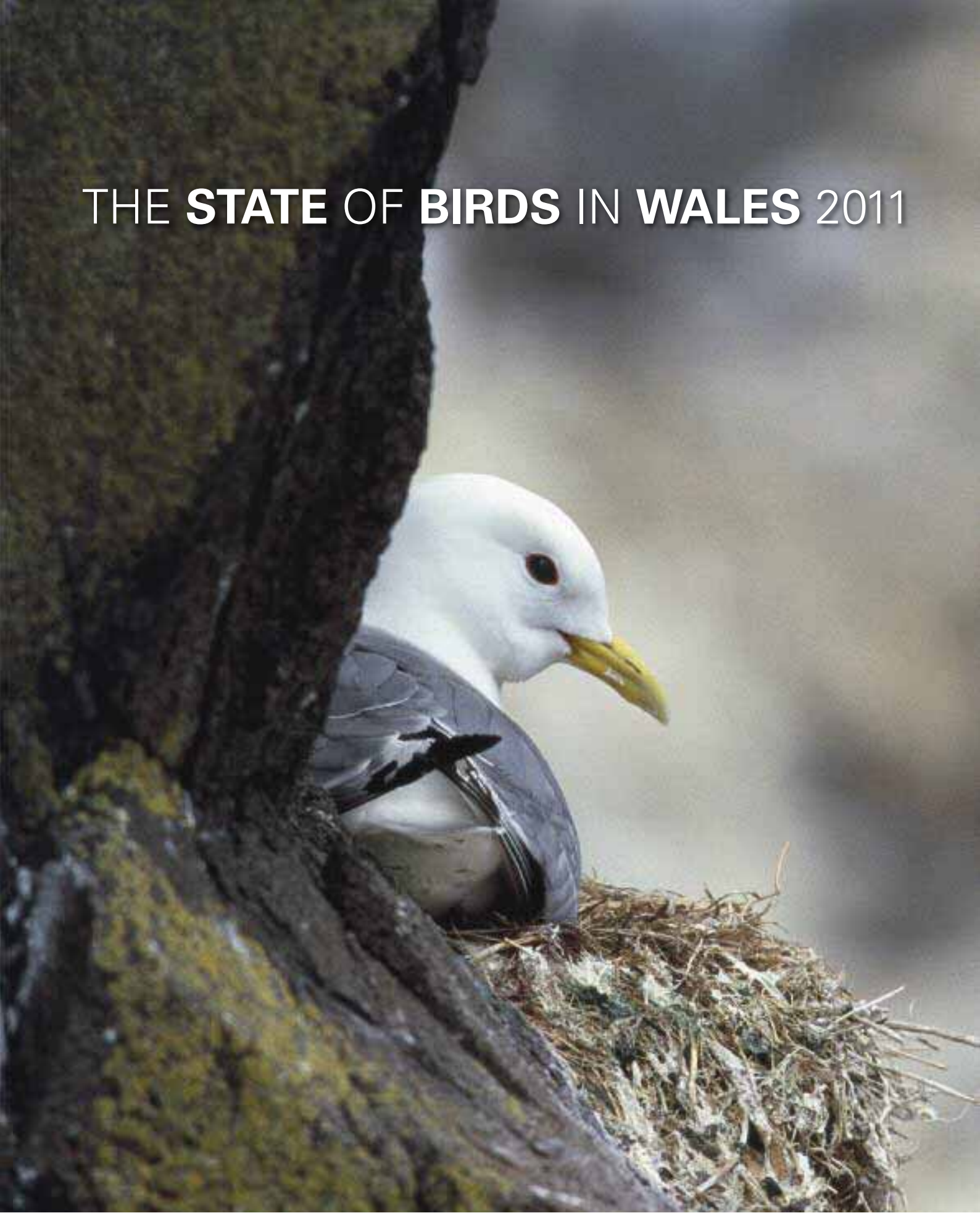


THE STATE OF BIRDS IN WALES 2011



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Introduction

It's all-change for Wales. Our new Government has new direct law-making powers, 23 of our 60 Assembly Members are new, and many "old friends" have moved on. However, the Welsh Government's radical programme, motivated by the missed 2010 biodiversity targets and the National Assembly's Biodiversity Inquiry, is still going forward. Work continues on the restructuring of Wales' environmental delivery bodies and the new Natural Environment Framework, with its integrated "ecosystem approach" to the Welsh environment.

Despite good news for some species and an unexpected up-swing in the Welsh Government's Wild Bird Indicator, the need for bird conservation remains strong. For example, the table on page 19 of this report shows how urgent the need for action is among the Welsh Government's priority bird species.

Since nearly 80% of Wales is farmed, it's vital for birds of farmed habitats that the much-debated Glastir scheme is attractive to farmers and that its prescriptions work. Much work is continuing to make the scheme as attractive as possible, while also trying to maximise environmental gain.

Our environment is increasingly valued for what it can do for us – "ecosystem services" like food, water, carbon storage and timber. In the new "ecosystem approach" we must ensure the building blocks of ecosystems – species and their habitats – are protected, with species conservation centre-stage.

We are delighted that the voice for bird conservation in Wales has just become a little bit louder with the creation of the Wales Bird Conservation Forum and the welcome arrival of the new BTO office and staff in Bangor.

Throughout this report, species' names are colour-coded according to *The Revised Population Status of Birds in Wales*. Forty-five birds are red listed because they are globally threatened, or have historically or recently shown severe decline. One hundred are amber listed because they are showing recovery from historic decline, are in moderate decline, or are localised, rare or internationally important. Sixty-eight other birds are green listed, including those showing further recovery. Species with no colour are too scarce in Wales to be assessed. Bold is used to highlight mention of the Welsh Government's **Principal Biodiversity Species**, for which they are committed to delivering conservation.

The headlines



▲ **The declining Welsh population of golden plovers is critically endangered and needs urgent action to save it.**

1. The annual widespread breeding bird indicator used by the Welsh Government shows an increase for the first time since 2006. This was heavily influenced by an increase in the lowland farmland bird index, jumping to its highest level since 2003. Many **Principal Biodiversity Species** continue to be too scarce to be included in the indicator.
2. Fourteen species, including **blackbird** and **great tit**, are increasing significantly, while seven, including **goldcrest** and **skylark**, are declining. The highest ever number of breeding **hen harriers** has been found. **Twites** that bred in Snowdonia have been located wintering on the Dee Estuary saltmarshes.
3. The Welsh Government's annual seabird indicator shows that **guillemots** have continued to increase, **fulmars** have remained stable and **kittiwakes** have continued to decline since 1986. These and other seabirds are being tracked in detail to identify important feeding sites.
4. Declines in wintering waterbirds have caused high long-term alerts to be triggered for eight species nationally (**mallard**, **pochard**, **whooper swan**, **bar-tailed godwit**, **dunlin**, **grey plover**, **ringed plover** and **turnstone**), and for six species on two protected sites locally (the Dee and Severn Estuaries). One new protected area for waterbirds has been designated in Liverpool Bay.
5. A new list of priorities among the 51 **Principal Biodiversity Species** shows that 11 are critically endangered in Wales. These include **golden plover**, **yellow wagtail** and **ring ouzel**, which need conservation action by 2015 to avoid extinction. Glastir, designated sites and species projects all have a vital role in delivering this, but must be adequately funded.

Widespread breeding birds

The annual BTO/JNCC/RSPB Breeding Bird Survey (BBS) has reported on changes in the fortunes of widespread breeding birds since 1994. The smoothed BBS results for 1995-2009 show that of the 51 native species reported on individually, the populations of 15 increased significantly, nine declined significantly and 27 species showed no significant overall change.

The Welsh Government measures the health of the environment annually, and birds are included in this using a **Wild Bird Indicator** based on widespread breeding birds, grouped by habitat preferences. Part 1 of this indicator measures the change in abundance (numbers) of native birds, based on slightly more species than reported individually by the BBS. Updated here to 2010, the all-species index has increased since 2009, recovering from drops in the two previous years. The first part of the indicator must always be viewed within the context of historic change. This is provided by part 2 of the indicator, which shows changes in range from 1968-71 to 1988-91. More than half of 119 native species represented show a contraction in range, which is likely to indicate a decline in abundance. It should be remembered that species that show most severe historical decline in part 2 of the indicator are often too scarce to be included in part 1 at current levels of coverage.

