our natural environment 2010

Prepared in partnership by Cambridgeshire and Peterborough Biological Records Centre and Cambridgeshire and Peterborough Biodiversity Partnership

A statement on the health of our biodiversity and landscapes

in Cambridgeshire & Peterborough

This document is aimed at key decision makers within the Local Area Agreement (LAA) and the districts' Local Strategic Partnerships (LSPs).

2010 is the International Year of Biodiversity. This is an opportunity to take a closer look at facts, figures and trends related to our natural environment in Cambridgeshire and Peterborough, to see where we are doing well and where we need to do better.

We hope the document will inspire further action to continue with conservation efforts and to highlight areas for improvements. It is planned to repeat similar publications in two-yearly intervals to identify longer term trends.

We look at the areas designated or protected for their biodiversity value, with examples from national or local monitoring schemes to illustrate the ups and downs currently being experienced by our wildlife, the amount of greenspace available to people and the amount of visitor and volunteering activity within the local community.

We touch briefly on air and water quality issues and the area of Biodiversity Action Plan habitat. Wherever possible, we give figures separately for Cambridgeshire and Peterborough, hoping this might result in a healthy competition between the two areas to outdo each other in biodiversity achievements in the future!

Photos clockwise from top: Ouse Washes (Cambridgeshire County Council), Skylark fledgeling (Vince Lea), Hardwick Wood (John Williams), Oxlip (Vince Lea), Holme Fen (Vince Lea), Swaddywell Pit (CPBRC).

Where are we doing well and where do we need to do better?

2010 International Year of Biodiversity

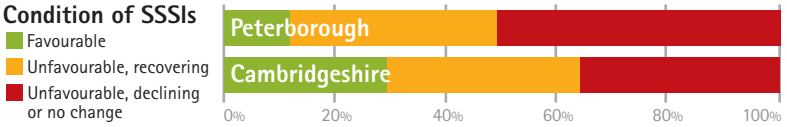
Designated Sites

Sites of Special Scientific Interest

Sites of Special Scientific Interest (SSSI) are designated nationally to protect the most important habitats in the UK.

Natural England, the body responsible in England for designating and assessing these sites and working with the owners and occupiers to enhance their special features, provides an assessment of the condition of SSSIs through a rolling programme of monitoring. The figures below are for March 2010. The aim is to have 95% of SSSIs in favourable or recovering condition, by the end of 2010, a target which presents a big challenge, both in Cambridgeshire and Peterborough.

Sites of Special Scientific Interest (SSSIs)	Cambridgeshire	Peterborough
SSSI area in Hectares	7259.15	826.25
Percentage of total authority area	2.38%	2.40%



Special Areas of Conservation

Special Areas of Conservation are sites, usually also SSSIs, which form part of the European network of important high-quality conservation sites.

Special Areas of Conservation (SACs)	Cambridgeshire	Peterborough
Number of SACs	6	2
SAC area in Hectares	1093.37	164.78
Percentage of total authority area	0.36%	0.48%

Special Protection Areas

Special Protection Areas (SPAs) are European sites, strictly protected and designated for rare and vulnerable birds, and for regularly occurring migratory species.

The Nene Washes SPA cuts across Cambridgeshire and Peterborough, the Ouse Washes SPA cuts across Cambridgeshire and Norfolk.

Special Protection Areas (SPAs)	Cambridgeshire	Peterborough
Number of SPAs	2	1
SPA area in Hectares	3092.85	169.89
Percentage of total authority area	1.01%	0.49%

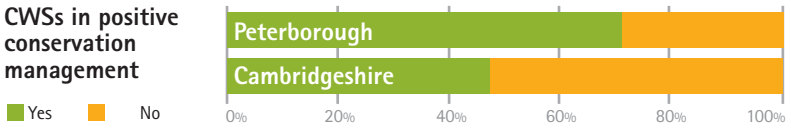
County & City Wildlife Sites

County and City Wildlife sites are locally designated sites recognised for their wildlife and habitat interest.

