



## **Expenditure on the Farmland Birds PSA Target**

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# Expenditure on the Farmland Birds PSA Target

Defra

A final report submitted by GHK

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## EXECUTIVE SUMMARY

Defra commissioned GHK Consulting Ltd (GHK) and RPS Planning and Development Ltd (RPS) to provide an estimate of past and current expenditures on actions contributing to progress against the Government's Public Service Agreement (PSA) target to reverse the decline in farmland birds in England.

The PSA target is to reduce the long term decline of farmland birds in England by 2020, as measured by an index of 19 farmland bird species.

A variety of expenditures by government and other organisations contribute to efforts to achieve this target. These include:

- Agri-environment schemes, which support a wide variety of land management practices which benefit farmland birds to varying degrees;
- Other schemes under the CAP, including the cross compliance rules under the Single Payments Scheme and previously set aside under the Arable Area Payments scheme;
- The England Woodland Grant scheme, since some farmland bird species use woodland habitats to some degree;
- Scientific research by Defra and others (Natural England, RSPB, BTO, GWCT, BBSRC);
- Advice and targeted species recovery measures funded by Government and NGOs;
- Survey and monitoring work;
- Awareness raising and demonstration programmes.

Total expenditures under these different programmes amounted to some £13.2 billion between 2000 and 2009. However, much of this expenditure has contributed only weakly or indirectly to the delivery of the PSA target.

The research estimated those expenditures that have contributed directly to efforts to achieve the farmland birds PSA target, by identifying the most relevant items of expenditure and weighting them according to their benefits in providing feeding and nesting habitats for farmland birds. This involved identifying relevant expenditure lines, including individual agri-environment options, research projects, advisory activities, monitoring schemes and awareness raising measures, and weighting them according to the strength of benefit to farmland birds, in consultation with experts from Natural England, Defra, BTO and RSPB. 100% of expenditures on actions making a strong contribution to farmland bird conservation were allocated to the target, while a smaller proportion (normally 20%, but in some cases up to 60%) of expenditures making a partial contribution were included in the analysis. Where expenditures were regarded as having a weak or indirect effect on farmland bird conservation they were not included in the analysis.

Expenditures were apportioned according to the strength of their contribution to the target, irrespective of whether they also met other objectives (such as landscape conservation). Therefore the estimates reflect a judgement of the level of expenditure that has made a significant contribution to the delivery of the farmland birds PSA target. They do not seek to measure expenditures that have been targeted at farmland birds as compared to other priorities.

It should be noted that apportioning expenditures in this way is an imprecise process, and that the resulting estimates should be regarded as indicative only. Nevertheless, they give an overall indication of the level of expenditure that has contributed to efforts to deliver the farmland birds PSA target.

**It is estimated that expenditures towards the delivery of the farmland birds PSA target have totalled £727 million since 2000.**

Agri-environment schemes account for more than 95% of this total, though there have also been significant expenditures on research, advice, monitoring and awareness raising. As a result, Government expenditures account for an estimated 97% of the total, though significant contributions have also been made by NGOs.

Annual expenditure has increased significantly over the 2000 to 2009 period, especially following the development of the Environmental Stewardship Scheme from 2005.

# 1 INTRODUCTION

## 1.1 This Report

GHK Consulting Ltd (GHK), in conjunction with RPS Planning and Development Ltd (RPS), was commissioned by Defra in January 2010 to provide an estimate of past and current expenditures on actions contributing to progress against the Government's Public Service Agreement (PSA) target for farmland birds in England. This final report presents the findings of the study.

## 1.2 The Farmland Birds PSA Target

The PSA target to reverse the decline in farmland bird populations was adopted in the 2000 Spending Review as a way of monitoring and improving the health of the farmed environment. Farmland birds were chosen because there is unparalleled information on the annual changes in their populations and because birds are considered to be good general indicators of biodiversity.

The target is to:

*Care for our living heritage and preserve natural diversity by .... reversing the long-term decline in the number of farmland birds by 2020, as measured annually against underlying trends.*

This PSA target reinforces Government's adoption, in 1999, of wild bird populations as one of 15 'headline indicators' of sustainable development in the UK. The indicators were selected to focus public attention on the meaning of sustainable development and to provide a measure of whether people in the UK are experiencing a better quality of life.

The PSA target is measured using the farmland bird index, made up of the breeding trends in 19 common and widespread species - Corn bunting, Goldfinch, Greenfinch, Grey partridge, Jackdaw, Kestrel, Lapwing, Linnet, Reed bunting, Rook, Skylark, Starling, Stock dove, Tree sparrow, Turtle dove, Woodpigeon, Whitethroat, Yellowhammer and Yellow wagtail. These species were selected because they predominantly feed in open farmland (i.e. fields) during the breeding season, even though they may nest in adjacent woods and hedgerows<sup>1</sup>.

## 1.3 Objectives of the Research

The aim of the study was:

*To estimate as accurately as possible current and past expenditure on trying to achieve the Farmland Birds PSA target.*

The terms of reference for the study recognise that a range of measures partially contribute to the achievement of the target, the main one being agri-environment schemes. Other measures that contribute to farmland bird conservation to varying extents include the English Woodland Grant Scheme, the cross compliance element of SPS, and advice and demonstration activities for farmers and land managers. Spending on the farmland birds target tends to be through multi objective measures (e.g. agri-environment and cross compliance) which contribute to achieving both the farmland bird PSA target (and its associated wider improvements in biodiversity) as

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<sup>1</sup> <http://www.defra.gov.uk/foodfarm/policy/farminglink/articles/0907/birds.htm>

well as other objectives such as the preservation of cultural heritage and improvements in water quality.

To date Defra has not attributed costs specifically associated with the Farmland Birds PSA programme, largely because of the difficulty in separating spend on farmland bird and wider biodiversity objectives from other objectives of these schemes.

This study has sought to identify relevant expenditures and to apportion these according to the contribution that they make towards achieving the PSA target.

#### **1.4 Structure of the Report**

The remainder of this report is structured as follows:

- Section 2 sets out the method of approach to the study;
- Section 3 identifies the broad expenditure programmes relevant to the farmland birds PSA target and provides an assessment of the contribution made by each;
- Section 4 provides overall estimates of expenditures that have made a direct and significant contribution to the target.

