Isle of Wight Biodiversity Action Plan

Farmland Biodiversity Action Plan

1 Introduction

This Biodiversity Action Plan has been prepared through consultation with a range of organisations and specialists within the Isle of Wight BAP partnership. It covers a ten-year period from 2004 – 2014, with a review in 2009.

1.1 What is farmland?

Farmland is not defined as a habitat in the UK Biodiversity Action Plan (BAP) but contains a mosaic of different habitat types which collectively can be of high biodiversity and nature conservation importance. A total of four broad habitat types identified in the UK BAP are found predominantly on farmland:-

- Arable and horticulture
- Improved grassland
- Boundary and linear features
- Standing open water

These broad habitat types contain two priority habitats;

- Ancient and species rich hedgerows
- Cereal field margins

The broad habitat types and in particular the cereal field margin habitat support a number of national priority BAP species and species of national conservation concern as well as others listed as nationally rare and scarce. In all a total of 27 species of flowering plant have been identified from arable and horticultural habitats that fall into one of these three categories; these are listed in appendix 1.

Arable and horticultural habitats and in particular cereal field margins provide an important habitat for a number of plant species, however, farmland is of far greater value to biodiversity and supports populations of many other species including birds, mammals, amphibians and reptiles, insects and several other important plant species associated with other farmland habitats.

Whereas many of these other species may be largely associated with a specific farmland habitat, such as farm ponds or hedgerows, it is the mosaic of different farmland habitats and the wider functioning of the farm that is most important for their survival. Because of this, it is not possible to develop a conventional 'Habitat Action Plan' for farmland as it is not a single habitat but a mosaic of different habitats. Many of these are continually changing both in time and space in response to the pattern of farm management.

Farms can also contain many other habitats of importance for biodiversity including lowland meadows, calcareous grasslands, floodplain grazing marshes and reedbeds. Whereas the conservation of these habitats can depend upon farming activity, these habitats have been considered in separate habitat action plans.

1.2 Approach to developing farmland habitat actions

Given the difficulty in taking the conventional habitat action plan approach to farmland biodiversity it was agreed by the Isle of Wight Biodiversity Partnership to take a more species lead approach to developing farmland biodiversity actions. This is based upon the identification of a number of

'flagship' or indicator species that are likely to be associated with biologically rich farmland landscapes. These include a diversity of groups ranging from birds and mammals to flowering and lower plants which are associated with a wide range of farmland micro-habitats and features. The farmland biodiversity action plan for the Isle of Wight therefore seeks to identify the ecological requirements of this selection of species and seeking to ensure that farm management systems and farming practices are developed which will sustain them.

It must also be appreciated that farmland biodiversity is normally a by-product of the traditional objective of farming, which is food production. Hence, actions to conserve farmland biodiversity must take into account the economic viability of farm businesses whilst seeking to promote farming systems and practices which encourage biodiversity. The biodiversity associated with farmland will not normally be confined to a specific place at any one time but will change in response to farming practices through the year and from year to year. This is in contrast to other habitat action plans where actions relate to specific sites or places where a permanent and often long established habitat occurs, for example heathland, ancient woodland or rivers and wetlands.

The identification of farmland habitats as a priority for action on the Isle of Wight is based on the following factors:

- Farmland wildlife has undergone dramatic declines in diversity and abundance in recent decades largely as a consequence of agricultural policy and subsidies leading to intensification of farming practices
- Farming is necessary for the conservation of biodiversity on the Isle of Wight both within typical farmland and semi-natural grassland and grazed habitats not normally considered as farmland
- Farming is undergoing an economic crisis that threatens the viability of the future viability of agriculture
- There is a growing demand for food that is produced in an environmentally friendly way
- Changes in farm support and policy at a national and international level are likely to have profound effects on the ways in which farmland on the Isle of Wight is managed in the future.

2 Current Status

2.1 Description of the habitat

The farmland habitats identified in this plan can be termed 'farmland' but this farmland does not exist in isolation and there are clearly links between conventionally farmed land and remaining areas of semi-natural vegetation, such as neutral meadows, chalk and acid grassland and several types of wetland. These habitats are dependent upon livestock[1] grazing or the mowing of hay and silage to conserve their biodiversity. The farmland biodiversity action plan for the Isle of Wight therefore has links to a number of specific Habitat Action Plans for the Island, in particular:-

- Lowland Meadows HAP
- Heathland and Acid Grassland HAP
- Calcareous Grassland HAP
- Wetland HAP
- Maritime Cliffs HAP
- Woodland HAP

However, there are a number of specific farmland habitats that are covered by this Action Plan. While the following descriptions provide an indication of the range of wildlife associated with each of these, it must be emphasised that these habitats and those listed above, function collectively to create what might be termed the fabric of the countryside and the biodiversity this supports.

2.1.1 Arable farmland including cereal field margins

Humans have been cultivating the Isle of Wight to produce food for more than six thousand years. Unlike their predecessors the people that lived on the Island between about 4500 and 2500 BC were not merely hunters and gatherers but were expert farmers growing crops (mainly cereals), herding cattle, sheep and goats and keeping pigs. They had the use of the plough by about 3000 BC and made flint tools for reaping crops and hoeing fields. The cultivated landscapes these early farmers created supported many plants and animals that were already present on the Island, perhaps on the cliffs or other naturally disturbed ground. Other plants were probably bought to the Island with the cereal seeds introduced from the Mediterranean by the first farmers. These plants are unable to withstand shade and have poor powers of competition and would not survive without cultivation.

Historically there has been a constant battle between farmers and the wildlife that inhabits their crops. At times, the wild plants and animals have threatened the crop and farmers' survival and have been termed pests or weeds. In more recent years, the farmer has had the upper hand with improved methods of seed cleaning, crop management and widespread use of artificial fertilisers and pesticides, so there is now little space for wildlife to co-exist with farmers' crops. The plants most dependent upon cultivation are now very rare and include species such as corn cockle and corn flower. Despite declines in many of the specialist plants and animals traditionally associated with arable crops some 2000 species of invertebrate are still commonly found in cereal fields (UK BAP Cereal Field Margin HAP). Overall some 300 species of plants can occur in arable fields including several species of conservation concern that have undergone enormous national declines in distribution and abundance (UK BAP Cereal Field Margin HAP).

The Isle of Wight is fortunate in having farmland that still contains many of these nationally rare and scarce plants of cultivation such as the nationally rare field cow-wheat *Melampyrum arvense* and Martin's ramping fumitory *Fumaria reuteri* and nationally scarce broadleaved spurge *Euphorbia*

[1] Most grazing livestock on the Isle of Wight are cattle and sheep but the term is used in this plan to refer to all domesticated grazing animals on farms including horses and ponies.

platyphyllos, small-flowered catchfly *Silene gallica.* In all a total of 26 plant species of national conservation concern have been identified form cultivated land on the Island.

Extensive open fields under arable cultivation can provide critically important habitat for farmland birds such as skylark and lapwing. The way in which these fields are managed is however of vital importance with spring sown crops, summer fallows, winter stubbles and micro-habitats such as beetle banks all adding significantly to their value of farmland birds and other wildlife.

The Island is fortunate in having farmland that still supports good populations of farmland birds such as the skylark and yellow-hammer, which are amongst the most rapidly declining birds in Britain. Other 'red list' birds of high conservation concern such as the corn bunting, turtle dove and grey partridge can also be found on the Island but their numbers have declined over recent years and they are now confined to small and increasingly isolated populations.

Whereas the variety of plants and animals associated with cultivation can occur anywhere within the crop particular emphasis has been placed on the conservation of these species around the edges of the cultivated field known as the field margin. The management of this field margin to benefit wildlife has been the subject of considerable research and various financial incentives have been introduced to encourage farmers to manage their cereal field margins to encourage the plants and animals traditionally associated with arable cultivation. Cereal field margins can be managed in several ways; they may be cultivated but not cropped and managed simply as a 'wildlife strip' around the edge of the field, they may be managed as a 'conservation headland' in which a crop is sown but managed with reduced inputs of fertiliser and pesticide. These two treatments can also be combined or in some instances, a game crop can be sown in the field margin to provide seed for game and other wildlife together with cultivated ground of value to a range of plants and animals.

Management of farmland for game rearing and shooting has a very significant influence on the landscape and biodiversity of the Island. Letting of land for shooting can play an important part in supporting farm income and therefore how the farm is managed. Game rearing, farming and biodiversity can be integrated with mutual benefits.