These sites, many of which are in private ownership, receive management advice from the Wildlife Trust and County Council. In 2008, a national performance indicator on local biodiversity (NI 197) was introduced – this measures the proportion of CWSs where there has been evidence of positive conservation management over the past five years. Looking at the March 2010 figures, Peterborough is well ahead of Cambridgeshire, but Cambridgeshire started off on only 38% in 2008; both local authority areas have seen huge improvements over the recent years.

County & City Wildlife Sites (CWSs)	Cambridgeshire	Peterborough
Number of CWSs*	415	107
CWS area in Hectares	6787.96	2334.01
Percentage of total authority area	2.22%	6.80%

* One site is a Regionally Important Geological and Geomorphological Site (RIGS)



Case Study:

Wetland Bird Survey counts at the Ouse & Nene Washes

The Wetland Bird Survey (WeBS) has been run by the British Trust for Ornithology for about 45 years and uses expert volunteers to count non-breeding (wintering) populations of waterbirds at the most significant wetland sites.

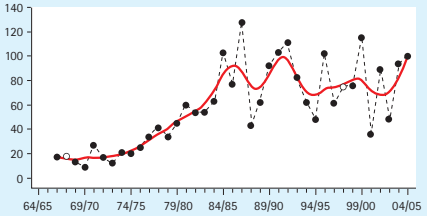
In Cambridgeshire, 32 key sites covering 6500 Ha, approx 2% of the county, are monitored monthly (Sept – March) using the standard procedures for this survey (www.bto.org/webs/index.htm). The Nene and Ouse washes are designated sites on the basis of their wintering bird populations; one example is the Bewick's Swan. Nationally, these sites hold significant populations of this bird which visits us in the winter from its arctic breeding grounds.

At the Nene washes, numbers have undergone significant fluctuation, with a marked downward trend since the 1990s. However, due to the high proportion of time this species spends on agricultural land, not covered by WeBS, the trend should be interpreted with caution.

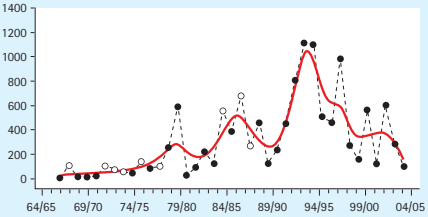
At the Ouse washes the populations here appear roughly stable after an increase in the late 1970s – early '80s. Approximately 80% of the English-wintering Bewick's swans spend their winter in the county.

The graphs show the site indices for both of these SAC/SSSIs, with the marked increase at Ouse washes (top) and decline at Nene Washes (bottom).

Bewick's Swans – Ouse Washes



Bewick's Swans – Nene Washes



Counts of wintering birds

Biodiversity Action Plan priority habitat

The Biodiversity Action Plans (BAPs) outline targets and actions which local authorities and local partner organisations pursue jointly to improve the situation for local habitats and species.

These plans were launched in 2000, and have been most recently reviewed in 2008/09. Below are estimates for grasslands and woodlands as exemplary BAP habitats from this last review. These take into account our best biodiversity sites as designated as Sites of Special Scientific Interest and County Wildlife Sites with habitat estimates from Natural England Inventories. For other habitats, such as various wetland habitats, brownfield sites, traditional orchards, hedgerows, we currently haven't got sufficient data available to provide area figures.

BAP habitat	Cambridgeshire		Peterborough	
	Area (Ha)	% of total area	Area (Ha)	% of total area
Chalk/Limestone Grassland	640	0.21%	70	0.20%
Neutral Grassland	310	0.10%	40	0.12%
Acid Grassland	40	0.01%	-	-
Grassland total	990	0.33%	110	0.32%
Woodland	2550	0.84%	1210	3.52%
Wet Woodland	80	0.03%	200	0.58%
Veteran Trees and Parkland	1180	0.39%	1040	3.03%
Woodland total	3810	1.25%	2450	7.14%

Local Nature Reserves

Local Nature Reserves (LNRs) are places for both people and wildlife.