There are seven annexes:

- Annex 1 gives estimates of expenditures through Agri-Environment Schemes;
- Annex 2 gives estimates of expenditures on research;
- Annex 3 gives estimates of expenditures on targeted delivery and advice;
- Annex 4 gives estimates of expenditures on survey and monitoring work;
- Annex 5 gives estimates of expenditures on demonstration and awareness raising;
- Annex 6 gives a list of consultees.

## 2 METHOD

### 2.1 Overview of Approach

The broad approach to the study was to:

1. Identify the different types and sources of expenditure likely to have contributed to the delivery of actions relevant to the Farmland Birds PSA target since 2000.
2. Quantify the expenditure allocated to these different actions in England each year since 2000.
3. Use expert judgement to assess the strength of the contribution of these relevant actions to delivery against the PSA target, and use this to apportion expenditure accordingly.

The study brief noted that, while the agri-environment programme is likely to have made the greatest contribution to progress against the PSA target, other expenditures are also of some relevance, including the England Woodland Grant scheme and (through cross compliance) the CAP Single Payments Scheme (SPS). However, the impact of these expenditures is less significant and more indirect than for agri-environment schemes.

Analysis of agri-environment expenditures needs to take account of the wide variety of options and measures funded by agri-environment schemes, which contribute to a variety of biodiversity, landscape and resource protection objectives. The role of different options in contributing to farmland bird conservation has been assessed.

In addition to direct measures to promote sympathetic land management, meeting the farmland birds PSA target also depends on additional activities which include:

- Research, to enhance knowledge of the needs of farmland birds and the reasons for their decline, in order to design interventions to address the problem;
- Targeted advice and species recovery programmes, working alongside agri-environment programmes to encourage positive action by land managers;
- Monitoring and survey work, to examine ongoing trends in farmland bird populations in order to examine progress against the target, and to guide management strategies;
- Demonstration and awareness raising measures, to disseminate information about beneficial land management practices.

### 2.2 Research Methods

The research involved:

- Scoping research to assess the key actions, expenditures and land management options required by farmland birds and in delivery of the PSA target;
- Analysis of data provided by Defra on expenditure on agri-environment schemes since 2000, by option;
- Collation of other publicly available data on relevant government expenditures;

- Telephone interviews and data requests to collect expenditure from key organisations (Defra, Natural England, BTO, RSPB, GWCT, FWAG, BBSRC with those individuals contacted listed in Annex 6);
- Consultation with experts at Natural England, BTO and RSPB to determine the methodology to allocate relevant expenditures to the target;
- Presentation, in this report, of the data obtained.

The methodology is similar to that which has been used by GHK in estimating current expenditures allocated to the delivery of the UK BAP, which identifies relevant expenditure programmes and assesses their contribution to BAP priorities, applying expert judgement to apportion expenditures where necessary. While the overall approach is similar and consistent for the two studies, the attribution factors applied vary for different lines of expenditure, according to consultation with experts regarding the strength of linkage to BAP and farmland bird action.

### 2.3 Key Methodological Issues

The work has raised a number of methodological issues, which are discussed in turn.

#### *Data availability*

The analysis has required data to be collated from a range of different sources, including published documents, Defra databases and the records held by individual organisations. Relevant expenditures are concentrated among a small number of organisations, facilitating the identification and collation of data. While some persistence was needed in requesting data, it is unlikely that data gaps are likely to be significant.

#### *Multi-objective expenditures*

Much of the land management activity benefiting farmland birds also benefits other taxa (such as plants, invertebrates and mammals), and/or contributes to wider objectives (such as landscape and resource protection).

The multi-objective nature of agri-environment schemes in particular raises questions in relation to the attribution of expenditures to the PSA target.

After consultation with Defra at the inception stage, our chosen methodology seeks to identify and attribute expenditure **according to its degree of relevance to the PSA target, irrespective of whether that expenditure also meets other objectives.**

For example, expenditures encouraging sympathetic management of hedgerows are important in providing important nesting habitats for farmland birds, as well as meeting other biodiversity, landscape and resource protection objectives. The approach adopted in this study is to treat 100% of such expenditures as contributing to progress against the farmland birds PSA target, while recognising that they also provide other benefits and are not made solely with farmland birds in mind.

Care is therefore needed in interpreting the results, which estimate the overall level of expenditures contributing to progress against the target. **The totals do not seek to measure the expenditures made by government and others solely in pursuit of farmland bird conservation, or to assess the degree to which expenditures have targeted farmland birds relative to other objectives or priorities.**

### ***Varying degrees of relevance and impact***

While it has not sought to apportion expenditures between different objectives, the methodology has aimed to assess the strength of contribution of expenditures to progress against the target. Three groups of expenditures have been identified:

- Those that make a strong contribution to the target – 100% of expenditure allocated;
- Those that make a partial contribution to the target – 20-60% of expenditure allocated, according to expert judgement. The allocation of expenditures in this way is an imprecise exercise and the size of the attribution factor employed is inevitably subject to some debate. For the majority of agri-environment options and research projects identified as making a partial contribution to the target, a 20% attribution factor was employed, based on the advice of the experts consulted. However, consultation with experts identified certain agri-environment options (arable grass margins and beetle banks) considered to be intermediate between the two groups, and for which attribution factors of between 30% and 60% were recommended;
- Those that make only a slight or insignificant contribution to progress against the target – 0% of expenditure allocated.

### ***Actions for PSA and non PSA species***

A further complicating factor is that some actions targeted mainly at non-PSA species also benefit farmland bird PSA species. This is particularly the case for recovery programmes for rare farmland species such as curlew, stone curlew, chough and corncrake. These species are too rare to appear in the index and are very localised but share some common requirements with the PSA species. In these cases a proportion of relevant expenditures have been allocated to the target, informed by expert judgement.

### ***Volunteers and in Kind Contributions***

The data in this report include direct financial expenditures on relevant activities only and exclude in kind contributions and volunteer inputs. No attempt has been made to apportion the general overheads of the organisations involved, which are nevertheless necessary to support the funded activities. However, the costs of administration of agri-environment schemes have been estimated and included, as these are directly related to the delivery of the payments themselves.

Progress towards the target is heavily dependent on the activities of volunteers, especially through their contributions to the Breeding Bird Survey (which provides the data behind the farmland bird index) and other monitoring work. In this respect the focus on financial expenditures significantly underestimates the total resources committed to farmland bird work. These volunteer inputs toward achieving the PSA target (e.g. Breeding Bird Survey and RSPB Volunteer & Farmer Alliance) are not being valued but are substantial and should be acknowledged.