2.1.2 Boundary and linear features including hedgerows

The farmed landscape is divided up into fields by hedges, fences and ditches and crossed by a network of tracks and lanes also bounded by hedges, fences and ditches. Associated with these boundaries features are often strips of uncultivated tall grassland and other vegetation that forms verges or margins to ditches or hedge banks. The combination of these boundary and linear features not only provides valuable habitat for a range of farmland wildlife but they can also act as important wildlife corridors helping species to move between more extensive habitats such as woodlands.

Hedges have developed in a number of different ways. Some have been planted in recent centuries at the time of the common enclosures. These often rectilinear hedges are generally species poor consisting mainly of hawthorn *Crataegus monogyna*. Despite this, they can still provide good habitat for nesting birds and have an important landscape function. Ancient hedges are generally those that were in existence before the Enclosure Acts (1720 – 1840). Some of the oldest hedges were planted to mark parishes or other historic boundaries and are mentioned in Anglo-Saxon charters over a thousand years old. The most ancient hedges are thought to be the relicts of woodland from which fields have been cleared. These so called assart hedges contain a mix of trees and shrubs similar to those found in ancient woodlands. Ancient hedges, whether they were originally planted or not, tend to be richest in tree and shrub species. The UK Biodiversity Action Plan defines 'species rich' hedges as those that contain an average of more than 5 native woody species in a 30 metre length.

Hedges are an important wildlife habitat in their own right. They are a primary habitat for at least 47 species of conservation concern in the UK including many rapidly declining farmland birds including linnet, yellow hammer, whitethroat, bullfinch and turtle dove. They are especially important for butterflies and moths, bats, dormice and also red squirrels. Indeed, hedges are the most significant wildlife habitat over large stretches of lowland UK and are an essential refuge for a great many woodland and farmland plants and animals.

Increasing farm mechanisation and efficiency necessitated the creation of larger fields and the consequent removal of hedges. Hedges have also been removed to increase the area of cultivated land and to remove a source of farmland pests and crop diseases. Other hedges that have not been physically removed have been badly managed through frequent trimming which seriously degrades their value for wildlife and eventually leads to their death. In places, arable cultivation has taken place right to the edge of the field, destroying hedge banks and associated grassy margins and damaging the roots of hedgerow trees and shrubs.

Nationally there has been a drastic loss of hedgerows since 1945 through both removal and neglect. Between 1984 and 1990 the net loss of hedgerow length in England was estimated as 21%. Figures on the loss of hedgerows on the Island are not currently available although it would seem that the factors that have diminished the national hedgerow resource are also operating here and there is no reason to believe that the magnitude of destruction should be less than that seen nationally.

2.1.3 Improved grassland

Improved grasslands are those that have been sown with a mix of agricultural grasses, mostly perennial rye-grass *Lolium perenne* and are maintained with the regular application of fertilisers (either organic or inorganic) and are often treated with herbicide. These improved grasslands generally replace the natural mix of wild grasses and other plants and can occur on a wide range of soil types ranging from wet to dry and occur on clays, sands and chalk. Improved grassland is therefore of little intrinsic biodiversity value, however, where it occurs in a mosaic with other farmland habitats it is used by a variety of animals that are of high biodiversity value. For example, brown hare is found in greatest numbers in areas of mixed farmland containing a mosaic of arable, grassland, hedges and small woods. Where it is grazed by livestock, improved grassland can also be rich in invertebrates, particularly those associated with animal dung. These can provide an important food source for many animals including bats and badgers and a wide variety of birds. Soil invertebrates in some improved grassland can also be important for over-wintering birds such as song thrush and lapwing, especially in damp areas of the field. Improved grassland can also be important in maintaining the economic viability of farm enterprises which in turn enables other habitats of greater intrinsic biodiversity value to be grazed by livestock or mown in ways which conserves that biodiversity.

Improved grassland can also be used to graze ponies and horses. Such pony ‘paddocks’ are becoming an increasingly significant feature of the Island’s landscape. They can be of value to biodiversity but intensive use of pony paddocks can create tightly grazed and heavily trampled grasslands of little nature conservation value.

Over time, improved grassland can revert to a semi-improved state if fertiliser and herbicide applications are reduced or stopped. The resulting grassland is likely to remain botanically species poor but soil and other invertebrate diversity may increase. These species poor semi-improved grasslands are also included in this action plan.

Improved grassland is not a threatened habitat on the Island and its extent has increased greatly over the last 50 years. There is no need to adopt actions to conserve this habitat but it is important to be aware of its contribution to the viability and functioning of farm businesses and its use by a range of farmland wildlife.

2.1.4 Farm ponds and reservoirs

Areas of standing open water are an important component of agricultural landscapes. In the past ponds were created for several reasons, many were made to provide water for livestock. In the 19th century ponds were used to provide a source of water to power steam engines. Ponds were also created from old brick works or to provide fish or attract wildfowl. In recent decades reservoirs have been constructed on many farms to provide a store of water to irrigate crops. All of these areas of open water can be valuable to wildlife, both intrinsically and as a component of the wider habitat mosaic that is collectively termed farmland. Farm ponds can be particularly important for amphibians such as frogs, toads and newts in particular the internationally endangered great crested newt. Ponds and reservoirs also support a range of plants and invertebrates – the most conspicuous of these being the dragonflies and damselflies. Larger ponds and irrigation reservoirs can be important for wetland birds with reed bed and fen nesting species such as sedge warblers and reed buntings around their margins as well as species of more open water such as little grebe, tufted duck and coot. Despite popular belief, ponds that dry out, either partly or completely, during the summer can also be important for wildlife. The muddy margins of these ponds provide important feeding habitat for birds such as lapwing as well as an important micro-habitat for some specialist plant species. Ponds that dry out also tend to lack fish, which makes them more attractive to amphibians, in particular the great crested newt.

Nowadays, livestock are generally provided with piped water in troughs and steam engines are no longer part of the normal agricultural scene. As a consequence farm ponds have lost much of their original purpose and many have been lost, either through natural succession to dense scrub and woodland or by active infilling. In other instances, the pasture in which farm ponds were once created has been converted to arable leaving them isolated within a sea of intensively cultivated crops or improved grassland and subject to pollution from fertiliser run-off. Intensive stock grazing around farm ponds can also lead to excessive trampling and grazing of the pond edges also leading to loss of biodiversity.

The Environment Agency have estimated that some 63% of ponds (approximately 500,000) have been lost in England and Wales over the last one hundred years. In Britain as a whole ponds are still being lost at the rate of 1% per year. There is no information on the scale of loss of farm ponds on the Isle of Wight but it is likely that the losses have been significant.

2.2 Farmland flagship or indicator species

To develop actions for the conservation of farmland biodiversity on the Island it has been agreed by the Isle of Wight Biodiversity Steering Group to take a species led approach. This is based upon the identification of a group of plants and animals that are associated with a farmland landscape rich in biodiversity. They have been selected to represent a diversity of farmland micro-habitats or farming systems so that if measures are taken to meet the ecological needs of these species, many others are likely to benefit. Most of the species are identified as species of concern on the Isle of Wight in the IW Biodiversity Audit and Assessment. Others may not currently be of conservation concern but are good indicators of important farmland micro-habitats or biologically rich farmland landscapes. For each species or group of species, the main features of their habitat requirements or the main factors affecting their conservation have been identified in the following tables.

