LAs, EN).
2. Seek grant-aided removal of unnecessary coastal defences or allow defences to break up naturally without replacement and repair, where appropriate, to allow natural dune formation to resume. (EA, DOE, MAFF, LAs)

6.2 LAND MANAGEMENT

1. All cliff habitat owned or managed by BAP partners to be managed appropriately, with semi-natural cliff-top habitat buffer and minimal intervention in coastal processes.(All)
2. Encourage further coastal acquisition by conservation bodies/NGOs such as NT. (KWT, NT, RSPB, LAs, KCC)

6.3 MONITORING AND RESEARCH

1. Monitor populations of key nesting birds. (KOS, NT)

7. RESPONSIBLE BODIES

EN, MAFF, EA, LAs, KWT, Landowners., RSPB, KCC, NT.

Lead Agency: LAs and NT

8. COMPLIMENTARY UK PLANS

A UK plan for **Maritime cliff and slope** is in preparation. (No national lead is proposed as yet.) There is already a broad Habitat Statement for this habitat.

MARINE HABITATS

The marine environment includes a range of habitats which are permanently or periodically covered by the sea:

Intertidal rock (chalk platform)
*Intertidal sediment**
*Saline lagoons**
Water column
Subtidal rock
Subtidal sediment
Submerged caves

(See separate plan for Intertidal sediment, and standing water plan for saline lagoons.)*

1. CURRENT STATUS

1.1 IMPORTANCE

Much of the Kent coast is notified as SSSI (in general the boundary of the designation is mean low water and does not include the submerged habitat). The majority of marine habitats are of international importance and large proportions are designated as SPA/Ramsar sites and proposed SACs. The Thanet Coast is the only area in Kent to be proposed as a marine SAC. It has important examples of cliff and cave algal communities and intertidal/sub-tidal chalk reefs, with characteristic assemblages of algae and invertebrates. Several LNRs cover marine habitats.

1.2 TRENDS

There has been a historical loss of marine habitat through coastal protection works and development of ports, marinas and other industries. The quality of the remaining habitat is also likely to have declined due to modification of natural coastal processes, deterioration of water quality and unsustainable fishing methods.

1.3 AREA/EXTENT

The area of each of the different components of the marine habitat is not known accurately. Habitats for which figures are available include intertidal rock - 459 ha, intertidal mud and sand - 9,801 ha and intertidal shingle - 508 ha. There are 249 ha of saline lagoon.

1.4 DISTRIBUTION

Marine habitats occur along the north and east coasts of the county. Much of that in the north west has an estuarine influence, along with the Sandwich Bay area. The sublittoral chalk platforms and submerged caves occur around the Dover and Thanet coasts and there are intertidal habitats around Folkestone.

2. CURRENT FACTORS AFFECTING THE HABITAT - THREATS/ISSUES

1. Lack of knowledge of marine environment - makes defining important areas very difficult
2. Lack of mechanisms for the protection and management of the marine environment below the low tide line.
3. Development - port expansion, marinas, industry.
4. Coast protection works.
5. Dredging - navigational and aggregate dredging and disposal of dredged material.
6. Pollution from litter, effluent outfalls, oil spills, agricultural run-off and industrial pollution.
7. Coastal erosion.
8. Fishing and shellfishing, especially using bottom fishing gear.
9. Bait digging.
10. Recreational activities.
11. Offshore oil and gas exploration.

3. CURRENT ACTIONS/MECHANISMS

A Coastal and Marine Observatory is being set up at Dover which will act as a focus for information and data relating to the Kent coast.

3.1 PROTECTION

. The majority of key areas are formally designated as SSSIs (87.6% of intertidal habitat is SSSI) and many are recognised as SPAs, Ramsar sites and SACs.

. Coastal development is controlled through Local Plan policy and PPG20 (but this does not apply below mean low water).

. Water quality is monitored by EA as part of its statutory function and by a number of private organisations (e.g. Dover Harbour Board)

. Crown Estates have an environmental policy statement 'Stewardship in Action' to safeguard the foreshore and seabed and balance the conflicting demands of conservation, development and recreation. This includes: supporting MNR and marine SSSI designations, leasing foreshore (particularly heritage coast) to conservation bodies, requiring environmental

compensation / enhancements for marine developments.

3.2 MANAGEMENT

Most marine habitats do not require management to retain their nature conservation interest. However, features and species may be lost or damaged through adverse human intervention. The quality of the marine environment should therefore be maintained through sustainable use.

- Preparation of Shoreline Management Plans
- Preparation of Estuary Management Plans
- Preparation of a scheme of management for the proposed Thanet Coast Marine SAC/SPA.
- Liaison established with Kent and Essex Sea Fisheries Committee.

4. KEY SPECIES

Notables

Chrysophyceae (caves), *Zostera noltii* and *Z. angustifolia*
Piddocks - *Pholas dactylus, Barnea candida* and *B. parva*,
(sub-tidal and intertidal rock)

Standard bearers/Quality Indicator Species

Hydroids - *Ectopleura dumortierii* (sublittoral rock)
Polychaetes (sediments)
Ascidians - *Molgula manhattensis* (sublittoral rock)
Sea birds, wintering red-throated diver
Sea mammals
Other algae
Mussels, dogwhelk (intertidal rock/cobbles)

Negative Indicators

Enteromorpha and *Ulva* blooms, *Sargassum muticum*, *Undaria pinnatifida*, Chinese mitten crabs, *Crepidula*, *Slytonema* (a tunicate worm)

Retrievables

Native oyster - *Ostrea edulis* (sediment)
Zostera marina

5. OBJECTIVES/TARGETS

. Establish mechanisms to record and map marine habitats and species, which will inform the development of this plan and other marine issues
- To prevent further loss of habitats, except to natural processes.
- Use of soft engineering for coastal defence works.
- Improvement in water quality through tighter controls on discharges.
- Improve liaison with users, knowledge of activities and their impacts on the marine environment.

10 year targets

- Gain full understanding of processes and issues in the marine environment.
- Protect areas as appropriate as voluntary Marine Nature Reserves or marine SNCIs (e.g. Copt Point to Abbots Cliff).
- Fully implement Shoreline and Estuary Management plans.

(See also targets and actions in intertidal flats and standing water (for saline lagoons) action plans.)

6. PROPOSED SPECIFIC ACTION

6.1 POLICY

1. Lobby for review of the current process for MNR designation once marine SACs are in place. (EN, KWT, EA, RSPB, KCC)
2. Support educational projects and initiatives (such as Low Tide Day 1996) and increase general awareness of the marine environment and issues affecting it. (EN, EA, KCC, KWT, RSPB, MAFF, Crown Estates, LAs, Port Authorities, Water Companies)
3. Maintain NGO representation on the EA Regional Flood Defence Committee. (KWT, RSPB, EA)
4. Maintain conservation representation on Joint Response Committee (EN, KCC, KWT, RSPB)
5. Establish a Coastal Forum for liaison between coastal and marine user groups (part of Coastlink programme). (EN, EA, LAs, KCC, RSPB)
6. Lobby for extension of planning control below mean low water. (EN, KWT, KCC, LAs, RSPB)
7. Encourage the establishment of Voluntary Marine Nature Reserves. (EN, KWT, Crown Estate, KFC Marine Group)
8. Increase liaison with Kent and Essex Sea Fisheries Committee. (EN)
9. Protect bass nursery grounds in outer Medway estuary (statutory protection in UK) from effects of development, sea traffic and water-borne pollutants. (KCC, EN, EA, MAFF)

6.2 LAND MANAGEMENT

1. Implement Shoreline and Estuary Management Plans. (LAs, EN)
2. Consider soft engineering solutions for coastal defence works. (EA, MAFF, Operating Authorities)
3. Encourage development of Coastal Zone Management Plans for sections of coast where there are obvious conflicts (e.g. Proceed with the production of a scheme of management for the proposed Thanet Coast Marine SAC). (EN, LAs, KCC)

6.3 MONITORING AND RESEARCH

1. Initiate a Seasearch survey of the Kent coast. (EN, KCC, KFC Marine Group)
2. Ensure monitoring and assessment of the effects of sea defence works and any new developments on coastal processes. (KCC, EN, EA, MAFF, Developers)
3. Establish a marine recording system to monitor the health of marine habitats. (EN, KCC, Crown Estate, KFC Marine Group)
4. Initiate a sea mammal recording system. (KFC Marine Group)
5. Monitor/review the effectiveness of Shoreline Management Plans. (MAFF)
6. Monitor/review the effectiveness of Estuary Management Plans. (EN)
7. Initiate an inshore waters eutrophication monitoring scheme. (EA)
8. Monitor spread of alien species and consider eradication programmes. (EA, EN, MAFF)
9. Monitor *Enteromorpha* blooms in Medway estuary and investigate ways of preventing these. (EA, MAFF)

7. RESPONSIBLE BODIES

EN, LAs, KWT, KFC Marine Group, RSPB, KCC, MAFF, EA, Crown Estate.

Lead Agency: English Nature and KFC Marine Group

8. COMPLEMENTARY UK PLANS

There are UK plans for **Chalk coasts**, **Estuaries** and **Maerl beds** (inlets and bays and open coast). (No leads are proposed as yet.) There are already broad Habitat Statements for **Estuaries**, **Open coast**, **Shelf break** and Offshore seabed.

6. SPECIES ACTION PLANS

Action plans have been prepared for 14 of the many species of conservation concern occurring in Kent and which appear on the BAPSG lists of globally threatened and declining species (see Appendix 1).

The successful implementation of the Habitat Action Plans should achieve many of the goals of the individual Species Plans though generally there are tailored actions which will specifically benefit particular species.

In the UK BAPSG Report there are species action plans for 11 of the species for which Kent action plans have been written:

National Species Action Plan	National Targets
Water vole	Maintain current range and numbers in UK. Ensure present through 1970s range by 2010.
Otter	Maintain and expand existing populations. Restore breeding populations to all catchments and coastal areas where recorded since 1960.
Dormouse	Maintain and enhance populations in counties where they still occur. Re-establish self-sustaining populations in at least 5 counties where they have been lost.
Great crested newt	Restore populations to 100 unoccupied sites each year for 5 years, creating new ponds and managing habitats. Maintain range, distribution and viability of existing populations.
Allis and Twaite shad	Confirm status of Allis shad as a breeding fish in UK waters. Protect and ensure survival of stocks of both species.
White clawed crayfish	Attempt to maintain current distribution by limiting spread of crayfish plague and non-native species, and by maintaining appropriate habitat conditions.
Heath fritillary	Restore to 1980 populations in Kent (approx. 25inter-conected colonies) by re-introduction if necessary. Monitor range and population size in Cornwall, Devon and Exmoor and re-introduced population in Essex.
Pearl-bordered fritillary	Obtain accurate data on distribution by 1998. Halt current decline by 2005. Restore suitable habitats throughout former range and re-introduce to 3 sites per year in counties where previously found.
Silver spotted skipper	Maintain through current range. Conduct strategic re-introductions. Ensure a minimum number of colonies are protected within SSSIs.
Early gentian	Safeguard all surviving populations. Restore 10 populations to former sites where recently extinct by 2004. Maintain at any new or re-discovered sites. Promote research into ecological requirements of both sub-species to ensure appropriate conservation management.

Table 4.1 National targets for priority species covered by Kent BAP

The prime objectives are essentially the same for each species.
To:
i) halt the decline of the species in Kent.
ii) increase the size of the populations at known sites and
iii) extend the distribution, where possible, within the historic range of the species

6.1 SPECIES ACTION PLAN FRAMEWORK

Each action plan has been presented in a standard format. Below is a general guide to the contents of each section.

1. CURRENT STATUS

Sets out the status of the species in Kent at present, putting this in an historical and a national context. Divided into the following sections:

1.1 **IMPORTANCE** - Why is the species important in Kent?
1.2 **TRENDS** - Historic factors affecting the species
1.3 **DISTRIBUTION**- Where in Kent and the UK the species occurs
2. **CURRENT FACTORS AFFECTING THE HABITAT -THREATS/ISSUES**

Factors which are adversely affecting the species and any current or future projects, legislation, incentives etc. which could directly or indirectly have a negative effect on the species.

3. CURRENT ACTION/MECHANISMS

Conservation action currently underway which is directly or indirectly benefiting the species:

3.1 **PROTECTION** - Includes formal designations, legislation, development plan policies.

3.2 MANAGEMENT - Includes current grant schemes, positive management e.g. in nature reserves, and management plans to benefit wildlife.

4. OBJECTIVES/TARGETS

Objectives: What the plan sets out to achieve

Targets: Defines 10 and 50 year targets which should be reached for the species

5. PROPOSED SPECIFIC ACTION

The actions which are required if the objectives and targets are to be met. The proposed actions are listed under the following categories:

5.1 POLICY
5.2 SPECIES AND LAND MANAGEMENT
5.3 ADVISORY/PUBLICITY AND COMMUNICATION

5.4 MONITORING AND RESEARCH

(Each target has a list of organisations responsible for its implementation).

6. RESPONSIBLE BODIES

Lists those organisations in Kent which have a role to play in implementing the plan.
Also names a Lead Agency who will be instrumental in achieving the objectives of the plan.

7. COMPLEMENTARY UK PLANS

Those plans which have been or will be produced at the national level and which the Kent BAP will contribute to.

6.2 SPECIES ACTION PLANS

Species action plans have been prepared for the following species:

	Page No.
WATER VOLE ***(Arvicola terrestris)***	79
OTTER ***(Lutra lutra)***	82
DORMOUSE ***(Muscardinus avellanarius)***	84
SEROTINE BAT ***(Eptesicus serotinus)***	86
NIGHTINGALE ***(Luscina megarhyncos)***	88
GREAT-CRESTED NEWT ***(Triturus cristatus)***	90
ALLIS AND TWAITE SHAD (***Alosa alosa*** and ***Alosa fallax***)	92
WHITE-CLAWED CRAYFISH ***(Austropotamobilus pallipes)***	94
HEATH FRITILLARY ***(Mellicta athalia)***	97
PEARL-BORDERED FRITILLARY ***(Boloria euphrosyne)***	99
SILVER SPOTTED SKIPPER ***(Hesperia comma)***	101
EARLY GENTIAN ***(Gentianella anglica)***	103
LATE SPIDER ORCHID ***(Ophrys fuciflora)***	105

Note: A summary of the 10 and 50 year targets for each species is given in Appendix 6.

WATER VOLE (*Arvicola terrestris*)

Water voles occur along waterways and around still waters, though they show distinct habitat preferences, notably for sites with earth or sandy banks in which they excavate nesting and refuge burrows, and there is a strong preference for slow flowing water. They live in colonies, with breeding females establishing linear territories, a few metres wide, along the waters edge. The main food source is grass, though they also eat fruit, roots and bark. Disturbance from humans has little effect, despite the fact that they are active during the day.

1. CURRENT STATUS

1.1 IMPORTANCE

The south east of England has the highest percentage of occupied sites and shows the slowest rate of decline. As such it represent the stronghold of the species. The Kent population is in the highest 1/3 of counties in mainland Britain.

1.2 TRENDS

The water vole was formerly common in Britain but has undergone a considerable decline in numbers, distribution and density throughout this century. There is evidence that the decline has accelerated over the last 20 years. A national survey in 1989-90 recorded losses from 67% of former sites and it is estimated that this may rise to 94% by 2000.

1.3 DISTRIBUTION

58% of Kent sites were found to be occupied in the 1989-90 survey. (This is below a historical figure of 73%). It is present throughout the Great Stour and its tributaries, and in the drains and ditches of the North Kent Marshes (despite the brackish conditions), due to the presence of good habitat. Where habitat was available it was present on the Medway catchment. The population in Romney Marsh and the eastern Rother is localised and fragmented and there are localised populations on the Darent and Cray.

2. CURRENT FACTORS AFFECTING THE SPECIES - THREATS/ISSUES

1. Destruction and lack of suitable bankside habitat due to inappropriate management and agricultural intensification.. (Re-profiling, heavy grazing, vegetation control and extensive bankside tree-planting.)
2. Direct loss of habitat through drainage, infilling, channelisation.
3. Predation, especially by mink.
4. Severe winters and droughts (chilling and lack of available food).
5. Persecution
6. Pollution of water courses (from heavy metals, organochlorides and rodenticides)
7. Fragmentation and isolation of populations.
8. Lack of knowledge on dispersal of juveniles and non-territorial adults.

3. CURRENT ACTION/MECHANISMS

A national survey was carried out by Vincent Wildlife Trust in 1989-90, covering 57 baseline and 123 historical sites. (A repeat survey was planned for 1996). There is ongoing research by NRA (now EA) and Oxford Wildlife Conservation Unit into water vole ecology (in particular interaction with mink, dispersal and winter activity).

A 2 year EA habitat survey of rivers and streams in Kent, commenced 1996, which specifically included recording signs of water vole.

3.1 PROTECTION

The water vole currently has no specific legal protection. Some known colonies and suitable habitats occur within areas designated as SSSI. (E.g. River Beult, Stodmarsh, North Kent Marshes, Sandwich Bay, Romney Marsh and Dungeness.)

3.2 MANAGEMENT

Grants and schemes which indirectly benefit water voles include Countryside Stewardship which has river valleys and waterside habitat as a priority habitat; the River Beult is a pilot area for funding Habitat Scheme water fringe option .

Advise on habitat management is available from FWAG and CMPs undertake wetland habitat improvements (though not necessarily for water vole). A Romney Marsh Project was established in 1996.

4. OBJECTIVES/TARGETS

- To arrest the decline in the water vole population in Kent by 2000.

10 Year Targets

- To carry out 5 specific water vole habitat schemes each year.
- Create 5 km of riparian habitat headland adjacent to intensive agricultural land each year.
- To establish and designate 10 key refuges from mink in Kent.
- To produce a network of good quality habitat, linking key populations.
- To ensure regular sightings on all catchments in Kent.
- To generate 5 media articles each year, raising awareness of water vole and the need for conservation action.