For example, the BTO/JNCC/RSPB Breeding Bird Survey involves 3,000 volunteers monitoring 3,200 sites annually. Each volunteer is required to complete three visits of a maximum of 2 hours each. Including travel time and return of records this is likely to involve at least 8 hours volunteer inputs per site, suggesting a total of 25,600 hours completed by voluntary fieldworkers annually. This amounts to the equivalent of approximately 110 full time jobs supporting this survey alone each year.

**Double counting**

Some of the activities relevant to the PSA target are funded by one or more organisations and delivered by another. Examples include Defra funded research projects delivered by RSPB and BTO, and the Breeding Birds Survey which is co-funded by BTO, RSPB and JNCC. Since expenditure data has been collected separately from these different organisations, care has been taken to avoid double counting.

**Multi-Annual Projects**

Expenditures on multi-annual projects, such as research projects, have been annualised by averaging them over the duration of the project. Expenditure data for some organisations (such as RSPB) were provided over the 10 year period as a whole, and have been converted to an annual average. The estimates are by calendar year, taking account of the actual start and finish dates of the projects, using appropriate assumptions where necessary regarding the phasing of payments.

**Prices**

The expenditure data is in the prices of the year to which it refers, with no adjustment made for inflation.

**2.4 Assessing the Relevance of Land Management Options**

In order to assess the relevance of different land management options for farmland birds, we undertook a short literature review on the ecological requirements of farmland bird PSA species and the land management practices most likely to reverse farmland bird declines.

Key sources include:

- BTO (2002) Predicting the Response of Farmland Birds to Agricultural Change. Defra Research Project: BD1618. <http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=Nonone&Completed=0&ProjectID=10088#RelatedDocuments>
- Davey et al (in press). Assessing the impact of the Entry Level Stewardship scheme on lowland farmland birds in England. *Ibis* [29-01-2010 online in advance of print].
- DEFRA (2009) Information Note – Farmland birds Index. <http://www.defra.gov.uk/corporate/consult/gaec/info-note-farmlandbirds.pdf>
- Keenleyside, C. et al (2006). Farmland birds and agri-environment schemes in the New Member States - A Report for the RSPB. [http://www.birdlife.org/eu/pdfs/RSPB\\_study\\_2006.pdf](http://www.birdlife.org/eu/pdfs/RSPB_study_2006.pdf)
- Natural England (2009) Agri-environment schemes in England 2009. A review of results and effectiveness
- Proceedings of the BOU conference “Ecology & Conservation of Lowland Farmland Birds II: the road to recovery”. This was preceded by the BOU conference “Ecology and Conservation of Lowland Farmland Birds” that focused more on identifying and investigating declines.
- Vickery et al (2008) Predicting the impact of future agricultural change and uptake of Entry Level Stewardship on farmland birds. BTO Research Report No. 485

In addition we sought guidance from experts in Natural England, Defra, BTO and RSPB.

The review confirmed that the land management options most likely to benefit farmland bird PSA species are those that either:

- a. Provide nesting areas for farmland bird PSA target species within the farmed landscape – e.g. skylark plots, hedgerow creation/restoration/management; or
- b. Provide feeding areas for farmland bird PSA target species within arable and grassland landscapes – e.g. winter stubbles, wild bird cover, conservation headlands, and flower rich grass margins.

In addition, a variety of other habitats and features within the farmed landscape may play a supporting role, including farm woodlands, orchards, heathlands, scrub, saltmarsh, upland and wetland habitats, appropriately managed grassland and other landscape features such as ditches, grass margins, beetle banks, buffer strips and individual trees.

The review of agri-environment expenditures distinguished between options which:

- Make a strong contribution to farmland bird conservation – for which 100% of expenditure was deemed to contribute to progress towards the target;
- Play a supporting role in farmland bird conservation – for which 20-60% of expenditures were judged to contribute to progress towards the target.

Advice was provided by experts at Natural England and the BTO regarding the attribution of different options to each of these groups, and the weighting factors that should be applied.

The following sections present our analysis of expenditures contributing to progress towards the farmland birds PSA target. Section 3 provides a broad assessment of the scale and relevance of the main expenditure programmes, while Section 4 presents a summary of the expenditures judged to make a significant contribution to the PSA target.

### 3 ANALYSIS OF BROAD EXPENDITURE PROGRAMMES RELEVANT TO FARMLAND BIRDS

#### 3.1 Overview

In broad terms, some £2.3 billion of annual expenditures have the potential to deliver some contribution to the farmland birds PSA target. Total expenditures under relevant schemes amount to £13 billion between 2000 and 2009 (Table 3.1).

**Table 3.1: Expenditure Programmes of Relevance to the Farmland Birds PSA Target**

Programme	Expenditure 2000-2009 (£m)	Expenditure 2009 (£m)
Single Farm Payment (since 2005)	6,432	1,860.0
Arable Area Payment (before 2005)	4,426	0.0
Agri-Environment Programme	2,045	371.5
England Woodland Grant Scheme	264	30.0
Defra R&D Programme – projects relevant to farmland biodiversity	12	0.7
Other expenditures	26	3.0
<b>Total</b>	<b>13,205</b>	<b>2,265.2</b>

However, the degree to which these different programmes contributes to farmland bird conservation varies widely. The role of different programmes is discussed as follows.

#### 3.2 Agri-Environment Programme

Agri-environment schemes represent the largest source of funding for the delivery of targeted farmland bird conservation action, with an annual budget of almost £400m currently in England. They are administered by Natural England and funded jointly by Government and the EU.

They contain a variety of different options, some of which play a strong role in farmland bird conservation, others which have some benefits for farmland birds, and others which mostly meet other objectives (e.g. conservation of landscape or built environment). Therefore a key task was to identify the strength of the role of these different options.

Defra has provided data on expenditure under each option for Environmental Stewardship and previous schemes (ESAs and Countryside Stewardship) since 2000.

For Entry Level Stewardship, payments are conditional on achieving points awarded for different options, and “expenditure per option” has been estimated by attributing total annual scheme spending to different options according to the total points score for each option.

In assessing the relevance of different agri-environment options, we have divided them into three categories as follows (Table 3.1).