They provide people with an opportunity to enjoy and learn about nature and have wildlife features that are locally important – some LNRs are also County Wildlife Sites. In Cambridgeshire and Peterborough, we have 26 LNRs. Natural England recommend as one of their benchmarks for local greenspaces provision, that there should be 1 Hectare of LNRs per 1000 people – a standard that isn't reached in our local area, but Peterborough comes closest with 0.53 Ha per 1000 people. New Local Nature Reserves can be declared by local authorities, in consultation with local communities and voluntary conservation organisations. To find out more about LNRs and search for LNRs locally, see www.english-nature.org.uk/special/lnr/office.htm.

	Number of LNRs	LNR area (Hectares)	Area per 1000 people
Cambridgeshire total	21	166.95	0.30
Cambridge City	10	40.91	0.38
East Cambridgeshire	2	7.68	0.11
Fenland	2	20.48	0.25
Huntingdonshire	2	69.42	0.44
South Cambridgeshire	5	28.28	0.22
Peterborough	5	82.98	0.53

Local Nature Reserves in action (left to right): Somersham LNR, Rings End LNR, Byron's Pool LNR

PHOTOS: CAMBRIDGESHIRE COUNTY COUNCIL

PHOTO: BIODIVERSITY PARTNERSHIP

Species Spotlight:

Sulphur Clover

Sulphur Clover is a scarce plant in Cambridgeshire, an indicator of neutral grassland, and is a frequent target species for designation of species-rich grasslands as County Wildlife Sites. These sites are usually re-surveyed every few years.

One recent study [Nature in Cambridgeshire article vol 51, 2009] carried out in Huntingdonshire district has compared the management regimes and population sizes of most of the sulphur clover colonies in the district. Out of 30 sites visited in 2007, 17 appear to have been lost (a 57% decline), all probably due to lack of management of those sites which have survived the conversion of grasslands to arable and other uses. The correct management seems to be critical for the survival of this plant and other neutral grassland species, and many of our County Wildlife Sites are in need of better management. The sites faring worst appear to be Protected Road Verges.

PHOTO: WILDLIFE TRUST

The Wider Landscape

Agri-Environment Schemes

In recent decades, defra have increasingly recognised the need to address the habitat and biodiversity losses on agricultural land in the UK.

Countryside Stewardship schemes (CSS) were put in place to fund farmers to implement suitable habitat improvement across the farmed landscape. In 2005, this was replaced and expanded to the Environmental Stewardship Scheme (ESS) with two tiers of involvement, Entry Level and Higher Level, for both conventional and organic farmers.

These schemes are tailored to the landscape and existing habitats and wildlife of an area. Farmers receive payment through Natural England for these activities. After only 5 years, it is not yet clear how great the impact has been on wildlife, but there are some encouraging signs.

The take up of agri-environment schemes across the county as a whole has been significant. The figures below show the land area on which schemes have been implemented. As an example, this will show a 40 hectare field which has 0.5 Ha of wildflower strip for nectar-loving insects, rather than the 0.5 Ha of the option itself. This is done as some land parcels would have several options on them, and the effects may well influence biodiversity on the field as a whole.

Figures for both schemes are supplied as there are still CSS farms, these agreements will expire at some point within the next five years.

Agri-environment Schmems	Cambridgeshire & Peterborough*
Countryside Stewardship Schemes (CSS)	31,280 hectares
Environmental Stewardship Schemes (ESS)	172,989 hectares

* Combined figures, no split figures available.