5. PROPOSED SPECIFIC ACTION

5.1 POLICY

1. Promote inclusion of water vole in Schedule 5 of Wildlife and Countryside Act (1981), through quinquennial review (currently Schedule 9 in BAPSG). (EA)
2. Seek North Kent Marshes ESA prescriptions to be related to water vole habitat requirements, and for new ESAs covering Romney Marsh, Sandwich Bay to Hacklinge Marshes and the marshes of the Great and Little Stour. (EA, EN, KCC, RSPB, KWT, SEPORP)
3. Protect water vole habitat, including headwaters, riparian corridors and still waters through comments on planning applications and authorisations and oppose loss or damage, especially infilling of ponds and dykes without appropriate mitigation. (EA, EN, KWT, KCC)
4. Local Environment Agency Plans (LEAPs) to include targets and action to safeguard water vole populations and habitat, by 2005. (EA)
5. Enforce speed limits on navigable waterways (especially the River Stour). (EA and other controllers)

5.2 SPECIES AND LAND MANAGEMENT

1. Attempt to establish safe refuges for water vole through control of predators, especially mink by live trapping only, in priority areas such as nature reserves and key river stretches where this does not conflict with other management aims. (EA, SEORP)
2. Ensure all routine river management work is sensitive to water vole habitat requirements through adoption of best practice, (including working from one bank only, leaving fringes and cutting alternate banks). (EA, IDBs, FWAG, MAFF)
3. Support provision of riparian buffer strips adjacent to intensive agriculture which are chemical free. (EA, MAFF/FRCA, FWAG)
4. All Kent based CMPs, including new Romney Marsh Project and South east Otter and Rivers Project with a Kent-based assistant to have a specific remit to enhance habitat for water voles. (CMPs, KCC, LAs, SEORP)
5. Implement habitat enhancement schemes on rivers and streams. (MAFF/FRCA, IDBs, EA, CMPs, FWAG)
6. Promote low intensity grazing through stewardship and ESA. (MAFF/FRCA, EA, FWAG)

5.3 ADVISORY / PUBLICITY AND COMMUNICATION

1. Encourage landowners, countryside advisors and others to take account of the habitat requirements of the water vole, through provision of advice and production of a leaflet (either specifically for Kent, regionally or nationally.) Offer advice and support of all relevant landowners and occupiers by the year 2000. (EA, EN, KWT, FWAG, SEORP)
2. Raise public awareness of the decline and need for conservation action in Kent and south-east stronghold as a whole. E.g. hold Kent water vole forum. (EA, KWT, EN, SEORP)
3. Publicise ways to distinguish water vole from brown rat through clarification of identifying characteristics. (EA, SEORP)
4. Train volunteer surveyors, including landowners, angling clubs and community groups to identify water vole signs, especially territorial latrines. (EA, SEORP)
5. Discourage use of rodenticides where other means of control can be employed and water vole are at risk. (EA, MAFF, KCC, LAs, FWAG, DOE)

5.4 MONITORING AND RESEARCH

1. Undertake a professional detailed survey to determine the distribution and status of water vole and mink populations throughout Kent every five years possibly as part of a national water vole monitoring scheme, including projects on co-existence of mink and water vole at Stodmarsh Nature Reserve and establishment and monitoring of a refuge from mink on the Isle of Sheppey.(EA)
2. Through analysis of existing field data and further research, identifying existing and potential good water vole habitat. (EA)
3. Identify the key colonies in Kent and monitor every year. (EA)
4. Request water vole surveys prior to potentially damaging works or

	developments. (KCC, LAs, KWT, RSPB, EN, EA)
5.	Include recording of water vole in a survey of still waters in Kent, initially targeted on priority areas. (EA)

6. RESPONSIBLE BODIES

EA, FWAG, KWT, SEORP, CMPs, EN, MAFF/FRCA, KCC, LAs, IDBs, DOE.

Lead Agency: EA and KWT

7. COMPLEMENTARY UK PLANS

There is a UK action plan for **Water vole** with Environment Agency as the national lead.

OTTER (*Lutra lutra*)

The otter is one of the largest land mammals still occurring in the UK. It relies on clean rivers and streams to supply its food (mainly fish), with well developed bankside habitat to provide cover during the day and holts for breeding. An individual may require 30 such sites within a 40 km home range.

1. CURRENT STATUS

1.1 IMPORTANCE

The otter listed on Annexes 2 and 4 of the Habitats Directive. The European species is listed as globally threatened on the IUCN/SCMC Red Data List.

1.2 TRENDS

The otter was formerly widespread but underwent rapid decline from the 1950s due mainly to the effects of water pollution, especially by organo-chloride pesticides. The decline has now halted but recovery is slow in south-east. It was virtually lost from south-eastern counties of England and is still very rare in Kent.

1.3 DISTRIBUTION

The otter is found in very low numberson the Medway and Stour catchments.

2. CURRENT FACTORS AFFECTING THE SPECIES - THREATS/ISSUES

1. Lack of suitable bank-side habitat features.
2. Poor quality and pollution of watercourses.
3. Incidental mortality by road deaths and drowning in eel traps.
4. Eel (main prey) parasite problem and harvesting.
5. Non-viability of present population. (Need for re-introductions?)
6. Mink hunting and trapping.
7. Disturbance (people, dogs and livestock)
8. Over-abstraction and drought.
9. Perceived conflict with anglers/fishing.
10. Development pressures.

3. CURRENT ACTION/MECHANISMS

3.1 PROTECTION

The otter is protected under Schedule 5 of the WCA 1981. Lengths of river and wetland areas are designated as SSSI or SNCI e.g. the River Beult SSSI.

3.2 MANAGEMENT

There are many national and regional initiatives to improve otter habitat and populations these include JNCC "Framework for Otter Conservation (1995-2000)" and south-east "Otters and River Project" with a full-time officer and temporary assistant. There is national research into the cause of otter mortalities. Otter holts have been created by Southern Water and Kentish Stour Project near Ashford; South-east Otters and Rivers Project and Kentish Stour Project hold training talks and recruit volunteers to monitor otter signs. Recent surveys have determined the presence of remnant populations in Kent.

Other management and schemes indirectly benefit otters; Medway River and Kentish Stour Management Projects carry out habitat improvements; the River Beult is a pilot area for MAFF Habitat Scheme Water Fringe Option; Countryside Stewardship has specific reference to enhancing otter populations. FA/FE are promoting sensitive management of woodland adjacent to watercourses.

4. OBJECTIVES/TARGETS

- Survey to assess and monitor populations.
- Protect existing populations and encourage natural expansion through good habitat management.
- Assess and alleviate physical threats.
- Maintain and raise the profile of the otter.
- Determine historical distribution.

10 Year Targets

- Restore viable populations, through natural recolonisation, to all catchments where otter has been recorded since 1960.
- Provide resting sites every 5km of river bank.
- Survey all road/rail crossings by 2000.
- Carry out eel tissue analyses for all catchments by 2005.

5. PROPOSED SPECIFIC ACTION

5.1 POLICY

1. Identify priority crossings and provide otter underpasses in any transport schemes affecting these. (KCC, KWT, EN)
2. Lobby for new flood defence measures to incorporate compensatory habitat creation for otters. (KWT, EN, KCC)
3. Create and enforce bylaws to ensure use of otter guards on fyke nets. (EA)
4. Lobby for full implementation of the Habitats Directive. (EN, EA, KCC, KWT, SEORP)

5.2 LAND MANAGEMENT

1. Identify key stretches of river for enhancement work - to include trees and scrub, linking ponds, islands/oxbow lakes, carr, reed and sedge beds and other riparian habitat. (EA, SEORP)
2. In the preparation of LEAPs (to replace existing River Catchment Plans) include targets and actions for otters, including creation of otter refuges, especially in the Medway and Stour catchments (EA).
3. Specific requirement to enhance habitat for otters and co-ordinate volunteer monitoring to be incorporated into remit of river CMPs. (Kentish Stour and Medway River Project, Darent Valley Enhancement Programme, Romney Marsh Project)
4. Allow sections of rivers to develop unmanaged tall grassland/scrub for cover. In particular leave unmanaged areas for about 50m around created or potential otter holts. e.g. fence off meanders. (CMPs, MAFF/FRCA, Drainage authorities and landowners)
5. Ensure that all flood defence and routine river maintenance work is compatible with otter habitat needs. Resist hard engineering options, canalisation and culverting within floodplain. Review existing engineering constraints and make "otter friendly". (EA, Drainage authorities)
6. Review the suitability of habitat in 2005,if reasonable but still no otters present to consider re-introductions. (SEORP)
7. Liaise with mink hunts to ensure otter safety and minimisation of habitat damage. (SEORP, Stour and Medway Projects)
8. Identify problem road and rail crossings and set priorities for action (SEORP).

5.3 ADVISORY / PUBLICITY AND COMMUNICATION

1. Organise otter training days for volunteers, key angling society members, landowners and EA staff. (SEORP, EA)
2. Contact all riverside landowners on Medway/Stour within 2 years and all other catchments within 5 years and offer management advice. (EA, Medway and Stour Projects, SEORP)
3. Liaise with angling societies. (EA)

5.4 MONITORING AND RESEARCH

1. Examine past river corridor surveys of main rivers, or conduct new ones, to determine existing and potential good habitat. Distribute map of results to Project groups, landowners etc. (SEORP)
2. Continue to conduct eel tissue analysis. (EA)
3. Continue monitoring of otters in Kent, via occasional professional surveys and development of a volunteer monitoring network. (EA, EN, KWT)

6. RESPONSIBLE BODIES

EA, SEORP, Kentish Stour and Medway River Projects, KWT, KCC Highways, EN, MAFF, IDBs, Water Companies, Landowners.

Lead Agency: EA and KWT

7. COMPLEMENTARY UK PLANS

There is a national action plan for the **European otter** with Environment Agency as the national lead.

DORMOUSE (Muscardinus avellanarius)

The dormouse is a nocturnal species, feeding on nuts, fruits and flowers. It favours ancient coppice woodlands and hedgerows where it occurs at low densities (3-10 per ha). Its requirements include a diversity of unshaded trees and shrubs. Dormice rarely come to the ground (except to over-winter), so a network of connecting trees and shrubs is essential to enable them to move around a wood.

1. CURRENT STATUS

1.1 IMPORTANCE

The dormouse has a southerly distribution in the UK and Kent is one of the main strongholds for the species.

1.2 TRENDS

Nationally it has declined in range, being lost from 7 counties (half its former range) in the last 100 years. The trend in Kent is presently unknown, but probably reflects the national picture. The extent of broadleaved woodland and hedgerows has declined significantly in the last 50 years and there has been a decline in the area of remaining woodland which is actively coppiced.

1.3 DISTRIBUTION

The species is widespread in Kent's semi-natural ancient woodlands, being found in both east and west Kent.

2. CURRENT FACTORS AFFECTING THE SPECIES - THREATS/ISSUES

1. Lack of and/or inappropriate coppicing, particularly of hazel coppice.
2. Inappropriate woodland management leading to loss of essential woodland features.
3. Loss and fragmentation of woodland. (Even short distances form barriers and can leave isolated, non-viable populations.)
4. Under-recording/incomplete knowledge of distribution due to habits.
5. Implementation of the Habitat and Species Directive. (Duty to enhance not just protect population)
6. Deer damage to shrub layer and coppice regrowth.
7. Locally, the impact of the CTRL.

3. CURRENT ACTION/MECHANISMS

3.1 PROTECTION

The dormouse is protected under Annex IVa of the EC Habitats Directive, and Schedule 5 of the WCA 1981. It is also listed under Appendix 3 of the Bonn Convention. Dormice are protected in law and it is an offence to disturb them without a licence from EN.

Many of the sites where dormice are known to occur are designated as SSSI or SNCI and others are covered by Local Plan ancient woodland policies.

3.2 MANAGEMENT

There are many organisations undertaking nestbox surveys through EN's Species Recovery Programme and National Dormouse Monitoring Schemes. The CTRL route has also been surveyed for presence

Some coppice woodland management occurs (but rarely with dormouse conservation in mind) and WGS and other payments and initiatives are available to increase woodland cover and reinstate traditional woodland management.

4. OBJECTIVES/TARGETS

- To determine present distribution and status in Kent.
- To maintain and enhance the current dormouse populations and increase the number of self-sustaining populations.
- Formulate and implement a dormouse nature conservation strategy by the year 2000.
- To ensure known sites are managed with appropriate scale and frequency of coppicing cycles.
- To ensure commercial viability of coppicing by stimulating the wood products market.
- As a stronghold Kent could possibly act as a donor for translocation to other counties.

Targets

	Present	10 Years	50 Years
Population	?	Survey of all ancient semi-natural woodland for dormice	25% increase
Nest boxes	?	100 boxes in each of 10 woods	100 boxes in 50 woods

(*See also national Species Recovery Programme and targets and actions in woodland and scrub plan)*

5. PROPOSED SPECIFIC ACTION

5.1 POLICY

1. Lobby for dormice to be taken account of in formulating WGS proposals (and for grants to reflect the full cost of management). (KWT, EN, CLA)
2. Lobby for full implementation of the Habitats Directive, i.e. "to enhance the populations and prevent deterioration/damage to dormice breeding sites". (EN, KWT)
3. Lobby for a change in Habitats Regulations wording, replacing "damage" with "deterioration" in regulations approved by parliament. (EN, KWT, KCC)
4. Ensure no further loss of Ancient woodland (FA, LAs)

5.2 SPECIES AND LAND MANAGEMENT

1. Ensure appropriate coppicing (long cutting cycle of 15-20 years in small coups (less than 0.3 ha)) is instigated or maintained in, at least part of, all partners landholdings where dormice are thought to be present (and where this does not conflict with management for heath fritillary and pearl-bordered fritillary) within 10 years. (FA, EN, KWT, RSPB, KCC, WT, CLA, LAs).
2. Ensure appropriate coppicing (where this has been historical practice) in 50% of SSSI and 30% of SNCIs in 10 years and 100% of SSSI and SNCI in 50 years. (EN, KWT, LAs, FA, FWAG)
3. Link up, via woodland and hedgerow planting, woods with strong populations of dormice, and small woods that hold possibly unviable populations. (KWT, CMPs, FWAG, EN, FA)
4. Install and monitor nest boxes. FA to include monitoring as a requirement for the receipt of a Biodiversity W/G where appropriate. (FA, KWT, EN, CMPs, LAs)

5.3 ADVISORY/PUBLICITY AND COMMUNICATION

1. Land managers of all sites supporting dormice to be offered advice on appropriate management and available grants (EN, KWT, CMPs)
2. Promotion of new EN document on dormouse conservation by distribution to relevant groups /individuals. (EN, FA, KWT, Project Groups)

5.4 MONITORING AND RESEARCH

1. Ascertain, by 2007, the full status and distribution of dormice in Kent and what proportion of woods with dormice have an appropriate coppicing cycle. (EN, KWT)
2. Promote a follow-up to the Great Nut Hunt of 1993, before the year 2000 (2003 - then every 10 years). (EN, KWT)
3. Conduct studies on nest-box use in hedges (Mammal Society).

6. RESPONSIBLE BODIES

DoE, MAFF, FA, EN, KCC, KWT, LAs, FWAG, Mammal Society.

Lead Agency: EN AND KWT

7. COMPLEMENTARY UK PLANS

There is a UK action plan for **Dormouse** with English Nature as the national lead.

SEROTINE BAT (*Eptesicus serotinus)*

This bat is widespread in southern England though not common. Roosting in crevices and in only small clusters may have resulted in under-recording of this species despite its being potentially obvious as a large, early-emerging bat. The serotine bat seems to roost almost exclusively in buildings and appears to favour pasture as feeding habitat, with chafers and dung beetles being its principal prey items.

1. CURRENT STATUS

1.1 IMPORTANCE

In the UK the serotine bat has a southern distribution, with Kent being one of its strongholds.

1.2 TRENDS

Recent records of this species to the north and west of its known UK distribution may indicate an expanding range, or could just result from more effective recording.

Regular counts since 1986 at Kent's largest known maternity roost have shown a decline. Although bats move between a number of roosts according to prevailing conditions, as well as the time of year, this species is generally faithful to the same maternity roost year after year.

1.3 DISTRIBUTION

At present 10 summer roosts are known, from Lyminge in the east to Chatham in the north-west. There are 4 other sites which have not been checked recently. At least 2 maternity colonies known in the 1980s appear to have been lost. Of the known summer colonies monitored regularly only 2 number over 30 adults, and some are very small.

2. CURRENT FACTORS AFFECTING THE SPECIES - THREATS/ISSUES

1. Disturbance and destruction of roosts. (Dependent on buildings (mainly those constructed before 1930) and hence subject to intolerance of human occupants, building and roofing work, remedial timber treatment and cavity wall insulation.)
2. Loss of insect-rich feeding habitats through "improvement" of old pasture, conversion to arable land, loss of wetlands and hedgerows and use of insecticides.
3. Lack of public recognition of the nature of bats, their feeding habits and habitat requirements. (i.e. they are not vampires!)

3. CURRENT ACTION/MECHANISMS

- Regular monitoring of maternity roosts in the county, including an ongoing ringing study of survival rates and recruitment at a large roost and a 1996 pilot study for the National Bat Monitoring Programme.
- Recent national research projects on the species' ecology and distribution, mainly looking at Cambridgeshire, Essex, Suffolk and Sussex.
- Continued investigation of newly reported roosts.
- Public awareness-raising and liaison activities to improve the understanding and tolerance of bats.
- Development of bat detector survey expertise.

3.1 PROTECTION

The serotine bat is protected under Schedule 5 of the Wildlife and Countryside Act 1981 and included in Annex IV of the EU Habitats and Species Directive, Schedule 2 of the Conservation (Natural Habitats etc) Regulations 1994, Appendix II and the Agreement on the Conservation of Bats in Europe of the Bonn Convention, and Appendix II and III of the Bern Convention. All bats and their roosts are protected by law and it is an offence to disturb or destroy them.

Existing areas designated as SSSI and/or managed for conservation (e.g. chalk downland) could be providing valuable feeding areas for serotine bats.

3.2 MANAGEMENT

English Nature is able to advise on the conservation and sympathetic management of known roosts through application of the Wildlife and Countryside Act 1981.

4. OBJECTIVES/TARGETS

- To maintain this building-dependent bat as a widespread species in Kent.
- To maintain and enhance, and where possible extend, the available feeding habitat.
- To maintain and increase opportunity for roosting in buildings.
- To continue and extend monitoring counts at summer roosts and to develop bat detector monitoring of feeding habitat use in line with national protocols.

10 year targets

- 10 key sites for serotine to be protected as SNCIs

5. PROPOSED SPECIFIC ACTION

5.1 POLICY

1. Maintain existing legislation (adequate to protect bats and their roosts) and continue to promote understanding of it, particularly amongst professionals coming into contact with roosts in buildings, as a standard training requirement. (EN, KWT, KBG, KCC, CMPs).
2. Consider the obligations of the Agreement on the Conservation of Bats in Europe, and seek to develop appropriate policies on the management of wider habitat for serotine bats. (KCC, LAs, EN)
3. Ensure legal obligations are upheld in the planning process. LAs should be aware of their responsibilities. (LAs, EN)

5.2 SPECIES AND LAND MANAGEMENT

1. Encourage acceptance and understanding of existing roosts amongst householders and others responsible for the management and maintenance of buildings. (EN, BCT, KWT)
2. Maintain and encourage favourable management of adequate feeding sites and feeding routes, initially targeting known roost areas. (Features of value to serotine bats include old pasture, woodland edges, hedgerows, tree lines and white street lights.) (EN, KWT, FWAG, FA)

5.3 ADVISORY/PUBLICITY AND COMMUNICATION

1. Continue to promote the conservation of roosts in buildings amongst builders, roofing and remedial timber treatment contractors, surveyors and architects. (EN, BCT, KBG, KCC Heritage Group, EH)
2. Continue public appeals to identify further roosts. (EN, BCT, KBG)

5.4 MONITORING AND RESEARCH

1. Monitor rate and causes of loss of roost sites in buildings. (EN, BCT, KBG)
2. Ensure monitoring procedures, using maternity roost counts and bat detector field surveys in line with the National Bat Monitoring Programme, are established by the year 2000. (EN, BCT, KBG)
3. To support other ongoing studies on this species, particularly into preferred habitat and feeding requirements, home range, possible habitat reinstatement, and implement recommendations when available. (EN, BCT, KBG)

6. RESPONSIBLE BODIES

FA, EN, KCC, KBG, KWT, BCT, FWAG.

Lead Agency: EN and Kent Bat Group

7. COMPLEMENTARY UK PLANS

There is no UK plan for this species though there are plans for 3 other bat species which are less dependant on houses than the serotine - **greater horseshoe**, **greater mouse-eared** and **pipistrelle** (with English Nature as the lead for all 3). Action for these may also benefit the serotine.

NIGHTINGALE (*Luscinia megarhyncos*)

The song of the nightingale has inspired poets and musicians throughout history. Their distribution reflects a preference for coppice woodland, though they also use hedgerows, pioneer scrub, young conifer plantations and mature deciduous woodland. The key factor is dense undergrowth close to the ground. They feed mainly on the ground, on a variety of invertebrates.

1. CURRENT STATUS

1.1 IMPORTANCE

Kent is a major British stronghold for this species, holding 1,066 birds out of a total population estimated to be around 4-5,000 pairs (A Henderson *pers. comm.* 1994). This species is listed on Appendix II of the Bern Convention and is on the BAPSG long list of species of conservation concern.