**Table 3.1: Proposed Categorisation of Agri-Environment Options according to Strength of Contribution to Farmland Bird PSA Target**

<b>PSA 1</b>	<b>Options likely to make a strong contribution to conservation of farmland bird PSA species:</b>	
	Options that:	
	A	provide nesting areas for farmland bird PSA target species –e.g. skylark plots, hedgerow creation/restoration/management
	B	provide feeding areas for farmland bird PSA target species within agricultural landscapes – e.g. winter stubbles, wild bird cover, conservation headlands, flower rich grass margins
<b>PSA 2</b>	<b>Options likely to make some contribution to conservation of farmland bird PSA species:</b>	
	Options that:	
	C	create, restore or enhance other habitats which may benefit farmland birds- e.g. farm woodlands, orchards, heathlands, scrub, saltmarsh, upland and wetland habitats
	D	enhance grassland management, which may benefit farmland bird species
	E	create, restore or manage certain features which may benefit farmland birds – e.g. beetle banks, ditches, grass margins, buffer strips, ponds and individual trees
<b>PSA 3</b>	<b>Options not expected to make a strong contribution to conservation of farmland bird PSA species:</b>	
	Options related to:	
	F	the built environment -buildings, archaeological features, walls, fencing
	H	intertidal / coastal habitats
	I	access
	J	non-bird species (e.g. specific measures for otters)
	K	soil/erosion management
	L	farm management plans not directly related to biodiversity (including advice and assistance)
	M	Other (e.g. other features, bracken control, tree surgery etc)

Expenditure under each option was allocated to the PSA target as follows:

- PSA 1 options – 100% of expenditure is deemed to contribute to the achievement of the PSA target
- PSA 2 options – 20-60% of expenditure is attributed to the delivery of the PSA target, with allocation ratios informed by judgement of expert consultees according to the strength of the contribution that each option makes to the conservation of farmland birds.
- PSA 3 options – 0% of expenditure is attributed to the delivery of the PSA target.

Section 4 presents estimates of relevant agri-environment expenditures, based on this methodology.

In addition to the payments themselves, agri-environment schemes incur additional expenditures in scheme administration. Natural England (2009)<sup>2</sup> estimates that the costs to Natural England of delivering AES in 2008–09 were just over £13 million – 3.6% of the funds paid, in addition to the fixed costs of establishing IT systems which were funded by Defra.

On this basis it can be assumed that delivery of agri-environment options for farmland birds incurs additional administrative costs of 3.6% of the payments made. It should be noted that this figure is low compared to previous estimates of agri-environment scheme costs (for example by the National Audit Office<sup>3</sup>), so may be seen as conservative.

### 3.3 CAP Income Supports

Mainstream CAP payments have also contributed to farmland bird conservation over the period through:

- Set-aside, as a condition on receipt of Arable Area Payments, which provided an important habitat for farmland birds in arable landscapes. Compulsory set-aside continued under the Single Payment Scheme until 2007;
- Cross-compliance conditions on the Single Farm Payment, notably the requirement to keep land in Good Agricultural and Environmental Condition (GAEC). GAEC standards with potential to support the conservation of farmland birds include:
  - GAEC 1 - post harvest management of land – this is primarily designed to prevent soil erosion but includes the option to retain winter stubbles;
  - GAEC 6 – protection of Sites of Special Scientific Interest;
  - GAEC 14 - protection of hedgerows and watercourses – this requires uncultivated margins to be left around hedges, watercourses and ditches, with no applications of fertilisers or pesticides;
  - GAEC 15 – protection of hedges – this prevents removal of hedgerows or cutting in the breeding season.
  - GAEC 16 – felling of trees – this aims to protect trees as habitat and landscape features.

CAP subsidies involve very large annual expenditures. The schemes themselves do not contribute directly to farmland bird conservation, although conditions on receipt of subsidies (through set-aside and cross compliance) are likely to have made a positive contribution.

As this project considers the costs of actually having a Farmland Birds PSA, we are only concerned with additional money from those elements of the schemes that have benefited farmland birds; the main objective of the subsidies has been to support farm incomes and compensate for CAP price cuts. Any conservation benefits are a positive side effect of one element of the schemes (the cross compliance rules) rather than a

<sup>2</sup> Natural England (2009). *Farming with Nature. Agri-environment schemes in action.*

<sup>3</sup> For example, the National Audit Office (1997) report on ESAs found that administration costs amounted to 46% of total scheme costs in 1994/5, declining as schemes became more established, reaching 31% in 1996/7. The NAO (2010) report on the Organic Entry Level Stewardship scheme estimated administrative costs at 5% of scheme payments in 2008/09.

core objective of the expenditure. Furthermore, any benefits to farmland birds result from the cross compliance rules and are largely independent of the level of CAP expenditure.

### 3.4 England Woodland Grants Scheme

The England Woodland Grants Scheme (EWGS) is of some relevance to the delivery of the Farmland Birds PSA target as several of the species that make up the index use woodland or woodland edge habitats, especially for nesting. These include jackdaw, rook, starling, stock dove, tree sparrow, turtle dove and woodpigeon. Where the EWGS funds the management of native woodland by continuous cover management and non-intervention management then this will increase the amount of mature and dead wood present, creating nesting opportunities for the hole nesting species that make up the index including jackdaw, starling, stock dove and tree sparrow. Where the EWGS funds the management of native woodland by coppicing then the temporary creation of open ground will, if it is in a large enough block, provide for a short time the open and scrub habitat for several of the species that make up the index including whitethroat, linnet and yellowhammer. Therefore the protection and favourable management of woodlands through EWGS can be expected to benefit several farmland bird PSA target species.

Furthermore, planting of new woodlands may benefit a wide range of farmland bird species in the early years, as young woodlands, usually accompanied by a ground cover of tussock grassland, provide nesting and feeding habitats. These benefits are lost after 1-2 years for the open ground species such as grey partridge and skylark and after 10 years for species such as whitethroat, yellowhammer and reed bunting as the canopy closes and the ground cover is lost. Woodland of this age is of relatively low habitat value as it is too immature to be valuable as nesting habitats for species which require older trees. The immature woodland at this stage is of most use to turtle dove and woodpigeon that will nest in the branches of immature trees.

Established woodland is not beneficial for open country species such as corn bunting, grey partridge, lapwing, skylark and yellow wagtail. Indeed, planting of woodlands reduces areas of open ground habitats directly through its footprint and indirectly through deterring some open ground species such as lapwing and skylark from nesting on arable or grassland close to the woodland. Over time new woodland planting will be expected to reduce populations of these open country species.