2.2.1 Farmland birds

Grey partridge	Short grass with longer grass and hedgerows nearby. Mixed cereal and pasture fields with thick hedges and wide field margins.
Barn owl	Nesting sites – holes in trees, or undisturbed buildings such as barns and outbuildings. Hunts in areas of rough grassland with good populations of rodents – especially voles, field edges, the edges of watercourses and grass strips alongside woods
Lapwing	Breeds on farmland, especially among crops sown in spring which are adjacent to grazed pasture and bare land.
Turtle dove	Nests in dense scrub and over-grown hedges. Feeds on seeds particularly those of arable weeds.
Song thrush	Mixed farmland with hedges and scrub, invertebrate rich grassland, spring sown cereals, summer fallow and winter stubble
Whitethroat	Sunny open areas with bushes, brambles and nettles and other cover for nesting, including hedges and scrub
Skylark	Arable and grassland particularly spring sown cereals with significant areas of bare ground.
Bullfinch	Associated with tall spreading hedges with abundant fruit, seed and buds.
Linnet	Nests in scattered scrub or hedges with out-growths, wintering on seed rich stubble, fallow or set-aside. Young fed on seeds including oil-seed rape.
Yellow hammer	Similar habitat to linnet but young fed on invertebrates particularly in hedges and tall grassy vegetation.
Cirl bunting	Mixed farmland with mature hedgerows or scrub, low intensity grassland and weedy cereal stubble fields – all occurring in close proximity.
Corn bunting	Nests in margins of arable fields, particularly of barley, next to boundary features. Over winters in seed rich stubble or fallow fields.
Goldfinch	Likes trees and bushes with areas of tall weeds nearby, in winter forms into flocks which range over places with plenty of thistles, burdock and teasels

2.2.2 Farmland mammals

Brown hare	Likes ‘patchwork quilt’ farmland with mix of game crops, hedgerows and small woodlands arable crops and grassland.
Bats	Diverse landscape with sheltered insect rich habitats (pastures, haymeadows, marshes, hedgerows) to feed and mature trees, buildings to roost
Dormouse and Red squirrel	Large mature hedges with diversity of shrub and tree species, linking woodlands (refer to Woodland HAP and Red Squirrel SAP for management of other elements of their habitat requirements).

2.2.3 Amphibians

Common frog, common toad, newts	Farm ponds free of stocked fish, with associated tall vegetation, logs or other places of shelter

2.2.4 Vascular plants

Arable fields and cultivated areas

Lesser Snapdragon Prickly Poppy Rough Poppy Corn Buttercup Small-flowered Catchfly Night-flowered Catchfly Spreading Hedge Parsley Narrow-fruited Corn Salad Broad-fruited Corn Salad Green Field Speedwell Corn Chamomile Lesser Quaking-grass Cornflower Broad-leaved Spurge	Factors causing their decline include:- • Increased use of herbicides and fertilisers, • Development of highly competitive crop varieties, • Destruction of field-edge refuges, • Early crop harvests (ie around mid-July), • Demise of traditional crop rotations, • Abandonment of marginal farmland and associated loss of ground disturbance

Dung heaps

Oak-leaved Goosefoot Upright Goosefoot	Change in farming practice in particular loss of traditional farmyard dung-heaps

Poached gateways and cattle tracks

Mousetail	Fertile broken ground which may be seasonally inundated and subject to trampling and compaction, particularly rutted and poached ground of tracks and gateways

2.2.5 Insects

Hedges and nettle beds

Brown hairstreak butterfly	Blackthorn scrub and hedges
Cloaked Carpet moth	Edges of woodland and hedges
Narrow-winged knot-horn moth	Hedges/woods with spindle
Comma, painted lady, small tortoiseshell, red admiral, and peacock butterflies	Nettle beds and areas of tall herb vegetation with nettles and abundant nectar sources

Rough grassland

Marbled white	Tall grassland including red fescue cut or grazed infrequently, nectar sources with abundant purple flowers (thistles, knapweeds, scabious)
Meadow brown	Open grasslands and hay meadows
Ringlet	Tall grassland, mainly in damp situations in partial shade where grasses are lush, nectar sources include bramble and wild privet
Small heath	Fine grasses, especially in dry well drained situations where the sward is short
Gatekeeper	Tall grassland close to hedges, trees or scrub

Ponds, reservoirs and ditches

Brown Hawker Hairy Dragonfly Four-spotted Chaser Red-veined Darter Ruddy Darter Variable Damselfly	Shallow ponds, reservoirs and ditches with abundant marginal vegetation such as reed and reed mace as well as aquatic macrophytes with floating leaves. Avoiding ponds stocked with fish.

Small Red-eyed Damselfly Emerald Damselfly	

2.3 Distribution and Extent

2.3.1 Habitats

Information on the extent of farmland habitats on the Island have been obtained from the Agricultural Census returns published by Defra. In 2002 there was a total of 24,231 hectares of farmland on the Isle of Wight and 610 registered farm holdings[2]. To provide an indication of trends in farm land-use on the Island between 2000 and 2002, the areas of the main farming land-use types have been summarised in table1.

Table 1: Main farming land-uses on the Isle of Wight (2000-2002)

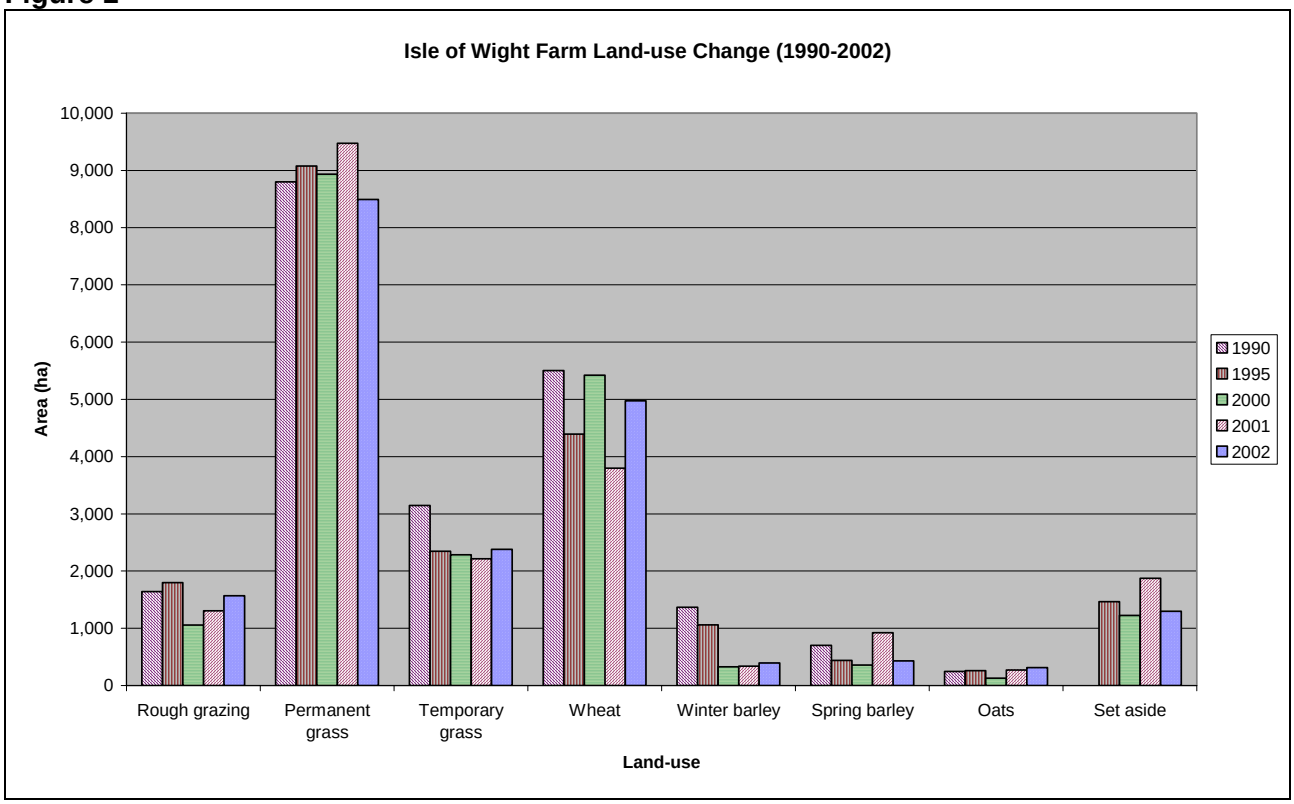
Land-use	**Area (ha)**				
	1990	**1995**	**2000**	**2001**	**2002**
Rough grazing	1,640	1,799	1,055	1,307	1,569
Permanent grass	8,801	9,075	8,934	9,474	8,492
Temporary grass	3,146	2,348	2,284	2,214	2,380
Wheat	5,505	4,393	5,424	3,796	4,975
Winter barley	1,369	1,061	327	337	394
Spring barley	704	438	358	922	429
Oats	247	262	127	273	311
Set aside	-	1,466	1226	1874	1299
	21,412	20,842	17,451	17,983	17,469
Total farmland	26,240	25,858	24,847	25,544	24,231

The figures in table 1 are illustrated in figure 1. Although some caution is needed in interpreting this data, in summary it shows:-

1. A significant decline in the total area of farmland from 26,240 ha in 1990 to 24,231 ha in 2002.
2. A decline in the area of rough grazing from 1,640 ha – 1,055 ha between 1990 and 2000 and a subsequent recovery in the area of rough grazing to 1,569 ha between 2000 and 2002.
3. No appreciable change in the area of permanent grassland since 1990.
4. A slight overall decline in the area of temporary grassland since 1990 but this masks an almost constant area of temporary grassland since 1995.
5. A slight overall decline in the area of wheat although there has been considerable annual variation
6. A significant decline in the area of winter barley (reduced by 60% over 12 years) and a slight overall decline in the area of spring barley although this masks an unexplained sudden increase in the area of spring barley in 2001.
7. An increase in the area of oats from 247 ha – 311 ha.
8. No significant overall change in the area of set-aside.

