

Habitat Action Plan for Sussex

Arable Land including Field Margins

I. Habitat Definition

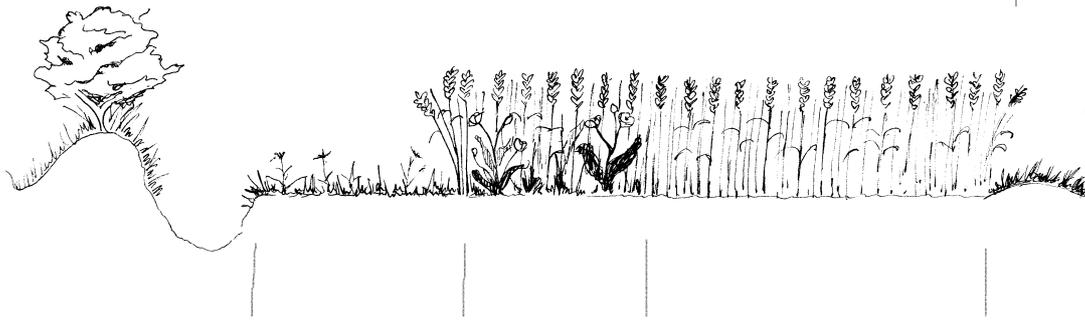
Arable land under this definition includes all of the farmed area under the plough as well as the field margin. This HAP therefore covers all cultivated land, including arable crops, grass leys (when they are part of the rotation and less than 5 years old), vegetables, and non-food crops (such as flax) as well as the field margin.

In the UK Arable Land Biodiversity Action Plan, the field margin is considered to be the priority habitat and is defined as:

“Strips of land lying between cereal crops and the field boundary and extending for a limited distance into the crop which are deliberately managed to create conditions which benefit key farmland species.”

In this case the field margin includes pre-existing boundary features such as ditches (but not hedges – see Hedgerow HAP) and the surrounding boundary strip. This may be composed of: a permanent grass strip, grass and wildflower strip, uncropped wildlife strip, set aside margin (including sown wildlife mixtures) or a combination of the above.

The arable area is taken to be any area under the plough including conservation headlands and also covers permanent features such as grass margins and beetle banks.



Field margin		Cropped area		Beetle bank Tussocky grass on bank
<i>Ditch</i> Wet or dry	<i>Boundary strip</i> Grass, grass and wildflowers or uncropped wildlife strip	<i>Conservation headland</i> Selectively sprayed	<i>Main crop area</i> Autumn / spring cropping, set aside, overwinter stubbles	

2. Current Status and Distribution

Although there have been few systematic surveys to assess the current state of the habitat and its associated species, there is a great deal of observational and anecdotal evidence to indicate that the habitat has suffered a severe decline in terms of its associated biodiversity (see Trends and Threats). Arable weed species are now restricted to a few locations, usually in the less-well cultivated margins of fields on the South Downs. Farmland birds are widely distributed across the farmed landscape, but their population levels are lower now than 20 years ago. The skylark, which has suffered major reductions in much of Britain, is still present on the Downs in reasonable numbers, but the stone curlew became locally extinct in the 1980's.

The current state of habitats and species associated with the farmed environment will be strongly influenced by the proportions and distribution of major agricultural land uses in Sussex. Approximately 60% of Sussex is farmed, the MAFF 87 – 97 census breaks this down into the following proportions of agricultural land uses:

	1997 (%)
Grassland	44.5
Rough Grazing	3.9
Crops and Fallow	37.7
Set-aside	3.3
Other land	3.2
Farm woodland	7.4
Total	100

As can be seen above arable and horticultural crops including set-aside, occupy over 40% of the area of agricultural land. The great majority is dedicated to the production of combinable crops such as wheat, with small areas of winter and spring barley and break crops including oilseed rape, field beans and peas. Linseed is another important crop, which varies in the amount produced from year to year. There is a small area of potatoes and hops.

This 37.7% area of crops and fallow represents 87,184ha of land within Sussex. From MAFF 87 – 97 agricultural census data this area is composed of:

	AREA (ha)
Wheat	37,532
Winter barley	10,168
Spring barley	3,975
Other cereals	5,011
TOTAL CEREALS	56,686
Potatoes	989
Hops	149
Horticultural crops	3,006
Field beans and dry peas	5,804
Oilseed rape	6,887
Linseed	4,917
Other crops and fallow (including maize)	8,746
SUB TOTAL	30,498
TOTAL CROPS AND FALLOW	87,184

These figures vary greatly from year to year dependent on world markets and the influence of subsidies from CAP (Common Agricultural Policy).