The decline in the farmland bird index has mainly been caused by reduced populations of farmland “specialists” such as corn bunting, skylark and grey partridge. In contrast, “generalist” species such as jackdaw and woodpigeon (which also use woodland habitats) have fared much better. The main changes driving the decline in the farmland bird index over time relate to the intensification and specialisation of agriculture over the last 50 years, rather than changes in woodland habitats.

For these reasons, although it is relevant to some species, in net terms EWGS is generally not seen as having a significant positive role to play in delivering the farmland birds PSA target. While sympathetic management of woodland may play a supporting role, the delivery of the PSA target is largely dependent on changes in agricultural practice.

### 3.5 Defra R&D Programme

Research plays an important role in informing actions to deliver the PSA target, since the ecological requirements of farmland bird PSA species and the land management practices required to reverse farmland bird declines are incompletely understood.

Relevant research is funded through Defra's R&D programme and by other organisations including Natural England, the British Trust for Ornithology (BTO), Royal Society for the Protection of Birds (RSPB), Game and Wildlife Conservation Trust (GWCT) and BBSRC.

A variety of current and recent research projects are relevant to the 19 species of the farmland bird index. One aspect to note is that not all species used in the PSA index have been the subject of recent ecological research. The species that have not been subject to that process are those that have not undergone major population declines.

Details of Defra's Science and Research Projects are given on its website<sup>4</sup>. This gives information about each project and the expenditure allocated. We have searched this website to identify all relevant projects, together with spend and duration, and short description of objective.

Defra funded R&D projects can be grouped in 3 categories according to:

- i. Those wholly relevant to farmland birds – specifically mentioning birds in their title;
- ii. Those with some relevance to farmland birds – generally with relevance to farmland biodiversity more widely;
- iii. Those potentially relevant to farmland birds – dealing with wider biodiversity issues that may be relevant to farmland birds.

The figures in Table 3.1 refer to total expenditures in these categories.

Using a similar approach to that for agri-environment expenditure, we have judged 100% of expenditure in the first category to be relevant to the PSA target, and 20% of expenditure in the second category, in order to assess the expenditure which can be attributed to the target (Section 4 and Annex 2).

Further information was obtained from Natural England, RSPB, BTO, GCWT and BBSRC about farmland bird research expenditures since 2000. Care was taken to avoid double counting of projects funded by one organisation and undertaken by another.

NERC is also a potential source of research funds, although a search of the organisation's website<sup>5</sup> revealed little of direct relevance.

It should also be noted that the analysis has focused on expenditures in England, but that research elsewhere in the UK has also played a role in informing action in pursuit of the target. A specific example is the work on Corn Bunting in Scotland that is relevant to the species where it occurs in mixed farming areas in England.

### 3.6 Other Expenditures

Other expenditures relevant to the delivery of the target are summarised as follows.

#### 3.6.1 *Advice and Targeted Delivery*

Provision of advice to farmers helps to inform them about actions that will benefit farmland birds, and often complements agri-environment schemes and aims to encourage their uptake.

Expenditures that need to be considered include those on:

<sup>4</sup> <http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=Theme&Completed=0>

<sup>5</sup> <http://gotw.nerc.ac.uk/goti.asp?c=1>

- a. Species recovery projects, e.g. for curlew, stone curlew, chough and corncrake, funded by Natural England and the RSPB. These rare species are not covered by the PSA target, but a proportion of expenditures benefit farmland birds more widely.
- b. Defra advisory contracts placed with ADAS and FWAG between 2004 and 2007. 5% of the value of these contracts were attributed to the target, on the advice of the programme manager.
- c. RSPB regional farmland bird advisors
- d. FWAG advisory work on farmland birds
- e. GWCT (Game and Wildlife Conservancy Trust) advisory activities.

Information about these activities and associated expenditures was collected from relevant organisations and is presented in Section 4 and Annex 3.

### **3.6.2 Demonstration and Awareness Raising**

As well as targeted provision of advice to farmers, more general awareness raising and demonstration activities need to be considered. These include actions to promote general awareness of farmland bird declines among the agricultural sector and the measures that can be taken to benefit farmland bird species, as well as actions to trial and demonstrate farmland bird conservation techniques.

Relevant expenditures include those on:

- a. The Defra/NFU/CLA initiative 'Campaign for the Farmed Environment' initiative to promote action amongst farmers to reduce the impact of the loss of set-aside, which identifies farmland bird conservation as one of three objectives.
- b. Demonstration farms, used to trial and demonstrate farmland bird conservation techniques and agri-environment schemes, including:
  - RSPB Hope Farm
  - GWCT/Allerton Trust demonstration farm.

Relevant expenditures are summarised in Section 4 and Annex 4.

### **3.6.3 Survey and Monitoring**

Survey and monitoring work is essential to monitor trends in farmland bird populations and hence overall progress against the PSA target. More targeted survey and monitoring activities may also inform conservation action for particular species.

Key activities include:

- The annual Breeding Bird Survey, organised by BTO and part funded by RSPB and JNCC, which is used to calculate the farmland bird indicator annually.
- RSPB survey and monitoring work, including the Volunteer & Farmer Alliance.

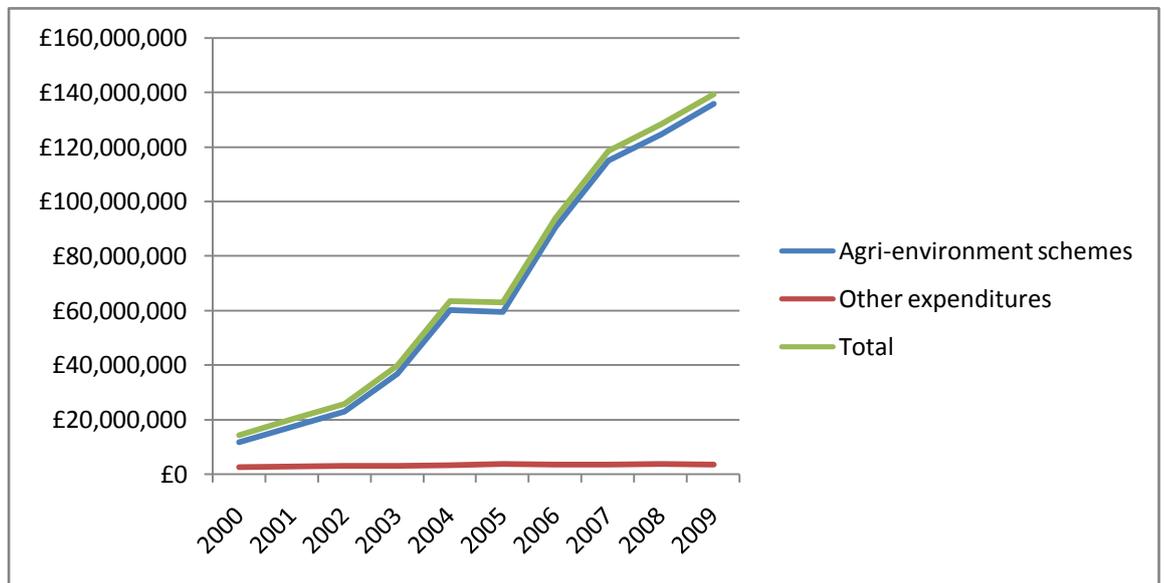
Relevant expenditures are summarised in the Section 4 and Annex 5.