Area in Agri-Environment schemes Cambridgeshire & Peterborough

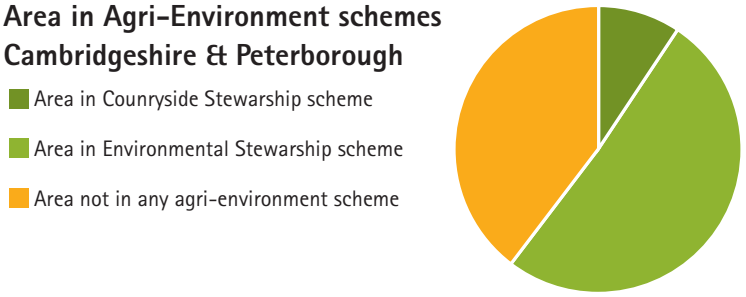


PHOTO: VINCE LEA

A field margin rich in flowers

PHOTO: VINCE LEA

An osier bed on farmland

PHOTO: VINCE LEA

Conservation grazing

Woodland Grant Scheme

The English Woodland Grant Scheme (WGS) administered by Forest Enterprise provides funding for land managers to manage their existing woodlands for the benefit of wildlife and people, and also to enable the creation of more woodland.

This is especially important for our ancient woodlands, where appropriate management will enable these special woodlands that cover only 0.9% of Cambridgeshire and Peterborough to be best managed for the future.

PHOTO: VINCE LEA

Woodland conservation work

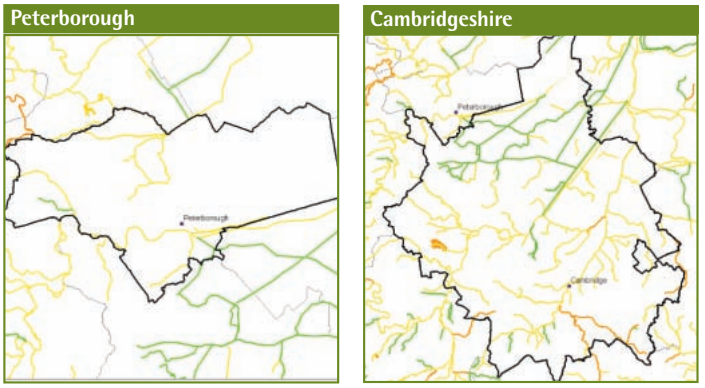
Woodland Grant Scheme	Cambridgeshire	Peterborough
Woodland Grant Scheme area in hectares	1396.16	507.1
Percentage of total authority area	0.45%	1.48%

Water quality

The European Water Framework Directive will help to protect and enhance the quality of the water environment, including streams and rivers. Ecological status is based on biological quality, chemical quality and water quality with respect to pollutants.

There are five classes of ecological status: high, good, moderate, poor and bad. Peterborough has a much smaller river system; less rivers are of high or good quality than in Cambridgeshire, and no rivers in poor or bad quality.

Water quality of our major river systems



Data provided by the Environment Agency.

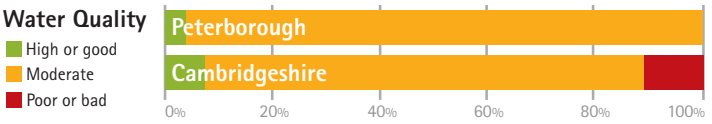


PHOTO: WILDLIFE TRUST

The River Great Ouse.

Lichens as indicators of changed air quality

Lichens are well known as indicators of pollution and air quality. These organisms, a symbiosis between algae and fungi, are sensitive to the acidity, sulphurousness and nitrification of the atmosphere.

In general, Cambridgeshire and Peterborough have a much poorer lichen flora than say the west of Scotland. However, it is improving. Surveys carried out by experts in the 1960s and '70s were finding only 30-40 species on a large nature reserve such as Wicken or Chippenham Fen. Many of these species were tolerant of high pollution levels. Re-survey of the same sites now has shown that those species which were common in the early surveys, such as *Lecanora conizaeoides* (then the most common lichen to be found) are actually becoming very scarce; these sulphur dioxide-tolerant lichens are now very difficult to find in the wider countryside. A site survey today would expect to turn up between 60 and 100 species of lichen in a site with a diversity of habitats for lichens such as a churchyard or a hall with parkland. Woodland or wetland reserves are similarly more diverse than they used to be. In 1972, 38 lichen species were recorded at Wicken Fen; 36 years later in 2008, 72 species were recorded, and the sulphur dioxide levels in the atmosphere are markedly reduced.