[2] The number of registered farm holdings does not necessarily equate to the number of farms and may include a number of small landowners for whom farm income is not significant.

Figure 1



The most startling features of these statistics are the overall decline in farmland and the relatively stable nature of farm land-use on the Island since 1990. The recovery in the area of rough grazing since 2000 is to be welcomed as this is likely to be of benefit to biodiversity. The slight overall decline in the area of wheat and the significant decline in area of winter barley does not appear to have been balanced by an increase in the area of any one particular land-use and can probably be accounted for in the decline in the total area of farmland.

The decline in the total area of farmland is however balanced by an increase in the number of registered farm holdings which have risen from 557 in 2000 to 610 in 2002. However, the increase in number of holdings is a reflection of changes in farm size with a reduction in the number of large farms (>100 ha) from 60 to 56 and an increase in the numbers of small farms (<5ha) from 237 to 318 in the same period (The changes in number and size of registered farm holdings shown in the census returns may be due in part to the movement restrictions introduced following the foot and mouth outbreak in 2001 and may not reflect any real change in farm type).

Although the area of grassland (rough, permanent and temporary) has not changed significantly since 1995 there have been some significant changes in livestock. These are summarised in table 2.

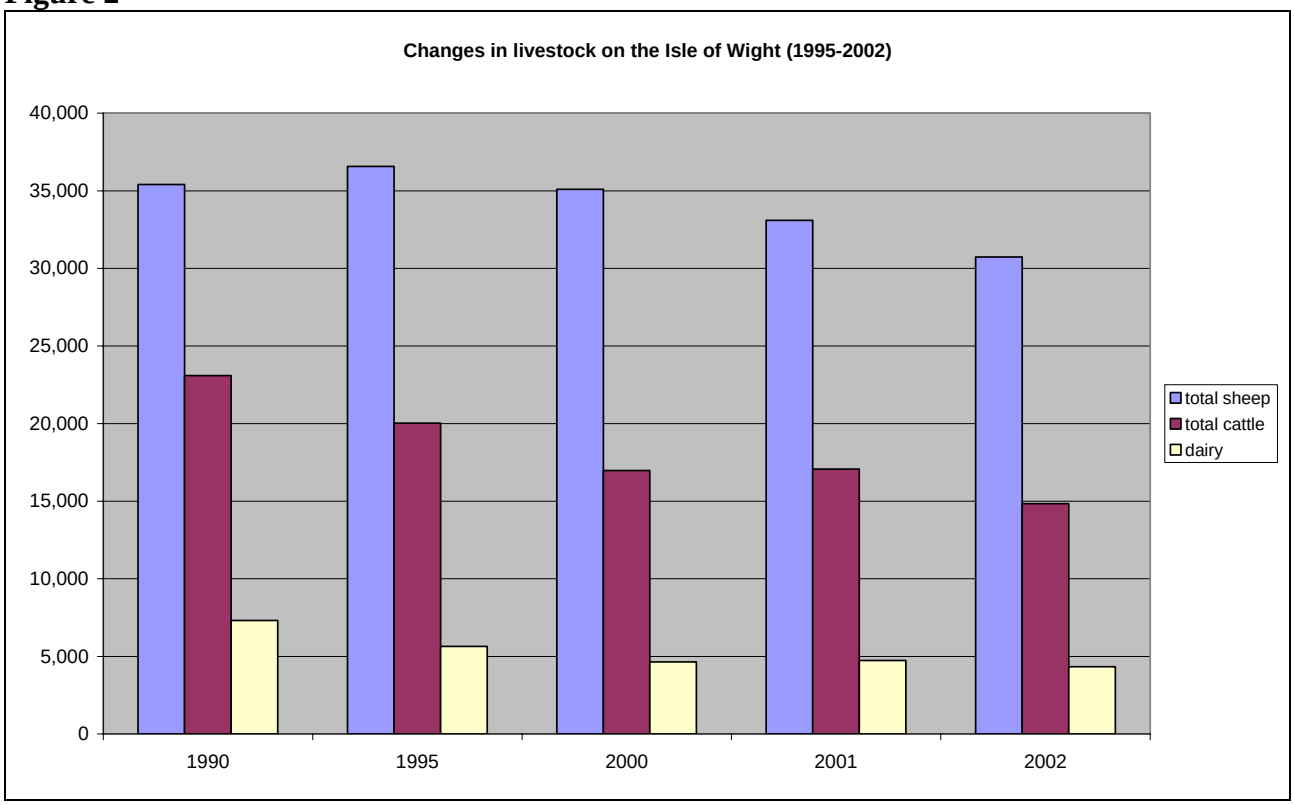
Table 2: Changes in livestock numbers on the Isle of Wight (2000-2001)

	1990	1995	2000	2001	2002
Total sheep	35,406	36,565	35,083	33,096	30,738
Total cattle	23,087	20,025	16,981	17,073	14,839
Dairy cattle	7,311	5,650	4,636	4,741	4,333

This shows a general decline in the numbers of livestock with a particularly significant decline in the numbers of sheep between 2000 and 2002 and a less significant longer term decline in numbers of cattle and dairy cattle in particular.

These changes are illustrated in figure 2

Figure 2



The decline in numbers of livestock is reflected in changes in the numbers of farm type with a significant decline in numbers of dairy farms and general crop farms since 1990 and a significant increase in the numbers of farms described as 'other' and those with cattle and sheep as shown in table 3.

Table 3: Changes in farm type on the Isle of Wight (numbers of farms)

	1990	1995	2000	2001	2002
Farm type - Other	87	130	201	228	270
Farm type - Mixed	33	35	34	44	37
Farm type - Cattle and Sheep	146	136	152	156	162
Farm type - Dairy	87	68	49	48	46
Farm type - Pigs & Poultry	15	8	16	15	15
Farm type - Horticulture	55	40	47	45	48
Farm type - General Cropping	27	20	14	14	14
Farm type - Cereals	57	50	60	55	53

It is difficult to draw overall conclusions for biodiversity from the farming statistics for the Isle of Wight. The overall decline in numbers of livestock might be of concern if there were insufficient numbers of animals to graze habitats of biodiversity value. However, there would appear to have been a significant increase in the numbers of small farms in recent years and in particular the numbers of cattle and sheep farms and those described as 'other' farm types. This could be having a positive effect on biodiversity by providing a more mixed farm landscape but could equally reflect the growth in farm diversification and decline of traditional farm types. The reduction in the overall area of registered farmland could also be a cause for concern. This might be due to an increase in the area of pony paddocks, but in the absence of any evidence to identify what this land has been used for it is not possible to draw any conclusions.

2.4 Legislation and Site Designation

Unlike other habitats of importance for biodiversity, there have been no nature reserves or sites created specifically for farmland habitats or species on the Isle of Wight. However, despite this there are a number of SSSI and nature reserves on the Island that contain farmland habitats.

The Newtown Harbour SSSI contains some extensive areas of farmland owned both by the National Trust and the MoD. Farmland is also included in the Compton Chine to Steephill Cove SSSI where it forms a buffer strip inland of the cliff edge along much of its length. Brading Marshes SSSI also contains farmland habitats.

Lake Allotments SSSI has been notified to protect its population of the nationally rare Martin's ramping fumitory *Fumaria reuteri*. This SSSI also contains a number of other uncommon weeds of cultivation such as the purple fumitory *Fumaria purpurea*. St Lawrence Bank SSSI has also been notified to conserve its population of the nationally rare field cow-wheat *Melampyrum arvense*. This SSSI is also managed by Wight Wildlife as a nature reserve.