## 4 SUMMARY OF EXPENDITURES CONTRIBUTING TO FARMLAND BIRDS PSA TARGET

Tables 4.1 and 4.2 present estimates of the levels of expenditure supporting activities that have contributed significantly to progress against the farmland birds PSA target since 2000. Table 4.1 provides a breakdown by type of activity and Table 4.2 by organisation.

It is estimated that relevant expenditures amount to £727 million since 2000. They have grown annually over this period, especially following the introduction of Environmental Stewardship in 2005 and its subsequent development (Figure 4.1).

**Figure 4.1: Trends in Farmland Bird PSA Expenditures since 2000**



The figures are dominated by agri-environment schemes, which account for more than 95% of estimated expenditure, though there have also been significant expenditures on research, targeted delivery and advice, survey and monitoring, and awareness raising and demonstration activities.

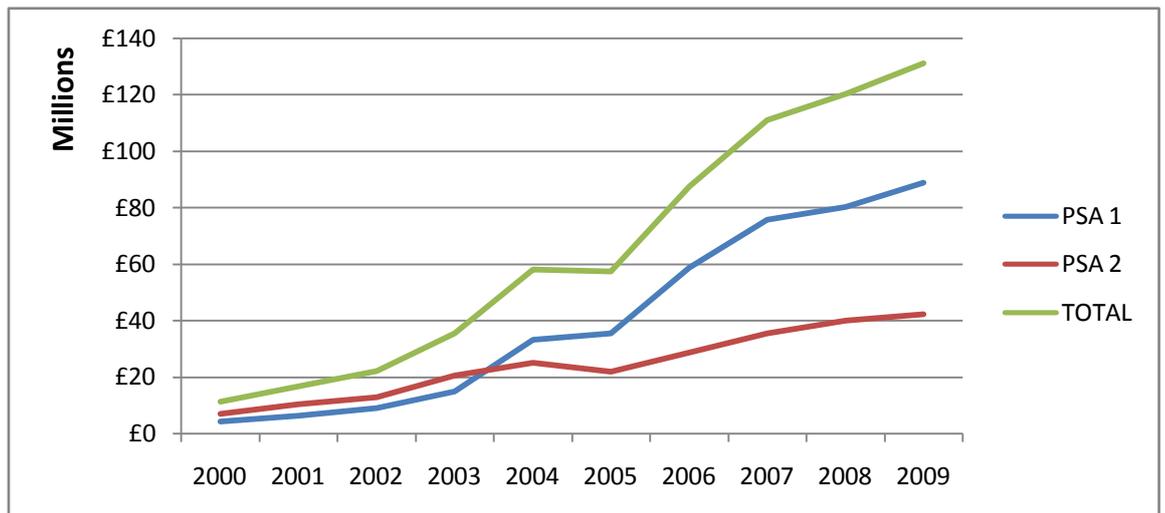
The largest expenditures have been made by Government, with Defra and Natural England together accounting for 97% of the total. Significant contributions have also been made by the RSPB and BTO. The dominance of Government spending is explained by the dominance of agri-environment expenditures in the total; the voluntary sector is responsible for a substantial proportion of research, monitoring and advisory expenditures, much of which is funded by Government. In addition the voluntary sector is responsible for co-ordinating substantial volunteer inputs in farmland bird monitoring work (see section 2.3).

Agri-environment expenditures in England since 2000 amount to £2,045 million and have been categorised according to the criteria in Table 3.1 above:

- PSA 1 options, judged to make a strong contribution to the target, have involved combined expenditures of £419 million since 2000. 100% of these expenditures have been attributed to the delivery of the target.
- PSA 2 options, judged to make some contribution to the target, have involved total expenditures of £1,200 million since 2000. Between 20% and 60% of expenditure on individual options has been attributed to the target. On this basis attributable expenditures are estimated at £250 million since 2000;
- PSA 3 options, not judged to make a significant contribution to progress against the target, have involved total expenditure of £427 million.

Adding attributable expenditures under categories PSA1 and PSA 2, it is estimated that agri-environment expenditure contributing to the farmland birds PSA target amount to £669 million in England since 2000, having grown significantly over this period (Figure 4.2). Further details are given in Annex 1.

**Figure 4.2: Estimated Agri-Environment Expenditures Contributing to Farmland Birds PSA Target (weighted)**



Annexes 1-5 provide more details of expenditure by different organisations on:

- Agri-Environment Schemes (Annex 1)
- Research (Annex 2)
- Targeted Delivery and Advice (Annex 3)
- Survey and Monitoring (Annex 4)
- Demonstration and Awareness Raising (Annex 5).