Despite broad stability across the last 16 years, the all-species index can mask important changes in individual species and species groups. Increases in generalists, which can do well from current land-uses, may offset declines in specialists, for which resources are harder to find.

Widespread breeding birds of farmed habitats

This indicator rose sharply in 2010 to levels of five years ago and is now about 3% below its 1994 value. To allow comparison with the UK, the short-term indicator for lowland farmland birds is also shown. This shows that the recent increase in the index of all birds of farmed habitats is driven by last year's improvements in most lowland farmland bird numbers, with increases in 11 of 13 species, especially **linnet**, **woodpigeon**, **stock dove**, **rook** and **kestrel**. For birds of farmed habitats in the uplands, modest increases were balanced by modest declines, and the index remained at approximately the same level as the year before.

Smoothed indices, which reflect the overall trend rather than recent fluctuations, show that six species declined significantly from 1995-2009 (**meadow pipit**, **skylark**, **curlew**, **starling**, **linnet** and **yellowhammer**), the latter five of which are **Principal Biodiversity Species**. Two species

(**goldfinch** and **woodpigeon**) increased significantly.

Widespread woodland breeding birds

Woodland birds were also more abundant in 2010, increasing for the second year in a row and now 10% above the 1994 baseline value. The historic indicator shows that the ranges of most woodland birds were also stable between 1970 and 1990.

Looking at individual species, smoothed BBS results show that only the **goldcrest** declined significantly between 1995 and 2009 (probably reflecting the strong impact of recent cold winters), while nine woodland species increased significantly (**blackbird**, **blackcap**, **chiffchaff**, **duncock**, **great spotted woodpecker**, **great tit**, **nuthatch**, **jay** and **song thrush**, which is a **Principal Biodiversity Species**).

Other widespread breeding birds

Some of the remaining species (comprising urban, wetland and upland birds) also show notable changes. Although none of these species changed significantly in abundance over the last year, smoothed indices show that two species declined significantly between 1995 and 2009 (**cuckoo** and **swift**), the former a **Principal Biodiversity Species**. Four species increased significantly (**collared dove**, **stonechat**, **swallow** and **house sparrow**).



▲ **Goldfinches** are thriving across much of Wales.

Widespread breeding birds

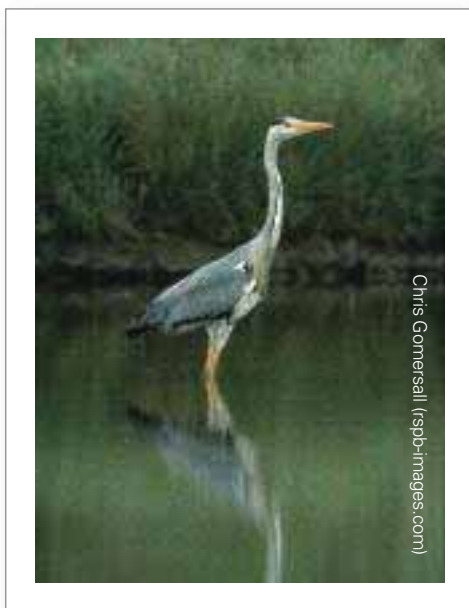
The smoothed BBS results for Wales, updated to 2009, show trends in widespread breeding bird abundance.



Jodie Fandall (rsph-images.com)

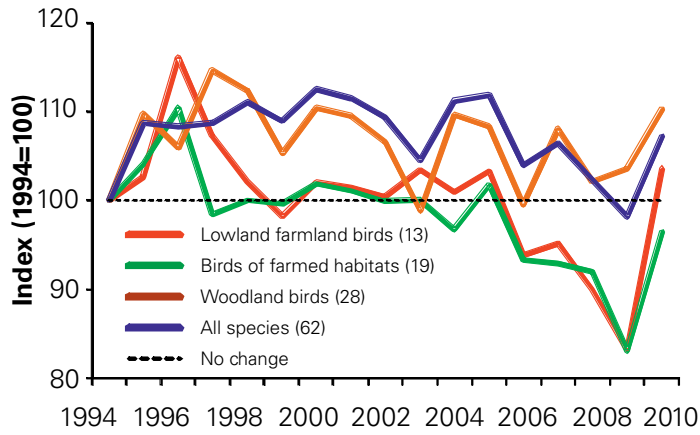
▲ **Starling** numbers have shown a decline of well over 60% between 1995 and 2009.

▼ **Grey herons** are almost stable, with just a 4% decline from 1995 to 2009.

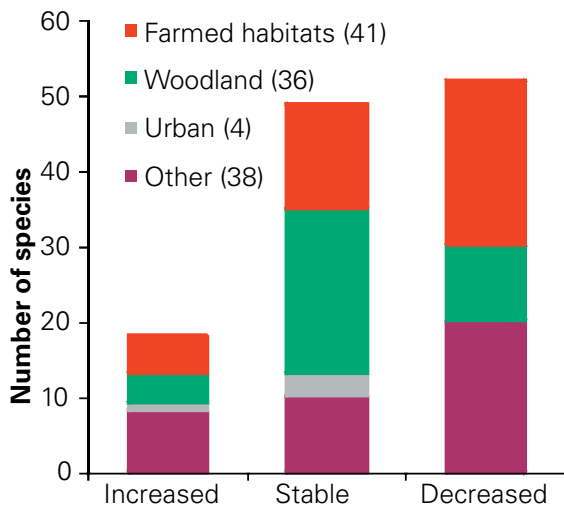


Chris Gomersall (rsph-images.com)

Species	% change 1995–2009	Direction of trend where significant
Blackbird	43	Increase
Blackcap	74	Increase
Blue tit	13	
Bullfinch	-18	
Buzzard	5	
Carrion crow	1	
Chaffinch	-8	
Chiffchaff	31	Increase
Coal tit	-11	
Collared dove	58	Increase
Cuckoo	-34	Decline
Curlew	-49	Decline
Dunnock	38	Increase
Garden warbler	-15	
Goldcrest	-52	Decline
Goldfinch	59	Increase
Great spotted woodpecker	178	Increase
Great tit	51	Increase
Green woodpecker	-5	
Greenfinch	9	
Grey heron	-4	
House martin	-2	
House sparrow	87	Increase
Jackdaw	29	
Jay	48	Increase
Linnet	-31	Decline
Long-tailed tit	21	
Magpie	-10	
Mallard	-13	
Meadow pipit	-16	Decline
Mistle thrush	2	
Nuthatch	33	Increase
Pied wagtail	-9	
Raven	29	
Redstart	10	
Robin	6	
Rook	-13	
Skylark	-20	Decline
Song thrush	31	Increase
Starling	-63	Decline
Stonechat	141	Increase
Swallow	25	Increase
Swift	-50	Decline
Tree pipit	-26	
Treecreeper	1	
Wheatear	-15	
Whitethroat	-9	
Willow warbler	-10	
Woodpigeon	39	Increase
Wren	1	
Yellowhammer	-35	Decline



Ray Kennedy (rspb-images.com)



Ben Hall (rspb-images.com)

▲ Part one of the bird indicator for Wales is a measure of how widespread breeding bird numbers have changed since 1994 (top). Part two of the indicator shows historical changes in the geographical distribution of widespread breeding birds between 1968–72 and 1988–91 (bottom). See text for explanation of species groups.

▲ Both coal tit (top) and mallard (bottom) are suffering small declines in Wales.

Widespread **breeding** birds

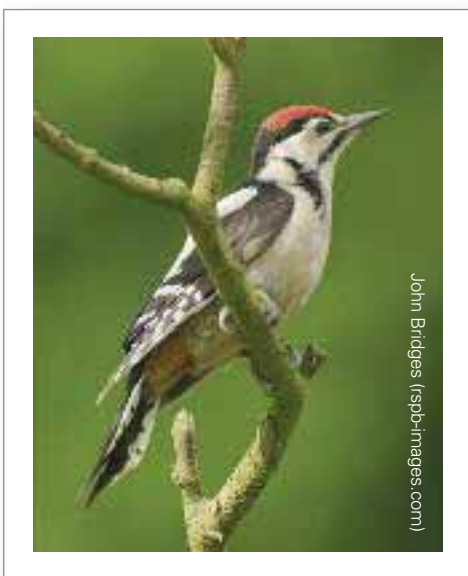


▲ **Willow warblers** have suffered a moderate decline in recent years.