1.2 TRENDS

Nationally there has been both a 28% contraction of range and at least a 25% decline in actual numbers. Kent has been least affected by this change, with slightly increased numbers from 1980 (946 _1066). This may just reflect fuller survey data. There has been a recent increase in birds using scrub in Kent, which may reflect re-growth in storm damaged areas.

1.3 DISTRIBUTION

The nightingale has a south-east distribution, being most abundant in Suffolk, Sussex and Kent. It is widespread in Kent with the largest concentrations in the lower Medway valley, Hoo peninsula, in the southern Weald from Bedgebury to Hamstreet and in the "ring woods" around Canterbury (including the Blean). It prefers dense scrub (0-1m stage is particularly important), a high shrub-species diversity and thicket-stage coppice woods rather than mature woodland.

2. CURRENT FACTORS AFFECTING THE SPECIES - THREATS/ISSUES

1. Decline in coppice industry leading to loss of essential breeding habitat.
2. Major stronghold in lower Medway under long-term threat from development.
3. Long-term decline in national population.
4. Potential increase in deer damage to shrub layer and coppice structure.

3. CURRENT ACTION/MECHANISMS

. Recent countywide surveys in 1980, 1994 and East Kent in 1995.

. Regular recording of breeding at certain sites through CBC.

. Some coppice management occurring (though not aimed at nightingale conservation).

4. OBJECTIVES/TARGETS

- To maintain the current population numbers (at least 1,000 pairs) in the short-term and increase in the longer-term within Kent.
- To ensure appropriate coppicing and scrub management is carried out on and adjacent to known sites, and in other areas identified as being potential expansion sites. (Not to conflict with management for dormice, heath or pearl-bordered fritillary if known to be present.)

Targets

	Present	10 Years	50 Years
Population size	Approx. 1,000 pairs	10% increase	25% increase
Proportion of population in protected areas	?	10%	25%

5. PROPOSED SPECIFIC ACTION

5.1 POLICY

1. Identify and declare 20 key areas for breeding nightingales as SNCIs if not otherwise designated, within 10 years. (KWT)
2. Lobby for inclusion of the nightingale as a scheduled species under the Wildlife and Countryside Act 1981. (EN, RSPB, KWT)
3. Promote the uptake of financial incentives for woodland management such as WGS. (KCC, MAFF/FRCA, EN, KWT, LAs, FA, FWAG)

5.2 SPECIES AND LAND MANAGEMENT

1. Ensure that appropriate coppicing or scrub management practices are instigated in and adjacent to current stronghold areas taking account of potential conflict with management for dormice, via targeting WGS. (FA, KCC, CMPs, FWAG)
2. Allow for some scrub retention or development as part of normal management practices on all BAP partners land holdings, to ensure there is a net increase in suitable habitat. (All)
3. Increase diversity of scrub species (bramble/birch) in and adjacent to known areas and diversify coppice species and structure where possible. (All)

5.3 ADVISORY/COMMUNICATION AND PUBLICITY

1. Promote awareness and explore educational possibilities of this flagship species. (RSPB, KWT)

5.4 MONITORING AND RESEARCH

1. Repeat countywide surveys at regular intervals (10 years?) (KOS)
2. Investigate conflict with dormouse conservation strategy (long rotation coppice cycle) and possible solutions. (Mammal Society, RSPB, KOS)
3. Monitor deer numbers and their effects on coppice and scrub structure. (MAFF)

6. RESPONSIBLE BODIES

FA, KCC, RSPB, KOS, KWT, LAs, FWAG, MAFF/FRCA

Lead Agency: EN and KOS

7. COMPLEMENTARY UK PLANS

There is no equivalent national plan proposed for this species.

GREAT CRESTED NEWT (Triturus cristatus)

The great crested newt is a widespread species throughout much of lowland Britain. and is estimated to occur in 18,000 ponds in Britain (Swan and Oldham, 1991). It is known to be declining in numbers and there are several studies reporting pond losses. The British population is amongst the largest in Europe. During the Spring adults breed in fish-free ponds and ditches, but outside of the breeding season they leave the water, travelling as far as 1 km from their ponds. They seek shelter in a range of habitats such as rough grassland, woodland, hedgerows, and scrub.

1. CURRENT STATUS

1.1 IMPORTANCE

The UK holds the main populations of the great crested newt worldwide and the south-eastern counties are its stronghold in this country.

1.2 TRENDS

Accurate figures are not available for Kent, but in London 42% of recorded sites were lost over the past 20 years. On the Downs in Sussex a recent survey has shown losses of great crested newt sites over the past 20 years to be 75%. Across the country as a whole at least 2% of the known great crested newt sites were destroyed during a 5 year spell during the 1980s.

1.3 DISTRIBUTION AND POPULATION

In Kent the great crested newt is most numerous to the west of the county, with few records to the east of Canterbury and north of Dover. There are 110 recorded sites in Kent (A survey of 372 ponds confirmed the presence of great crested newts in 30% of them (J F D Frazer, 1996)). The low number of sites recorded to date in the county reflects the limited number of ponds that have been surveyed for this species. Using the Kent Habitat Survey estimate for the numbers of ponds in the county (5-10,000) there may well be between 1,400 and 3,000 ponds which support this newt (which would equate to 10 - 15% of the estimated UK ponds supporting this species!).

2. CURRENT FACTORS AFFECTING SPECIES - THREATS/ISSUES

1. Loss of suitable breeding ponds (primarily due to neglect resulting in complete shading of pond by trees. Other pond losses are being caused by infilling for development and agricultural intensification, waste disposal, and the lowering of water tables due to ground water abstraction).
2. Stocking ponds with fish (as in farm diversification enterprises, makes them completely unsuitable for great crested newts.)
3. Loss and fragmentation of terrestrial habitats (may be a problem, particularly in areas such as Thanet and Romney Marsh. It is not a problem generally in West Kent).
4. Pollution and toxic effects of agro-chemicals (affect the breeding ponds and may also kill the adults as well when on dry land).
5. Habitat fragmentation and increasing distance between ponds (particularly in east Kent).

3. CURRENT ACTION

JNCC funded nation-wide surveys of this animal which included some volunteer surveys in Kent. Although the scheme is now ended, the work is being continued by the Kent Reptile and Amphibian Group.

3.1 PROTECTION

The great crested newt is listed in Annexes II and IV of the EC Habitats Directive and Appendix II of the Bern Convention. It is protected under Schedule 2 of the Conservation (Natural Habitats, etc.) Regulations, 1994, (regulation 38) and Schedule 5 of the Wildlife and Countryside Act 1981.

3.2 MANAGEMENT

Suitable ponds are maintained on nature reserves belonging to a number of conservation organisations, including English Nature, KWT, and RSPB. (These cover a minute proportion of the ponds in Kent however.)

Rural Action grants are also available to local communities for pond restoration.

4. OBJECTIVES AND TARGETS

- Maintain the range, distribution and viability of existing great crested newt populations, in the county.
- Increase the area of suitable terrestrial habitat and number of ponds available to great crested newts (aim to create, or restore from a derelict state, 20 ponds/year in areas with suitable terrestrial habitat).

10 year targets

- Establish current status of great-crested newt in Kent
- 20 key sites to be protected as SNCI

Present	10 years	50 years
c. 5,000 ponds	100 created 100 restored	500 created 500 restored

5. PROPOSED SPECIFIC ACTION

5.1 POLICY

1. Ensure key sites for great crested newts are identified in local plans and designated as SNCIs, and, where necessary, secure appropriate management (EN, KWT, LAs, KCC)
2. Where ponds are unavoidably lost to development ensure that replacement habitat is created and, as a last resort, translocate newts to a compensatory site. (LAs, EN)
3. Expand incentives for pond creation and management of the wider countryside under Countryside Stewardship, agri-environment schemes and Rural Action Grants. (MAFF, KCC, EN, EA, KRCC)
4. As a condition of planning permission where ponds are unavoidably lost to development, ensure that replacement habitat is created. (LAs, KCC)
5. As a last option, in ponds threatened by development, translocate newts to suitable compensatory habitat. (EN)

5.2 SPECIES AND LAND MANAGEMENT

1. Maintain a proportion of ponds in nature reserves and SSSIs and all BAP partner land holdings in an open, unshaded state, and free of fish. (KWT, EN, RSPB, NT, KCC, CMPs, BTCV, CLA, EA)
2. Promote favourable management on all key sites where this species is known to occur through advice and management agreements. (EN, KRAG, FWAG, CMPs, BTCV)
3. Encourage the natural dispersal of the species to new sites through targeting habitat management and re-creation and, if necessary, consider establishing a translocation or re-introduction programme to restore populations to parts of the county where the natural distribution has been fragmented. (LAs, EN)
4. Create and restore ponds wherever finances permit and landowners willing. (CMPs, FWAG, KCC, EA, EN)

5.3 ADVISORY/PUBLICITY AND COMMUNICATION

1. Offer advice to owners of key populations making them aware of the presence of this species, its management needs and legal requirements. (EN, KRAG, FWAG)
2. Publicise the decline of the great crested newt, and the measures needed to conserve and create new ponds. (EN, KCC, KWT)

5.4 RESEARCH AND MONITORING

1. Monitor populations at key sites. (EN, KRAG)
2. Monitor rate of pond loss/creation in the countryside. (KCC)
3. Encourage continued survey effort to identify important breeding populations. (KRAG)

6. RESPONSIBLE BODIES

EN, KRAG, KCC, KWT, MAFF, EA, LAs, KRCC, RSPB, FWAG

Lead Agency: EN and KRAG

7. COMPLEMENTARY UK PLANS

There is a UK action plan for **Great-crested newt** with English Nature as the national lead.

ALLIS SHAD (*Alosa alosa*) and TWAITE SHAD (*Alosa fallax fallax*)

Shad are anadromous members of the herring family Clupeidae (ie. they reproduce in fresh water and grow in the sea). Two species of shad are found in the British Isles, the allis shad and the twaite shad, though they are difficult to tell apart.

Little is known about their preferred habitat. They occur mainly in shallow coastal waters and estuaries, forming large shoals. Adult shad in the sea feed on zooplankton whilst young fish feed on river invertebrates, especially midge larvae and crustaceans. In general male shad mature at 3-4 years and females 4-5 years. Migration to freshwater occurs from April to June and spawning from mid-May to mid-June. Surviving adults return to the estuary after spawning and migrate to sea in Autumn. It is thought that some shad eggs released are deposited on gravel and the rest drift with the current.

1. CURRENT STATUS

1.1 IMPORTANCE

Both species are listed on Annexes II and V of the Habitats Directive. Allis shad are listed on Appendix II of the Bern Convention and twaite shad are listed on Appendix III. Both species are included on the UK BAPSG list of priority species.

1.2 TRENDS

The populations of both species have declined significantly throughout Europe. In the UK twaite shad is now virtually absent in several rivers where it is previously believed to have spawned. Physical barriers to the movement of shad and poor water quality are thought to have been responsible for the decline in populations.

1.3 DISTRIBUTION

In the UK adult allis shad occur in small numbers round the coast in most years. They may breed in the Solway Firth but there is no definite evidence of spawning stocks at present. Twaite still spawn in the Wye, Usk, Severn and Tywi. They may also spawn in the Solway Firth, the only known area around Scotland where mature fish are found each summer.

There are various recorded shad catches around Kent between 1973 and 1996, at Kingsnorth Power Station, in the Medway Swale estuary, at Gravesend, and Blackwall point on the Thames, and most recently at Allington Weir, the tidal limit of the river Medway. Both Species of shad have also been noted in Rye Bay.

2. CURRENT FACTORS AFFECTING THE SPECIES - THREATS/ISSUES

1. Habitat modifications and river management including channelisation, weed clearance dredging, removal of gravel shoals, and other activities leading to the loss of refuges, spawning sites and food.
2. Artificial river obstructions which may prevent shad from returning to fresh waters to spawn. (Shad prefer smooth, laminar flow patterns and so fish passes designed for salmonids may not be suitable.)
3. Pollution of watercourses, estuaries and seas.
4. Development works resulting in sediment release and direct loss of habitat.
5. Incidental catches of adult shad, e.g. through power station cooling water intake screens.
6. Environmental conditions such as drought, resulting in very low dissolved oxygen levels.

3. CURRENT ACTION/MECHANISMS

3.1 PROTECTION

Allis shad are protected under Schedule 5 of the Wildlife & Countryside Act 1981and the twaite shad has been recommended for addition to this, under section 9 (4) (a) which would make it an offence to obstruct access to spawning grounds or to damage or destroy gravels used for spawning.

3.2 MANAGEMENT

A contact point has been set up in the EA North West Region where all records of shad catches will be logged, to try to identify factors important in regulating population size and requirements to ensure the favourable conservation status of the allis and twaite shad. MAFF and the Marine Biological Association already maintain records of fish caught at sea. EA strategic fisheries survey programmes are used to produce Fisheries Catchment Strategies.

An inter-regional meeting was held by EA to discuss "Shad in the Greater Thames" in February 1997, which looked at current knowledge of shad populations, legislative powers etc.

EA has a duty to further and promote the welfare of native fauna. Through many of its routine functions it protects and enhances river and coastal habitats for shad and also monitors fisheries.

4. OBJECTIVES/TARGETS

- To investigate best practice methodology to survey shad.
- To protect shad in Kent and prevent further loss.

10 Year Targets

- Establish current status and distribution of shad in Kent waters by 2000.
- Identify and protect any spawning areas.
- Put in place mechanism for identification and recording of any shad catches.

5. PROPOSED SPECIFIC ACTION

5.1 POLICY AND LEGISLATION

1. Revise current legislation (Salmon and Freshwater Fisheries Act, 1975) regarding the provision of fish passes suitable for salmonids to include other migratory species such as shad, which require different passes and are currently considered with sea fishes in the legislation. (EA, MAFF)
2. Consider proposing any identified sites for spawning shad for designation as SSSIs or SACs. (EA, EN)
3. Seek to ensure water quality objectives on all controlled waters are achieved and that ecological requirements of the shad are taken into account. (EA)
4. Local Environment Agency Plans (LEAPs) to include targets and actions to safeguard the shad where appropriate, by year 2005. (EA)
5. Protect aquatic habitats through comments on planning applications and authorisations and oppose loss or damage without appropriate mitigation. (EA, EN, KWT, KCC)
6. Ensure that flood defence and routine river maintenance work is compatible with shad habitat needs. Promote the use of "soft" engineering and resist canalisation and culverting wherever practical. (EA, Operating authorities)
7. Support provision of chemical-free riparian buffer strips adjacent to intensive agriculture, especially in priority areas for shad. (FWAG, MAFF/FRCA, EA, EN)

5.2 SPECIES AND LAND MANAGEMENT

1. Ensure that appropriate habitat management is undertaken in areas where there are known shad populations. (EA, EN, Operating authorities)
2. Protect interests of shad in activities which could affect river flow levels between May-September, the known migration and spawning season. (EA)

5.3 ADVISORY/ PUBLICITY AND COMMUNICATION

1. Raise and maintain public awareness as to the presence of the shad and the need for its conservation. Investigate the need for an advisory leaflet regarding the shad. (MAFF, EA).
2. Provide advice to commercial fishermen regarding legislation to protect the shad. (EA, MAFF, DoE)
3. Improve liaison with fishermen, both commercial and recreational anglers regarding the shad to obtain any useful information regarding shad present. (EA)

5.4 MONITORING AND RESEARCH

1. Investigate shad distribution, status and identify any spawning areas within Kent rivers and coastal waters. (EA, MAFF)
2. Encourage anglers and commercial fishermen to record and release any shad that they catch. (EA, EN, Angling Clubs)
3. Ensure that shad records are collated and made available in Kent and forwarded to the contact point in North West Region. (EA, MAFF)
4. Investigate best practice methods of carrying out investigative surveys between regions of the Environment Agency, Thames, Southern and Anglian and how best to liaise with commercial fisheries. (EA)
5. Establish and maintain reference material to allow the identification of Shad fry including samples, keys and photographs. (EA, Natural History Museum)

6. RESPONSIBLE BODIES

EA, EN, Angling Clubs, DoE, MAFF, FWAG, KWT, KCC.

Lead Agency: EA

7. COMPLEMENTARY UK PLAN

There are separate UK action plans for **Allis and Twaite shad** with MAFF as the national lead for both.

WHITE-CLAWED CRAYFISH *(Austropotamobius pallipes)*

The white-clawed crayfish is the only species of freshwater crayfish which is native to the UK. It is widespread in clean, calcareous streams, rivers and lakes in England and Wales and occurs in a few areas in Northern Ireland. They take shelter in the cover of rocks, macrophytes and tree roots (Holdich et al. 1995). One essential requirement for crayfish is sufficient calcium in their water or food and so they are most likely to be found in water which is base-rich (Jay & Holdich, 1981).The predators of the native crayfish include other crayfish, insect larvae and nymphs, fish (especially eels, pike, chub and perch), birds and mammals such as mink and otters (Hogger, 1988).

1. CURRENT STATUS

1.1 IMPORTANCE

This species is listed in Appendix III of the Bern Convention and Annexes II and V of the EC Habitats Directive. It is classed as globally threatened by IUCN/WCMC. It is protected under Schedule 5 of the WCA in respect of taking from the wild and sale, and is proposed for addition to Schedule 5 of the Wildlife (Northern Ireland) Order 1985.

Up to about 24% of the World population of the white clawed crayfish is present in the UK

1.2 TRENDS

There has been an estimated decline of 25-49% in numbers/range in Great Britain in the last 25 years (BAPSG Report). The native crayfish was previously thought to have been more widespread across Kent with a fall in numbers since the 1970s, (Foster 1993).

1.3 DISTRIBUTION

Populations of the white clawed crayfish have been recorded from the Kentish Stour, Medway and Darent (Holdich *et al*, 1995; Environment Agency Biology and Fisheries, J Tyler., *personal communication*, J Foster, 1993). To date there is a lack of comprehensive information as to the distribution of the native crayfish in Kent.

2. CURRENT FACTORS AFFECTING THE SPECIES - THREATS/ISSUES

1. Crayfish plague
2. Direct competition from non-native crayfish species for food and habitat. (Four non-native species are present in the wild, only one of which has been recorded in Kent)
3. Pollution of watercourses
4. Habitat modifications, river management and development works resulting in sediment release downstream and direct loss of habitat.
5. Drought (thought to have affected native crayfish populations particularly in the River Darent in Kent).
6. Loss of ponds.
7. Harvesting for use of crayfish as bait by anglers and food/consumption.
8. Predation by other crayfish, fish, mink and birds. (Hogger, 1988).

3. CURRENT ACTION/MECHANISMS

3.1 PROTECTION

EA has a duty to further and promote the welfare of native fauna and water courses and MAFF have policy on designation of "no-go" areas for crayfish farms to reduce the rise of accidental release of alien species. (The Great Stour River in Kent has been designated as a "no-go" area.)

A Code of Practice has been produced for use in restaurants, hotels and fish markets, which are exempt from the 1996 Order when holding crayfish for human consumption only, and indicates the threat to the vulnerable native species. This code carries the message "Make sure crayfish : never escape, are never released, are always kept in secure containers, and are always repackaged indoors".

Nottingham University and the Biological Records Centre (ITE) hold and update a computer database of all crayfish records. In addition to visiting a number of sites, questionnaires were sent to potential record providers to verify existing crayfish records and make additions of new sightings. This database allows the production of distribution maps for native and non-native crayfish species. Various surveys are also being undertaken.

English Nature Priority Species Action Programme has been set up. The native crayfish is listed as a priority species for conservation.

A number of sites are designated in Kent including 24km of the River Beult SSSI designated in 1994, Sites of Nature Conservation Interest (SNCIs) and nature reserves. Sites in Kent have not been designated specifically for crayfish conservation but offer additional protection to sites where native crayfish may be present.