Whilst no accurate measurements of air quality parameters are presented here, these observations collated by the Cambridge Lichen group show that recording species sensitive to atmospheric pollution is a simple way of knowing that we live in a cleaner air environment than forty years ago. The levels of Nitrogen, however, are still significant: a group of lichens known as nitrophiles grow in situations where substrate or atmospheric nitrogen are high – this could be near a bird roost, or, more often, where agricultural fertilizers cause local enrichment of the air with nitrates. Many of these lichens, such as *Xanthoria parietina*, are distinctive as they form large bright yellow or orange patches. These are still very common species unlike their relatives which respond to more subtle air pollutants or to the acidity of the atmosphere.

PHOTO: JOHN WILLIAMS

Species Spotlight:

Otter

The Otter, an iconic mammal of our river systems, has done increasingly well in Cambridgeshire since five-yearly surveys commenced in 1992.

Each of the four surveys so far has involved volunteers visiting defined bridges across the county to search for evidence of Otter, usually the distinctive droppings or 'spraint'. These 280+ survey points cover the majority of the county's river system, on the Great Ouse, Little Ouse, Nene, Cam and Lark catchments, and have shown increases in the number of bridges exhibiting Otter signs each time. This is possibly linked to or is a consequence of the increase in water quality of recent years. Some areas have undergone population expansions faster than others – the Cam and the Great Ouse appear to have the best Otter populations; the numbers recorded along the Nene and in Fenland ditches are now increasing, but lag behind the rivers further south.

Otter Spraint recorded

Year	Number	% of sites
1992	3	1.1%
1997	35	12.4%
2002	47	16.5%
2007	76	26.3%

Public Participation

Getting the public involved

There are various ways for people to experience nature areas and to get involved with nature conservation:

- Local Nature Reserves are publicly accessible, as are Royal Society for the Protection of Birds (RSPB) reserves, Wildlife Trust Reserves, and some National Nature Reserves, such as Wicken Fen. Access to places rich in wildlife can contribute greatly to our quality of life.
- Several conservation organisations and local groups offer volunteer work parties to manage sites and carry out surveys and conservation activities. This is a great opportunity to learn about nature, and the volunteers make an invaluable contribution to enhancing and maintaining our biodiversity.
- Support for nature conservation organisations is also shown by becoming a member of these organisations and financially contributing to the work they are delivering.

PHOTO: BIODIVERSITY PARTNERSHIP

Fowlmere Reserve

Visitor numbers at some exemplary reserves:

Visitor numbers are shown for a selection of reserves. Overall visitor numbers on the exemplary reserves dropped by 9% from 2007/08 to 2008/09, but in 2009/10 visitor figures for Wicken Fen increased again to 47,559 (data not shown in table as no other site data available).

Reserve	2007/08	2008/09
Fen Drayton Lakes	15,000	15,000
Fowlmere	27,700	20,900
Ouse Washes	10,976	9,529
Nene Washes	665	1,030
Wicken Fen National Nature Reserve	40,794	40,631
Total on all example reserves	95,135	87,090

Family Fun Day

PHOTO: CAMBRIDGESHIRE COUNTY COUNCIL

Volunteers work on the River Mel

PHOTO: RIVER MEL RESTORATION GROUP

Case Study:

The UK Butterfly Monitoring Scheme

The UK Butterfly Monitoring Scheme (UKBMS) has been running for more than 30 years, and was devised (in Cambridgeshire, as it happens) as a standard way to assess butterfly populations on a site.

Within the last decade it has been acknowledged as sufficiently robust to be a national indicator alongside the Breeding Bird Survey and other standard monitoring schemes, used for national indicators of the state of our environment. It involves volunteers counting observed butterflies along a defined route weekly through the main flight season.

Full details of the scheme are available on www.ukbms.org

Species Spotlight:

Chalk Hill Blue

Cambridgeshire is at the very northern extreme of the UK range of this chalk grassland specialist butterfly.