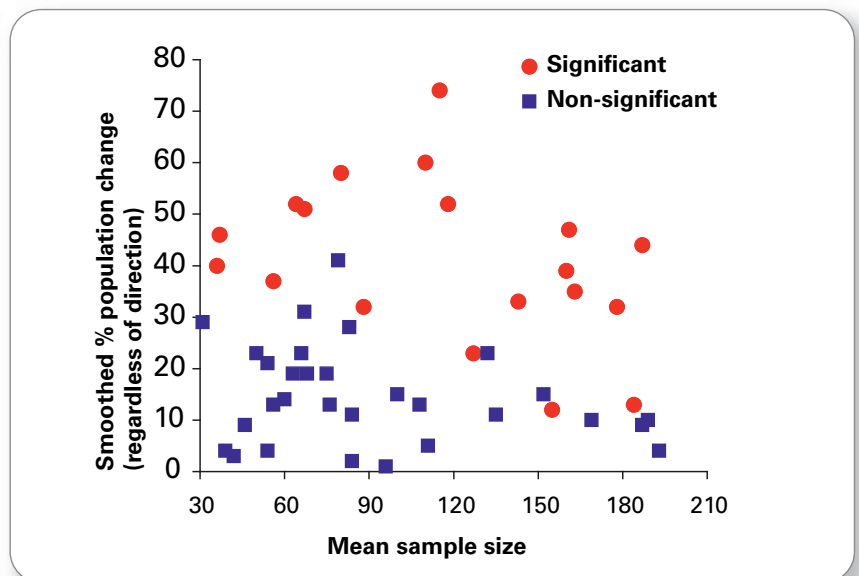
We need more power

BBS surveyors record all species, many often enough to report trends, but there can be a problem in interpreting data from species with small sample sizes. For example, despite a 29% decline, the trend in **tree pipit** abundance is not statistically significant, while the 12% increase in the far more numerous **long-tailed tit** is significant. To make sense of this we need a brief but important foray into statistics. A statistically significant "effect" (a difference between groups or a trend over time) is typically one which has a less than 5% probability of occurring by chance. The result of a statistical test depends on two things: the effect size, with larger effects being more significant, and the sample size, with an effect of a particular size being more significant when sample sizes are larger. If sample sizes are too small, real but small effects may not reach the 5% significance level and will not be reported. Tests using larger samples have more "statistical power," although as sample sizes increase there comes a point where no further improvements in power are obtained.

This is of relevance to the BBS results for widespread breeding birds. The abundance of species that occur on few squares (= small sample size) needs to change more (= larger effect size) than that of species that occur on many squares (= large sample size) before the change in abundance can be said to be statistically significant. This is illustrated below, with only the largest population changes coming out as significant for species with smaller sample sizes. Some species may be declining but are found on too few squares for their trend to be considered significant. The most effective way to increase the statistical power of any bird survey is to increase the number of squares being surveyed.



▲ **Great spotted woodpeckers** have enjoyed a population increase recently.



▲ Red dots closer to the bottom axis on the right-hand side of this graph show that change in population size is more likely to be significant if the sample size is large.



Ffridd good habitat for some widespread birds

In the 2004 edition of this report we highlighted the importance of ffridd to some widespread breeding birds. This typically Welsh habitat is found on steeper slopes between the enclosed fields below and moor above. It is a mosaic of grass, heath, bracken and scattered trees, which has come about through a long history of varying intensity of agricultural use. The importance of ffridd for some priority birds, such as **tree pipit**, **linnet** and **yellowhammer** is well established, but information on the specific requirements of different species is largely lacking.

Consequently, a recently completed BTO project has measured bird habitat preferences at three different spatial scales: 1) habitat patches greater than 1 ha, 2) territories and 3) individual bird sightings. Patch density (where smaller patches = higher density) and diversity (number of patch types in a given area) were good measures of the complexity of habitat mosaics in ffridd. Mosaics were more complex at lower altitudes, and when bracken dominated (when they also had more scattered trees).

Most of the differences in the bird communities between the 25 ffridd sites surveyed were due to a gradient in their broad habitat: from woodland species, through to those preferring scattered trees

with bracken and gorse, to species of grass dominated habitats. At the patch-scale, 16 of the 26 species included in analyses were associated with bracken or mosaics with bracken, and the highest densities of records for **tree pipit**, **stonechat**, **whinchat** and **linnet** were in these habitats, supporting the results of earlier studies. Sadly, the percentage of sites with **yellowhammers** had declined from 62% in the 1980s to 4% in this study: too low to be included in analyses. At the territory and individual record scale, 11 species selected bracken and bracken mosaics, with **stonechat**, **linnet** and **dunnock** showing greatest preference for mosaics that also contained gorse.

The results further highlight the importance of ffridd for some priority birds and wider bird species richness. Successional change in these habitats from mosaics to woodland through agri-environment-led or economically driven grazing reductions or tree planting is expected to result in changes in bird communities, with species that prefer open habitat and mosaics, including **Principal Biodiversity Species** such as **tree pipit** and **linnet**, being lost. The next challenge is to learn how to use farming to maintain these mosaics and ensure appropriate tree planting.

▲ Numbers of **tree pipits** have declined quite dramatically of late.

Scarce and rare **breeding** birds

Not all breeding birds are abundant enough to be reported by national survey schemes such as the BBS. Information on populations of such scarce and rare birds is nevertheless important, as this group includes some Principal Biodiversity Species.

Hen harrier recovery continues

The results of the 2010 **hen harrier** survey are now available. It repeated previous surveys in 1988–89, 1998 and 2004, and at 57 pairs, found the highest number yet. The surveyors visited previously occupied sites in their core range in the upland blocks of mid and north Wales, in addition to previously occupied upland areas further south that have not been surveyed for many years. Some of these were found to be occupied and account for some of the increase.

Hen harriers declined historically in Wales and only bred sporadically in the first half of the last century, probably as a result of persecution. In the past they nested in tall stands of heather and fed on small birds and mammals but in this survey 8% were on grass moor. Thankfully, and in contrast to other parts of the UK, persecution has virtually disappeared in Wales and the consequent increase in breeding success, in combination with warmer temperatures, explains much of their recovery in numbers. Some of the conservation action taking place in Welsh uplands for this and other species depends on the support of owners of land managed for sporting interests.

The 2010 survey involved the Wales Raptor Study Group, RSPB and CCW and was part of the Statutory Conservation Agency and RSPB annual Breeding Bird Scheme.

Species richness mapped

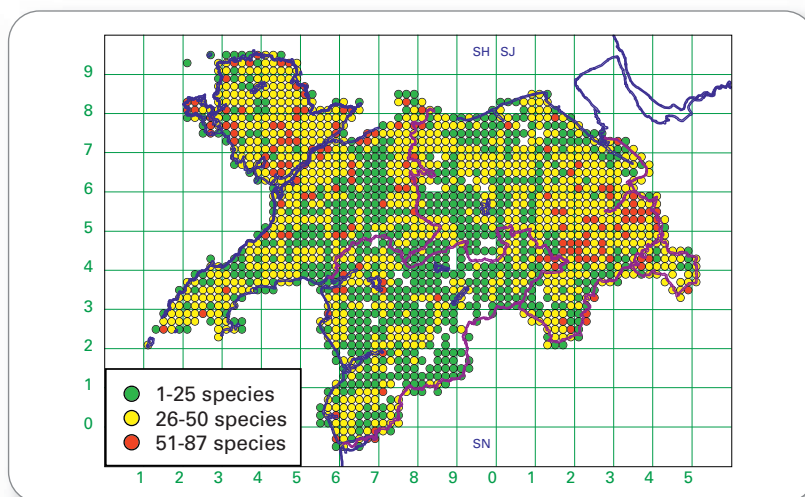
The marathon of data collection for the new Bird Atlases is now complete: a big thank you to everyone who contributed records. The next stage is to collate and map these data to provide a new assessment of the ranges (geographical distributions) of breeding and wintering birds for the 2007 to 2011 breeding seasons and 2007–08 to 2010–11 winters, along with assessments of how much their ranges have changed at the 10x10 km square level since the previous Atlases in 1968–72 and 1988–91. These data also allow species richness to be measured, which includes data for rare, scarce and widespread species.