3.2 MANAGEMENT

1996 Countryside stewardship targeting river valleys and waterside buffer strips.Countryside Projects,

notably River Medway, Kentish Stour and Darent Valley carry out wetland habitat improvements, though not necessarily for crayfish. The Romney Marsh Project was established in 1996.

4. OBJECTIVES/TARGETS

- To establish the distribution and status of the native crayfish in Kent by 2000.
- To prevent further loss of the native crayfish species in Kent.
- To investigate best practice methodology to survey crayfish.

10 Year Targets

- To generate two media articles each year raising public awareness of the native crayfish and the importance of its conservation.
- To investigate the possibility of identifying and managing two sites in Kent as refuges for the native crayfish.

5. PROPOSED SPECIFIC ACTION

5.1 POLICY

1. Support MAFF legislation with policy on "no-go" areas for crayfish farms and Code of Practice. (All)
2. Review Fisheries bylaws and the use of Bylaws to control baiting with crayfish by anglers. (LAs, MAFF)
3. Local Environment Agency Plans (LEAPs) to include targets and actions to safeguard the native crayfish, where appropriate, by year 2005. (EA)
4. Seek to ensure that ecological requirements of the native crayfish are taken into account in setting water quality objectives on all controlled waters. (EA)
5. Consider protecting sites vital for white-clawed crayfish as SSSIs and SNCIs. (EN, KWT)
6. Protect aquatic habitats including riparian corridors and still waters through comments on planning applications and authorisations and oppose loss or damage, especially infilling of ponds and dykes without appropriate mitigation. (EA, EN, KWT, KCC, LAs)

5.2 SPECIES AND LAND MANAGEMENT

1. Ensure that flood defence and routine river maintenance work is compatible with crayfish habitat needs. Promote the use of "soft" engineering and resist canalisation and culverting wherever practical. (EA)
2. Ensure that appropriate habitat management is undertaken in areas where there are native crayfish populations. (EA, MAFF)
3. Support provision of riparian buffer strips adjacent to intensive agriculture, which are chemical free, especially in priority areas. (EA, MAFF/FRCA, EN, FWAG)
4. Secure support of landowners at priority sites for native crayfish for site safeguard and possible enhancement through Countryside Stewardship and ESA. (EA, EN, MAFF, KWT, CMPs)
5. Support reintroduction programmes of native crayfish where considered appropriate in Kent. (EA, EN, KWT, MAFF)

5.3 ADVISORY / PUBLICITY AND COMMUNICATION

1. Provide advice on the conservation of the native crayfish and management of non-native crayfish to landowners and the general public. (EA, KWT, FWAG)
2. Provide advice to anglers and others in contact with the aquatic environment on procedures to prevent the transmission of crayfish plague and the importance of the native crayfish. (EA, KWT)
3. Raise and maintain public awareness as to the presence of the native crayfish and the need for its conservation. (EA, KWT)

5.4 MONITORING AND RESEARCH

1. Identify priority areas for action, through surveys. (EA)
2. Collate information available on crayfish sampling methods and trial theseto determine best practice in different environmental conditions in Kent. Investigate the potential use of River Habitat Survey (RHS) information to assist with identification of suitable crayfish habitat. (EA)
3. Conduct further studies to identify key crayfish sites on River Darent and River Stour catchments. (EA, CMPs)
4. Assist investigation into the potential for recovery of native crayfish in areas affected by crayfish plague. (EA)
5. Ensure that native and non-native crayfish records are made available and maintained on the National database and to investigate the scope for a nominated contact to make recordings of crayfish sightings in Kent and produce and maintain a local database. (EA, KWT, CMPs)

6. RESPONSIBLE BODIES

EA, EN, MAFF/FRCA, KWT, Kentish Stour Countryside Project, North West Kent Countryside Project, Medway River Project, Fishing Clubs and Committees, FWAG.

Lead Agency: EA and KWT

7. COMPLIMENTARY UK PLANS

There is a UK action plan for the white-clawed crayfish with the environment Agency as the national lead.

HEATH FRITILLARY (*Mellicta athalia)*

The Kentish population of this butterfly breeds solely on common cow-wheat in open coppice clearings, open sunny rides and sunny woodland edges. Its continued presence is entirely dependent on the conservation management of these woods by coppicing.

1. CURRENT STATUS

1.1 IMPORTANCE

The heath fritillary is listed as vulnerable on the GB Red List (RDB 2), and is protected under schedule 5 of the Wildlife and Countryside Act 1981.

1.2 TRENDS

The heath fritillary is now confined to southern England, though it was formerly locally abundant in parts of south-west and south-east England. It has declined severely during this century, with just 43 colonies known in 1989.

In Kent a total of 31 separate sites held colonies from 1980 to 1989, but 28 (67%) have become extinct owing to woodland re-growth following clearance (Warren 1991). A large turnover is inevitable in coppiced woodland as the habitat is ephemeral; however, in the last decade the number of extant colonies in this region has fallen substantially from 25 to 14 (Barnett and Warren 1995).

1.3 DISTRIBUTION AND POPULATION

The main centres of distribution in the UK are Exmoor, east Cornwall and the Blean woods of Kent where it breeds in heathland, species-rich grassland and coppiced woodland respectively.

In Kent the heath fritillary occurs only within the large block of woodlands to the north of Canterbury collectively known as the Blean woods, within the North Kent Plain Natural Area. These are mainly mixed oak and hornbeam woodlands (NVC community W10 - *Quercus robur - Pteridium aquilinum - Rubus fruticosus* woodland) with a large amount of planted sweet chestnut coppice. Some areas have been converted to conifer plantation.

2. CURRENT FACTORS AFFECTING SPECIES – THREATS/ISSUES

1. The continuation of nature reserve management - essential to the survival of the major colonies which are the core of the larger meta-population of this species in the Blean woods area.
2. The lack of a market for coppice products. (Increases pressure on the limited resources available for positive management.)
3. The isolation and fragmentation of habitats and viability of populations.

3. CURRENT ACTION

A complete re-survey of known and possible sites was conducted in 1997, under the EN Species Recovery Programme.

3.1 PROTECTION

All known populations are within areas designated as SSSI/SAC or SNCI.

3.2 MANAGEMENT

Conservation management specifically for the heath fritillary is being undertaken by four conservation organisations in Kent. These are English Nature in the Blean Woods National Nature Reserve, RSPB and the Woodland Trust in the Church Woods SSSI adjacent to the NNR, and the Kent Wildlife Trust in the East Blean Woods SSSI.

Recent management in the Blean Woods SSSI has focused on improving the links by wide rides between areas of woodland containing colonies of the butterfly, through land owned by English Nature, the Woodland Trust and RSPB. English Nature has expanded its network of wide rides to increase the area available for breeding and facilitate increased movement of the species around the National Nature Reserve. Management of electricity pylon way-leaves at Clowes Wood (FE) prevents shading of this site by scrub.

English Nature has two management agreements with private owners supporting conservation management of coppice woodland in the West Blean and Thornden Woods SSSI.

4. OBJECTIVES/TARGETS

- Ensure positive management of all known heath fritillary sites in Kent.
- To increase the population and range within Kent.

Targets

Present	10 Years	50 Years
16 colonies	20 colonies	30 colonies

5. PROPOSED SPECIFIC ACTION

5.1 POLICY

1. Ensure SSSI status of all breeding habitats with large or medium colonies. (EN)
2. Protect all sites with large or medium colonies through reserve acquisition where management agreements cannot be obtained. (EN, KWT)
3. Promote the uptake of financial incentives available for the management of woodlands, to continue and extend coppice management in the butterfly's former range in Kent, and encourage the market for coppice produce. (EN, FE, FA, KCC, LAs)

5.2 SPECIES AND LAND MANAGEMENT

1. Manage habitat of all heath fritillary colonies, to maintain and enhance populations. (EN, KWT, RSPB, WT)
2. Continue or begin to implement suitable management in woodland near to existing sites (within 300 m of a known colony) and also on new sites in the former range within the Blean complex, if there is a possibility of re-creating suitable breeding habitat. (FE, FA, LAs, KWT, FWAG)
3. Conduct strategic re-introductions into suitably restored habitats, with appropriate licences having been obtained. (EN)

5.3 ADVISORY/PUBLICITY AND COMMUNICATION

1. Ensure landowners and managers are aware of the presence and legal status of the species and advise them on practical habitat management for the heath fritillary, and keep them updated with results from research. (EN)
2. Publicise the decline of the Heath Fritillary and the measures needed to conserve it. (EN, BC, KWT)
3. Publicise how the heath fritillary illustrates the problems of the decline in active coppice management of woodlands, and woodland management in general. (EN, BC, FA, KWT)

5.4 RESEARCH AND MONITORING

1. Continue the existing butterfly monitoring transects on heath fritillary sites and ensure annual monitoring of all large/medium colonies and monitoring of small colonies every 2-5 years). Collate data to compare trends on individual sites. (EN, KWT, RSPB, BC)
2. Conduct a thorough re-survey of all current, former and potentially new sites for the heath fritillary to enable an up-to-date assessment of the butterflies true status. (EN, KWT, RSPB, WT, BC)
3. Survey potential habitat focusing on the presence of coppice and the food plant common cow-wheat in the Blean woods area and produce habitat suitability maps. (EN, BC, KWT)
4. Continue research into the habitat requirements of this species in woodland, and on particularly on the ecology of the host food plant, common cow-wheat. (EN)
5. Review and assess effects of habitat management in the light of monitoring at least every 5 years. (EN, KWT, BC, RSPB)

Note: Colony size: Large = >200 adults during peak flight period; Medium = 50-200 adults; Small = <50 adults. (See Warren et al, 1984)

6. RESPONSIBLE BODIES

EN, KWT, RSPB, FA, BC, WT, KCC

Lead Agency: EN and KWT

7. COMPLEMENTARY UK PLAN

There is a UK action plan for the **Heath Fritillary** with English Nature as the national lead.

PEARL-BORDERED FRITILLARY (*Boloria euphrosyne)*

In Kent this butterfly breeds either in woodland clearings (most typically in coppice woodland, or wide rides) or unimproved grassland habitats with scattered scrub. Eggs are laid on small young violets growing in a warm microclimate among sparse ground vegetation.

1. CURRENT STATUS

1.1 IMPORTANCE

The pearl-bordered fritillary is listed on Schedule 5 of the Wildlife and Countryside Act 1981 (in respect of sale only).

1.2 TRENDS

The pearl-bordered fritillary was formerly widespread and locally abundant through much of Britain, but has declined very rapidly over the last 50 years in the south of England and is now extinct over much of its former range. In Kent it was formerly ubiquitous in woodland habitats, however its range has contracted enormously due to the decline in the active coppice management of woodland. The butterfly also used to occur in areas of unimproved neutral grassland and regularly in woodland rides. (However such colonies have also been lost due to the wholesale loss of such habitats to agriculture, abandonment, or lack of woodland and woodland ride management.)

1.3 DISTRIBUTION AND POPULATION

Very few large colonies are known in southern England and many are small and highly vulnerable to extinction. No large colonies are known in Kent, where the butterfly is now probably confined to around 3-8 small isolated colonies, separated from each other by unsuitable habitat. All are vulnerable to local extinction without the prospect of natural re-colonisation. Knowledge of the true distribution of this species in Kent is patchy and incomplete, however it does still occur at sites in three natural areas: North Downs, Low Weald and North Kent Plain.

Sites where the butterfly has been recorded in the last 5 years include Church Wood NNR/SSSI, Orlestone Forest SSSI, East Blean Woods SSSI, Lynsore Bottom SSSI, Alex Farm Pastures SSSI, Denge Woods SNCI, Whitehill Wood (Elham Valley), Elham Park Wood (Lyminge Forest SNCI), Clowes Wood SNCI. At least two of these colonies occur under electricity pylon wayleaves.

The most recent survey (1997 by BC) has located 3 small previously unrecorded colonies but failed to record individuals at any of the sites where they were formerly found.

2. CURRENT FACTORS AFFECTING THE SPECIES - THREATS/ISSUES

1. Decline in coppice management (leading to loss of open clearings, canopy gaps and open sunny rides in woodlands).
2. Loss of neutral grassland habitats due to agricultural improvement.
3. Lack of management on unimproved grassland (cessation of grazing and subsequent scrub encroachment).
4. Lack of knowledge about the requirements of this species at its sites in Kent.
5. Habitat destruction (e.g. through insensitive clearing of way-leaves)

3. CURRENT ACTION

Butterfly Conservation are currently undertaking a nationwide survey of this species.

3.1 PROTECTION

A number of these colonies occur on land under conservation management, some have a status as nature reserves and/or are designated SSSI or SNCI.

3.2 MANAGEMENT

Management specifically for the pearl-bordered fritillary is undertaken at Orlestone Forest SSSI *(rides and glades)* and the butterfly benefits indirectly from management for the heath fritillary butterfly at East Blean and Church Woods *(expansion of wide ride system)*. Management under electricity pylon wayleaves at Lynsore Bottom and Clowes Wood (FE) provides suitable conditions through cutting of scrub re-growth.

4. OBJECTIVES/TARGETS

- Obtain accurate up-to-date data on the status of this butterfly and the condition of its habitat in Kent by 1998.
- Ensure the positive management of the habitat of all known pearl-bordered fritillary colonies in Kent by the year 2000.
- To increase the population and range within Kent.

Targets

Present	10 years	50 years
3-8 small populations	15 colonies	Widely found

5. PROPOSED SPECIFIC ACTION

5.1 POLICY

1. Ensure that this species is sufficiently represented within the SSSI series. (EN)
2. Protect sites with colonies of this species through reserve acquisition or lease, if sympathetic management of the site cannot be established through mutual agreement with the owner. (EN, KWT, LA, WT)
3. Promote the uptake of financial incentives available for the management of woodlands, to continue and extend coppice management in the butterfly's former range in Kent, and encourage the market for coppice produce. (EN, FE, FA, KCC, LAs)

5.2 SPECIES AND LAND MANAGEMENT

1. Manage all pearl-bordered fritillary colonies to maintain and enhance populations. (EN, KWT, RSPB, WT)
2. Continue or implement suitable management in woodland near to existing sites (within 500 m of known colony) if there is a possibility of re-creating suitable breeding habitat. (EN, KWT, RSPB, FE, FA, FWAG)
3. Conduct strategic re-introductions into suitably restored habitats, (preferably in areas where a network of available habitat patches have been created connected by broad rides.) (EN)

5.3 ADVISORY/PUBLICITY AND COMMUNICATION

1. Ensure landowners and managers are aware of the presence and legal status of the species and advise them on practical habitat management for the pearl-bordered fritillary, and keep them updated with results from research. (EN)
2. Publicise the status of the pearl-bordered fritillary and measures needed to conserve it. (EN, BC, KWT)
3. Publicise how the pearl-bordered fritillary illustrates the problems of the decline in the active coppice management of woodlands, and woodland management in general. (EN, BC, FA, KWT)

5.4 RESEARCH AND MONITORING

1. Set up regular monitoring on all known sites, collating transect data annually and using this information to compare trends on individual sites. (Pass information gathered during survey and monitoring to the Biological Records Centre (ITE) so that it can be incorporated into national databases.) (EN, KWT, RSPB, WT, BC)
2. Carry out surveys to identify the locations of all colonies for this species in Kent by 1998. (As a priority visit and establish status of all colonies recorded since 1990). (EN, BC)
3. Encourage research on the habitat requirements and habitat management techniques for this species in Kent. (EN, BC)
4. Identify potential sites for the re-introduction of this species in woodland sites in Kent in the future. (EN, BC, KWT)

6. RESPONSIBLE BODIES

EN, BC, FA, FE, KWT, RSPB, WT, KCC, LAs, FWAG

Lead Agency: EN and BC

7. COMPLEMENTARY UK PLANS

There is a UK action plan for the Pearl-bordered fritillary with Scottish Natural Heritage as the national lead.

SILVER SPOTTED SKIPPER *(Hesperia comma)*

The silver-spotted skipper requires short, sparse downland turf where it breeds exclusively on sheep's fescue, Festuca ovina. Research has shown that exchange of individuals between silver-spotted skipper colonies does occur and small areas of unsuitable habitat do not act as barriers (Thomas et al, 1986). The butterfly will colonise new sites within 1 km of a source population and has been known to travel as far as 8.5 km to colonise available habitat (Thomas & Jones 1993).

1. CURRENT STATUS

1.1 IMPORTANCE

The silver-spotted skipper is listed as rare in the GB RDB List, and is protected under schedule 5 of the Wildlife and Countryside Act 1981 (in respect of sale only).

1.2 TRENDS

It was formerly very widely distributed but local on calcicolous soils in the UK, throughout southern and eastern England extending as far north as Yorkshire and west to Devon. Ploughing of unimproved grasslands and a reduction in grazing led to a gradual decline of the silver-spotted skipper in England in the first half of this century, with a retraction southwards. There was a rapid decline in the 1950s with the fall in wild rabbit populations due to myxomatosis. The butterfly is now reduced to around 46 refuge localities in 10 areas (Thomas et al. 1986).

In the last decade, on a national scale, the butterfly has undergone a minor expansion in range as conservation managers have re-introduced domestic livestock, and the rabbit population has recovered (Thomas and Jones, 1993). The number of available habitat patches (with suitable management) however is significantly larger than the number that have been recolonised due to problems associated with habitat fragmentation and isolation.

This natural recovery of traditional range has not occurred in Kent - the species was formerly recorded from across the North Downs. While its overall status has improved in the last 10 years, the species remains highly dependent on conservation management.

1.3 DISTRIBUTION AND POPULATION

The silver-spotted skipper is currently confined to chalk grassland in southern England in 8-14 centres of population. In Kent the butterfly is now confined to 2 sites on the chalk downs around Lydden and Temple Ewell near Dover.

2. CURRENT FACTORS AFFECTING SPECIES - THREATS/ISSUES

1. Loss and fragmentation of remaining unimproved calcareous grassland (particularly through agricultural improvement.)
2. Lack of grazing/abandonment of calcicolous grassland (caused by a decline in stock grazing and reduction of rabbits following myxomatosis).
3. Possible threat from further decline in rabbit population.
4. Difficulty in maintaining network of suitably managed habitats under different conservation ownership.
5. Low intrinsic dispersal capacity of silver-spotted skipper (leaving some existing suitable habitat unoccupied).

3. CURRENT ACTION

3.1 PROTECTION

Both of the known colonies are designated as SSSIs.

3.2 MANAGEMENT

Conservation management is being implemented on the two sites known to support this species in Kent, by the Kent Wildlife Trust and under a management agreement between English Nature and a private owner).

Conservation management is ongoing on a number of sites on the North Downs where areas of suitable habitat for this species are thought to have been created.

4. OBJECTIVES AND TARGETS

- To maintain and increase the silver-spotted skipper populations at its known locations in Kent.
- To expand the distribution of this species across its former range on the North Downs.