The largest non-statutory nature reserve containing farmland is perhaps that owned by the People's Trust for Endangered Species at Briddlesford near Wootton Bridge. This contains some 50 hectares of grassland and arable farmland with intervening species rich hedges that are managed for nature conservation.

The National Trust owns a significant area of farmland on the Isle of Wight and with their recently adopted policies on agriculture are seeking to maximise biodiversity from this farmland by working with its tenant farmers.

Brading Marshes SSSI is dealt with principally under the Wetland Habitat Action Plan, but it also contains areas of farmland habitat which are owned and managed by the RSPB.

3 Current Factors affecting the habitat

3.1 Introduction

The biodiversity of farmland is affected by a range of farming practices such as the use of pesticides and fertilisers, methods of hedge trimming and cultivation techniques as well as other factors beyond the scope of this action plan, such as climate change. However, these farming practices are a direct result of wider factors that drive the economics of land use and farm management and it is these that this plan addresses as the principal factors affecting the habitat. This does not imply that farming methods are not important and Actions proposed in section 6 that are addressed at these.

3.2 Markets, prices and economics

The most important factor effecting farmland biodiversity is the economics of farming which in turn is driven by the Common Agriculturally Policy (CAP). In the recent past, guaranteed prices for agricultural produce encouraged farm intensification and production leading to a decline in much farm biodiversity. In particular changes in arable farming practices including intensive use of fertiliser and pesticides, a shift to autumn sowing and loss of over-wintered stubbles and a reduction in rotation of cereal crops with other land-uses (grass leys, fallow) has lead to the loss of many weed species of cultivation and declines in many typical farmland bird populations.

In recent years the price for agricultural produce has declined and farm incomes have collapsed as a consequence. However, this has not led to a significant reverse in the intensity of farm management as farmers have had to strive harder to farm as efficiently as possible.

If farm incomes continue to decline farmers may no longer be able to continue farming. If farmland is simply abandoned, there would be a loss of much farmland biodiversity as scrub and woodland replace open farmland landscapes. The economics of farming therefore need to be such that farmers can maintain viable farm businesses. However, it is also important that the restoration and conservation of farmland biodiversity is a precondition of economically viable farming methods. A number of mechanisms have been considered that might improve the viability of farming on the Isle of Wight. This might include improved marketing of local produce to local consumers including holiday makers. The provision of a local slaughtering facility may also assist in this process as will the growth of farmers markets. However, more radical measures are probably also required to improve farm incomes for Island farmers.

Defra currently has three project based funding schemes that are potentially of value to farmers – the Rural Enterprise Scheme, Vocational Training Scheme and Processing and Marketing Grant Scheme.

3.3 Reform of the Common Agricultural Policy

Reforms to the Common Agricultural Policy (CAP) that were agreed in June 2003 are likely to have far reaching and hopefully beneficial effects for farmland biodiversity on the Isle of Wight.

In principle all the major farm subsidies will be replaced by a new single payment, which Member States will be able to introduce from January 2005. Decoupling, the process of breaking the link between subsidies and production, should greatly simplify the CAP. In February 2004, the government announced how the new reforms will be put into effect. The announcement stated that:-

- England will decouple fully in 2005 and move towards a flat rate Single Farm Payment (SFP) to farmers.
- Only farmers active in 2005 will qualify for payment,
- There will be an eight year transition period to a flat rate,

- England will be split into two regions – land in severely disadvantaged areas or the less favoured areas and all other land in England.
- Different flat rates will apply in these regions.
- No use of National Envelopes in England,
- Payments will depend on farmers meeting 'cross compliance' conditions – government will consult on these standards soon and work to ensure they are implemented effectively and proportionately, with minimum bureaucracy.

It is not clear how the new single payment will be calculated, but in making the announcement, the Minister stated that she wished to avoid the situation where subsidy was allocated solely on the basis of past activities.

However, English Nature have highlighted that the SFP itself will not deliver any benefits for wildlife in the countryside because it is not an environmental payment. They call on the Government to reaffirm its commitment to further CAP reform that will deliver environmental benefits by moving money from the SFP into rural development and agri-environment schemes.

English Nature state that such a progressive shift in support is essential to reward farmers for managing and restoring the habitats and wildlife of the English countryside and help farming adjust to a more competitive market environment.

In commenting on the Government's announcement, English Nature's Chief Executive, Dr Andy Brown said: "If last years' historic CAP deal is to deliver urgently needed improvements in the rural environment then it is essential that the Government follows up today's announcement by attaching robust environmental conditions to the £1.7 billion that will be paid to farmers in 2005. We are extremely disappointed that the Government appears to have closed the door on using the so called National Envelopes to fund new environmental schemes in England. There will undoubtedly be negative environmental consequences from de-coupling and it is essential the Government has the mechanisms and resources to address these."

3.4 Agri-environment Schemes

The Department for Environment Food and Rural Affairs (Defra) administers a number of schemes which fund farming practices that conserve the environment. The most significant scheme operating on the Isle of Wight is the Countryside Stewardship Scheme (CSS). This provides incentive payments to encourage extensive low input agricultural farming methods as well as providing payments for the restoration and maintenance of hedges, ponds and other farm habitats. In 2002 the CSS also introduced a series of arable options. These encourage farmers to manage arable crops in ways that increase their value for biodiversity for example the creation of conservation headlands, provision of winter stubbles and spring fallows.

The agri-environment schemes operated by Defra are currently being reviewed and it is likely that there will be substantial changes to these in the future. A new Entry Level Scheme (ELS) is also being rolled out in 2005 which will provide encouragement for farmers to incorporate environmental management into their normal farming practice. This type of change has been termed 'broad and shallow' i.e. small changes over a large area that will collectively help farmland species at a landscape scale.

3.5 Organic farming

Farming without the use of artificial fertilisers or pesticides to produce organic food can have significant benefits for biodiversity. Defra provide advice to farmers wishing to convert from conventional farming to organic farming methods and offer financial assistance to support farmers through the transitional period before organic certification and the higher premium paid for organic

produce is obtained. The growth in demand for organic produce and attempts to increase the sale of locally produced food through local markets could encourage an expansion in organic farming on the Isle of Wight. However, most recent increases in organic food sales have been met by imports.

3.6 Genetically modified food

The Government's field trials - assessing strains of herbicide-tolerant maize, sugar beet and oilseed rape - have now ended and the results were published in September 2003. These showed that growing conventional beet and spring rape was better for many groups of wildlife than growing GM herbicide-tolerant beet and spring rape. In contrast, growing GM herbicide-tolerant maize was better for many groups of wildlife than conventional maize. As a consequence of these results the RSPB has called for a ban on the use of GM beet and spring rape and further research into GM maize.

Some commercial growing of GM crops is to be permitted. However, because the field trials only include specific crops, Defra has also carried out a public debate on the wider issues around GM technology to help inform the Government's final decision.

Genetically modified crops have the potential to provide significant benefits for farmland wildlife, especially if their use results in better targeted agrochemicals with a lower impact on biodiversity. However, it should also be recognised, that they have the potential to cause harm. Important questions remain unanswered about the safety and desirability of GM, and its effects on environment, local and national economies, consumer choice and human health.

4 Current Action

4.1 Policy

1 Changes in the CAP referred to in section 3 will have far reaching and hopefully beneficial effects for farmland biodiversity.

2 The National Trust is one of the largest owners of farmland on the Isle of Wight. Nationally the Trust invested an extra £1.7m in 2002 on a range of initiatives helping its farm tenants build a viable future across the Trust's 245,000 ha of farmland it owns nationally. These include:

- Developing Whole Farm Plans,
- Encouraging its tenants to enter Agri-environment Schemes such as CSS.
- Providing free advice on environmentally friendly farming
- Working to improve farm viability through entering new markets and provide capital investment grants to support such enterprises.
- Supporting the growth of local and regional food economies
- Providing its tenants with expert independent advice on organic conversion, including business planning and help with attaining certification

3 The Isle of Wight AONB management Plan (2004 – 2009) was published in April 2004. It contains several policies which seek to promote farming that helps sustain the landscape character and biodiversity of the AONB.

4 Historic landscape character (HLC) areas have been defined by the County Archaeology and Historic Environment Centre, funded by English Heritage. These HLC areas have been defined using the technique of historic landscape character analysis. A closely allied technique of landscape character assessment is used within the AONB. The role of the AONB is to use landscape character assessment and to take account of historic landscape character analysis to describe the special qualities of the AONB. This would include features within the landscape – ponds, woods, hedges, tracks, biodiversity, historic environment, geology, land-use etc. Following this there is the need to ensure the conservation and enhancement of these features through specific management schemes.