In addition to a Britain and Ireland Atlas, local Atlas projects in Wales will publish their results at the finer resolution of 2x2 km squares, referred to as tetrads, to show in unprecedented detail where birds in Wales are found. Local Atlases are taking place in north Wales (Anglesey, Gwynedd, Conwy, Denbighshire, Flintshire and Wrexham) and Glamorgan.

Although the accuracy of species richness estimates and distributions of individual species depends on methods and levels of coverage now and in the past, these data provide a massive resource to help understand bird population changes and target conservation action to the right places. The volunteer surveyors should be hugely proud of this.



▲ **Hen harriers** (male above and female right) have shown a strong increase in Wales in recent years, in marked contrast to other parts of the UK where persecution continues.



▲ **By November 2010, more than 100,000 bird records of breeding evidence had been submitted to the North Wales Atlas project. These are already provisionally showing that the number of breeding species varies greatly across the area. For example, green symbols (few species) predominate in upland Snowdonia while yellow and red symbols (many species) predominate on lowland Anglesey and the varied geology and habitats of the Llangollen valley. Blanks show tetrads which had no records by this time. These have been targeted for survey during 2011.**



Hen harriers were virtually lost as breeding birds in Wales early in the 20th century, but since their return as regular nesters, numbers have steadily increased.

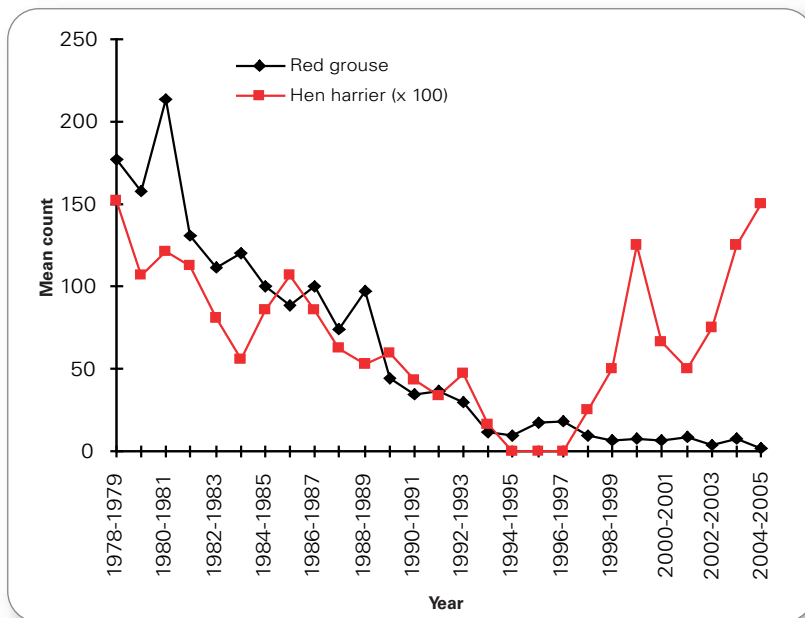
Scarce and rare **breeding** birds

Ruabon Moor long-term study shows changing fortunes of scarce and widespread birds

John Lawton Roberts recently published the results of his 27-year study of bird numbers on Ruabon Moor in north-east Wales in the journal *Birds in Wales*. The regular winter transect counts highlight changes in bird populations on the moor between the winters of 1978–79 and 2004–05, and reveal clues as to the causes of some of these changes.

Wintering numbers of larger upland vegetation-eating specialists, such as grouse, have declined; generalist predators, such as **carrion crows** have increased. The increase in predators was coincident with the new practice of late summer releases of non-native red-legged partridges for autumn sport shooting, and on which they could prey. Wintering **hen harriers** declined in tandem with **red grouse** and then increased in tandem with generalist predators. **Wren**, **stonechat** and **reed bunting** numbers were positively correlated with winter temperatures, and have increased in line with a run of milder winters.

This study highlights the range of processes that influence our upland birds. Subtle changes in moor management that influence vegetation structure can bring about declines in specialists, while generalists are quick to capitalise on the introduction of new food resources. Superimposed on these management changes is the effect of weather, with small birds in particular benefiting from mild winter weather. The effects of changing management and climate conditions during the breeding season are yet to be established.



▲ Wintering **red grouse** have declined on Ruabon Moor. **Hen harriers** also followed this pattern, but have wintered in greater numbers recently.



Tom Marshall (rspb-images.com)

Colour-ringing of rare **twites** probes mystery of wintering sites

BTO ringer Kelvin Jones, working alongside the National Trust and RSPB, and funded by the Snowdonia National Park Authority, has used colour ringing to find out where the tiny Snowdonia breeding population of **twites** spends the winter. Twenty-seven birds were caught during summer last year. Up to five of these were counted on the Dee Estuary saltmarshes in winter, and several birds have been re-sighted this spring in their breeding area. Colour ring records also show that Wales's saltmarshes are visited in winter by birds breeding in the English Pennines and Scottish Hebrides, and that some Welsh breeding **twites** may travel more widely in winter, with several surprising records from Titchwell in Norfolk, England.

This reveals for the first time that at least some Welsh breeding **twites** also winter here, and that conservation action to maintain seed-rich feeding habitat where they need it throughout the year is possible for this population. If you see a **twite** with colour rings, please report it to Kelvin Jones (kelvin.jones@bto.org)



Seabirds

Wales supports important seabird colonies, some of which have been designated as Special Protection Areas (SPAs) because of their importance in Europe (Ynys Feurig, Cemlyn Bay & The Skerries; Puffin Island; Aberdaron & Bardsey; Grassholm; Skomer & Skokholm). Led by the JNCC, in partnership with others, the Seabird Monitoring Programme (SMP) allows us to chart the fortunes of some seabirds that breed at sites in Wales and elsewhere.

Here we provide updates for three seabirds whose different feeding behaviour represent a range of seabird lifestyles in Wales, and these are also part of the Welsh Government's *State of the Environment* report. **Kittiwakes** take small fish such as sandeels from just below the surface, and build a delicate nest of grass on tiny cliff ledges, often in large colonies, where they try to raise their two or three chicks. The **fulmar** can catch prey by swimming further under the water, and will take discarded fish from boats. It lays its single egg on larger ledges, which it protects by spitting its stomach contents at intruders. The **guillemot** is a specialist deep diver, taking larger fish. It lays its solitary egg on narrow ledges where its shape prevents it rolling off. **Guillemots** nest in dense colonies, from where chicks jump from their nest ledges to the sea before they are fully grown.

The declines in some breeding seabirds in the north of the UK have been well reported, and there is much research underway into their causes. Therefore, we take this opportunity to put changes in Wales's seabirds into a wider context by comparing SMP results for Wales with those for the UK as a whole.

The results show that whilst **guillemot** numbers are increasing, and doing so more quickly than at UK-level, **kittiwakes** show signs of decline, although not as severe as

► **Kittiwakes** nest on cliff ledges but must feed on small fish close to the sea surface.