Variation across Sussex

There is a range of different geology, soil types and landscape across Sussex from the chalk downs through the Low Weald clays to the High Weald clays and sandstones, and loams of the W Sussex coast plain. These varying conditions favour differing farming practices and support widely differing plant and animal communities. The varying landscape characters of Sussex are described in the English Nature natural area profiles.

Chalk downs, (including flood-plain grazing marsh, fens and reedbeds along river valleys).

This is a high profile landscape, which dominates the Sussex countryside, despite its relative narrowness. Soils are chalk or calcareous loams with occasional clay caps and often contain flints. The landscape is very open in the east with little woodland and very few hedgerows, though the woodland component increases in the western Downs. Farm sizes are often in excess of 500 acres. Arable farming

dominates but any farms are mixed with sheep, cattle and occasional dairy. Permanent pasture usually occurs on the steeper banks and wetter river valley grasslands.

High Weald

The land is made up of heavy clays and sandstone soils in a generally steeply rolling landscape with a high degree of woodland cover (over 30% of the land is covered in woodland in some areas) and most of this ancient semi-natural. The landscape also has many interlocking old species-rich hedgerows. Some of the largest areas of heathland in Sussex are found in the High Weald (Ashdown Forest) and the area is particularly important for its old hay meadows.

Holdings are typically less than 100 acres. Sheep and beef are widespread with dairy and arable still significant but localised. All these enterprises are declining due to modern economic pressures, which encourage the sale of farmland for amenity and other non-commercial use. Now less than 25% of the of the holdings are managed as commercial farms and this number is still declining.

Low Weald

Similar soils to the High Weald but a more gently rolling landscape with several large areas of river valley and drained marshland. Woodland and hedgerow are typical on the higher ground but not to the extent of the High Weald.

Holding sizes average at about 250 acres. Mixed livestock and arable farms are common, with cattle and sheep numbers significant. This land is much more suited to modern farming and has managed to cope better with commercial pressures until recently.

Coastal Plain

This area lies to the south of the Downs, projecting into the English Channel as far as Selsey Bill. The land is some of the best in the south of England typified by grade 1 and grade 2 soils, supporting a diverse range of predominantly vegetable, horticultural and arable farming. A few mixed beef and dairy farms are still present with grazing predominantly taking place on the waterside and coastal grassland.

The landscape is very open and flat dissected by wide ditches and rifes, which support a diverse range of wildlife. Although open there are still areas of remnant ancient woodland, hedgerows and ponds.

3. Importance of the Habitat

Well managed arable land can have very high ecological value particularly when located within a mixed farm landscape. This is the case for some bird species, such as tree sparrow, (Robinson, et al, 2001), however, there is much variation and good arable plant sites can be found in areas with a long history of arable cropping. An important number of rare and declining plant and animal species depend on arable habitats for their survival. This value may be the cropped area itself or the features contained around or within the crop including; beetle banks, conservation headlands and grass and wildflower margins.

Cultivated features

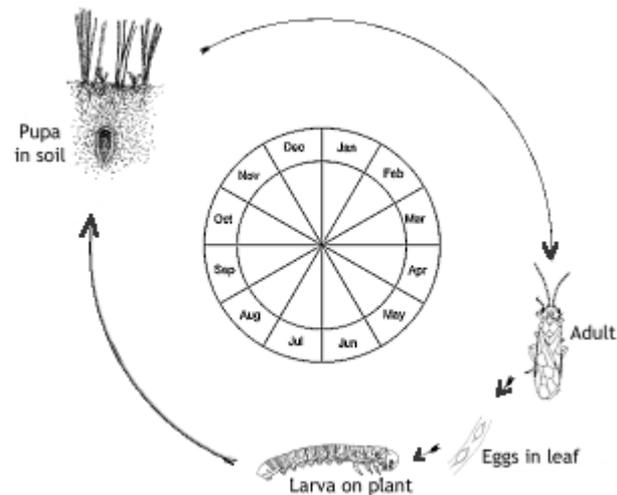
The value of the cropped area to wildlife varies greatly depending on the crop grown and the management practises employed. A mixed (cropping) farm system is extremely important as it provides a variety of feeding opportunities and cover through the year which many farmland species such as brown hare require. The timing of operations can be particularly important to biodiversity. Over-wintering stubbles are essential feeding areas (spilt grain, weeds and invertebrates) for many types of resident bird such as linnets, skylark, reed bunting, chaffinch and yellow hammer. Over wintering stubbles can also be important for flowering plants and in particular for bryophytes, when upward of 20 species may occur in a single field. These include certain rare bryophytes such as the field hornwort (*Anthoceros agrestis*) and the least crystalwort (*Riccia sublifurca*), as well as some of the ephemeral mosses. Leaving some stubbles uncultivated for as long as possible is critical to the survival of these species.