Targets

Present	10 years	50 years
2 populations	5 large colonies	Widespread

5. PROPOSED SPECIFIC ACTION

5.1 POLICY

1. Maintain SSSI status of the known sites for the butterfly (and designate any new ones which occur outside these areas). (EN)
2. Promote uptake of grant schemes available for the management of chalk grassland sites (CS, RES, WES etc.) and include the habitat requirements of the silver-spotted skipper when drawing up management prescriptions for land included within these schemes, on existing and potential habitats. (EN, MAFF/FRCA)

5.2 SPECIES AND LAND MANAGEMENT

1. Ensure suitable grazing regimes on existing sites, to maintain a high population size which can act as a refuge and source of colonisation. (EN, KWT, FWAG, MOD)
2. Restore habitats of realistic potential within 10-20 km of existing sites by scrub removal and reinstatement of appropriate grazing regimes, providing a network of naturally colonisable habitat patches. EN, WCCP, KWT.
3. Integrate the management on silver-spotted skipper sites with the needs of other calcicolous grassland species especially warmth-loving fauna and flora characteristic of short sparse turf. (EN, KWT, MOD)
4. Conduct strategic re-introductions into suitably restored habitats if natural colonisation is improbable, after a proper assessment of habitat condition has been made. (*This should be considered in the first instance to be done at Wye and Crundale Downs NNR, Folkestone to Etchinghill Escarpment SSSI and Burham Down).* (EN, KWT, BC)

5.3 ADVISORY/COMMUNICATIONS AND PUBLICITY

1. Advise landowners and site managers on practical habitat management for the silver-spotted skipper. (EN, KWT)
2. Advise land management agencies (e.g. MAFF, FA) on the locations of all areas with the potential for conservation management of chalk grassland which might favour this species. (EN)
3. Publicise this action plan, the status of the silver-spotted skipper and measures needed to conserve it. (EN, BC, KWT)
4. Publicise how the silver-spotted skipper illustrates the problems of habitat fragmentation in the North Downs and on a broader scale in the UK. (EN, BC, KWT)

5.4 RESEARCH AND MONITORING

1. Continue existing butterfly transects at Lydden and Temple Ewell Downs SSSI and confirm the existence of the silver-spotted skipper on land within the Alkham, Lydden and Swingfield Woods SSSI.(Collate data and pass to Biological Records Centre (ITE), Butterfly Monitoring scheme). (EN, KWT)
2. Identify potentially suitable, unoccupied habitats within 10-20 km of existing populations. (EN, KWT, BC)
3. Investigate the possibility of creating new habitat, especially close to existing colonies, in the Lydden/Dover/Folkestone areas. (EN, KWT, BC)
4. Conduct a full survey of all colonies and potential habitat every 5-10 years. (EN, BC, KWT)
5. Conduct a literature search to determine the former extent of the distribution of the silver-spotted skipper in Kent and establish whether these former sites still exist as degraded habitat with potential for restoration. (EN, BC)
6. Monitor the behaviour of adults after release and conduct annual monitoring of colonies during the species flight period, on any re-establishment site. (EN, BC, KWT)

6. RESPONSIBLE BODIES

EN, BC, KWT, MAFF/FRCA, WCCP, FWAG, MOD

Lead agency: EN and KWT.

7. COMPLEMENTARY UK PLANS

There is a UK action plan for the Silver spotted skipper with English Nature as the national lead.

EARLY GENTIAN (*Gentianella anglica)*

Early Gentian is a rare plant, endemic to England, first described by Pugsley in 1936. It is an annual or biennial which grows in small gaps in shortly closely-grazed turf on shallow calcareous soils. It is confined to the chalk and limestone grassland of south western, southern and eastern England, though the main concentrations are in Hampshire, Wiltshire and the Isle of Wight. It is found mainly on cliff tops, dunes, coastal slopes and south-facing chalk downs.

1. CURRENT STATUS

1.1 IMPORTANCE

Early Gentian is a nationally scarce species and is listed under Schedule 8 of the Wildlife & Countryside Act 1981. It is also protected under international legislation and is listed in Appendix 1 of the Bern Convention and Annexes II and IV of the European Community Habitat and Species Directive.

1.2 TRENDS

Away from its core areas Early Gentian has suffered a marked decline, as a result of the widespread loss of calcareous grassland and the changing character of the remaining sites. A census report for 1995 carried out by Plantlife concluded that there was cause for concern for the conservation of this species, at least outside its core area. Early Gentian appears always to have been very rare in Kent, and the population sizes are precarious.

1.3 DISTRIBUTION AND POPULATION

Early Gentian is an opportunistic species whose numbers fluctuate from year to year. Large populations are confined to the Isles of Wight and Purbeck and the North Devon and Cornwall coast. Though it occurs widely across southern England, these sites generally consist of only a few irregularly appearing plants. It has been recorded from 62 10x10 km squares since 1970.

Populations are scattered along the North Downs, across both Surrey and Kent. It was recorded in 1993 from 3 out of 8 known locations in Kent and in only one location in 1995, where hybridization with Autumn Gentian appeared to be occurring.

2. CURRENT FACTORS AFFECTING SPECIES - THREATS/ISSUES

1. Loss of chalk grassland through agricultural intensification and changing character of remaining habitat due to lack of management.
2. Viability of populations due to isolation.

3. CURRENT ACTION

3.1 PROTECTION

All known sites are designated as SSSI bar one which is SNCI.

3.2 MANAGEMENT

Plantlife have been working on the conservation of this plant in Britain since 1993 ("Back from the Brink" project), and have carried out a review of known sites. The Kent report gives recommendations for action. (Rich & Philp, 1995)

Chalk grassland is a target habitat, eligible for grant aid for management and restoration under the Countryside Stewardship Scheme.

4. OBJECTIVES/TARGETS

. To ensure protection and sustainable management of all existing populations of Early Gentian in Kent.
. To promote its restoration to former sites through restoration of suitable habitat in and around these.
. To continue to research the physiology and requirements of this species

Targets

	Present	10 years	50 years
Early gentian populations	1 - 3	5	8

5. PROPOSED SPECIFIC ACTION

5.1 POLICY

1. Promote the uptake of financial incentives available for the management of chalk grassland sites, such as the Countryside Stewardship Scheme. (EN, KCC, LAs, MAFF/FRCA, FWAG)
2. Ensure SSSI status of major sites for Early Gentian and consider notification of the one existing non-SSSI site for Early Gentian at Eccles, and the one former site at Kemsing (last record 1946), should Early Gentian return as a result of improved management. (EN)

5.2 SPECIES AND LAND MANAGEMENT

1. Manage all Early Gentian sites positively to maintain and enhance populations. (EN, KWT, WCCP, Plantlife)
2. Carry out habitat restoration at sites where species has recently become extinct and where there is likely to be a seed bank. (EN, KWT, WCCP, Plantlife)
3. Collect seed from Kent populations for deposit in seed bank at Wakehurst Place and for use in re-introductions into suitably restored sites(e.g. Kemsing Down), only when regeneration from the seed bank has failed. (EN, Plantlife)

5.3 ADVISORY / PUBLICITY AND COMMUNICATION

1. Ensure landowners and managers are aware of the presence and legal status of the species, advise them on practical habitat management for Early Gentian, and keep them updated with results from research. (EN, Plantlife)
2. Publicize the decline of the Early Gentian and the measures needed to conserve it. (EN, KWT)

5.4 RESEARCH AND MONITORING

1. All sites to be monitored yearly. (EN, KWT, KFC, Plantlife)
2. Review and assess effects of habitat management in the light of monitoring at least every 5 years. (EN, Plantlife)
3. Investigate population ecology and genetics to assess suitability for re-introduction and translocation. (Plantlife, EN)

6. RESPONSIBLE BODIES

EN, Plantlife, KWT, KFC, MAFF/FRCA, WCCP, FWAG.

Lead Agency: EN and Plantlife

7. COMPLEMENTARY UK PLANS

There is a UK plan for the Early gentian with Plantlife as the national lead.

LATE SPIDER ORCHID (*Ophrys fuciflora)*

The late spider orchid is a stout, low growing orchid (10-25 cm) superficially resembling the commoner bee orchid, but having a larger lower lip with more elaborate markings. It grows in short turf (up to 15 centimetres) on old chalk grassland on steep slopes and banks.

1. CURRENT STATUS

1.1 IMPORTANCE

Late Spider Orchid occurs in Britain only on the chalk downs of east Kent. Here it is at the northern edge of its range, which extends across central and southern Europe. It is listed under Schedule 8 of the Wildlife and Countryside Act 1981 and as vulnerable in the RDB list of vascular plants.

1.2 TRENDS

Late Spider Orchid has always been a rare plant in Kent but there were almost certainly many more locations than there are now. Probably many of these survived until the ploughing campaign of the last war. There are 19 recorded locations, of which 17 have been recorded since 1980 and 9 since 1990.

1.3 DISTRIBUTION

Late Spider Orchid is limited to the twelve mile stretch of downland between Wye and Folkestone, occurring in only four 10 x 10 km squares. (Most of these sites have been known for many years.) The greatest concentration of colonies are in the Folkestone area, with a large population also at Wye NNR.

2. CURRENT FACTORS AFFECTING SPECIES - THREATS/ISSUES

1. Loss of chalk grassland through lack of management is still a threat.
2. Vulnerability to collectors and trampling by visitors (as are all rare orchids).
3. Viability of current small populations - small gene pool, (apparent inability to spread to new sites)

3. CURRENT ACTION

3.1 PROTECTION

All known populations are within areas designated as SSSI and are further protected as SACs.

3.2 MANAGEMENT

The main populations are well managed and the population size and flowering success is monitored each year. These populations appear to be increasing.

Chalk grassland is currently a target habitat, eligible for funding to promote positive management under the Countryside Stewardship Scheme.

4. OBJECTIVES/TARGETS

- To ensure protection and appropriate management of the existing populations of Late Spider Orchid in Kent.
- To increase the size of these populations.
- To promote its re-occurrence on former sites.

Targets

	Present	10 years	50 years
Number of individuals	200	250	500
Number of sites	6	6	10

5. PROPOSED SPECIFIC ACTION

5.1 POLICY

1. Promote the uptake of financial incentives available for the management of chalk grassland sites, such as the Countryside Stewardship Scheme. (EN, KCC, MAFF/FRCA, LAs, FWAG)
2. Ensure SSSI status of all viable populations of Late Spider Orchid. Consider notification of the three non-SSSI sites, should viable population become re-established. (Of these sites one was re-recorded in 1995, one was last recorded in 1986 and the remaining site in 1960.) (EN)

5.2 SPECIES AND LAND MANAGEMENT

1. Manage all Late Spider Orchid sites to maintain and enhance populations. Review management on former and unprotected sites, and implement management for Late Spider Orchid, through management agreements, if necessary. (EN, KWT, WCCP)
2. Consider reintroducing Late Spider Orchid on former sites, if enhanced management does not encourage its reappearance. (EN, KWT, WCCP)

5.3 ADVISORY / COMMUNICATION AND PUBLICITY

1. Ensure landowners and managers are aware of the presence and legal status of the species. Offer advice on practical habitat management for Late Spider Orchid, and keep them informed of results from research. (EN)
2. Publicise the vulnerability of the Late Spider Orchid and the measures needed to conserve it. (EN, KWT)

5.4 MONITORING AND RESEARCH

1. All sites to be monitored annually and results collated centrally. (EN, KWT, WCCP, KFC)
2. Review effects of habitat management in the light of monitoring, at least every 5 years, and modify action necessary to meet targets. (EN)

6. RESPONSIBLE BODIES

EN, KWT, WCCP, KFC, MAFF/FRRCA, KCC, FWAG.

Lead agency: EN and WCCP

7. COMPLEMENTARY UK PLANS

There is no equivalent national action plan proposed for this species.

REFERENCES:

Anon, (1995). Species Action Plan. Great crested newt *(Triturus cristatus*) ; The UK steering group report, Volume 2.

Barnett L K and Warren M S, (1985). Species Action Plan. Heath Fritillary *Mellicta athalia* Butterfly Conservation. (1995).

Biodiversity: the UK Action Plan (1994). HMSO

Biodiversity: the UK Steering Group Report (1995). HMSO.

Burd F (1989). The Saltmarsh Survey of Great Britain - an Inventory of British Saltmarshes. Research and Survey in Nature Conservation No.17. Nature Conservancy Council.

Department of the Environment (1996). Towards a Methodology for Costing Biodiversity Targets in the UK. HMSO.

Doody JP, Johnston C, Smith B (eds) (1993). Directory of the North Sea Coastal Margin. JNCC.

John Duffield (1979). Observations on the survial and flowering of some Late Spider Orchids (*Ophrys fuciflora)* on the North Downs in East Kent, with particular reference to the colonies of the Wye NNR. NCC Internal Report 1979.

English Nature (1994). Priorities for Habitat Conservation in England. EN Research Report No. 97.

Foster (1993)

Frazer, JFD The crested newt in Kent. Kent Reptile and Amphibian Group Newsletter. 1996

Karen McGlathery: The conservation of rare species in England, with particular reference to *Ophrys fuciflora* and *Orabanche carophyllacea* in Kent. 1979.

Government Response to the UK Steering Group on Biodiversity (1996). HMSO.

Hogger (1988)

Holdich et al (1995)

Jay & Holdich (1981)

Kent County Council (1995). Land Cover Change in Kent 1961-1972-1990. KCC.

Kent Wildlife Habitat Survey Partnership (1995). Kent Wildlife Habitat Survey - County Report. KCC.

Nix J (1995). Farm Management Pocketbook (26th edition). Wye College, University of London.

Pritchard C, Phillips P, Jones A & Reid C (1994). A Provisional Inventory of Kent's Ancient Woodlands - Revised 1994, English Nature.

Reeves, A Survey of Earthworks on Romney Marsh Level. Preliminary Survey - Spring 1995. SEAS Project no. 1994/145.

Tim Rich & Eric Philp (1995) Early Gentian (*Gentianella anglica)* in Kent in 1994. Plantlife, `Back from the brink' project. Project report No. 48.

Tim Rich et al (1996) Early Gentian (*Gentianella anglica)* in 1995: now you see me, now you ... Plantlife `Back from the brink' project. Project report No. 59.

R V Russel: The autecology of the Late Spider Orchid *Ophrys fuciflora:* Monitoring and performance on Wye NNR Annual Reports to English Nature 1995.

Shelton J (1994). Traditional Orchards. (Unpublished)

Swan, MJS & Oldham RS. Herptile sites. Interim report Number 23. Unpublished NCC report.

Thomas J A, Thomas C D, Simcox D J and Clarke R T (1986). The ecology and declining status of the Silver-Spotted Skipper Butterfly (*Hesperia comma*), in Britain. Journal of Applied Ecology 23 p365-380.

Thomas CD and Jones T M (1993). Partial Recovery of a Skipper Butterfly (*Hesperia comma)* from Population Refuges: Lessons for Conservation in Fragmented Landscapes. Journal of Animal Ecology, 62 p472-481.

Warren M S, Thomas C D and Thomas J A (1984). The status of the Heath Fritillary *Mellicta athalia* Rott., in Britain. *Biological Conservation* **29**, 287-305.

Warren M S (1991). The successful conservation of an endangered species, *Mellicta athalia* (the Heath Fritillary butterfly). *Biological Conservation* **55**, 37-56.

Wynne G et al (1995) Biodiversity Challenge (second edition). RSPB.

ABBREVIATIONS USED IN THIS PLAN

ADAS	Agricultural Development Advisory Service
BAP	Biodiversity Action Plan
BAPSG	UK Biodiversity Action Plan Steering Group
BASC	British Association for Shooting and Conservation
BC	Butterfly Conservation
BCI	Blue Circle Industries
BTCV	British Trust for Conservation Volunteers
CAP	Common Agricultural Policy
CCC	Canterbury City Council
CLA	Country Landowners Association
CMP(s)	Countryside Management Project(s)
CoCo	Countryside Commission
CPRE	Council for the Protection of Rural England
CS	Countryside Stewardship
CTRL	Channel Tunnel Rail Link
EA	Environment Agency
EH	English Heritage
EN	English Nature
ESA	Environmentally Sensitive Area
FA	Forestry Authority
FE	Forest Enterprise
FWAG	Farming & Wildlife Advisory Group
GOSE	Government Office for the South East
HBA	High Biodiversity Area
IDB	Internal Drainage Board
ITE	Institute of Terrestrial Ecology
KAPC	Kent Association of Parish Councils
KCC	Kent County Council
KFC	Kent Field Club
KOLG	Kent Orchard Liaison Group
KOS	Kent Ornithological Society
KPOG	Kent Planning Officers Group
KRAG	Kent Reptile & Amphibian Group
KRCC	Kent Rural Community Council
KWCA	Kent Wildfowling and Conservation Association
KWHS	Kent Wildlife Habitat Survey (KWHS Partnership, 1995)
KWT	Kent Wildlife Trust
LA(s)	Local Authority
LA21	Local Agenda 21
LCCK	Land Cover Change in Kent 1961-1972-1990 (KCC, 1995)
LEAP	Local Environment Agency Plan
MAFF	Ministry of Agriculture Fisheries & Food
NFU	National Farmers Union
NNR	National Nature Reserve
NT	National Trust
PBA	Prime/Principal Biodiversity Area
PPG	Planning Policy Guidance
RDB	Red Data Book (of rare and threatened species)
RES	Reserves Enhancement Scheme
RSPB	Royal Society for the Protection of Birds
SAC	Special Area of Conservation (c denotes candidate)
SNCI	Site of Nature Conservation Interest
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
TDC	Thanet District Council
TPO	Tree Preservation Order
WCCP	White Cliffs Countryside Project
WES	Wildlife Enhancement Scheme
WGS	Woodland Grant Scheme
WIG	Woodland Improvement Grants
WT	Woodland Trust

GLOSSARY

Declining (species)	- UK population and/or range has decreased by at least 25% in last 25 years
Globally threatened	- term used in UK BAPSG report to describe the degree of conservation concern for a habitat or species in an international context
Improved (grassland) that	- treated with fertiliser, herbicide and pesticide, re-sown or ploughed, such vegetation has no vestiges of original grassland type
Local decline	- looks at population in Kent over last 25 years Declining rapidly — 50-100% decline in numbers/range Declining — 25-50% decline in numbers/range Stable — 24%increase - 24% decline in numbers/range Increasing — 25-50% increase in numbers/range Historic — Decline in numbers/range prior to this period
Local rarity	- Rare — Fewer than 1% of tetrads in Kent Scarce — Fewer than 10% of tetrads in Kent Common — Occurs frequently in suitable habitat in Kent
Locally distinctive	- characteristic species which are particularly associated with Kent
Mixed farmland	- a mosaic of arable and livestock farming
Nationally Rare	- occurring in 1-15 km squares in the UK
Nationally Scarce	- occurring in 16-100 km squares in the UK
Semi-improved (grassland)	- has some affinity to original grassland type, modified by agricultural practices such that it is less diverse and supports few, if any, of the quality species indicative of that grassland type.
Semi-natural	- closely resembling the natural vegetation of an area, modified by human activity, but having communities of naturally occurring native species
Stronghold	- the Kent population forms a significant proportion of the total UK population
Threatened	- at risk e.g. through loss of habitat, disease, competition, restricted distribution, etc.
Unimproved (grassland) cases,	- not modified by humans, except by grazing or mowing and, in some occasional application of farmyard manure

APPENDIX 1

Species of Conservation Concern in Kent:

List 1 - UK BAPSG Short and Middle List of globally threatened and declining species occurring in Kent

List 2 - UK BAPSG Long List of globally threatened and declining species occurring in Kent

List 3 - RDB 1 Invertebrates occurring in Kent

List 4 - Birds of Conservation Concern in the UK occurring in Kent (RSPB list)

List 5 - Nationally Rare and Nationally Scarce Vascular Plans occurring in Kent

List 6 - Species occurring in Kent which are protected under the Wildlife & Countryside Act 1981

List 7 - Species which have recently become extinct in Kent (Last 100 Years)

These lists have been compiled through consultation with various experts but despite this are unlikely to be comprehensive. There are other species of conservation concern in Kent which do not qualify for inclusion on these lists.

It is intended to produce a Red Data Book for Kent which will explore this issue further and produce more comprehensive information regarding species status and distribution in the county.