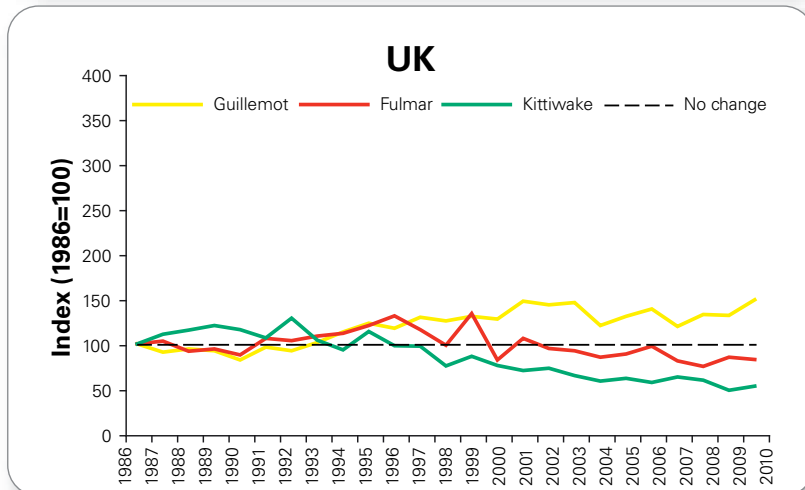
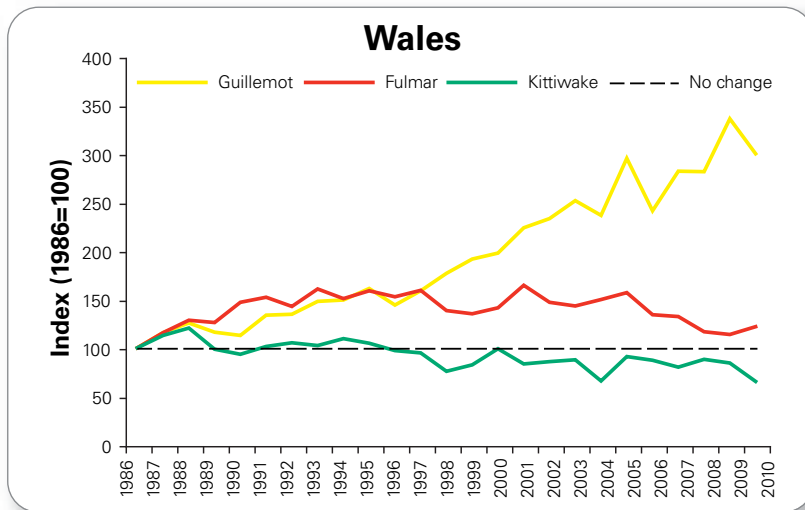
Kittiwakes in Wales are showing signs of a decline, but not yet so quickly as elsewhere in the UK: their breeding success has begun to be reduced.

Seabirds



Chris Gomersall (rspb-images.com)

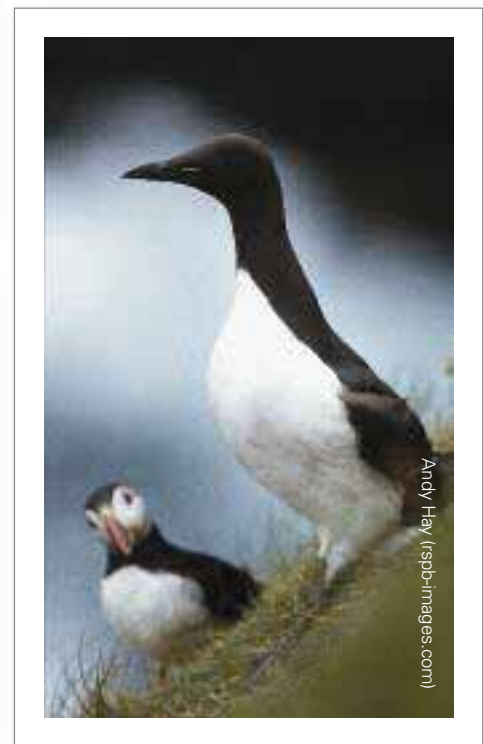
▲ Fulmars may be starting to decline.



▲ Seabird population changes. The JNCC-led Seabird Monitoring Programme provides an annual update on the fortunes of seabirds in Wales and the UK as a whole. Guillemot numbers have increased more in Wales than the UK, where numbers are stable. Numbers are stable for fulmars, compared to a decline in the UK. Although numbers of kittiwakes have dropped to their lowest since 1986, their decline is not as severe as for the UK as a whole.

for the UK as a whole. Although fulmar numbers appear stable, the beginnings of a decline as seen in the UK cannot be ruled out. Whilst the breeding success of kittiwakes has declined significantly over the monitoring period, the success of guillemots and fulmars shows no trend.

So what might be causing such changes? Climate change and changes in fishing practices have been suggested as causing decline in some prey fish species, such as sandeels, and these effects might be expected to be most severe in the north of the UK where coldwater food chains predominate, and where industrial sandeel fisheries have existed in the recent past. More research is needed to understand the diverging trajectories of different seabird species in Wales and the same species in different parts of the UK.



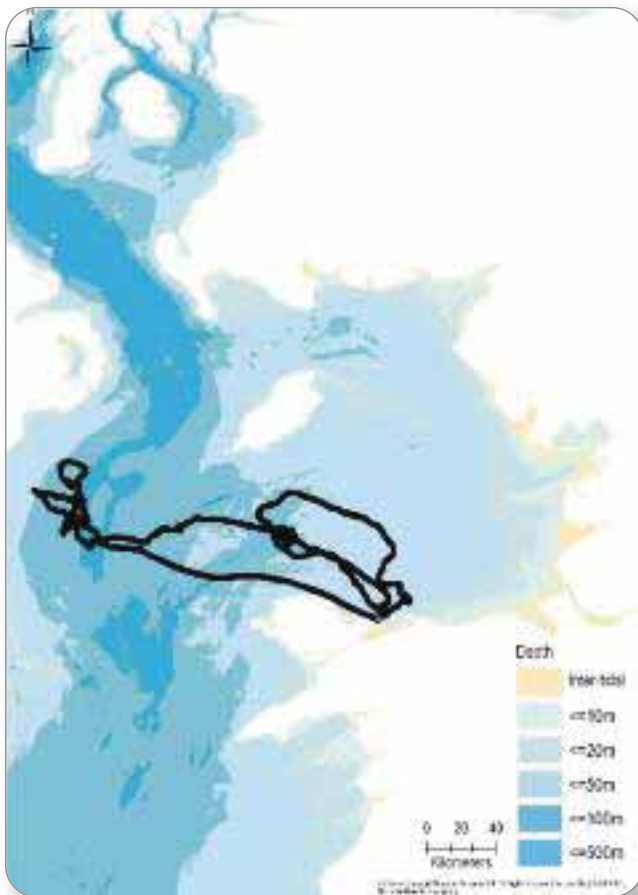
Andy Hay (rspb-images.com)

▲ Guillemots have increased in Wales, more than elsewhere in the UK. Puffins (lower bird) may benefit from the removal of rats from Ramsey.

FAME comes to Welsh seabirds

Recent advances in remote device instrumentation mean that at-sea movements of seabirds as small as **kittiwakes** can be recorded to an accuracy of 5–15 m. Tracking breeding seabird movements allows us to see where they go in relation to oceanographic variables such as currents, depth and sea floor type, which influence prey availability.

The EU-funded Future of the Atlantic Marine Environment partnership (FAME) project is simultaneously studying seabird colonies from the British Isles south to Portugal. Analysis of these data will provide the Atlantic coast region with the information it needs for informed decision-making about the size and locations of marine protected areas which the EU is committed to setting up. Several sites in Wales will contribute data to FAME: Puffin Island off Anglesey as part of a Liverpool University PhD, Bardsey off the Llŷn peninsula working with Bardsey Bird and Field Observatory, through support from Environmental Wales and Skomer off Pembrokeshire through a data-sharing agreement with Oxford University.



▲ The track taken by one member of a **kittiwake** pair over four days extended 100 km from its nesting colony on Puffin Island, off northeast Anglesey, and included two foraging trips between shifts incubating their eggs.