The subsequent late ploughing (January/February) provides time for pre-ploughing emergence of a wealth of invertebrates, and the following spring crop provides a short open sward ideal for ground nesting birds such as skylark and lapwing to utilise.

Some of Britain's rarest plants are found within the edges of arable fields. These once common species such as pheasant's eye, cornflower, spreading hedge-parsley and shepherds needle are now rarely found due to agricultural improvements in crop yield and pesticides. Conservation headlands at the edge of the crop have a restricted spraying regime to encourage broad-leaved plants and invertebrates.

Crops under-sown with grass have many benefits to biodiversity even though the subsequent grass may be temporary in nature. Under sowing provides ideal conditions for invertebrates such as sawfly larvae that utilise the crop and grass as cover. The lack of spring ploughing in this system means that the ground is not disturbed and the invertebrates are not desiccated. These larvae are an important source of food for many farmland birds but particularly important for the grey partridge.

Lifecycle of sawfly larvae



Permanent features (including grass margins and beetle banks)

Grass margins

The value of grass margins for agriculture and biodiversity is becoming increasingly recognised. The creation of at least some tussocky grass margins is one of the simplest yet most worthwhile projects that can be undertaken by an arable farmer. Arable margins can be of any width but the bigger the better. They can be sown or where suitable allowed to naturally regenerate. They have many benefits for biodiversity including:

- Grass margins are essential as nesting sites for game birds, notably grey partridges, and are also important for nesting and solitary wasps, bees and bumblebees.
- If there is a wildflower element within the margins they will provide pollen and nectar for a number of invertebrates including bumblebee species.
- The high number of invertebrates provides food for farmland birds as well as for mammals such as the pipistrelle bat.
- As well as some having botanical interest themselves, field margins act as important buffer strips between farm operations and sensitive habitats such as hedges and watercourses.
- Wider margins in good condition will encourage small mammals and consequently may attract barn owls, which prey on them

Benefits for the farm system include:

- The thick sward encourages high numbers of over-wintering beneficial insects, which migrate into the crop during spring and summer to attack aphids. The effect of these beneficial insects has been proven to be commercially significant through research by Southampton University, the Game Conservancy Trust, and Long Ashton Research stations.
- The lower crop yield on the outer 1 or 2 metres of headland can be uneconomic when weighed against the cost of inputs.
- Field margins that contain a thick grass sward will prevent the repeated encroachment of arable weeds such as cleavers and sterile brome, which only thrive on bare ground.
- Wider margins prevent cultivation damage to the roots of trees and grass margins can allow farm machinery on later in the year, allowing hedges to be trimmed later.

Beetle banks

Beetle banks were developed by the Game Conservancy Trust. They create mid field margins with many of the same benefits as a normal field margin, around the edge of a field. Beetle banks are rough grass refuges (usually across the centre of the field) where predatory insects can over-winter and act as a sink for predatory insects to migrate in the crop in the spring. Beetle banks are most valuable in fields over 20 hectares along with a good network of rough grass field margins. They can easily be positioned to have minimal impact on normal cultivations.

Beetle banks are earth banks approximately 0.4m high and 2m wide created by ploughing in opposite directions. They are not connected at either end to allow normal farm operations to continue. This island effect also means that they tend to be hunted along by predators to a lesser extent. Beetle banks are sown with tussocky grass species such as cocksfoot and Yorkshire fog.

Experiments have proved that savings can be made through the use of predatory insects and reduction in use of pesticides and manpower.

As well as providing a refuge for predatory insects the rough grass attracts game birds such as grey partridge and mammals such as harvest mouse. They are often inhabited by solitary wasp and bee species.

4. Importance for the People, Local Community and Cultural Significance

A mixed farming landscape within which there is a strong arable element can deliver the following general benefits:

- Landscape interest and diversity in the countryside and a backdrop for informal recreation.