Table 4.1: Estimate of Expenditures Contributing to the Farmland Birds PSA Target, by Area of Spending

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	TOTAL
<b>Agri-environment measures</b>												
Payments	£11,378,485	£16,846,167	£22,160,606	£35,573,039	£58,211,015	£57,438,972	£87,487,883	£111,131,279	£120,396,863	£131,171,709	£17,103,715	£668,899,734
Admin	£409,625	£606,462	£797,782	£1,280,629	£2,095,597	£2,067,803	£3,149,564	£4,000,726	£4,334,287	£4,722,182	£615,734	£24,080,390
Total	£11,788,110	£17,452,629	£22,958,388	£36,853,669	£60,306,611	£59,506,775	£90,637,447	£115,132,005	£124,731,150	£135,893,891	£17,719,449	£692,980,124
<b>Research</b>												
All organisations	£1,262,773	£1,406,254	£1,604,108	£1,572,529	£1,912,019	£1,990,522	£2,034,818	£2,044,373	£1,883,354	£1,817,175	£602,416	£18,130,341
<b>Targeted Delivery and Advice</b>												
All organisations	£670,948	£670,948	£670,948	£672,948	£680,923	£735,801	£740,801	£728,826	£706,948	£706,948	£253,877	£7,239,915
<b>Survey &amp; Monitoring</b>												
All organisations	£340,294	£327,145	£411,981	£438,880	£351,200	£643,634	£390,495	£449,388	£796,252	£512,340	£0	£4,661,609
<b>Demonstration and awareness</b>												
All organisations	£350,850	£350,850	£350,850	£350,850	£350,850	£350,850	£350,850	£350,850	£350,850	£541,013	£372,733	£4,071,396
<b>Grand Total</b>												
All organisations	£14,412,975	£20,207,826	£25,996,275	£39,888,876	£63,601,604	£63,227,582	£94,154,410	£118,705,441	£128,468,554	£139,471,366	£18,948,475	£727,083,385

Table 4.2: Estimate of Expenditures Contributing to the Farmland Birds PSA Target, by Organisation

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	TOTAL
<b>Defra and Natural England</b>	£12,311,086	£18,078,849	£23,750,692	£37,635,448	£61,317,387	£61,005,977	£91,850,676	£116,378,320	£126,070,812	£137,169,368	£18,516,417	£704,085,033
<b>RSPB</b>	£1,728,921	£1,728,921	£1,728,921	£1,728,921	£1,728,921	£1,728,921	£1,728,921	£1,728,921	£1,728,921	£1,728,921	£0	£17,289,209
<b>BTO</b>	£101,092	£128,179	£244,785	£252,630	£223,167	£160,556	£146,166	£169,552	£176,511	£80,768	£0	£1,683,407
<b>GWCT</b>	£265,500	£265,500	£265,500	£265,500	£265,500	£265,500	£215,500	£215,500	£215,500	£215,500	£215,500	£2,670,500
<b>FWAG</b>	£6,377	£6,377	£6,377	£6,377	£6,377	£6,377	£6,377	£6,377	£6,377	£6,377	£6,377	£70,145
<b>BBSRC</b>	£0	£0	£0	£0	£60,252	£60,252	£206,771	£206,771	£270,433	£270,433	£210,181	£1,285,091
<b>Total</b>	<b>£14,412,975</b>	<b>£20,207,826</b>	<b>£25,996,275</b>	<b>£39,888,876</b>	<b>£63,601,604</b>	<b>£63,227,582</b>	<b>£94,154,410</b>	<b>£118,705,441</b>	<b>£128,468,554</b>	<b>£139,471,366</b>	<b>£18,948,475</b>	<b>£727,083,385</b>

## ANNEX 1: AGRI-ENVIRONMENT EXPENDITURES

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	TOTAL
<b>PSA 1</b>												
<b>ELS Option</b>	£0	£0	£0	£0	£0	£0	£23,288,917	£41,571,176	£46,312,804	£48,476,678	£9,271,733	£168,921,308
<b>OELS Option</b>	£0	£0	£0	£0	£0	£0	£1,477,985	£4,467,537	£5,634,632	£4,951,596	£793,356	£17,325,105
<b>HLS Option</b>	£0	£0	£0	£0	£0	£0	£545,451	£4,415,966	£5,988,974	£7,551,410	£1,407,183	£19,908,983
<b>CCS</b>	£2,934,080	£4,746,180	£6,904,611	£11,998,791	£28,945,819	£31,281,723	£29,412,191	£22,125,611	£19,969,068	£25,373,247	£716,672	£184,407,994
<b>ECP</b>	£495,062	£698,454	£892,313	£1,113,418	£1,850,633	£2,398,868	£2,337,827	£1,650,715	£1,205,081	£1,442,418	£70,269	£14,155,059
<b>ESA</b>	£856,575	£878,714	£1,330,468	£1,739,529	£2,338,586	£1,742,818	£1,674,542	£1,365,842	£1,141,032	£1,000,476	£13,454	£14,082,035
<b>TOTAL</b>	£4,285,717	£6,323,349	£9,127,392	£14,851,739	£33,135,038	£35,423,409	£58,736,912	£75,596,846	£80,251,591	£88,795,825	£12,272,667	£418,800,484
<b>PSA 2 - Options Making Some Contribution to PSA Species Conservation (weighted at 20-60%)</b>												
<b>ELS Option</b>						£0	£5,011,106	£9,303,650	£10,824,620	£11,727,598	£2,265,092	£29,132,124
<b>OELS Option</b>						£0	£965,590	£3,294,015	£4,355,347	£3,937,302	£630,473	£12,482,078
<b>HLS Option</b>						£0	£439,514	£2,680,961	£4,658,333	£7,632,667	£1,688,278	£16,015,393
<b>CCS</b>	£2,511,226	£3,848,282	£5,986,574	£10,696,821	£14,112,817	£13,284,657	£13,574,496	£12,020,065	£12,063,760	£11,354,471	£137,089	£72,609,334
<b>ECP</b>	£22,615	£40,113	£68,879	£117,870	£137,217	£181,914	£174,027	£146,212	£148,212	£242,087	£12,753	£1,479,552
<b>ESA</b>	£4,558,927	£6,634,424	£6,977,761	£9,906,609	£10,825,942	£8,548,992	£8,586,238	£8,089,529	£8,095,000	£7,481,760	£97,364	£78,747,928
<b>TOTAL</b>	£7,092,768	£10,522,819	£13,033,214	£20,721,301	£25,075,976	£22,015,563	£28,750,970	£35,534,433	£40,145,272	£42,375,885	£4,831,049	£250,099,250
<b>Grand Total</b>	<b>£11,378,485</b>	<b>£16,846,167</b>	<b>£22,160,606</b>	<b>£35,573,039</b>	<b>£58,211,015</b>	<b>£57,438,972</b>	<b>£87,487,883</b>	<b>£111,131,279</b>	<b>£120,396,863</b>	<b>£131,171,709</b>	<b>£17,103,715</b>	<b>£668,899,734</b>