All of the regular sites at which it occurs are monitored through the UKBMS and Cambridgeshire has one very large colony and several smaller ones. The large colony has been undergoing expansion over the last decade from near extinction in the early 1990s, and now has an annual index as defined by the UKBMS of 1700, with a maximum recorded count on a single visit of over 3000. This increase has benefited from and been encouraged through the practical management work carried out by Butterfly Conservation volunteers. The success is due to appropriate and sensitive management coupled with monitoring, and this colony may now be the source of other colonies which have appeared in the last few years at sites where the butterfly had become extinct several decades previously, but where appropriate habitat and food plants still persist in sufficient quantity and quality to make recolonisation viable.

PHOTO: VINCE LEA

Volunteer support

The table below shows volunteer support at work parties on different reserves, managed by the Wildlife Trust, RSPB, Cambridge City and Butterfly Conservation.

The figures are measured as volunteer hours, which is the number of volunteers, multiplied by the time they spent working. The figures capture volunteers' time working on the various Wildlife Trust Reserves, working on Cambridge City's 10 Nature Reserves, working with Butterfly Conservation on Devils' Dyke, Orwell Clunch Pit and Brampton Wood, working on the RSPB sites Fen Drayton Lake and Fowlmere.

Volunteer support for the Wildlife Trust's reserve work stayed steady. With Butterfly Conservation and Cambridge City's Local Nature Reserve Work, there was a slight decline in volunteer hours between 2007 and 2010, but RSPB's volunteer support saw a huge increase between 2007 and 2009.

Volunteer hours spent working on various reserves

Conservation Organisation	2007/08	2008/09	2009/10
Wildlife Trust Reserves Cambridgeshire	20,000	20,000	-*
Wildlife Trust Reserves Peterborough	3,000	3,000	-*
Butterfly Conservation Sites (Cambs)	230	180	205
Cambridge City LNRs (Cambs)	1,359	1,449	1,184
RSPB - Fen Drayton and Fowlmere (Cambs)	4,628	5,334	-*
Total on all example reserves	29,217	29.963	-*

* No figures available

Membership of selected conservation organisations

The table below shows membership figures for various conservation organisations over the last couple of years. It is a good sign that public support for conservation organisations is on the rise. Membership figures were not available from other organisations.

Conservation Organisation	2007/08	2008/09	2009/10
Wildlife Trust Cambridgeshire	4,849 (0.88%)*	4,881 (0.88%)*	5,112 (0.92%)*
Wildlife Trust Peterborough	1,020 (0.65%)*	1,070 (0.69%)*	1,086 (0.7%)*
Butterfly Conservation	186	172	192
Buglife (Cambridgeshire)	17	26	27
Buglife (Peterborough)	15	17	18

* Percentage of population.

Volunteer work party helping to improve butterfly habitat on the Devil's Dyke

PHOTO: VINCE LEA

Case Study:

The Breeding Bird Survey as a population monitoring tool

The Breeding Bird Survey (BBS), a standardised survey monitoring bird populations in the wider countryside, provides an annual insight into the fortunes of our breeding birds.

Volunteers walk a pair of 1km transects across randomly chosen 1km squares of the wider countryside twice in the breeding season, recording all bird activity.

Trends in population increases and decreases are available for most species of Cambridgeshire's wider countryside, at regional (East of England) or national (England or UK-wide) level, and species-specific data for the number of 1km survey squares and the density in those for each year for the county can also be viewed on the BBS web pages.

For more information go to: www.bto.org/bbs

Species Spotlight:

Yellow Wagtail

This summer migrant is a bird of both wet grassland and arable landscapes, and has shown a siginificant decline in the county, regionally and nationally. (Regional and national declines of 41% and 48% in the population).

These declines have led to this species' inclusion on the UK Biodiversity Action Plan priority list and on the list of Birds of Conservation Concern.

The graph shows the decrease in distribution across the county in BBS.