- A variation in cropping provides the ‘patchwork quilt’ effect that is thought typical of the best of English landscape. Seasonal changes in colour and activity on the land acting as a reminder of the passing of the seasons and connection with traditional events such as harvest festival.
- With appropriate management, it can deliver a greater diversity of wildlife, the arable element supporting species groups that are not as abundant in other parts of a farming system.
- It can favour local products resulting in a relationship between the consumer and their food, particularly in respect to farm shops and Pick Your Own.

The mixed farming landscape, unlike many other wildlife habitats, is used for commercial production and has a major economic significance providing:

- Sources of employment – on the farm, in the supply, manufacturing and retailing industries, and in administration and policy sectors (and increasingly tourism).
- Sources of food for both human and animal consumption
- Potential source of biofuel, such as rape oil for vehicle fuel, short rotation coppice for power stations
- Source of raw materials for non-food products such as flax, linseed oil, straw for bedding, and thatching
- Sporting interests, particularly game birds

5. Trends and Threats

Surveys carried out by a number of organisations have shown a serious decline in the populations and ranges of birds, mammals, insects and plants associated with arable land.

Declines in farmland birds have been identified from surveys undertaken in 1980 – 1990 for a number of bird species characteristic of arable and mixed farmland (Fuller, 1995). These birds feed on seeds, invertebrates or both at different times of the year. Significant declines in the brown hare have also been recorded (Tapper and Barnes, 1986), associated with changes in the availability of high quality food at certain times of the year. Poaching and hare coursing has furthered their decline. The decline in pipistrelle bats is in part due to the lower abundance of insect prey on farmland. As a county Sussex is a stronghold for a number of rare arable flowers such as pheasant’s eye and shepherds needle, however over recent years these have declined both nationally and within the county.

Changes in arable farming practices have been identified as important factors in these declines. These changes, which are in the main caused by worldwide economic trends and the CAP include:

- Concentration on winter cereals, with a subsequent loss in over wintered stubbles and spring crops

- Increasing use of fertilisers and pesticides since the late 1950's
- Lack of management of surviving semi-natural habitat such as hedges.
- Loss of semi-natural habitat including hedges, field margins and ditches as field sizes increased and boundary features removed
- Simplification of crop rotation cycle, including a decline in root crops in stock rearing areas
- Arable reversion on land where the existing arable system had wildlife benefits (this could cause the loss, for example of arable weed species, by reverting an arable area to grassland).
- Changes in the timing of cultivation
- Year by year fluctuations in crop type caused by subsidies, market prices and the weather.

The decline in spring cropping, along with a small reduction in the total arable area can be seen clearly in the Agricultural Census Data for East and West Sussex 1987 – 1997:

	1987	1992	1997	% change 87 – 92	% change 87 –97
Spring barley	11,235ha	3,580ha	3,975ha	-68.1%	-64.6%
Total crops and fallow	95,670ha	84,174ha	87,184ha	-12.0%	-8.9%

But not all-recent changes are having a negative effect on wildlife. The positive trend in agri -environment schemes (particularly with arable options offered under the South Downs ESA scheme), and the increased uptake of the ICM (Integrated Crop Management) approach are all having a positive effect on wildlife. For example the area of over-wintering stubbles has recently increased in response to new agri-environment schemes. The total take up of this option under the South Downs ESA scheme up to the end of the year 2000 was approximately 4000 ha.

The introduction of sympathetically managed set aside has also had a very positive impact on wildlife in some cases. For example, within certain parts of the Game Conservancy Sussex study area where under-sowing, rotations and creation of field margins have been maintained the number of corn buntings and grey partridge have remained stable, whereas elsewhere numbers are declining.