4.2 Marketing

1 The Isle of Wight farmers market has been established to help increase the sale of local produce on the Island and so increase profitability of farm produce on the Island. Much of the produce for sale at the farmers market is also produced in ways which benefit biodiversity and the natural environment.

2 The Island 2000 Trust is seeking to help farming that promotes biodiversity through:-

- The development of new products which reflect the character of the Island
- Marketing of Island products.
- Development of Green Labelling Scheme.
- Development of local food industry including I.O.W. Farmers and Producers Market

3 The Countryside Agency launched its 'Eat the View' initiative in July 2000. It aims to help people make the links between the products they buy and the countryside they cherish. By improving the commercial viability of environmentally sound land management they are seeking to support both rural communities and maintain the traditional character of the English countryside.

'Eat the View' is a five year programme with the following key objectives and outcomes:

- increased consumer awareness of the links between what people buy and the countryside they value;
- increased demand for locally and regionally distinctive products from sustainable systems;
- improved marketing for producers, development of supply chain partnerships, accreditation and product branding;
- enhanced marketing for producers and growers that promotes the character, diversity and environmental value of the landscape.

4 The Wye Valley AONB organised a conference in September 2003 entitled 'Better School Dinners' - a conference on procuring local food in schools in Gloucestershire, Herefordshire and Monmouthshire. This conference was organised to:-

- Hear how one food producer in Gloucestershire is providing local food to over 100 local schools
- Learn what can and can't be done to localise food procurement within the law
- Discuss what you can do to get more local food into local schools
- Discuss how producers can overcome barriers to supplying local schools

SEEDA have also identified public procurement of food as one of the ten key recommendations in its delivery plan for sustainable farming and food. However, the IW AONB Management Plan has not identified this as a priority.

4.3 Habitat management

The People's Trust for Endangered Species has entered part of its nature reserve at Briddlesford into the Countryside Stewardship Scheme including an area managed under the 'arable options'. In the first year the arable land managed under the Scheme contained an abundance of nationally scarce and uncommon arable weeds including broadleaved spurge, small quaking grass and corn marigold. A new farm pond has also been created as part of the CSS scheme.

The RSPB is undertaking an exciting project to encourage the cirl bunting to re-colonise the Isle of Wight as part of the national species recovery programme (joint funded by English Nature). It is working with land owners to secure appropriate low intensity farm management in target areas of the Island.

4.4 Survey, research and monitoring

1 In 2002 a survey of breeding farmland birds was commissioned by the Island 2000 Trust of the coastal farmland along the Military Road between Niton and Compton. This revealed strong populations of skylark (132 territories), linnet (86 territories) and yellow-hammer (65 territories) as well as five territories of corn bunting and three of grey partridge. These results suggest that the farming landscape of this part of the Island is rich in farmland birds but some species, such as the grey partridge and corn bunting, are not doing well.

2 In 2002 Wight Wildlife undertook a survey of brown hare on the Isle of Wight. This has shown good populations of brown hare in several parts of the Island, particularly where there are extensive areas of mixed farmland.

5 Objectives and Targets

The overall aim of this Action Plan is to protect and enhance biodiversity of farmland. This broad aim translates into the specific objectives set out below. Where feasible, objectives have been allocated targets against which achievement can be measured. The 'Proposed Action' table in section 6 identifies the action to be taken to meet these objectives.

	Objectives	**Proposed Actions**
A	Promote actions that support a viable farming economy on the Isle of Wight in which the conservation of farm biodiversity is an integral component	1, 2
B	Maintain and where appropriate restore populations of key farmland species on the Isle of Wight	3, 4, 6 -10
C	Maintain and promote farming systems that conserve the historic landscape character of the Island	3, 4, 6 -10, 14, 16, 17
D	Improve knowledge of farmland habitats and their associated species	5, 11 - 17
E	Communicate with and provide information to farmers and the farming industry, statutory and voluntary organisations and the general public that increase the awareness of farming and farm biodiversity	18 - 21

6 Proposed Action

The following table lists the actions required to achieve the objectives set out in this plan. Each action has been assigned to one or more Key Partners. Key Partners are those organisations that are expected to take responsibility for the delivery of the actions assigned to them, according to the targets set in this Plan. Other organisations may also be involved in the delivery of action and they have been indicated in the Others column.

Key to symbols in Action Table:

♦ To be completed by the indicated year. Work can commence at any time before the due date, at the discretion of the key partner.
♦⇨ Design or production of a plan/strategy to be completed by this year and then followed by its implementation.
➡ To start by the indicated year and usually followed by ongoing work. A start arrow in year 2002 can indicate a new action or a new impetus to existing work.
⇨ Work that has already begun and is ongoing.

Key to Organisations in Action Table
IWC = Isle of Wight Council, EN = English Nature, Defra = Department for Environment, Food and Rural Affairs, EA = Environment Agency, WW = Wight Wildlife, HIWWT = Hampshire and Isle of Wight Wildlife Trust, NT = National Trust, CLA = Country Land and Business Association, NFU = National Farmers Union, I2K = Island 2000 Trust, RSPB = Royal Society for Protection of Birds

	ACTION	DELIVERY BY		YEAR						MEETS OBJ.
		Key Partner	Others	2004	2005	2006	2007	2008	2014	
Support farming for biodiversity										
1.	Promote branding and marketing initiatives that support the sale of Island farm produce in particular that which enhances farmland biodiversity	I2K	EN, NFU, IWC, AONB	⇨						A
2.	Support the development of a slaughtering facility on the Island	NFU	EN, NFU, IWC, AONB	⇨						A

	ACTION	DELIVERY BY		YEAR						MEETS OBJ.
		Key Partner	**Others**	**2004**	**2005**	**2006**	**2007**	**2008**	**2014**	
Habitat Management, Incentive Schemes and Other Resources										
3.	Promote the Countryside Stewardship Scheme or 'Environmental Stewardship' scheme to farmers and landowners in particular the new Entry Level scheme options.	Defra	ALL		⇨					B, C
4.	Use demonstration farms to highlight the value of the CSS and how it can be integrated into economically viable farming systems	Defra	ALL			♦⇨				B, C
5.	Collate research information on management of farmland for flagship species	IWC	ALL		♦⇨					D
6.	Liaise with local Defra officers to target agri-environment schemes for priority species.	IWC	ALL	⇨						B, C
7.	Lobby government and Defra to implement the recommendations of the Curry Report in full and in particular increase funding for agri-environment schemes	NFU/ IWC/ RSPB	ALL	⇨						B, C
8.	Prevent further loss of hedgerows through dereliction or destruction	IWC	WW	⇨						B, C
9.	Prevent further loss of farm ponds through dereliction or destruction	IWC	WW/ EA	⇨						B, C
10.	Work with farmers and farm advisors to prepare whole farm audits for Entry Level and Higher Level agri-environment schemes.	Defra, WW	IWC, RSPB, FWAG, AONB	⇨						B, C
11.	Audit available data on the population size and distribution of farmland flagship species	IWC	WW EN, RSPB		♦⇨					D

	ACTION	DELIVERY BY		YEAR						MEETS OBJ.
Survey, Research and Monitoring										
				2004	**2005**	**2006**	**2007**	**2008**	**2014**	
12.	Identify gaps in knowledge on farmland flagship species and promote/undertake additional survey where necessary	IWC	WW, RSPB			♦⇨				D
13.	Develop and then implement a monitoring and reporting programme for farmland flagship species	IWC	NT WW EN, RSPB, I2K			♦⇨				C,D
14.	Audit the extent, distribution and condition of hedgerows and in particular species rich hedgerows on the Island	IWC	WW				♦⇨			D
15.	Identify farmland features associated with historic landscape character	IWC AC	AONB	♦						C, D
16.	Develop management objectives to conserve and enhance these features	IWC AC	AONB		♦⇨					C, D
17.	Prepare management profiles for groups of farmland flagship species to help guide the preparation of farm management plans and applications for Entry Level and Higher Level agri-environment schemes	IWC, EN, RSPB		⇨						D
Communication and Publicity										
18.	Improve availability of agri-environment advice to farmers through provision of farm advisors	IWC/ Defra	EN/ IWC, RSPB, AONB	⇨						E
19.	Provide more seminars and briefings on management of farmland for biodiversity including hedgerow management, pond creation and management, grassland and crop management etc.	Defra/ WW	IWC, NFU, CLA, AONB, I2K		♦⇨					E

	ACTION	DELIVERY BY		YEAR						MEETS OBJ.
		Key Partner	**Others**	**2004**	**2005**	**2006**	**2007**	**2008**	**2014**	
20.	Publicise importance of farmland for biodiversity through production of articles, farm walks and visits, talks to community groups etc	WW	IWC, NFU, CLA, AONB, Island 2000, RSPB	⇨						E
21.	Increase awareness of habitat requirements of farmland birds and other groups of farmland flagship species through articles, training days, farm visits and talks	WW/ Island 2000/ RSPB	IWC/ NFU/ CLA	⇨						E

7 Sources of Information

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5. Defra, 2003. Entry Level Agri-Environment Scheme Pilot, Scheme Guidance Booklet.