▲ A dead **gannet** on Grassholm entangled in synthetic rope from fishing gear

Gannets get a rubbish deal

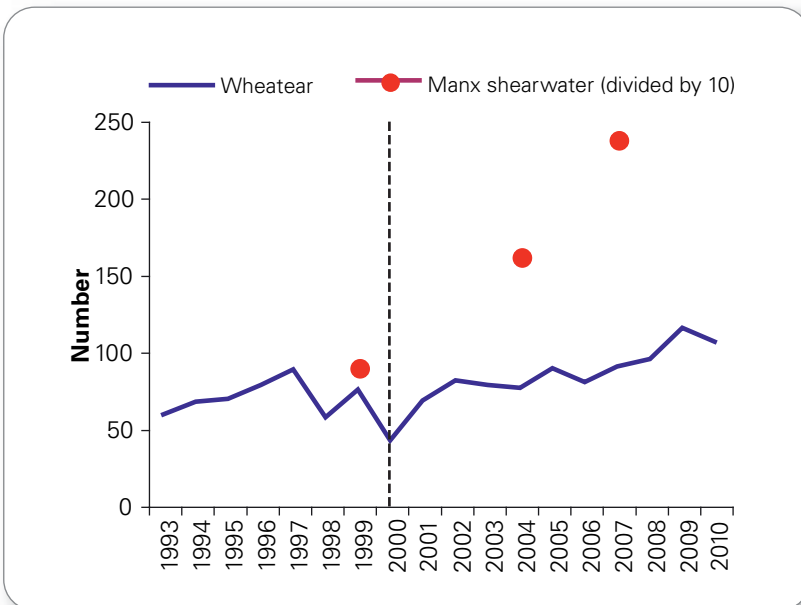
We have all found or seen pictures of seabirds tangled up with bits of synthetic rope or fishing net. The extent to which this increases mortality in nesting **gannets** has recently been assessed by researchers from Plymouth University on the RSPB reserve of Grassholm, off the Pembrokeshire coast and Wales's only breeding colony.

On examining a sample of nests outside the breeding season, they found an average of almost half a kilogram of plastic debris per nest (mostly synthetic rope). Amounts varied between nests, so there could be anything from 4.5 to a staggering 42.3 tons of it in the whole colony. Their results also suggest that **gannets** select synthetic rope over other plastics for use in nest building, perhaps because it resembles natural materials such as seaweed stalks and sticks.

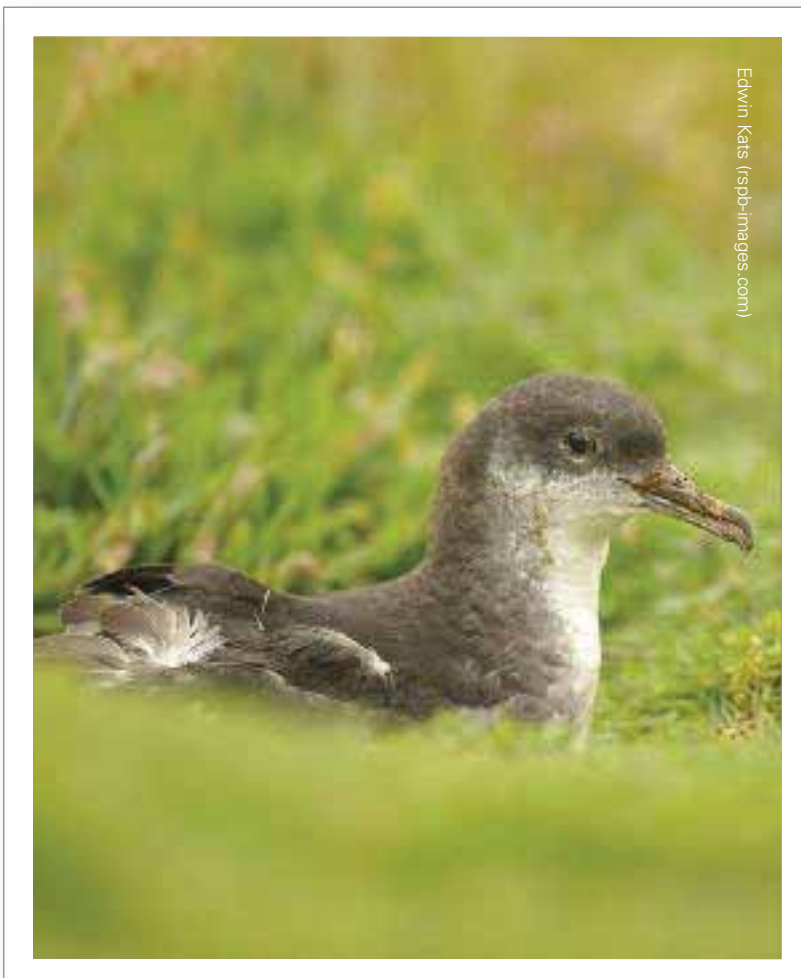
Between 33 and 109 birds, mostly nestlings, were found entangled in nest material each year over the course of their eight-year study. Even though some birds are cut free when the colony is visited, every year some chicks die due to entanglement. Although this source of mortality is unlikely to be large enough to affect the population size, indeed the colony has increased by 244% between 1969 and 2009, it is still likely to be additional to losses from other causes.

Even if regulations regarding disposal were tightened, the large quantities and long life of plastics in the marine environment would mean breeding seabirds would remain at risk of entanglement for many years.

Seabirds



▲ Numbers of occupied **Manx shearwater** burrows and **wheatear** pairs have risen following the eradication of brown rats from Ramsey Island (dashed line).



Edwin Kats (rspb-images.com)

The benefits of going rat-free

The consequences for ground-and burrow-nesting seabirds of colonisation of islands by rats, often from shipwrecks, can be catastrophic: the predation of eggs and chicks leads to population decline through low breeding success. However, thanks to methods of rat eradication developed by New Zealand conservationists, several of the Welsh islands are now rat-free.

Brown rats were successfully eradicated from Ramsey Island off Pembrokeshire in the winter of 1999-2000 by a team from Wildlife Management International, aided by staff and volunteers from the RSPB. A hand-laid grid of poison bait stations was used, modified to exclude accidental poisoning of wintering birds. After nine weeks, no more bait was being taken. Monitoring continued through the following year before rat-free status was conferred. Monitoring and bio security remain just as important in 2011 to prevent rats returning.

The impact on bird species formerly affected by rats on Ramsey Island has been marked. **Manx shearwater** numbers have risen, and nesting **storm petrels**, a species never previously recorded as breeding on Ramsey, were discovered in 2008. This small colony of six pairs is a significant milestone and it is hoped numbers will continue to grow. **Wheatears**, as low as 40 pairs at times during the 'rat years', have increased to more than 100 pairs, while the Wales BBS trend has been stable. **Puffins** became extinct on Ramsey shortly after the arrival of rats in the 1800s. However, more **puffins** are being seen near the island in recent years and it is hoped that they will naturally re-colonise. Puffin Island off Anglesey and Cardigan Island off Ceredigion are also now rat free, and numbers of seabirds are rising there too.

◀ **Manx shearwaters** nest in burrows on earth slopes, making them accessible to rats.

Wintering waterbirds

The estuaries of Wales are host to internationally important numbers of wintering waterbirds. The BTO/RSPB/JNCC Wetland Bird Survey (WeBS) has monitored these annually since the late 1960s in association with WWT. The counts are used to calculate WeBS Alerts that highlight population declines among widespread waterbirds. Most wintering waterbirds counted by the WeBS breed in the Arctic far to the north of Wales, while some waterbirds that breed in Wales migrate further south to winter in Europe and Africa.