LIST 1: UK BAPSG Short and Middle List Species Occurring in Kent

Species	BAPSG List	Other Information
Mammals		
Water vole	S	
Brown hare	S	
Otter	S	rare in Kent, Annex 2 sp.
Dormouse	S	stronghold in Kent, Annex 4 sp.
Pipistrelle bat	S	
Birds		
Skylark	S	852 tetrads in Kent
Bittern	S	RSPB priority sp.
Grey partridge	S	
Song thrush	S	
Nightjar	M	
Reed bunting	M	
Corn bunting	M	
Linnet	M	
Spotted flycatcher	M	502 tetrads in Kent
Bullfinch	M	
Turtle dove	M	650 tetrads in Kent
Tree sparrow	M	
Roseate tern	M	
Marsh warbler	M	20 pairs in Kent
Fish		
Allis shad	S	
Twaite shad	S	
Amphibians		
Great crested newt	S	
Butterflies		
Pearl-bordered fritillary	S	
Silver spotted skipper	S	
Heath fritillary	S	
Adonis blue	M	
Moths		
Bright wave	S	
Black veined moth	M	
Straw belle	M	
Toadflax brocade	M	
White spot	M	
Marsh mallow	M	
Scarce merveille du jour	M	
Essex emerald	M	
Four-spotted	M	
Olive crescent	M	
Square spotted clay	M	
Sword grass moth	M	
Chalk carpet	M	
Clay fan foot	M	
White lined snout	M	
Barred toothed stripe	M	Folkestone Warren (on privet)
Narrow bordered bee hawk	M	
Common fan foot	M	
Fiery clearwing	M	
Molluscs		
Segmentina nitida	S	
Vertigo mouslinsiana	S	

LIST 1: UK BAPSG Short and Middle List Species Occurring in Kent

Species	BAPSG List	Other Information
Coleoptera		
Bembidion argenteolum	S	Possibly extinct in Kent
Oberea oculata (longhorn beetle)	S	Possibly extinct in Kent
Cryptocehalus coryli (leaf beetle)	S	Possibly extinct in Kent
Panageus crux-major (ground beetle)	S	Possibly extinct in Kent
Lucanus cervus (stag beetle)	S	
Amara strenua (ground beetle)	M	
Anisodactylus poeciloides (ground beetle)M		
Badister anomalus (ground beetle)	M	
Badister peltatus (ground beetle)	M	
Bembidion nigropiceum (ground beetle)	M	
Cicindela maritima (dune tiger beetle)	M	
Dromium quadrisignatus (ground beetle)	M	
Dyschirius angustus (ground beetle)	M	
Harpalus cordatus (ground beetle)	M	
Harpalus dimidiatus (ground beetle)	M	
Harpalus parallelus (ground beetle)	M	
Laccophilus (obsoletus) ponticus (water beetle)	M	
Lionychus quadrillum (ground beetle)	M	
Other Invertebrates		
Medicinal leech	S	At Lydd and Dungeness
Austropotamobius pallipes (freshwater white clawed crayfish)	S	Rivers Darent and Stour
Wartbiter cricket	M	
Hemiptera		
Orthotylus rubidis (capsid bug)	M	Possibly extinct in Kent
Hymenoptera		
Bombus sylvarum (shrill carder bee)	S	
Andrena gravida (banded mining bee)	M	
Bombus humilis (brown banded carder bee)	M	
Bombus ruderatus (large garden bumble bee)	M	
Bombus subterraneus (short haired bumble bee)	M	
Osmia xanthomelena (mason bee)	M	
Evagetes pectinipes	M	
Cerceris quadricinta	M	
Diptera		
Bombylius discolor (beefly)	M	
Dorycera graminum (large otitid)	M	On Hoo penninsular
Higher Plants		
Early gentian	S	Annex 2 Habitats Directive
Three lobed crowfoot	S	At Hothfield
Deptford pink	M	3 tetrads in Kent
True fox sedge	M	
Stinking hawksbeard	M	
Broad leaved cudweed	M	
Shepherds needle	M	
Red hemp nettle	M	
Juniper	M	
Red tipped cudweed	M	Dungeness?
Triangular club rush	M	
Greater water parsnip	M	
Spreading hedge parsley	M	Kent status unknown
Bryophytes		
Ceohaloziella baumbartneri		Dover cliffs
Atrichum angustatus	M	
Bryum warneum	M	Dungeness
Fissidens exiguus	M	

LIST 1: UK BAPSG Short and Middle List Species Occurring in Kent

Species	BAPSG List	Other Information
Seligeria paucifolia	M	
Orthodontum gracilis	M	
Zygodon forsteri	M	
Lichens		
Bacidia incompta	M	
Lecanactis hemischaerica	M	
Fungi		
Boletus satanus	S	
Battersea phalloides	S	
Boletus regius	M	
Hericeum erinaceum (hedgehog fungus)	M	
Hygrocybe calyphaeformis	M	

List 2: UK BAPSG - Long List Species Occurring in Kent

Species	Other Information
Birds	
Teal	
Widgeon	
Gadwall	600 overwinter in Kent
Greylag	
Pochard	
Tufted duck	
Scaup	
Long tailed duck	
White footed goose	20% of UK wintering population in Kent
Pink footed goose	
Bean goose	
Turnstone	
Brent goose	
Dunlin	60,000 overwinter in Kent
Knot	
Purple sandpiper	
Ringer plover	
Oystercatcher	
Bar tailed godwit	
Sanderling	
Curlew sandpiper	
Curlew	up to 3,500 overwinter in Kent
Shelduck	
Lapwing	500 pairs
Redshank	1,000 pairs, important breeding numbers, in Kent
Goldfinch	important breeding numbers in Kent
Greenfinch	
Montagues harrier	important breeding numbers in Kent
Marsh harrier	
Hen harrier	
Merlin	
Kestrel	
Peregrine	
Brambling	
Hawfinch	83 tetrads
Swallow	
Grasshopper warbler	
Nightingale	20% of UK breeding population
Willow tit	
Marsh tit	
Dunnock	
Water rail	36 tetrads
Woodcock	80 tetrads
Savi's warbler	
Black tailed godwit	
Barn owl	108 tetrads, 90 pairs in 82-85 survey - 72% decline since 1932
Short eared owl	
Long eared owl	
Tawny owl	
Black redstart	
Firecrest	
Avocet	stronghold in Kent, 100 pairs, localised sp.
Sandwich tern	250 at Dungeness
Little tern	rare in Kent

List 2: UK BAPSG - Long List Species Occurring in Kent

Species	**Other Information**
Mediterranean gull	nationally important breeding nos in Kent
Hobby	
Cetti's warbler	
Redstart	
Wood warbler	
Lesser spotted woodpecker	
Greater spotted woodpecker	
Stonechat	
Snipe	
Rock pipit	
Meadow pipit	
Tree pipit	
Siskin	
Treecreeper	
Little ringed plover	
Pintail	
Shoveler	
Garganey	
Quail	
Bewicks swan	
Whooper swan	
Mute swan	
House martin	
Sand martin	
Yellowhammer	
Wryneck	
Red backed shrike	
Black tailed godwit	
Woodlark	
Nuthatch	
(N.B. not a complete listing of BAPSG long list bird species)	
Butterflies	
Purple emperor	
Silver washed fritillary	
Small pearl bordered fritillary	
Small blue	
Duke of Burgundy	
Chalkhill blue	
Moths	
Light feathered rustic	
The starwort	
Sussex emerald	Dungeness
Sub-angled wave	
Scarce chocolate-tip	
Silver barred	
Restharrow moth	
Pigmy footman	
Ground lackey	
Goat moth	
Agrotera nemoralis	
Scarce forester	
Triangle	Hamstreet
Broom tip	

List 2: UK BAPSG - Long List Species Occurring in Kent

Species	Other Information
Buttoned snout	
Matthew's wainscot	
Concolorous	
Pima boisduvaliella	
Small bodied footman	
Forester	Possibly extinct?
Rush wainscot	Dungeness
Broad bordered bee hawk	
Small black arches	
Water ermine	
Odonata	
Scarce emerald damselfly	
Scarce chaser	
Molluscs	
Monacha cartusiana	Common at Lydden Downs
Succinea oblonga	
Oxyloma sarsi	
Limax tenullus	
Helix pomatia	
Pseudamnicola confusa (brackish water snail)	
Causillia dubia (terrestrial snail)	
Coleoptera	
Lebia cyanocephala (ground beetle)	
Ampedus cardinalis (click beetle)	
Ampedus rufipennis (click beetle)	
Ceutorhynchus verrucatus (weevil)	
Hydrophilus piceus (great silver water beetle)	
Other Invertebrates	
Gomphocerripus rufus (grasshopper)	
Chordeuma proximum (millipede)	
Melogona scutellare (millipede)	
Metaiulus pratensis (millipede)	
Nanogon polydesmiodes (millipede)	Common
Hemiptera	
Aphrodes duffieldi (leaf hopper)	
Arachnida	
Apostenus fuscus (spider)	Only 1 site known in Kent
Pellenes tripunctatus (jumping spider)	Dungeness
Pistius truncatus (crab spider)	
Agroeca lusatica (spider)	
Euophyrys browningi (spider)	On shingle
Hyptiotes paradoxus (spider)	
Hymenoptera	
Anthophora retusa (potter flower bee)	
Lasioglossum pauperatum (mining bee)	
Nomada sexfasciata (cuckoo bee)	
Psithyrus rupestris (hill cuckoo bee)	
Miscophus ater (digger wasp)	
Pemphredon enslini (digger wasp)	

List 2: UK BAPSG - Long List Species Occurring in Kent

Species	Other Information
Diptera	
Didea alneti (hoverfly)	
Eriptera bivittata (cranefly)	North Kent Marshes
Eumerus ornata (hoverfly)	
Odontomyia argentata (soldier fly)	
Odontomyia ornata (soldier fly)	
Oxycera analis (soldier fly)	
Lejops vittata (hoverfly)	
Poecilobothrus ducalis	
Urophora quadriasciata (tetraphid fly)	
Higher Plants	
Ground pine	
Rough mallow	
Box	
Cut leaved germander	
Bluebell	20% of world population in UK
River water dropwort	
Burnt tip orchid	
Corn buttercup	
Pheasants eye	
Heath cudweed	52 tetrads
Stinking goosefoot	
Lizard orchid	
Late spider orchid	Kent stronghold
Early spider orchid	
Monkey orchid	
Clove scented/bedstraw broomrape	
Oxtonue/Picris broomrape	
Meadow clary	
Narrow fruited corn salad	
Greater broomrape	
Corn parsley	
Corn gromwell	
Slender birds foot trefoil	
Ivy leaved water crowfoot	
Field eryngo	
Broad leaved spurge	
Bryophytes	
Fissidens celticus	
Pteridophytes	
Hay scented buckler fern	20% of world population in UK
Lichens	
Physcia clementei	

List 3: RDB Invertebrates Occurring in Kent

Species	Other information
Lepidoptera	
Black veined moth	
Essex emerald	
Fiery clearwing	
Sussex emerald	Dungeness
Scarce chocolate-tip	
Agrotera nemoralis	p1
Coleoptera	
Badister anomalus (ground beetle)	p1
Dromium quadrisignatus (ground beetle)	p1
Lebia cyanocephala (ground beetle)	p1
Apion brunnipes	
Bruchidius olivaceus	
Amara fusca	
Agonum quadripunctatum	
Badister argenteolum	
Brachinus scoleta	
Callistus lunatus	
Dypta dentata	
Dyschirius extensus (ground beetle)	
Harpalus honestus	
Harpalus melancholicus	
Lebia crux-minor	
Omophron limbatum (ground beetle)	
Acmaeops collaris (longhorn beetle)	
Strangalia revistita	
Chrysomela tremula	
Cryptocephalus nitidulus (leaf beetle)	
Dibolia cynoglossi	
Labidostomis tridentata (leaf beetle)	
Longitarsus ferrugineus	
Oulema erichsoni	
Psylliodes attenuata	
Cicones undatus	
Leptophloeus clematidis	
Bagous longitarsis (weevil)	
Bagous nodulosus (weevil)	
Bagous puncticollis (weevil)	
Hypera pastinacea (weevil)	
Limobius mixtus (weevil)	
Lixus paraplecticus (weevil)	
Lixus vilis (weevil)	
Elater ferrugineus (click beetle)	
Melanotus punctolineatus	
Paromalus parallelepipedus	
Teretrius fabricii	
Apalus muralis	
Meleo autumnalis	
Melo brevicollis	

List 3: RDB Invertebrates Occurring in Kent

Species	Other information
Meleo cicatricosus	
Axinotarsus pulicarius	
Aphodius lividus	
Aphodius quadrimaculatus	
Aphodius subterraneus	
Copris lunaris	
Euheptaulacus sus	
Cnorium variabilis	
Onthophagus nutans	
Triotemnus coryli	
Silvanoprus fagi	
Lagaris atripes	
Euplectus brunneus	
Emus hirtus	
Manda mandibularis (rove beetle)	
Tachinus bipustulatus (rove beetle (1930s))	
Xylodromus testaceus (rove beetle (1950s))	
Hemiptera	
Eremocoris fenestratus	
Ishodemus quadratus	
Pilophorus confusus	
Arachnida	
Apostenus fuscus (spider)	Only 1 site known in Kent
Pellenes tripunctatus (jumping spider)	Dungeness
Pistius truncatus (crab spider)	
Agroeca lusatica (spider)	
Hymenoptera	
Osmia xanthomelena (mason bee)	
Evagetes pectinipes	
Cerceris quadricinta	
Anthophora retusa (potter flower bee)	
Diptera	
Didea alneti (hoverfly)	St.Margaret's at Cliffe
Atylotus latistriatus	
Empis melaena	
Germaria ruficeps	Faversham, Dover
Gymnosoma nitens	Only 2 records in Kent
Huebneria affinis	Deal 1920
Neompheria winnertzi	
Paroxyna lhommei	Only in Kent
Phaonia gracilis	Eynesford 1943
Tasiocera fuscescens	
Molluscs	
Segmentina nitida	

LIST 4: Birds of Conservation Concern in the UK occurring in Kent (RSPB list)

Red List

Bittern
Marsh Harrier
Hen harrier
Merlin
Grey partridge
Quail
Black-tailed godwit
Roseate Tern
Turtle Dove
Nightjar
Woodlark
Skylark
Song Thrush
Marsh Warbler
Spotted Flycatcher
Tree Sparrow
Linnet
Twite
Bullfinch
Reed Bunting
Corn Bunting

Amber List

Whooper Swan
White-fronted Goose
Brent Goose
Shelduck
Wigeon
Gadwall
Teal
Pintail
Garganey
Shoveler
Pochard
Scaup
Kestrel
Peregrine
Water Rail
Oystercatcher
Avocet
Ringed Plover
Golden Plover
Grey Plover
Lapwing
Knot
Purple Sandpiper
Dunlin
Ruff
Jack Snipe
Snipe
Woodcock
Bar-tailed godwit
Curlew
Redshank
Turnstone
Mediterranean Gull
Common Gull
Herring Gull
Sandwich Tern
Little Tern
Stock Dove
Barn Owl
Short-eared Owl
Kingfisher
Green Woodpecker
Sand Martin
Swallow
Dunnock
Nightingale
Black Redstart
Redstart
Stonechat
Blackbird
Cett's Warbler
Grasshopper Warbler
Savi's Warbler
Firecrest
Bearded Tit
Marsh Tit
Willow Tit
Starling
Goldfinch
Hawfinch

List 5: Nationally Rare and Nationally Scarce Vascular Plants Occurring in Kent

Nationally Rare Plants

Pheasants eye	***Adonis annua***
Rough mallow	***Althea hirsuta***
Box	***Buxus sempervivens***
True fox sedge	***Carex vulpina***
Grey mouse-ear	***Cerastium brachypetalum***
Saltmarsh goosefoot	***Chenopodium chenopodioides***
Stinking goosefoot	***Chenopodium vulvaria***
Stinking hawksbeard	***Crepis foetida***
Green hound's-tongue	***Cynoglossum germanicum***
Field eryngo	***Eryngium campestre***
Red tipped cudweed	***Filago lutescens***
Broad leaved cudweed	***Filago pyramidata***
Lizard orchid	***Himantoglossum hircinum***
Least lettuce	***Lactuca saligna***
Slender birds foot trefoil	***Lotus angustissimus***
Hoary stock	***Matthiola incana***
Late spider orchid	***Ophrys fuciflora***
Early spider orchid	***Ophrys sphegodes***
Monkey orchid	***Orchis simia***
Clove scented/bedstraw broomrape	***Orobanche caryophyllacea***
Oxtongue/Picris broomrape	***Orobanche loricata***
Yarrow broomrape	***Orobanche purpurea***
Kentish milkwort	***Polygala austriaca***
Meadow clary	***Salvia pratensis***
Triangular club rush	***Schoenoplectus triqueter***
Italian catchfly	***Silene italica***
Dragons teeth	***Tetragonolobus maritimus***
Cut leaved germander	***Teucrium botrys***

Nationally Scarce Plants

Man orchid	***Aceras anthropophorum***
Ground pine	***Ajuga chamaepitys***
Bulbous foxtail	***Alopecurus bulbosus***
Marsh mallow	***Althaea officinalis***
Wild cabbage	***Brassica oleracea***
Lesse hairy brome	***Bromopsis benekenii***
Slender hares ear	***Bupleurum tenuissimum***
Short-leaved water starwort	***Callitriche truncata***
Coral root bittercress	***Cardamine bulbifera***
Narrow-leaved bittercress	***Cardamine impatiens***
Divided sedge	***Carex divisa***
Elongated sedge	***Carex elongata***
Narrow-leaved helleborine	***Cephalanthera longifolia***
Dwarf mouse-ear	***Cerastium pumilum***
Chamomile	***Chamaemeleum nobile***
Galingale	***Cyperus longus***
Mezereon	***Daphne mezereum***
Deptford pink	***Dianthus armeria***
Narrow-lipped helleborine	***Epipactis leptochila***
Green-flowered helleborine	***Epipactis phyllanthes***
Broad leaved spurge	***Euphorbia platyphyllos***
An eyebright	***Euphrasia pseudokerneri***
Copse bindweed	***Fallopia dumetorum***
Rush-leaved fescue	***Festuce arenaria***
Sea heath	***Frankenia laevis***
Dense-flowered fumitory	***Fumaria densiflora***
Fine-leaved fumitory	***Fumaria parviflora***
Few-flowered fumitory	***Fumaria vaillantii***
Red hemp nettle	***Galeopsis angustifolia***
Wall bedstraw	***Galium parisiense***
Slender bedstraw	***Galium pumilum***
Early gentian	***Gentianella anglica***
Stinking hellebore	***Helloborus foetidus***
Musk orchid	***Herminium monorchis***
Sea-buckthorn	***Hippophae rhamnoides***
Sea barley	***Hordeum marinum***
Wild candytuft	***Iberis amara***
Coral necklace	***Illecebrum verticillatum***