6. The National Trust. 2001. A National Farm Advisory Service: delivering integrated business and environmental advice. Briefing Note 1. December 2001.

7. The National Trust. 2001. A proposed model for delivering an entry-level agri-environment scheme. Briefing Note 2. December 2001.

8. Joint Nature Conservation Committee, 1999, *The implementation of Common Standards for Monitoring and Conservation Objectives*. Peterborough.

9. Defra. 2003. Common Agricultural Policy (CAP) reform. Summary of agreement of 26 June 2003. http://www.defra.gov.uk/farm/capreform/agreement-summary.htm

Latin name	English name	Group	BAP status	Rarity	Primary habitat	Secondary habitat
Lepus europaeus	Brown Hare	Mammal	1		LOWLAND MEADOWS	LOWLAND CALCAREOUS GRASSLAND
Muscardinus avellanarius	Dormouse	Mammal	1		Broad-leaved mixed woodland	ANCIENT AND/OR SPP RICH HEDGEROWS
Sciurus vulgaris	Red Squirrel	Mammal	1		Broad-leaved mixed woodland	ANCIENT AND/OR SPP RICH HEDGEROWS
Anguis fragilis	Slow-worm	Reptile	2		Arable & horticultural	LOWLAND MEADOWS
Natrix natrix	Grass Snake	Reptile	2		LOWLAND MEADOWS	ANCIENT AND/OR SPP RICH HEDGEROWS
Acrocephalus schoenobaenus	Sedge warbler	Bird	2		REEDBEDS	ANCIENT AND/OR SPP RICH HEDGEROWS
Alauda arvensis	Skylark	Bird	1		Improved grassland	Arable and horticultural
Aythya fuligula	Tufted duck	Bird	2		EUTROPHIC STANDING WATERS	
Carduelis cannabina	Linnet	Bird	1		ANCIENT AND/OR SPP RICH HEDGEROWS	Arable & horticultural
Carduelis chloris	Greenfinch	Bird	2		ANCIENT AND/OR SPP RICH HEDGEROWS	Built-up areas and gardens
Emberiza citrinella	Yellowhammer	Bird	2		Boundary and linear features	Arable & horticultural
Milaria calandra	Corn bunting	Bird	1		Arable & horticultural	Boundary and linear features
Numenius arquata	Curlew (wintering)	Bird	2		MUDFLATS	Improved grassland
Parus major	Great tit	Bird	2		Broad-leaved mixed woodland	ANCIENT AND/OR SPP RICH HEDGEROWS
Perdix perdix	Grey partridge	Bird	1		Arable & horticultural	ANCIENT AND/OR SPP RICH HEDGEROWS
Pluvialis apricaria	Golden plover (wintering)	Bird	2		MUDFLATS	Improved grassland
Prunella modularis	Dunnock	Bird	2		ANCIENT AND/OR SPP RICH HEDGEROWS	Built-up areas and gardens
Pyrrhula pyrrhula	Bullfinch	Bird	1		Broad-leaved mixed woodland	Arable & horticultural
Streptopelia turtur	Turtle dove	Bird	1		Broad-leaved mixed woodland	ANCIENT AND/OR SPP RICH HEDGEROWS
Sylvia communis	Whitethroat	Bird	2		ANCIENT AND/OR SPP RICH HEDGEROWS	
Sylvia curruca	Lesser whitethroat	Bird	2		ANCIENT AND/OR SPP RICH HEDGEROWS	
Turdus ilacus	Redwing (wintering)	Bird	2		ANCIENT AND/OR SPP RICH HEDGEROWS	LOWLAND MEADOWS
Turdus pilaris	Fieldfare (wintering)	Bird	2		ANCIENT AND/OR SPP RICH HEDGEROWS	LOWLAND MEADOWS
Vanellus vanellus	Lapwing	Bird	2		MUDFLATS	Improved grassland
Harpalus cupreus	A ground beetle	Beetle	3	EN	Arable & horticultural	
Thecla betulae	Brown Hairstreak	Butterfly	2		ANCIENT AND/OR SPP RICH HEDGEROWS	
Aeshna grandis	Brown Hawker	Damselflies and dragonflies	3		EUTROPHIC STANDING WATERS	

 Habitats in CAPITALS are Priority Habitats in the UK Biodiversity Action Plan 1= National Priority Species 2=Species of National Conservation Concern 3= Species of Local conservation Concern

Latin name	English name	Group	BAP status	Rarity	Primary habitat	Secondary habitat
Brachytron pratense	Hairy Dragonfly	Damselflies and dragonflies			EUTROPHIC STANDING WATERS	
Calopteryx virgo	Beautiful Demoiselle	Damselflies and dragonflies	3		EUTROPHIC STANDING WATERS	Rivers & streams
Coenagrion pulchellum	Variable Damselfly	Damselflies and dragonflies	3		EUTROPHIC STANDING WATERS	
Cordulegaster boltonii	Golden-ringed Dragonfly	Damselflies and dragonflies	3		EUTROPHIC STANDING WATERS	Rivers & streams
Erythromma viridulum	Small Red-eyed Damselfly	Damselflies and dragonflies	p 3		EUTROPHIC STANDING WATERS	
Lestes sponsa	Emerald Damselfly	Damselflies and dragonflies	3		EUTROPHIC STANDING WATERS	
Libellula quadrimaculata	Four-spotted Chaser	Damselflies and dragonflies	3		EUTROPHIC STANDING WATERS	
Sympetrum fonscolombei	Red-veined Darter	Damselflies and dragonflies	p 3		EUTROPHIC STANDING WATERS	
Sympetrum sanguineum	Ruddy Darter	Damselflies and dragonflies	3		EUTROPHIC STANDING WATERS	Rivers & streams
Catarhoe rubidata	Ruddy Carpet	Moth	3		MARITIME CLIFFS & SLOPES	ANCIENT AND/OR SPP RICH HEDGEROWS
Eudonia lineola	Striped Grey	Moth	3		Boundary and linear features	MARITIME CLIFFS & SLOPES
Euphyia biangulata	Cloaked Carpet	Moth	3		ANCIENT AND/OR SPP RICH HEDGEROWS	
Eupithecia plumbeolata	Lead-coloured Pug	Moth	3		Broad-leaved mixed woodland	ANCIENT AND/OR SPP RICH HEDGEROWS
Nephopteryx angustella	Narrow-winged Knot-horn	Moth	3		Boundary and linear features	LOWLAND CALCAREOUS GRASSLAND
Synanthedon tipuliformis	Currant Clearwing	Moth	3		Arable & horticultural	
Microvelia pygmaea	A semi-aquatic bug	True bug	3		EUTROPHIC STANDING WATERS	Fen marsh and swamp
Trichochermes walkeri	A jumping plant louse	True bug	3		Boundary and linear features	
Xerocomus leonis		Fungus	3		Boundary and linear features	Broad-leaved mixed woodland
Anaptychia ciliaris	A lichen	Lichens	3		WOOD PASTURE & PARKLAND	ANCIENT AND/OR SPP RICH HEDGEROWS
Bacidia incompta	A lichen	Lichens	2	VU	Boundary and linear features	
Physcia tribacioides	Southern Grey Physcia	Lichens	2	EN	Boundary and linear features	
Usnea articulata	A lichen	Lichens	3		Broad-leaved mixed woodland	ANCIENT AND/OR SPP RICH HEDGEROWS
Anthoceros agrestis	'Field Hornwort'	Liverworts	3		LOWLAND MEADOWS	Arable & horticultural
Riccia fluitans	Floating Crystalwort	Liverworts	3		EUTROPHIC STANDING WATERS	
Riccia glauca	Glaucous Crystalwort'	Liverworts	3		Arable & horticultural	
Riccia sorocarpa	Common Crystalwort	Liverworts	3		Arable & horticultural	
Bryum ruderale	'Pea Bryum'	Mosses	3		Arable & horticultural	Boundary and linear features
Chenia leptophylla	Vectis-moss	Mosses	3		Arable & horticultural	
Drepanocladus aduncus	''Kneiff's Hook-moss'	Mosses	3		EUTROPHIC STANDING WATERS	