6. Potential

MANAGEMENT METHODS	BENEFITS	COMMENTS	RELEVANT SPECIES
PLANTED/CROPPED AREA			
Over wintered stubbles	<ul style="list-style-type: none"> • Provides over winter food supplies for farmland birds in the form of wildflower seeds, spilt grain and invertebrates. • Stubble provides important shelter for wildlife throughout winter. • Provides habitat for uncommon bryophyte communities. • Helps to alleviate runoff and soil erosion. • Ideal conditions for autumn germinating wildflowers. 	Usually in conjunction with spring cropping on lighter soils.	Pheasants eye Linnet Skylark Corn bunting Tree sparrow Brown hare Field hornwort
Conservation headlands	<ul style="list-style-type: none"> • Helps to conserve rare arable flowers. • Encourages broad-leaved weeds, which encourage insects that in turn act as food for chicks. • Increased pollen sources provide habitat for hoverflies, butterflies and other pollinators. 	For more detailed management prescriptions consult the Game Conservancy Trust Ltd.	Bumble bee spp. Pheasants eye Shepherds needle Spreading hedge parsley Grey partridge Corn bunting
Spring sowing	<ul style="list-style-type: none"> • Ploughing in December-January provides a further source of seed and invertebrates at a time when food supplies are low. • Provides open habitat for ground nesting birds and brown hares. • Spring sown crops are usually harvested later, lessening the risk to late broods of ground nesting birds. 	This shorter vegetation is particularly important when found within a relatively open landscape. When used in conjunction with over wintered stubbles maximum wildlife benefits are gained in the form of maximum shelter and food.	Skylark Corn bunting Brown hare
Undersowing	<ul style="list-style-type: none"> • Usually lower amounts of pesticides are used on undersown crops, encouraging plants and associated insects, in turn providing a source of food for wildlife. 	Sawfly, which research has shown diminish after ploughing are an	Sawfly Grey partridge

	<ul style="list-style-type: none"> • Provides cover for ground nesting birds and mammals. • Reduces erosion and leaching risks. • Provides ideal conditions for spring germinating rare arable flowers. 	essential food item for grey partridge chicks.	Skylark Linnet Lapwing Pheasants eye Brown hare
Crops with reduced or no artificial inputs	<ul style="list-style-type: none"> • Improves soil invertebrate colonies. • Provides increased numbers of broad-leaved plants associated invertebrates, which in turn provide an important food source for wildlife. • May encourage rare arable flowers. • Reduced residues in the aquifer. 	Organic farming. Species present will be dependant on management of crop - some management such as mechanical weeding may be harmful to some species.	Tree sparrow Grey partridge Pheasants eye Bats
Cereals with reduced or no herbicides and insecticides	<ul style="list-style-type: none"> • Provides increased numbers of broad-leaved plants and associated insects, which in turn provide an important food source for wildlife. • Encourages rare arable flowers. • Soil invertebrates. • Reduced residues in the aquifer. 	This can be a vital part of ICM (Integrated Crop Management), where applications are carefully targeted to avoid damaging non-target species.	Pheasants eye Shepherd needle Grey partridge Corn buntings Bats
FIELD MARGIN AREA			
Tussocky Grass Margins	<ul style="list-style-type: none"> • Provide overwintering habitat for beneficial insects (which feed on aphids within the crop). • Provides nesting and feeding habitat for certain ground nesting birds. • Ideal conditions are created for small mammals and hence excellent hunting areas for birds of prey. • Can buffer sensitive features such as species rich hedgerows and watercourses from farm operations. • Reduces the ingress of annual weeds. • Can enhance potential of boundary as wildlife corridor to neighbouring semi- 	Margins are usually sown where there is a perceived weed problem, but can naturally regenerate. Ideally a survey should be carried out before locating permanent margins on particularly lighter soils to determine the presence of rare arable flowers. Can help farmers conform to LERAPs (Local Environment	Barn owl Grey partridge Bats

	natural habitats.	Risk Assessments for Pesticides).	
Grass margins with wildflowers	<ul style="list-style-type: none"> • Will provide all of the above. • The addition of a wildflower element will provide a pollen and nectar source for hoverflies, butterflies and pollinators, as well as increased seeds and insects for birds. Presence of species such as red clover, birds foot trefoil and knapweed is particularly important for bumblebees. 	Usually best results with lighter soils and minimal perceived weed problems. Ideally local provenance wildflower seed should be used where possible.	Bumble bee species Grey partridge Barn owl Bats
Cultivated margin	<ul style="list-style-type: none"> • Provides annual conditions for rare arable flowers. 	Timing of cultivation is important for rare arable flowers - e.g. autumn cultivation for autumn germinating species.	Pheasants eye Shepherds needle
Rotational set aside	<ul style="list-style-type: none"> • The stubble from the previous crop and the following natural regeneration provides cover, food sources (spilt grain, weed seeds and insects), and some nesting opportunities. • The cover prevents winter erosion and leaching. • Provides ideal conditions for spring germinating rare arable flowers. 	A green cover must be present between January 15 th and May 1 st . this green cover can be sown or naturally regenerated.	Skylark Corn bunting Linnet Grey partridge Tree sparrow Brown hare Pheasants eye
SET ASIDE			
Non rotational set aside	<ul style="list-style-type: none"> • Has the same benefits as rotational set aside in year one. • Can be used to buffer sensitive areas such as watercourses, hedgerows and designated sites (e.g. SSSIs) from farm operations. 	Same as rotational set aside. This can include set aside strips of no less than 20m. Wildlife interest may deteriorate over time.	Skylark Corn bunting Linnet Grey partridge Brown hare
Wildbird cover	<ul style="list-style-type: none"> • Provides cover and an excellent food source in the form of seeds and insects for a range of bird species. 	Can be used on rotational or non-rotational set aside, as long as at least two crop groups are used.	Grey partridge Linnet Corn bunting