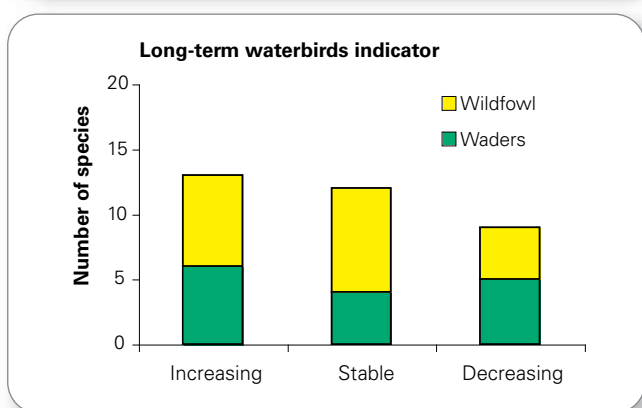
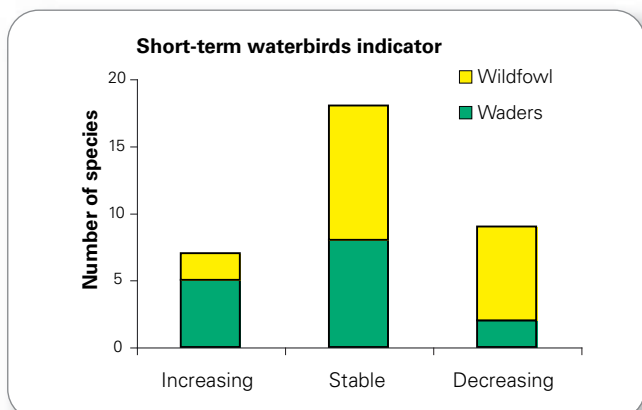
The WeBS Alerts are used to produce a waterbird indicator and were updated in 2010 by four years, to winter 2006/07, and include three species (**mute swan**, **greenshank** and **purple sandpiper**) that meet sample size requirements for the first time. It shows that the long-term declines of some wading birds in Wales, such as **dunlins** and **bar-tailed godwits**, are continuing. Some of these changes in abundance are probably caused by climate change-related shifts in wintering area, with milder winters making muddy food-rich estuaries of the North Sea better places to spend the winter. Wildfowl continue to do well, with the majority of species increasing over the long-term, although two ducks, **mallard** and **pochard**, have declined by around a quarter and a half respectively. **Common scoters** have recovered since the Sea Empress oil spill off Pembrokeshire in 1996, and benefit from the Carmarthen Bay Special Protection Area (SPA). A second SPA was designated for **common scoters** and **red-throated divers** in Liverpool Bay in 2010. Overall during the short-term, the majority of waterbirds are stable.

Long-term WeBS Alerts have been triggered for eight species (**mallard**, **pochard**, **whooper swan**, **bar-tailed godwit**, **dunlin**, **grey plover**, **ringed plover** and **turnstone**). The **bar-tailed godwit** is also a **Principal Biodiversity Species**. Nevertheless, over the long-term, the majority of waterbirds are stable or increasing.

Species	5-year change	25-year change
Bar-tailed godwit	-52	-79
Bewick's swan	-100	-100
Black-tailed godwit	165	>1000
Common scoter	176	245
Coot	-19	8
Cormorant	9	61
Curlew	-19	2
Dark-bellied brent goose	-7	131
Dunlin	-2	-47
Eider	-28	-10
Gadwall	7	287
Golden plover	40	242
Goldeneye	-25	-3
Goosander	-8	94
Great crested grebe	8	221
Greenland white-fronted goose	-67	-3
Greenshank	5	89
Grey plover	0	-56
Knot	145	18
Lapwing	46	34
Little egret	107	>1000
Little grebe	4	124
Mallard	-12	-29
Mute swan	29	296
Oystercatcher	-19	23
Pintail	65	230
Pochard	-27	-49
Purple sandpiper	>1000	953
Red-breasted merganser	-28	-7
Redshank	0	-1
Ringed plover	-28	-55
Sanderling	-18	47
Scaup	-19	29
Shelduck	-7	22
Shoveler	11	129
Teal	-4	-4
Tufted duck	-14	5
Turnstone	26	-55
Whooper swan	-47	-74
Wigeon	26	111

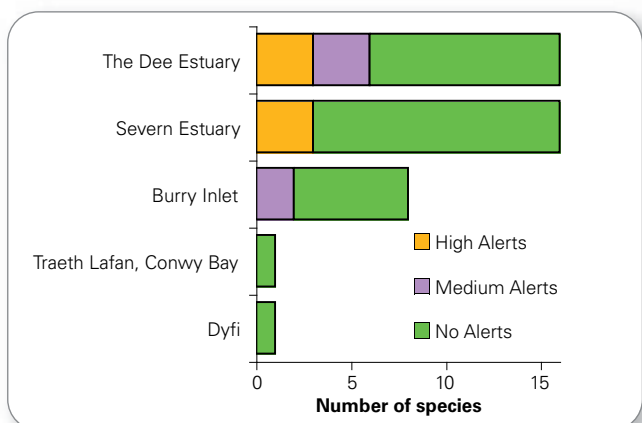
▲ Short-term (5 year: 01/02–06/07) and long-term (25 year: 81/82–06/07) percentage change in waterbird abundance from WeBS counts in Wales and the Dee and Severn estuaries that share its border.

Wintering waterbirds



▲ The indicator of wintering waterbirds in Wales is updated to the 2006–07 winter. It shows numbers of species increasing (more than 33%), stable or declining (more than 25%) for 19 wildfowl and 15 wading birds over the short-term (5 years) and long-term (25 years). The number decreasing represents those for which medium or high alerts have been triggered.

▼ Of the five estuarine SPAs in Wales, three have species abundant enough for analyses that have triggered medium or high long-term alerts (Dee Estuary: **mallard**, **oystercatcher**, **grey plover**, **knot** and **bar-tailed godwit**, Severn Estuary: **mallard**, **pintail**, **oystercatcher**, **grey plover**, **knot** and **bar-tailed godwit**, Burry Inlet: **shelduck** and **oystercatcher**).



Burry inlet oystercatchers and shellfishery have a hard time

Lying between Gower and Carmarthenshire, the Burry Inlet was designated a Special Protection Area in 1992 on account of its internationally important wintering **oystercatchers** and other waterbirds, and the Welsh Government has a responsibility for maintaining its bird populations in a favourable conservation status.

The number of **oystercatchers** using a site in winter depends on the condition of the site as well as the condition of other available wintering and breeding areas. In the Burry Inlet, **oystercatchers** mainly eat cockles or mussels. So, when adult cockles started to die in large numbers each summer, CCW needed to know what effect this would have on the **oystercatcher** population. If bad effects could be expected then site-specific action would be required. For example, the estuary has supported a cockle fishery for many years, and total allowable catches (TACs) may need to be reduced so that sufficient food for the **oystercatchers** can be preserved to keep the population in a favourable status.

Observations by CCW since the die-offs began show three times more birds feeding on other less profitable prey outside the estuary than before, while numbers feeding on the cockle beds have declined by a third. In addition, a WeBS Alert was triggered for Burry Inlet **oystercatchers** in 2007–08, which highlighted a decline in numbers after the die-offs began, although numbers have yet to reach the lower threshold for favourable status.

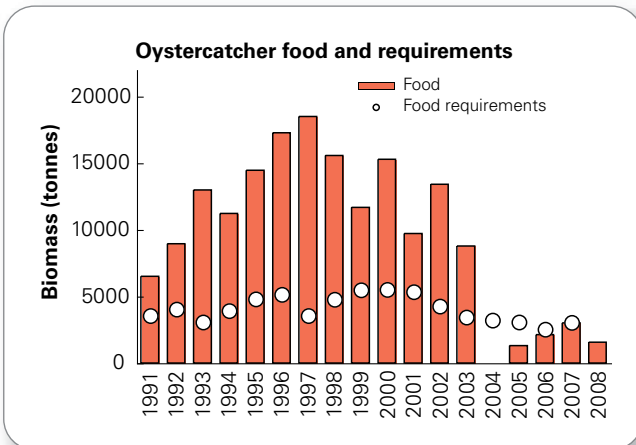
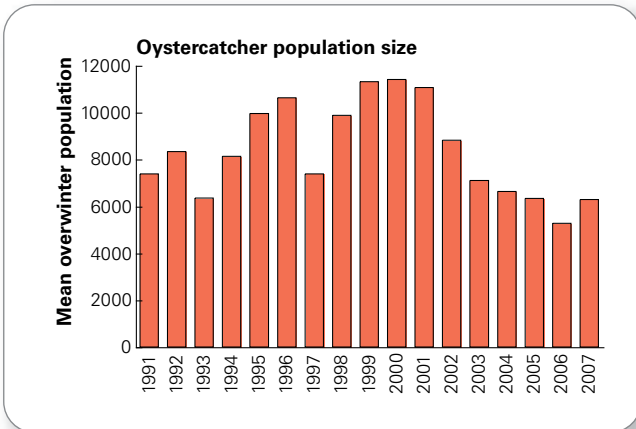
In addition to this and as part of CCW's management of estuarine SPAs, ecologists at Bournemouth University have used an individual-based population model to help set shellfish catches that don't impact on status of dependent bird populations. Data on cockle and mussel stocks and bird numbers for recent winters were inputted to a computer model that predicted whether there would have been enough food to keep the birds alive over the winter. Results showed that this was the case before the die-offs began, after which food stocks were generally too low to support the birds on the site, although there was enough food in 2007 because mussel stocks had increased. This supports the direct observations and confirms that lack of food was the likely reason for the changes in use of the site and recent decline in numbers. TACs for cockles have been reduced accordingly.