List 5: Nationally Rare and Nationally Scarce Vascular Plants Occurring in Kent

Golden samphire	***Inula crithmoides***
Sharp rush	***Juncus acutus***
Yellow vetchling	***Lathyrus aphaca***
Sea pea	***Lathyrus japonicus***
Dittander	***Lepidium latifolium***
Rock sea-lavender (3 sub-species)	***Limonium spp.***
Bur medick	***Medicago minima***
Toothed medick	***Medicago polymorpha***
Fine-leaved sandwort	***Minuarta hybrida***
Whorled water milfoil	***Myriophyllum verticillatum***
Fringed water-lily	***Nymphoides peltata***
Narrow-leaved water dropwort	***Oenanthe silaifolia***
Lady orchid	***Orchis purpurea***
Burnt tip orchid	***Orchis ustulata***
Greater broomrape	***Orobanchche rapum-genistae***
Ivy broomrape	***Orobanche hederae***
Curved hard-grass	***Paropholis incurva***
Hogs fennel	***Peucedanum officinale***
Bulbous meadow-grass	***Poa bulbosa***
Annual beardgrass	***Polypogon monospelienis***
Fen pondweed	***Potamogeton coloratus***
Hairlike pondweed	***Potamogeton trichoides***
Borrer's saltmarsh-grass	***Puccinellia fasciculata***
Stiff saltmarsh-grass	***Puccinellia rupestris***
Round-leaved wintergreen	***Pyrola rotundifolia***
Three lobed crowfoot	***Ranunculus tripartitus***
Spiral tasselweed	***Ruppia cirrhosa***
One-flowered glasswort	***Salicornia pussila***
Shepherds needle	***Scandix pecten-veneris***
Sand catchfly	***Silene conica***
Nottingham catchfly	***Silene nutans***
Greater water parsnip	***Sium latifolium***
Marsh sow-thistle	***Sonchus palustris***
Small cord-grass	***Spartina maritima***
Water soldier	***Stratiotes aloides***
Shrubby sea-blite	***Sueda vera***
Field fleawort	***Tephroseris integrifolia***
Marsh fern	***Thelypteris palustris***
Spreading hedge parsley	***Torilis arvensis***
Clustered clover	***Trifolium glomeratum***
Sea clover	***Trifolium squamosum***
Suffocated clover	***Trifolium suffocatum***
Narrow fruited corn salad	***Valarianella dentata***
White mullein	***Verbascum lychnitis***
Bithynian vetch	***Vicia bithynica***
Yellow vetch	***Vicia lutea***
Slender tare	***Vicia parviflora***
Bearded fescue	***Vulpia ciliata***
Dune fescue	***Vulpia fasciculata***
Matt-grass fescue	***Vulpia unilateralis***
Rootless duckweed	***Wolffia arrhiza***
Narrow-leaved eelgrass	***Zostera angustifolia***
Dwarf eelgrass	***Zostera noltii***

List 6: Species Occurring in Kent which are protected under the Wildlife & Countryside Act 1981

Species	**Limited protection?**
Schedule 5 animals	
Mammals	
Badger	
Otter	
Dormouse	
All species of Bat	
All whales, porpoises and dolphins	
Water vole	Proposed addition at next review
Reptiles and amphibians	
Adder	
Great Crested Newt	
Viviparous lizard	Kill, injure,take or sell
Slow worm	Kill, injure, take or sell
Grass snake	Kill, injure, take or sell
N.B. It is an offence to offer for sale any other reptiles or amphibians	
Fish	
Allis shad	Kill, injure or take
Invertebrates	
Heath Fritillary	
Black-veined moth	
Sussex emerald moth	
Wart-biter cricket	
Medicinal leech	
Field cricket	
White-clawed crayfish	Kill, injure or take
Schedule 8 Plants	
Higher Plants	
Ground pine	
Rough mallow	
Stinking goosefoot	
Stinking hawksbeard	
Field eryngo	
Broad-leaved cudweed	
Lizard orchid	
Late spider orchid	
Early spider orchid	
Monkey orchid	
Bedstraw broomrape	
Oxtongue broomrape	
Meadow clary	
Triangular club rush	
Cut-leaved germander	
Green hound's-tongue	
Bluebell	Proposed addition at next review
Mosses	
Atrichum augustima	
Zygodon foresteri (Knothole moss)	
Lichens	
Lecanactis hemisphaerica (Churchyard lecanactis)	

LIST 7: Species which have recently become extinct in Kent

Species	Date last recorded (if known)
Mammals	
Polecat	
Red squirrel	
Barbastelle bat	1950
Greater mouse-eared bat	
Greater horseshoe bat	
Lesser horseshoe bat	1954
Birds (extinct as breeding population)	
Bittern	
Dartford Warbler	1891
Corncrake	
Montague's Harrier	
Hen Harrier	1890s
Guillemot	1926
Stone Curlew	
Kentish Plover	1935
Wryneck	1967
Red-backed Shrike	
Chough	1850
Cirl Bunting	
Wood warbler	
Raven	1890
Savi's warbler	
Whinchat	
Black-necked grebe	
Ruff	
Roseate tern	
Amphibians	
Sand Lizard	
Natterjack Toad	
Butterflies	
Marsh Fritillary	1940s
Wood White	
Large Copper	
Large Blue	
Glanville Fritillary	
Silver-studded blue	1950s
Brown Hairstreak	
Small pearl-bordered fritillary	1991
High brown fritillary	
Moths	
Lunar double stripe	
Feathered ear	
Forester	
Light crimson underwing	
Dark crimson underwing	
Small eggar	
Ochreous wave	
Essex emerald	
Coleoptera	
Bembidion argenteolum	Probably extinct in Kent
Oberea oculata (longhorn beetle)	Probably extinct in Kent
Cryptocehalus coryli (leaf beetle)	Probably extinct in Kent
Panageus crux-major (ground beetle)	Probably extinct in Kent
Horned dung beetle	
Obecea oculata	
Cryptocephalus coryli	
Pangeus crux-major	
Tachinus bipustulatus	1930s
Xylodromus testaceus	1950s
Dromus sigma	
Pterostichus kublanm	

LIST 7: Species which have recently become extinct in Kent

Species	Date last recorded (if known)
Hemiptera	
Orthotsylus rubidis	
Micrantha marginatus	1863
Orthotylus rubidis (capsid bug)	Probably extinct in Kent
Hymenoptera	
Andrena pocita	1934
Andrena vaga	1946
Bombus distinguendus	
Eucera mezescens	1970
Halictus eurythgnathus	
Halictus maculatus	
Melecta luctosa	
Nomada seffasciata	
Osmia xanthomelama	
Crossocerus vagabundus	
Other invertebrates	
Mole cricket	
Pocata personata	
Lithophasia hyalipennis	1991, Northfleet
Pisidium tenuilineatum	
Lymnaea glabra	
Triops lancriformis	
Fish	
Hippocamnus europaeus	1950, Sandwich
Lampetra fluniaticus	
Petromyzon marinus	
Higher Plants	
Alyssum alyssoides	pre1899
Arabis glabra	1958
Aster linosyris	
Blysmus compressus	1955
Botrychium lunaria	1947
Bromus interruptus	
Calamagrostis canescens	1959
Carex diandra	1956
Carex serotina	1947
Colchicum autumnale	pre1899
Crepis foetida	Now re-established from seedbank
Dianthus deltoides	1960
Euphorbia peplis	
Filago gallica	pre1899
Filago lutescens	1963
Galium tricornutum	
Hieracium eboracense	1956 (Endemic)
Hypochoeris glabra	1954
Hordelymus europeus	1956
Kohlrauschia nauteulii	1960
Lactuca saligna	
Lythrum hyssopifloia	1913
Mentha pulegium	1954
Myrica gale	1960
Orobanche purpurea	1959
Pedicularis palustris	1954
Polygonum mite	1955
Pulicaria vulgaris	1899
Sagina subulata	1957
Silene gallica	1958
Stellaria palustris	1962
Thesium humifusum	1963
Utricularia minor	1966
Valerianella rimosa	1963
Zostera marina	c.1933

LIST 7: Species which have recently become extinct in Kent

Species	Date last recorded (if known)
Ferns	
Dryopteris cristatus	1953, Denge Wood
Hymenophyllum tunbrigense	1899
Stoneworts	
Chara baltica	
Chara canescens	
Fungi	
Battarraea phalloides	1970s

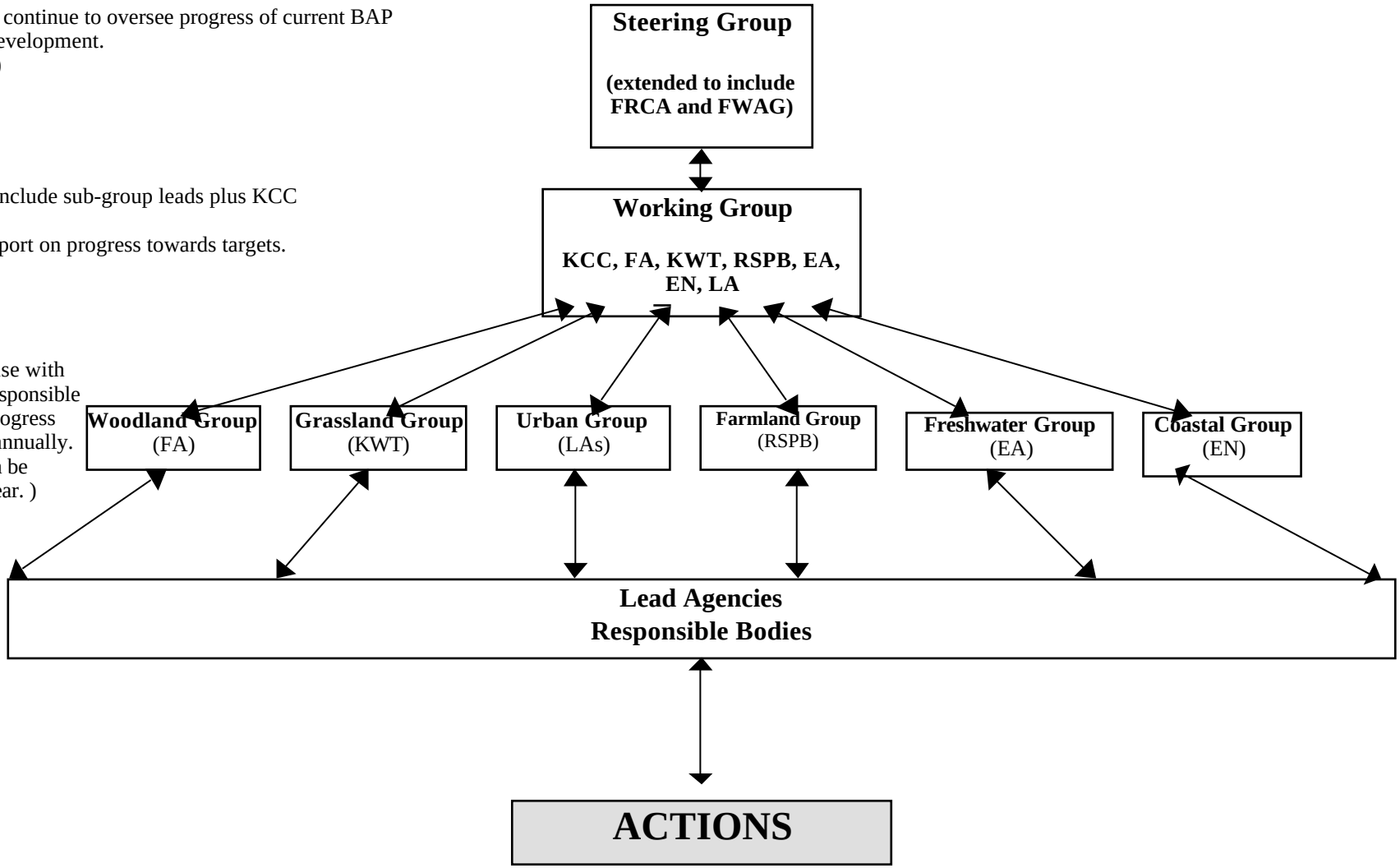
APPENDIX 2

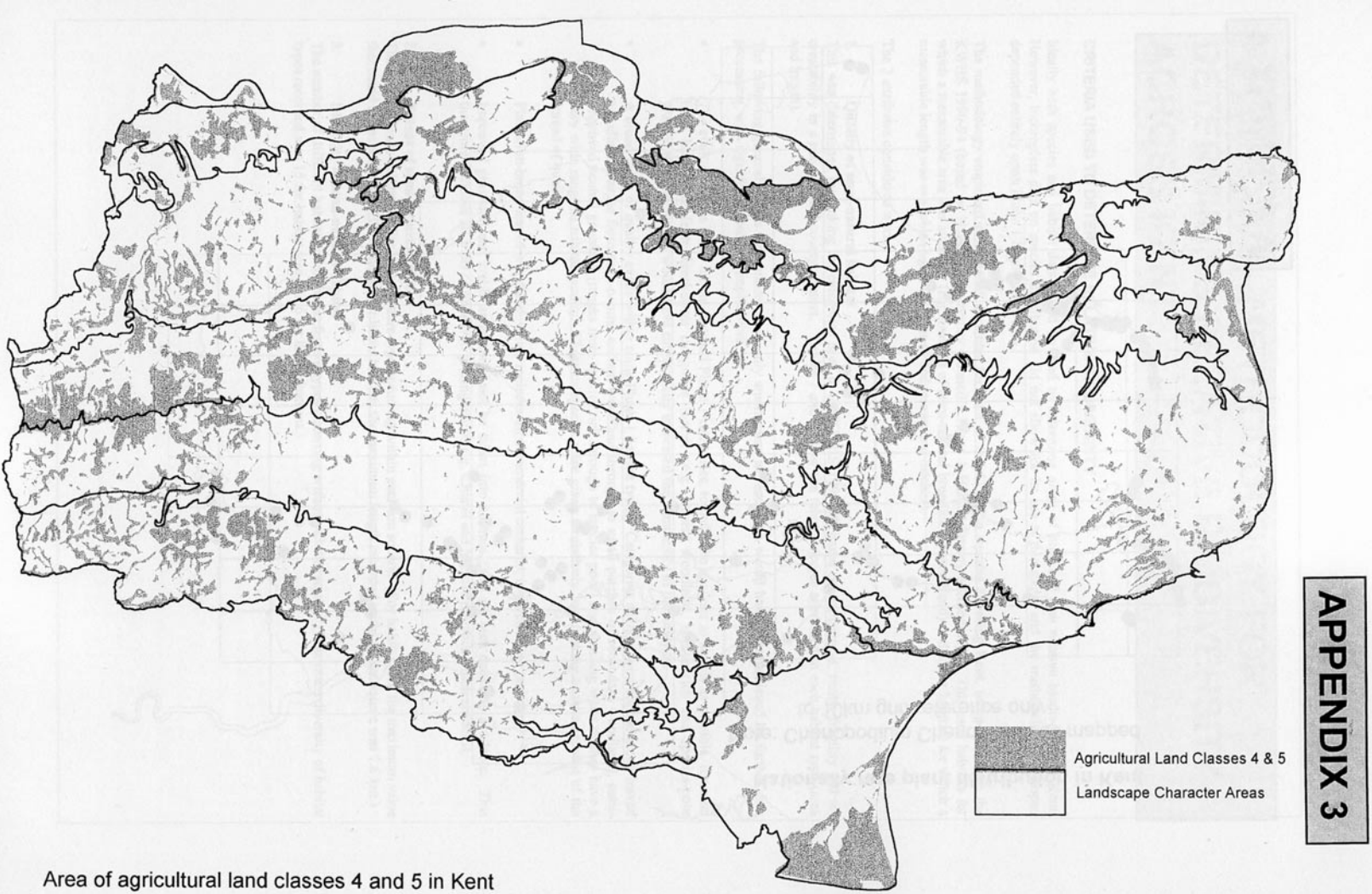
Proposed Group Structure - Implementation Phase

Steering Group will continue to oversee progress of current BAP Plan and ongoing development.
(Meet twice yearly?)

Working Group to include sub-group leads plus KCC as secretariat.
Will monitor and report on progress towards targets.
(Meet quarterly?)

Sub-groups will liaise with lead agencies and responsible bodies and report progress towards set targets annually. (Representatives can be changed after one year.)



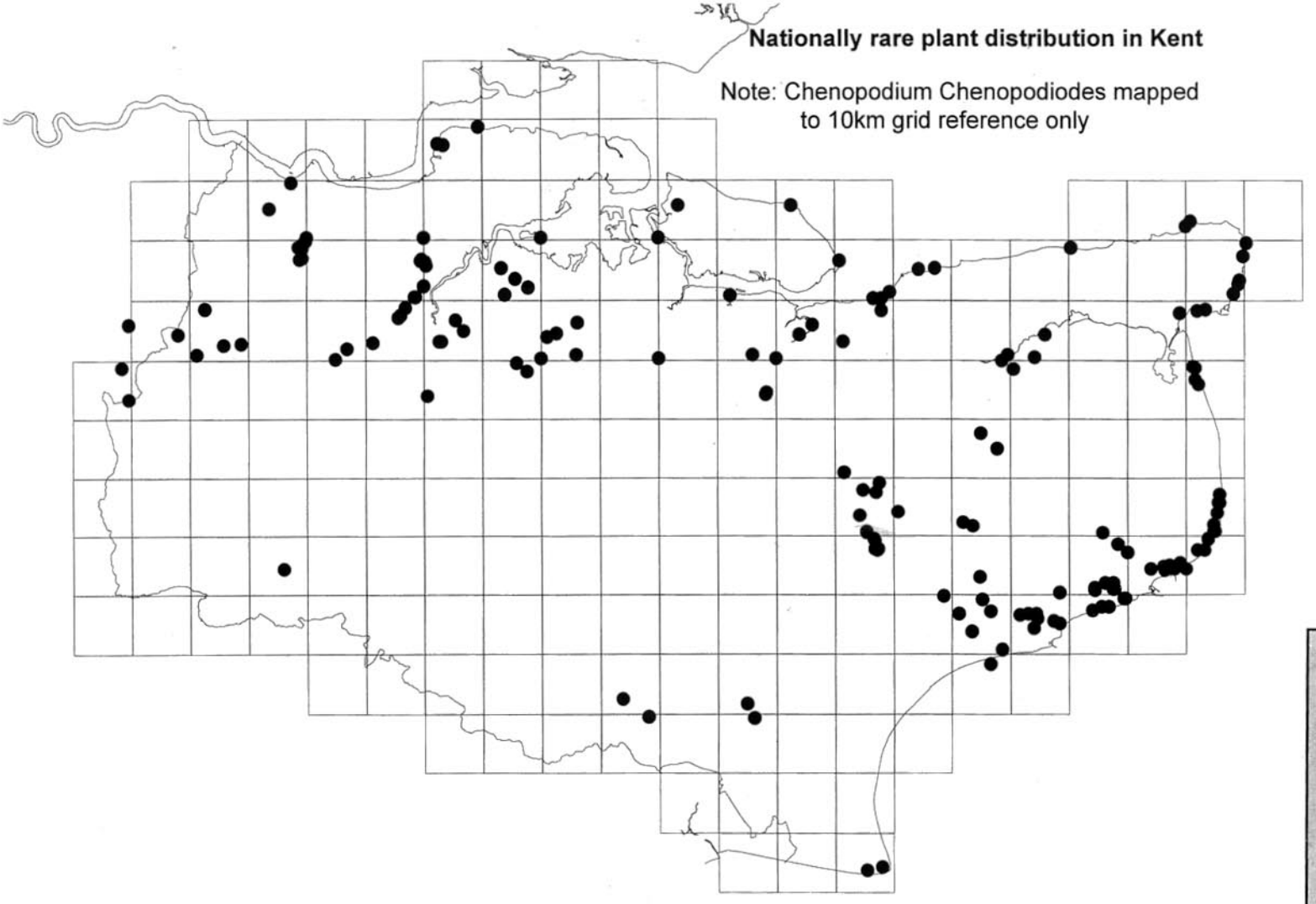


APPENDIX 3

Area of agricultural land classes 4 and 5 in Kent

Nationally rare plant distribution in Kent

Note: Chenopodium Chenopodiodes mapped to 10km grid reference only



APPENDIX 4

APPENDIX 5 - METHODOLOGY FOR DETERMINING RELATIVE BIODIVERSITY ACROSS KENT

CRITERIA USED TO DETERMINE RELATIVE BIODIVERSITY

Ideally both species and habitat data would be used to determine areas of high and low relative biodiversity in Kent. However, incomplete data on species distribution did not allow for its use at this stage, and the methodology developed depended entirely upon Phase 1 level habitat data.