		Although predominantly created for game birds, other birds, mammals and insects also benefit.	Brown hare
Biomass - short rotation	<ul style="list-style-type: none"> • Many benefits if managed sympathetically e.g. undersowing for wildlife. 		
<p>Derogations:</p> <p>[These are available under set-aside, but Countryside Stewardship funding within set-aside is unlikely except for the stone curlew and rare arable plants. For example, stone curlew plots are funded on set-aside land in the North Wessex Downs, the stone curlew population is increasing, but the range is not. It is unlikely that plots in the South Downs will be funded, at least in the next few years].</p>	<ul style="list-style-type: none"> • To encourage lapwings. • To encourage stone curlews. • To encourage over-wintering wildfowl and geese. • To encourage rare arable flowers. 	<p>A bare fallow can be created by discing in early spring, providing similar conditions to a newly sown ley or spring crop.</p> <p>A South Downs target has been mentioned by English Nature and RSPB.</p> <p>Set aside can be managed as pasture for these birds. Land should be sensibly located to minimise damage to crops.</p> <p>Provides annual conditions for rare arable flowers if found or to be encouraged by light discing at the appropriate time of year.</p>	<p>Lapwing Skylark Pheasants eye</p> <p>Lapwing Skylark Stone curlew</p> <p>Pheasants eye Shepherds needle</p>

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7. Current Action

7.1 Policy

Arable farming and hence actions relating to biodiversity enhancement is driven by the CAP, worldwide economics and market demands.

The AAPS (Arable Area Payments Scheme), has a direct effect on the crops chosen by farmers by offering varying subsidies for growing different crop types, hence altering their relative profitability. Higher subsidies for certain crops, means that more of that crop is grown. In recent years this has resulted in an increase in the area of spring crops, e.g. linseed, which has been very beneficial for wildlife generally and farmland birds in particular. However the future appears to be offering farmers an equal subsidy payment for all crops, which may reduce the total area of spring cropping leading to an increased area of winter crops and decreased habitat diversity

Set aside was introduced as part of the AAPS in order to reduce over-production, by farmers being paid by area payments to maintain an annually fixed percentage area of their land as fallow. This following some modifications to the original scheme has now been proved to have a positive impact on wildlife with large areas of seeds and weeds being provided for over-wintering birds as well as undisturbed nesting sites. At present and for the next few years this percentage area is set at a minimum of 10%. But the future of set aside is unknown with the possibility in the medium term that the obligatory area rate will be reduced to 0% in the next round of CAP reform.

7.2 Information Exchange

A great deal of research has been undertaken into the wildlife benefits of arable land and associated margin habitat by Game Conservancy Trust, RSPB, Long Ashton Research Station, Universities, MAFF, British Trust for Ornithology (BTO) and the private sector. The results have become freely available and well publicised. They provide the basis of advice to farmers that is given by such organisations as Farming and Wildlife Advisory Group (FWAG), Agricultural Development and Advisory Service (ADAS), Royal Society for the Protection of Birds (RSPB), Game Conservancy Trust (GCT), Farming and Rural Conservation Agency (FRCA), Linking Environment and Farming (LEAF), Local Authorities etc.

7.3 Public Awareness

Many publications and articles have been well publicised and freely distributed by many organisations as above. Farm walks, talks, other events and also press, television and radio, highlight many of the issues.

8. Existing Agri-Environment Schemes

There are 3 existing agri-environment schemes, which may help to achieve the aims of the HAP.

Countryside Stewardship

This discretionary scheme offers farmers payments for undertaking:

- 2 metre uncropped grass margins and beetle banks - £15/100m/year
- 6 metre uncropped grass margins – in conjunction with a conservation headland – £35/100m/year

The scheme is competitive, with funding prioritised towards those applications offering the greatest environmental benefits. Applications are strengthened if they have a whole farm approach, which tends to be more beneficial to wildlife and if they fall within target areas, where the opportunity and need for conservation may be greatest.