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Latin name	English name	Group	BAP status	Rarity	Primary habitat	Secondary habitat
Ephemerum serratum v. minutissimum	'Minute Earth-moss'	Mosses	3		Arable & horticultural	Broad-leaved mixed woodland
Microbryum davillianum	'Smallest Pottia'	Mosses	3		Arable & horticultural	
Microbryum floerkeanum	'Floerke's Phascum'	Mosses	3		LOWLAND CALCAREOUS GRASSLANDS	Arable & horticultural
Pohlia lutescens	'Yellow Thread-moss'	Mosses	3		Boundary and linear features	Rivers & streams
Anthemis arvensis	Corn Chamomile	Flowering plant	3		Arable & horticultural	
Briza minor	Lesser Quaking-grass	Flowering plant	3		Arable & horticultural	
Callitriche hamatula	Intermediate Water Starwort	Flowering plant	3		EUTROPHIC STANDING WATERS	
Callitriche obtusangula	Blunt-fruited Water Starwort	Flowering plant	3		EUTROPHIC STANDING WATERS	
Callitriche platycarpa	Various-leaved Water Starwort	Flowering plant	3		EUTROPHIC STANDING WATERS	
Centaurea cyanus	Cornflower	Flowering plant	1	EN	Arable & horticultural	
Chenopodium glaucum	Oak-leaved Goosefoot	Flowering plant	3		Arable & horticultural	
Chenopodium urbicum	Upright Goosefoot	Flowering plant	3		Arable & horticultural	
Euphorbia platyphyllos	Broad-leaved Spurge	Flowering plant	3		Arable & horticultural	ANCIENT AND/OR SPP RICH HEDGEROWS
Filago vulgaris	Common Cudweed	Flowering plant	3		Arable & horticultural	LOWLAND HEATHLAND
Fumaria bastardii	Tall Ramping-fumitory	Flowering plant	3		Arable & horticultural	
Fumaria purpurea	Purple Ramping-fumitory	Flowering plant	1		Arable & horticultural	
Fumaria reuteri	Martin's Ramping-fumitory	Flowering plant	2	EN	Arable & horticultural	
Fumaria vaillantii	Few-flowered Fumitory	Flowering plant	3		Arable & horticultural	
Glyceria maxima	Reed Sweet-grass	Flowering plant	3		EUTROPHIC STANDING WATERS	
Hippuris vulgaris	Marestail	Flowering plant	3		EUTROPHIC STANDING WATERS	
Lemna gibba	Fat Duckweed	Flowering plant	3		EUTROPHIC STANDING WATERS	
Melampyrum arvense	Field cow-wheat	Flowering plant				
Misopates orontium	Lesser Snapdragon	Flowering plant	3		Arable & horticultural	
Myriophyllum alterniflorum	Alternate Water Milfoil	Flowering plant	3		EUTROPHIC STANDING WATERS	
*Nuphar lutea**	Yellow Water-lily	Flowering plant	3		EUTROPHIC STANDING WATERS	
Oenanthe fistulosa	Tubular Water Dropwort	Flowering plant	3		EUTROPHIC STANDING WATERS	Grazing marsh
Orobanche rapum-genistae	Greater Broomrape	Flowering plant	2		Boundary and linear features	LOWLAND DRY ACID GRASSLAND
Papaver argemone	Prickly Poppy	Flowering plant	3		Arable & horticultural	
Papaver hybridum	Rough Poppy	Flowering plant	3		Arable & horticultural	
Potamogeton polygonifolius	Bog Pondweed	Flowering plant	3		EUTROPHIC STANDING WATERS	Fen marsh and swamp
Ranunculus arvensis	Corn Buttercup	Flowering plant	2		Arable & horticultural	
Ranunculus trichophyllus	Thread-leaved Water-crowfoot	Flowering plant	3		EUTROPHIC STANDING WATERS	

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Latin name	English name	Group	BAP status	Rarity	Primary habitat	Secondary habitat
Rhamnus cathartica	Purging Buckthorn	Flowering plant	3		Boundary and linear features	LOWLAND CALCAREOUS GRASSLAND
Rorippa sylvestris	Creeping Yellowcress	Flowering plant	3		Arable & horticultural	
Rumex hydrolapathum	Water Dock	Flowering plant	3		EUTROPHIC STANDING WATERS	Fen marsh and swamp
Sambucus ebulus	Dwarf Elder	Flowering plant	3		Boundary and linear features	
Scleranthus annuus	Annual Knawel	Flowering plant	3		LOWLAND DRY ACID GRASSLAND	Arable & horticultural
Silene gallica	Small-flowered Catchfly	Flowering plant	1		Arable & horticultural	
Silene noctiflora	Night-flowered Catchfly	Flowering plant	3		Arable & horticultural	
Silybum marianum	Milk Thistle	Flowering plant	3		Arable & horticultural	LOWLAND CALCAREOUS GRASSLAND
Spirodela polyrhiza	Greater Duckweed	Flowering plant	3		EUTROPHIC STANDING WATERS	
Stellaria neglecta	Greater Chickweed	Flowering plant	3		Boundary and linear features	Broad-leaved mixed woodland
Stratiotes aloides	Water Soldier	Flowering plant	3		EUTROPHIC STANDING WATERS	
Tilia cordata	Small-leaved Lime	Flowering plant	3		Broad-leaved mixed woodland	ANCIENT AND/OR SPP RICH HEDGEROWS
Torilis arvensis	Spreading Hedge Parsley	Flowering plant	3		Arable & horticultural	
Trifolium arvense	Haresfoot Clover	Flowering plant	3		COASTAL SAND DUNES	Arable & horticultural
Valerianella dentata	Narrow-fruited Corn Salad	Flowering plant	2		Arable & horticultural	
Valerianella rimosa	Broad-fruited Corn Salad	Flowering plant	1	EN	Arable & horticultural	
Verbascum nigrum	Dark Mullein	Flowering plant	3		Boundary and linear features	
Veronica agrestis	Green Field Speedwell	Flowering plant	3		Arable & horticultural	

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Species requiring a mosaic of habitats which includes farmed land

Latin Name	English name	Group	BAP status	Rarity
Barbastella barbestellus	Barbastelle	Mammal	1	
Eptesicus serotinus	Serotine	Mammal	2	
Myotis bechsteinii	Bechstein's Bat	Mammal	1	
Myotis daubentonii	Daubenton's Bat	Mammal	2	
Myotis mystacinus	Whiskered Bat	Mammal	2	
Myotis nattereri	Natterer's Bat	Mammal	2	
Nyctalus noctula	Noctule	Mammal	2	
Pipistrellus nathusii	Nathusius's Pipistrelle	Mammal	3	
Pipistrellus pipistrellus	Pipistrelle Bat	Mammal	1	
Plecotus auritus	Brown Long-eared Bat	Mammal	2	
Plecotus austriacus	Grey Long-eared Bat	Mammal	2	
Rhinolophus ferrumequinum	Greater Horseshoe Bat	Mammal	1	
Carduelis carduelis	Goldfinch	Bird	2	
Motacilla alba	Pied wagtail	Bird	2	
Tyto alba	Barn owl	Bird	2	
Bufo bufo	Common Toad	Amphibian	2	
Rana temporaria	Common Frog	Amphibian	2	
Triturus cristatus	Great Crested Newt	Amphibian	1	
Triturus helveticus	Palmate Newt	Amphibian	2	
Triturus vulgaris	Smooth Newt	Amphibian	2	
Aleucis distinctata	Sloe Carpet	Moth	3	
Cynaeda dentalis	Starry Brindled Pearl	Moth	3	
Chaetostoma curvinerve	A picture-winged fly	True fly	p3	RDB 2
Stratiomys potamida	A soldier fly	True fly	3	

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