Yellow Wagtail

Percentage of 1km squares present 1994-2008

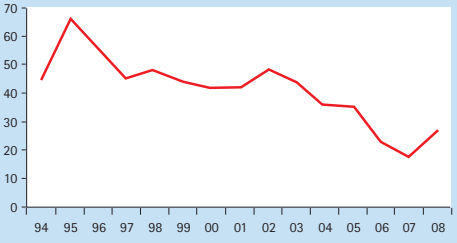


PHOTO: CLIFF CARSON

Conclusions

- With regards to protected sites, big improvements have been achieved over the last years on managing County/City Wildlife Sites positively, however there is still much to do to maintain the situation in Peterborough and to improve further the situation in Cambridgeshire. Achieving the target for 95% of Sites of Scientific Interest in favourable or recovering condition will be a big challenge. Both Peterborough and Cambridgeshire aren't yet achieving Natural England's standard for Local Nature Reserve provision.
- Many improvements in the wider landscape have been achieved through uptake of agri-environment and woodland grant schemes. We have briefly touched on Water and Air quality. Across the whole area, there is good public participation in conservation activities.
- Where possible we have included exemplary species trends over longer timescales. In many cases, it is difficult to provide trends, because there is no robust baseline information or there has been insufficient survey effort.
- There is a need and requirement under Planning Policy Statement 9 for local government to have up-to-date information; the Biological Records Centre is the One Stop shop for this information, and survey information is being updated through the County Wildlife Sites Project. Both these initiatives rely on funding support and cooperation from Local government and other organisations.
- Whilst we would have liked to present more data on Biodiversity Action Plan habitats, the only consistent data we currently have within the county is almost 20 years old; although data is currently being collected for some priority habitats, more funded work needs to be carried out to be able to provide a comprehensive and current picture for the whole county.
- We hope you are all significantly proud of the positive achievements in our area and inspired to do more where there is room for improvements!

Our natural environment 2010 at a glance:

	Cambridgeshire	Peterborough
Target for SSSI in favourable/recovering condition	😐	😐
Positive Management of County & City Wildlife Sites	😐	🙂
Area of LNR per 1000 population	☹	😐
Biodiversity Action Plan (BAP) priority habitat	?	?
Uptake of Environmental Stewardship	🙂	
Populations of wetland birds	🙂	
Populations of farmland birds	☹	☹
Uptake of Woodland Grants	🙂	🙂
Visits to reserves	🙂	
Volunteer participation in conservation activities	🙂	🙂
Membership of Wildlife organisations	🙂	🙂

Species Spotlight:

Skylark

The Skylark, a resident species familiar from its song across our farmed landscape, has undergone both local and national declines in population numbers with little apparent decrease in population range (recorded in 90-100% of BBS squares annually from 1994 – 2008) as the graph of counts per square on BBS surveys shows.

However, the headline figures as defined by the BBS for percentage decrease regionally and nationally are 26% and 17%. These declines have led to this species' inclusion on the list of Birds of Conservation Concern and the UKBAP.

[Eaton MA, Brown AF, Noble DG, Musgrove AJ, Hearn R, Aebischer NJ, Gibbons DW, Evans A and Gregory RD (2009) Birds of Conservation Concern 3: the population status of birds in the United Kingdom, Channel Islands and the Isle of Man. British Birds 102, pp296–341.]

Skylarks

Counts per surveyed square 1994-2008

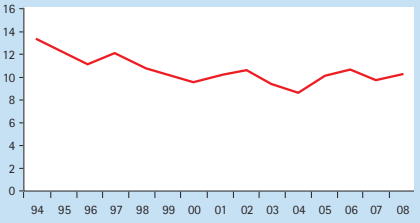


PHOTO: VINCE LEA

Contact:

- Cambridgeshire and Peterborough Biodiversity Partnership: www.cpbiodiversity.org.uk, phone: 01223 715697
- Cambridgeshire and Peterborough Biological Records Centre (CPBRC): www.cpbrc.org.uk, phone: 01954 713571
- International Year of Biodiversity; UK-partnership: www.biodiversityislife.net