Where arable grass margins have been used the results have been very successful, particularly when in conjunction with boundary management / restoration. Due to local soil conditions and weed burdens, particularly in the High Weald, conservation headlands in conjunction with the 6 metre arable margins are rarely undertaken. The scheme requires a commitment to follow best agricultural practice and management of features throughout the farm, providing added benefits to wildlife generally.

Changes in arable farming practices have been identified as a key factor in the decline of certain farmland birds, mammals, insects and plants. These changes include an increase in winter cereal production and subsequent decline in over-wintered stubbles with a following spring crop. Over-wintering stubbles are essential feeding areas (spilt grain, weeds and invertebrates) for many types of resident bird such as linnet, skylark, reed bunting, chaffinch and yellow hammer. The subsequent late ploughing in January/February releases a wealth of invertebrates. The following spring crop provides a short open sward ideal for ground nesting birds such as skylark and lapwing. Some of Britains rarest plants are found within the edges of arable fields. These once common species such as pheasants eye and shepherds needle are now rarely found due to agricultural improvements in crop yield and pesticides.

Following the success of the Arable Stewardship scheme pilots in East Anglia and the West Midlands, DEFRA decided to roll out a number of the options to the wider farming community via the Countryside Stewardship Scheme.

In order to address these declines in Biodiversity, and using data collected from the review of the Arable Stewardship trial, a number of simplified options are to be made available within the established Countryside Stewardship Scheme from 2002. These options are:

OPTION	MANAGEMENT	
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Over-wintered stubble followed by a spring crop.	<ul style="list-style-type: none"> • Stubble must be kept down until the 14th February. • Straw from previous crop should be immediately removed or chopped and spread. • A cover crop is not sown, regenerating vegetation is cut or grazed • Agro – chemicals may not be applied. • Applications of fertilisers are not allowed. 	£40
Over-wintered stubble followed by a low input spring cereal	<p>As above, plus:</p> <ul style="list-style-type: none"> • A spring cereal is sown between 14th Feb and 20th April (this may be undersown with a grass / legume mix). • Glyphosate may be permitted before seedbed preparation. • Spring crop sown at no more than 100kg / ha. • A maximum of 50kg / ha of nitrogen may be applied from organic or inorganic sources. • Weeds such as blackgrass or wild oats may be controlled (see handbook for allowable active ingredients). • The spring cereal must not be harvested before 31st July. 	£125
Over-wintered stubble followed by a spring / summer fallow	<p>As above, plus:</p> <ul style="list-style-type: none"> • Stubble must be kept until March. • A false seedbed should be prepared between 1st and 20th March to a depth of 75 – 100mm. • Where there is a severe weed infestation glyphosate may be permitted before cultivation. • Fallow must be kept until at least 31st July. • Regenerating vegetation is not cut or grazed. • Agro-chemicals or fertilisers are not applied. 	£520
Conservation headlands with restricted use of insecticides and herbicides	<p>A conservation headland is a selectively managed part of the crop, and can be 6 – 24 m's wide depending on tramlines.</p> <ul style="list-style-type: none"> • Insecticides are not applied between 15th March and harvest. • Infestations of black grass and wild oats may be controlled (see handbook for allowable active ingredients). • Broad-leaved weeds may only be controlled using amidosulfuron up to March 31st. <p>No restrictions on fungicides, growth regulators or fertilisers.</p>	£90

<p>Conservation headland, no fertiliser, restricted use of insecticides and herbicides</p>	<p>As above, plus:</p> <ul style="list-style-type: none"> No applications of organic or inorganic fertilisers or liming materials between establishment and harvest. 	<p>£270</p>
<p>Wild bird seed mixture</p>	<p>A mixture of seed bearing crops established in areas managed to provide a succession of food sources for wild birds.</p> <ul style="list-style-type: none"> Sown in margins at least 6m wide or in locks of no more than 1ha within arable fields. This should be composed of: Cereal 80% Kale 10% Quinoa 10% And sown at a rate of 35 –50kg / ha. Re – establishment should take place every other year to maintain supply of food. Re – establishment should not take place before the 15th March. Glyphosate may be applied immediately before spring re-sowing. Fertiliser should only be applied where its absence will jeopardise establishment and seed yield. Herbicide use should be restricted to weed wipers or spot sprays. 	<p>£510</p>
<p>Pollen and nectar mixture</p>	<p>A mixture of nectar and pollen rich plants and non competitive grasses are established in areas managed to maximise value for foraging insects and birds.</p> <ul style="list-style-type: none"> Sown in margins at least 6m wide or in locks of no more than 1ha within arable fields. In the first year a mixture of at least 4 nectar rich plants (to include 20% legume) and 4 non-competitive grasses is established. Glyphosate may be applied as an overall spray immediately before sowing, otherwise weed control must be limited to weedwipe or spot spraying of problem weeds or cutting can be used in the first year. The same half of the area is cut each year before the end of June (to stimulate late flowering), and the whole area after 15th September. A sward height of 10 – 15 cm should be left, with the cuttings ideally removed. Application of organic and inorganic fertilisers as well as liming products are prohibited. 	<p>£510</p>