## ANNEX 2: RESEARCH EXPENDITURES

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	TOTAL
<b>DEFRA S&amp;R Projects</b>												
Wholly relevant	£274,966	£390,056	£528,288	£507,824	£804,203	£981,047	£913,572	£872,090	£597,462	£562,915	£278,235	£6,710,658
Some relevance (at 20% of actual value)	£158,009	£143,164	£135,616	£104,755	£89,597	£70,301	£49,804	£42,348	£0	£0	£0	£793,594
<b>Total</b>	<b>£432,975</b>	<b>£533,219</b>	<b>£663,904</b>	<b>£612,579</b>	<b>£893,801</b>	<b>£1,051,348</b>	<b>£963,376</b>	<b>£914,438</b>	<b>£597,462</b>	<b>£562,915</b>	<b>£278,235</b>	<b>£7,504,252</b>
<b>NE</b>												
NE/EN research projects	£40,000	£40,000	£40,000	£47,000	£55,000	£60,000	£100,000	£146,000	£242,000	£242,000		£1,012,000
<b>RSPB</b>												
RSPB research on PSA species	£620,000	£620,000	£620,000	£620,000	£620,000	£620,000	£620,000	£620,000	£620,000	£620,000		£6,200,000
<b>BTO</b>												
minus NE /DEFRA funding	£5,798	£49,034	£116,204	£128,950	£118,967	£34,922	£30,671	£43,164	£39,459	£7,828		£574,998
<b>GCWT</b>												
	£164,000	£164,000	£164,000	£164,000	£164,000	£164,000	£114,000	£114,000	£114,000	£114,000	£114,000	£1,554,000
<b>BBSRC</b>												
					£60,252	£60,252	£206,771	£206,771	£270,433	£270,433	£210,181	£1,285,091
<b>All organisations</b>	<b>£1,262,773</b>	<b>£1,406,254</b>	<b>£1,604,108</b>	<b>£1,572,529</b>	<b>£1,912,019</b>	<b>£1,990,522</b>	<b>£2,034,818</b>	<b>£2,044,373</b>	<b>£1,883,354</b>	<b>£1,817,175</b>	<b>£602,416</b>	<b>£18,130,341</b>

### ANNEX 3: EXPENDITURES ON TARGETED DELIVERY AND ADVICE

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	TOTAL
<b>Defra advisory contracts</b>												
ADAS and FWAG, apportioned at 5%					£9,976	£59,854	£59,854	£49,878				£179,561
<b>NE</b>												
Relevant species recovery projects	£50,000	£50,000	£50,000	£52,000	£50,000	£55,000	£60,000	£58,000	£86,000	£86,000	£246,000	£843,000
<b>RSPB</b>												
HQ and regional advice	£414,699	£414,699	£414,699	£414,699	£414,699	£414,699	£414,699	£414,699	£414,699	£414,699		£4,146,988
Species projects (PSA species)	£160,639	£160,639	£160,639	£160,639	£160,639	£160,639	£160,639	£160,639	£160,639	£160,639		£1,606,388
Species projects (other farmland species, at 20%)	£37,733	£37,733	£37,733	£37,733	£37,733	£37,733	£37,733	£37,733	£37,733	£37,733		£377,333
<b>Total</b>	<b>£613,071</b>		<b>£6,130,709</b>									
<b>GCWT</b>												
	£1,500	£1,500	£1,500	£1,500	£1,500	£1,500	£1,500	£1,500	£1,500	£1,500	£1,500	£16,500
<b>FWAG</b>												
	£6,377	£6,377	£6,377	£6,377	£6,377	£6,377	£6,377	£6,377	£6,377	£6,377	£6,377	£70,145
<b>All organisations</b>	<b>£670,948</b>	<b>£670,948</b>	<b>£670,948</b>	<b>£672,948</b>	<b>£680,923</b>	<b>£735,801</b>	<b>£740,801</b>	<b>£728,826</b>	<b>£706,948</b>	<b>£706,948</b>	<b>£253,877</b>	<b>£7,239,915</b>

**ANNEX 4: EXPENDITURES ON SURVEY AND MONITORING WORK**

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	TOTAL
<b>BTO</b>												
	£95,294	£79,145	£128,581	£123,680	£104,200	£125,634	£115,495	£126,388	£137,052	£72,940		£1,108,409
<b>NE</b>												
Agri-env monitoring/evaluation	£0	£3,000	£38,400	£70,200	£2,000	£273,000	£30,000	£78,000	£414,200	£194,400		£1,103,200
<b>RSPB</b>												
Surveys (inc. volunteer farmer alliance, BBS)	£245,000	£245,000	£245,000	£245,000	£245,000	£245,000	£245,000	£245,000	£245,000	£245,000		£2,450,000
<b>All organisations</b>	<b>£340,294</b>	<b>£327,145</b>	<b>£411,981</b>	<b>£438,880</b>	<b>£351,200</b>	<b>£643,634</b>	<b>£390,495</b>	<b>£449,388</b>	<b>£796,252</b>	<b>£512,340</b>	<b>£0</b>	<b>£4,661,609</b>

## ANNEX 5: EXPENDITURES ON DEMONSTRATION AND AWARENESS RAISING

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	TOTAL
<b>RSPB</b>												
Hope Farm (purchase, running costs)	£250,850	£250,850	£250,850	£250,850	£250,850	£250,850	£250,850	£250,850	£250,850	£250,850		£2,508,500
<b>Defra/NFU/CLA - Campaign for the Farmed Environment</b>												
Defra expected contribution to running Campaign										£358,600	£603,200	£961,800
Direct Defra costs Campaign										£211,889	£215,000	£426,889
<b>TOTAL</b>										£570,489	£818,200	£1,388,689
<b>Total related to PSA birds</b>										<b>£190,163</b>	<b>£272,733</b>	<b>£462,896</b>
<b>GCWT</b>												
	£100,000	£100,000	£100,000	£100,000	£100,000	£100,000	£100,000	£100,000	£100,000	£100,000	£100,000	£1,100,000
<b>All organisations</b>	<b>£350,850</b>	<b>£541,013</b>	<b>£372,733</b>	<b>£4,071,396</b>								

## **ANNEX 6: LIST OF CONSULTEES**

The consultants are grateful to the following who provided advice and data for the study:

### ***BBSRC***

Kathryn Chisholm

Beverley Thomas

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### ***BTO***

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Emma Clare

David Devaney

Steve Langton

Andrew Morris

### ***FWAG***

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### ***Game and Wildlife Conservancy Trust***

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### ***Natural England***

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