The methodology employed evaluated 3 attributes for each of the 4110 km squares covering Kent, using data from the KWHS 1990-94 (based on Nature Conservancy Council's Phase 1 Habitat Survey Methodology). This used habitats for which a measurable area was available (e.g. hectares of semi-natural broadleaved woodland) and linear habitats for which a measurable length was available (e.g. kilometres of hedgerows and ditches).

The 3 attributes considered were:

1. Quality of semi-natural habitat

This was determined by ranking the categories used in the KWHS 1990-94, based on naturalness, rarity, fragility and re-creatability in a national and county context. *Tables 1 and 2* show the relative scores attributed to each habitat type (area and length).

The following generalisations were made, since only small gains in resolution would have been achieved by further data processing, with significant resource implications:

- The evaluation was based on the standard Phase 1 categories, to make the analysis as simple as possible. It would have been possible to breakdown categories further (e.g. ancient woodland, species-rich and species-poor grassland types) but this would have substantially increased the complexity of the analysis.

- A broad range of quality exists within some Phase 1 habitat types. Categories such as semi-natural broad-leaved woodland (ranges from semi-natural ancient woodland through to small patches of secondary woodland), semi-improved neutral grassland (ranges from species rich through to species poor) and standing water ditches have a very wide range of habitat quality. These categories were given a relatively low ranking to take account of the spread of quality.

- Plantation broad-leaved woodland, which includes all commercial orchards, is given a low ranking.

- Improved grassland and arable areas could not be taken into account since no area data was available. This therefore excludes all areas of improved grazing marsh e.g. Chislet and Minster marshes which are SSSI.

2. Extent of semi-natural habitat

The extent of each habitat and/or linear feature type occurring within each km square. (For habitat area the maximum value that could be recorded was 100 ha whilst for linear habitats the maximum length recorded within a km square was 1.6 km.)

3. Diversity of semi-natural habitat

The number of different habitat and/or linear feature types occurring within each km square. (Maximum diversity of habitat types recorded was 15 for habitat area and 6 for linear features.)

APPENDIX 5 - METHODOLOGY FOR DETERMINING RELATIVE BIODIVERSITY ACROSS KENT

Habitat (Area)	Relative Quality (0-4)
Very High	
Unimproved acid grassland (all combined groupings)	4
Unimproved neutral grassland (all combined groupings)	4
Unimproved calcareous grassland (all combined groupings)	4
Acid dry dwarf shrub heath	4
Basic dry dwarf shrub heath	4
Wet dwarf shrub heath	4
Dry heath/acid grassland mosaic	4
Acid/neutral flush	4
Fen valley mire	4
Fen flood plain mire	4
Intertidal mud/sand (all combined groupings)	4
Intertidal shingle/cobbles (all combined groupings)	4
Intertidal rock/boulders (all combined groupings)	4
Dense/continuous saltmarsh	4
Vegetated shingle above high tide mark	4
Dune slack	4
Dune grassland	4
Open dune (all combined groupings shown)	4
High	
Semi-natural broad-leaved woodland (all types)	3
Mixed semi-natural woodland (all types)	3
Semi-improved calcareous grassland (all combined groupings)	3
Semi-improved acid grassland (all combined groupings)	3
Marsh/marshy grassland (all combined groupings)	3
Swamp	3
Inundation vegetation	3
Standing water (area)	3
Running water (area)	3
Other acid/neutral exposure	3
Sand/mud above high tide mark	3
Shingle above high tide mark	3
Boulders/rocks above high tide mark	3
Dune scrub	3
Coastal grassland	3
Medium	
Dense continuous scrub	2
Semi-improved neutral grassland (all combined groupings)	2
Low	
Plantation broad-leaved woodland (all types)	1
Plantation coniferous woodland (all types)	1
Mixed plantation woodland (all types)	1
Recently felled broad-leaved woodland (all types)	1
Recently felled coniferous woodland (all types)	1
Recently felled mixed woodland (all types)	1
Continuous bracken	1
Tall ruderal	1
Amenity grassland	1
Ephemeral/short perennial	1
Very Low	
Introduced shrub	0
Bare ground	0
Other habitat	0

Table 1: Habitat Quality Evaluation for habitats with measured areas

APPENDIX 5 - METHODOLOGY FOR DETERMINING RELATIVE BIODIVERSITY ACROSS KENT

Habitat (Linear Habitats)	Relative Quality (0-4)
Hard maritime cliff	4
Soft maritime cliff	4
Acid/neutral inland cliff	3
Basic inland cliff	3
Rich hedge (all types)	3
Standing water (length)	3
Running water (length)	3
Strandline Vegetation	3
Poor hedge (all types)	2
Dry ditch (boundary feature)	2
Wall	2
Earth Bank	1
Boundary removed (boundary feature)	0

Table 2: Habitat Quality Evaluation for habitats with measured lengths

DATA ANALYSIS

The PC based Arc View (Version 3) Geographic Information System was used to analyse the data, using a 1 km square Ordnance Survey grid base. The programme represented the spatial data in tables in which the extent information for each habitat in each km square was summarised. The appropriate quality value (from table 1) was assigned to each entry in this table and a value of habitat diversity was also calculated.

Once these values had been established the maximum values for extent, quality and diversity within any km square were found and the actual value for each of the 3 criteria was then represented as a percentage of the maximum. (i.e. maximim habitat quality (value 4) became 100% and a quality of 3 would become 75%, similarly maximum habitat diversity for area values was 15 so a diversity of 5 would become 33%). In this way all 3 criteria were given the same relative value.

It was necessary to calculate the sum of habitat extent multiplied by quality for each km square, to give an overall value, since within one square not all habitats were of the same quality. This was then multiplied by the relative diversity to give the relative (area) biodiversity.

The same process was repeated for linear habitats and the 2 figures added to give the total relative biodiversity for the square.

For each 1 km square this can be represented more simply as:

Relative Area Habitat Biodiversity = $\sum$ (Extent % x Quality %) x Diversity %

similarly **Relative Linear Habitat Biodiversity = $\sum$ (Length % x Quality %) x Diversity %**

and from this **Relative Biodiversity = Area Biodiversity + Linear Biodiversity**

SPATIAL REPRESENTATION

The data was classified by "Natural Breaks" which identifies break points by looking for groupings and patterns inherent in the data and uses a complex statistical formula (Jenk's optimisation) to minimise the variation within each class. This option is automated on Arc View so no complicated analysis by the individual is required.

The data was displayed on a Natural Areas (NA) basis despite the fact that some natural areas had a much higher proportion of high scoring squares than others. In this way the high biodiversity areas within each NA can be identified but the relative biodiversity between NAs, as represented on the map, is no longer comparable (i.e. squares shaded equally heavily in different NAs are not of equal biodiversity.)

APPENDIX 6

SUMMARY OF 10 AND 50 YEAR TARGETS FOR HABITATS AND SPECIES COVERED BY ACTION PLANS

	Present	10 year	50 year
HABITAT ACTION PLAN TARGETS			
WOODLAND AND SCRUB			Large woodland complex (3,000 ha)
			Community woodland in North Kent
Ancient semi-natural woodland	20,347 ha	no change	no change
Other semi-natural woodland	14,000 ha	15,500 ha	23,500 ha
Plantation conifer	3,655 ha	4,000 ha	5,000 ha
20-year set-aside scheme land planted with woodland	-	5%	-
SSSI managed	?	All	All
SNCI managed	?	35%	75%
Ancient semi-natural woodland (20,839 ha) managed	?	25%	50%
Coppice (where historic management)	40%	50%	75%
Restore ancient replanted woodland (8,059 ha)	-	25%	50%
Duke of Burgundy fritillary	3+ colonies	5 colonies	15 colonies
Nightingale	approx. 1,000 pairs	10 % increase	25% increase
Dormouse	?	10% increase100 boxes in 10 woods	25% increase100 boxes in 50 woods
Firecrest	?	Stable population, establish extent and distribution in Kent	Expanding population
WOOD-PASTURE AND HISTORIC PARKLAND		Start replacement planting on/adjacent to key sites	Ensure maturing trees of same species are present in site supporting rare and scarce species
Area in Countryside Stewardship	65ha	200ha	
Grazing management restored	?		
Sites planted with replacement trees	?		
		Inventory of sites	Increase total area
		Ensure important examples are protected	
		Management of 10 key sites	
OLD ORCHARDS		Double area under traditional management	
		Establish 10 community orchards	
HEDGEROWS			
Total length of hedgerow	8,112 km	9,000 km	15,000 km
Sympathetic management of ancient/species-rich hedges	?	50%	100%
Planted and tagged hedgerow trees	?	500	5,000

SUMMARY OF 10 AND 50 YEAR TARGETS FOR HABITATS AND SPECIES COVERED BY ACTION PLANS

	Present	10 year	50 year
LOWLAND FARMLAND			
Area of semi-natural habitat	?	Stable	Increasing
Conversion of improved to semi-improved grassland	?	1,000 ha	5,000 ha
Arable to semi-improved grassland or woodland	?	1,000 ha	10,000 ha
Farmland bird populations	Declining	Stable	Increasing
URBAN HABITATS			
Wildlife space within 200m of urban dwellings	?	50% houses	75% houses
Primary schools with local wildlife area	?	50%	100%
Urban public trees	?	10% increase	50% increase
Urban land managed for wildlife	?	10% increase	50% increase
Urban LNRs	?	20	100
Interpretation of existing sites	?	50%	100%
Number of people involved in community wildlife initiatives	?	10% increase	25% increase
Number of gardens managed for wildlife	?	100	1000
ACID GRASSLAND			
Unimproved	420	450	750
Semi-improved	318	400	600
Bracken cover	139	89	69
SSSI with optimal management	?	100%	100%
SNCI with optimal management	?	25%	50%
Buffers and habitat blocks		2-3 sites of 10-20 ha	5-6 sites
NEUTRAL AND MARSHY GRASSLAND			
Unimproved	531	No further losses	550
Well managed unimproved	20%	100%	100%
Species-rich semi-improved	453 ha	600 ha	1,000 ha
Well managed species-rich semi-improved	300 ha	40%	100%
Marshy grassland	?	400 ha	500 ha (incl. one flood plain grassland)
Well managed marshy grassland	?	50%	90%
Number of seeding projects			
CHALK GRASSLAND			
Unimproved (from semi-improved)	1,503 ha	1,800 ha	2,500 ha
Semi-improved (from arable and improved)	930 ha	1,200 ha	1,500 ha
SSSI under positive management	?	100%	100%
SNCI under positive management	?	25%	75%
Number of unmanaged chalk grassland sites	28%	10%	0%

SUMMARY OF 10 AND 50 YEAR TARGETS FOR HABITATS AND SPECIES COVERED BY ACTION PLANS

	Present	10 year	50 year
Area under chalk grassland Stewardship option	845 ha	1,700 ha	-
Adonis Blue	3 large populations	5 large populations	Widespread
Silver-spotted skipper	2 populations	5 large colonies	Widespread
Black-veined moth	5 colonies	10 colonies	15 strong colonies
Late spider orchid	200 plants on 6 sites	250 plants on 6 sites	500 plants on 10 sites
Ground pine	3 weak colonies	3 strong colonies	5 strong colonies
Wartbiter	1 weak colony	3 strong colonies	8 strong colonies
Stone curlew	Extinct	Suitable habitat	Breeding
HEATHLAND AND MIRE			
Area	87 ha	200 ha	400 ha
Blocks over 10 ha	1	4	8
Area under Countryside Stewardship	289 ha	400 ha	-
Heather species		50% cover on all sites	75% cover
Silver studded blue	Occasional sightings	1 colony	3 strong colonies
Dartford warbler	Extinct	Return as breeding species	20 pairs
GRAZING MARSH			
Unimproved	2,286 ha	2,500 ha	3,000 ha
Semi-improved	2,335 ha	2,800 ha	3,500 ha
Conversion from amenity/improved	626 ha	800 ha	3,000 ha
Area grazed	?	50%	
Breeding redshank	150 pairs (1993)	200 pairs	300 pairs
Breeding lapwing	300 pairs (1993)	400 pairs	600 pairs
Wintering wigeon	10-15,000 (1993)	20,000	
SSSI with positive management statement	3,108 ha	All	
Area managed under Tier 1a and 1b requirements of ESA scheme	1,254ha	1,500ha	
REEDBEDS			
Creation of reedbed	(Stodmarsh extension)	2x 20 ha blocks	200 ha
Management of reedbeds >10 ha	?	All	100%
Bittern	Regular sightings	1-2 breeding pairs	5 breeding pairs
Bearded tit	54-68 pairs	100 pairs	200 pairs
RIVERS AND STREAMS			
		Create 2 major flood plain wetlands	
Otters	Rare	Increasing on Stour and Medway	In all Kent catchements
Quality bankside habitat		Every 1km of target rivers	Every 1km of main rivers
In-stream enhancements		Complete 50 m	
STANDING WATER			
No. of ponds	c. 5,000 known to be holding water, possibly 10,000 in total (KWHS)	No further losses100 restored100 created	500 restored 500 created
Former mineral workings managed for wildlife		4 new sites created	10 new sites
Water level management plans for ditches and dykes	In preparation for SPA and SAC areas	Prepare and implement for SSSIs	Prepare and implement for all marsh areas
Buffer strips adjacent to ditches and dykes	?	100 km	500 km
Amphibian populations	Declining	Stable	Increasing

SUMMARY OF 10 AND 50 YEAR TARGETS FOR HABITATS AND SPECIES COVERED BY ACTION PLANS

	Present	10 year	50 year
INTERTIDAL MUD AND SAND			
Area	10,308	10,300	10,300
Grey plover	13,900	)	)
Dunlin	74,700	) Maintain	) Maintain
Sanderling	1,200	)	)
Avocet	680	)	)
SALTMARSH			
Area	1395 ha	no net loss	
Area in MAFF Habitat Scheme saltmarsh option	?	10 ha	
Breeding redshank	400 pairs	400 pairs	350-400 pairs
Essex emerald	Extinct in Kent?		Re-established
SAND DUNES	Reinstate grazing management where appropriate	Allow reversion to natural processes of sea defence and dune formation	
	Retain existing area		
	Remove conifers		
VEGETATED SHINGLE			
Undamaged vegetated shingle (Dungeness)	631	635	650
Undamaged vegetated shingle (rest of Kent)	433	433	433
Stinking Hawk's-beard population	?	Maintain	Double
MARITIME CLIFF			
Continuous buffer along undeveloped cliff top	?	50%	100%
Royal Marine Rifle Range infrastructure	-	Removed	-
Peregrine	2 pairs	4 pairs	10 pairs
Chough	-		Breeding
MARINE HABITATS		Protect areas as VMNRs or marine SNCIs	
		Implement Shoreline and Estuary management plans	
SPECIES ACTION PLAN TARGETS			
	Present	10 Years	50 years
WATER VOLE		Regular sightings on all catchments	
		Establish 10 refuges from mink	
OTTER		Viable populations on all catchments where recorded since 1960	
		Survey road and rail crossings	
		Resting sites every 5km of river bank	

SUMMARY OF 10 AND 50 YEAR TARGETS FOR HABITATS AND SPECIES COVERED BY ACTION PLANS

	Present	10 year	50 year
DORMOUSE			
Population	?	Survey of all semi-natural woodland for dormice	25% increase
Nest boxes	?	100 nest boxes in each of 10 woods	100 nest boxes in 50 woods
SEROTINE BAT		10 key sites SNCI	
NIGHTINGALE			
Population	c.1,000 pairs	10% increase	25% increase
Number in protected areas	?	10%	25%
GREAT CRESTED NEWT			
		Establish current status of Kent populations	
Ponds	c. 5,000	100 created, 100 restored	500 created, 500 restored
ALLIS and TWAITE SHAD			
		Establish current status and distribution	
		Identify and protect spawning grounds	
		Establish mechanism for identification and recording of all shad catches	
WHITE-CLAWED CRAYFISH		2 refuges	
HEATH FRITILLARY	c. 16 colonies	20 colonies	30 colonies
PEARL-BORDERED FRITILLARY	3-8 poor populations	15 colonies	Widely found
SILVER SPOTTED SKIPPER	2 populations	5 large colonies	Widespread
EARLY GENTIAN	1-3 populations	5 populations	8 populations
LATE SPIDER ORCHID	200 on 6 sites	250 on 6 sites	500 on 10 sites

APPENDIX 7 - Kent BAP Consultees

Organisation	Contact
ADAS (now FRCA)	Geoff Newsome, Lesley Shea
Bat Conservation Trust	Tony Hutson
BTCV	Nikki Wright
Butterfly Conservation (2)	John Davis (UK), Tony Steele (Kent)
CLA *	Evelyn Boscawen
Colleges: Wye Hadlow DICE Greenwich	 Dr Peter Buckley Dr C Sombrero Ian Swingland Iain Boulton
Countryside Management Projects (5)	All Project Managers
Countryside Commission	Jane Hassell
CPRE	Bob Baxter
Crown Estates	N R Jacobson
East Sussex County Council (Ecologist)	Alex Tait
English Nature (3)- Kent * Essex Headquarters	Stephen Davis
Environment Agency *	Rob Pilcher
Forestry Authority *	John Clarke/Alan Betts
Forest Enterprise	Norman Day
FWAG (Kent and High Weald Officers) (2)	Paul Cobb, Ralph Hobbs
GOSE *	Simon Drew
Groundwork: Thameside Medway	 Steve Grainger Simon Green
High Weald AONB Officer	Sally Marsh
Kent Bat Group	Shirley Thompson
KCC Highways	Allan Mowatt
KCC Heritage Group	John Williams
KCC Property Services	John Parker
KCC Landscape	Ian Parker
KCC members	
Kent Field Club	David Newman
Kent Gardens Trust	Secretary
Kent Orchard Liaison Group	Tony Child
Kent Ornithological Society (2)	Rod Smith
Kent Rural Community Council	Quentin
Kent Reptile And Amphibian Group	Betty Plattenberg
Kent Watch Group	Nigel Matthews
Kent Wildlife Trust * (2)	Andrew Craven, Pete Raine
Kent Marine Group	Fred Booth, Ian Tittley
Local Authorities * (14) Ashford Canterbury Dartford Dover Gillingham Gravesham Maidstone Rochester upon Medway	Chief Exec., chief planner, countryside officer

Local Authorities (cont): Sevenoaks Shepway Swale Thanet Tonbridge & Malling Tunbridge Wells	
London Ecology Unit	David Goode
MAFF *(2)	Bill Duncan, Jill Swash
Maidstone Museum	Ed Jarzenbowski
Mammal Society	Pat Morris
MOD	Nigel Fisher (Senior Land Agent)
National Trust	P B Griffiths (Regional Director)
NFU *	Ron Neath
Nuclear Electric	
MAGNOX Electric	
Parish Councils (through KAPC)	Rod Williamson
Plantlife	Ruth Davis
Ports Authorities: London Medway Ramsgate Dover Harbour Board Folkestone	 M Hill Mr Woodgate Capt. Gray Robert McKenzie David Dyer
RSPB *	David Payne
Sandwich Bay Golf Courses (2)	Secretary
Sandwich & Pegwell Bay LNR Steering Group	John McAllister
South-East Otters and Rivers Project	Sarah Bentley
Surrey County Council (Ecologist)	John Edwards
Woodland Trust	John Tucker

* - Steering Group members

KENT BIODIVERSITY ACTION PLAN

STEERING GROUP MEMBERS

Country Landowners Association

English Nature

Environment Agency

Forestry Authority

Government Office for the South-East (GOSE)

Kent County Council

Kent Local Authorities

(represented by Canterbury, Dover and Tonbridge & Malling councils)

Kent Wildlife Trust

Ministry of Agriculture, Fisheries and Food

National Farmers Union

Royal Society for the Protection of Birds

The production of this document was financed by:

ENGLISH NATURE

ENVIRONMENT AGENCY

Kent County Council

European Regional Development Fund