This is only available within the South Downs, and offers for arable farmers;

- Over-winter stubbles
- Over-winter stubbles with undersowing
- Conservation headlands
- Arable reversion to grassland

There is no element of competition for funds providing scheme criteria are met, meaning most applications are successful.

Organic Farming Scheme

Offers staggered payments for conversion to organic production. Within the scheme are elements of best practice, whereby boundary features such as hedges, ditches and field margins must be managed sensitively. Indeed arable margins, and rotations are a vital part of organic management, with predatory insects a vital part of pest control within organic arable crops.

At a National level, current agri-environment could be improved by increased funding to allow more farmers and landowners to partake and by removing any funding conflicts that occur between different agri-environment schemes. Targeting would also ensure best use of resources for wildlife, landscape and historical features. Allowing permanent set aside to be less than 20m wide would alleviate a strain on the Stewardship Scheme, allowing payments to be used for other options.

At a local level, improvements may be obtained by increasing the funding for Countryside Stewardship within Sussex. Detail changes might include the removal of the tie between 6m margins and conservation headlands, allowing a separate option for conservation headlands where conditions are suitable and the removal of minimum area of conservation headlands under the South Downs ESA. It is also important that land use history and the current species composition of arable land is investigated before inclusion into arable reversion tier of South Downs ESA is agreed.

9. Objectives

- a Seek to establish a farmed environment that produces sufficient supplies of safe healthy food and supports working rural communities and wildlife.
- b Encourage a viable mixed farming system in Sussex.
- c Ensure that arable areas of high ecological quality continue to be cropped whilst allowing re-creation of other habitats elsewhere.
- d Encourage Sussex farmers to protect and enhance biodiversity and landscape.
- e Halt the decline in biodiversity associated with farmed land, particularly farmland birds, arable flowers, certain farmland mammals, and certain farmland invertebrates.

- f Identify and enhance the populations of species associated with farmed land, particularly farmland birds, arable flowers, certain farmland mammals and certain farmland invertebrates.

10. Targets

This Habitat Action Plan is now archived

11. Costed Actions

This Habitat Action Plan is now archived

12. Proposed Actions with Lead Agencies

This Habitat Action Plan is now archived

13. Review

Plan to be reviewed every 5 years, unless a major change occurs in CAP or world-wide economics.

14. References

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Game Conservancy Trust (2000) *Game, set aside and Match*. GCT

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RSPB (2001) *Farmland birds and habitat management sheets*. RSPB

RSPB *Managing set aside for birds* RSPB

Terry, J and Ward, E (1999) *Set aside – Its siting and management for farming and wildlife*.

FWAG, internal report

15. Consultation

Initial consultation committee was composed of representatives from;

Country Landowners Association (CLA)

Farming and Rural Conservation Agency (FRCA)

Farming and Wildlife Advisory Group (FWAG)

Game Conservancy Trust (GCT)

National Farmers Union (NFU)

Royal Society for the Protection of Birds (RSPB)

Local farmers

Wider consultees:

RA Ashby – Newhouse Farm

JF Austen – Scrag Oak Farm

Booth Museum

British Trust for Conservation Volunteers

East Sussex County Council – County Ecologist

Mike Edwards – Bees and Wasps

Environment Agency

English Nature

Farming and Rural Conservation Agency

Marian Harding – Court Lodge Farm

Ministry of Agriculture Fisheries and Food

National Trust

Chris Passmore – Applesham Farm

Sussex Amphibian and Reptile Society

Sussex Badger Society

Sussex Bat Group

Sussex Botanical Recording Society

Sussex Mammal Group

Sussex Moth Group

Sussex Ornithological Society

C Tebbutt – Boat House Farm

West Sussex County Council – County Ecologist