The reasons for these cockle die-offs are not fully understood. Possible causes include pollution and recently discovered shellfish parasites from North America. Whatever the reasons, die-offs have affected both the internationally important **oystercatcher** population and the Marine Stewardship Council certified hand-gathered cockle fishery.



Malcolm Hunt (rspb-images.com)

▲ **Oystercatchers** declined on the Burry Inlet after the estuary's cockles began to die during the summer.



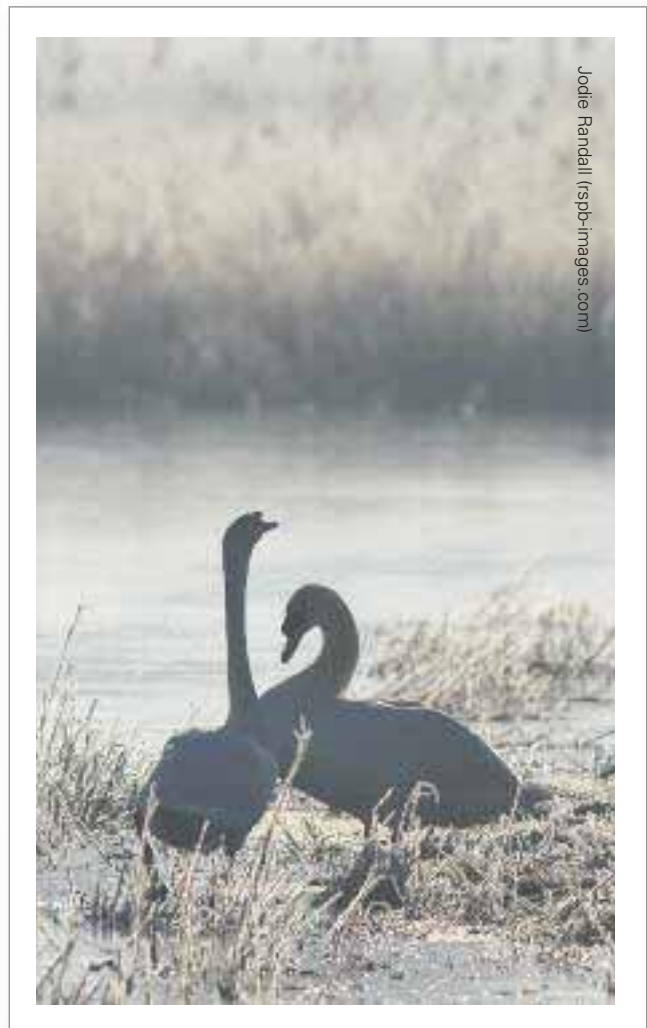
▲ Numbers of **oystercatchers** wintering in the Burry Inlet have declined in recent years (top). This is because stocks of cockles, their preferred food, have crashed since 2003 (bottom). Food supplies (bottom, red bars) have been sufficient for the birds' requirements (white dots) in only one winter since then (2007), and this was because mussel stocks had increased.

Severe weather triggers voluntary wildfowling restraint

Wales experienced seven consecutive days of severe weather (at least 12 of 24 UK coastal MET stations reporting frozen conditions) on 6 December 2010. This triggered the call for *voluntary* restraint on wildfowling and general disturbance of wildlife. Despite a short thaw, starting on 12 December, a further period of *voluntary* restraint began on 22 December, lasting until 29 December. If severe weather had lasted for 13 days, then CCW would have advised the Welsh Government to implement a 14-day *statutory* suspension, which would have been re-evaluated after seven days.

Although some fish-eating birds such as **little egrets** and **grey herons** suffered badly, with dead and dying birds noted in Pembrokeshire, thankfully no mass mortalities were reported during the severe weather period. A full assessment of the effects of recent winter weather on birds will appear in a future *State of Birds in Wales* report.

▼ Like other waterbirds, **mute swans** may struggle to find food during severe freezes.



Jodie Randall (rspb-images.com)

Conservation **action**

Although the population status of a few **Principal Biodiversity Species** has improved without conservation action being required (eg for **house sparrow** and **song thrush**) and others have responded to adequately resourced and targeted conservation action (eg **black grouse** and **little tern**), for the majority of the 51 species, population size and range has been in decline for some time despite **Biodiversity Action Plans (BAPs)** to guide action and the much publicised international 2010 target to halt biodiversity loss.

In January 2011, a report was published from an enquiry into the reasons why the Welsh Government had failed to meet the 2010 targets for the **Principal Biodiversity Species** (www.assemblywales.org/cr-ld8384-e.pdf). Among the reasons identified for failure were:

- Population size and range targets in many cases were aspirational, rather than realistic (ie ecologically unrealistic given likely levels of breeding success and survival).
- These targets were not linked in a meaningful way to the condition, extent and location of critical resources for the relevant species.
- The consideration of species' requirements when setting condition targets for BAP habitats was too superficial. For example, favourable condition targets for dry heath resulted in less than ideal conditions for **ring ouzels** living in the same habitat.

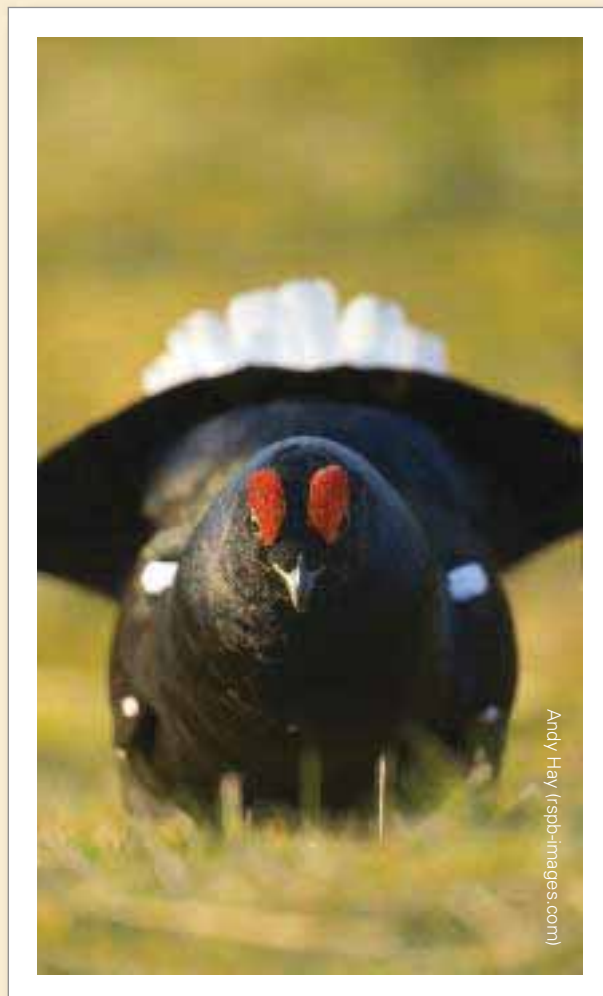
In response to these, the Wales Bird Conservation Forum (one of a range of sub groups of the Wales Biodiversity Partnership Species Expert Group) has been charged with producing new species targets, and a timetable for these to be included in the BAPs of the **Principal Biodiversity Species**.

A full understanding of what drives population change is not available for all species. However, using best available knowledge, realistic population targets can be set. These need to be based on the extent of critical resources each bird species needs, and where in Wales they should be provided.

Moreover, the BAP species' targets need to be considered within the context of other conservation priorities, such as:

- Article 3 of the Birds Directive (EU legislation to protect birds).
- The status of Special Protection Areas (European protected sites).
- Sites of Special Scientific Interest (UK protected sites).
- Priorities among other non-bird **Principal Biodiversity Species** and habitats.

Integrating targets across species and habitats will help merge biodiversity requirements into wider ecosystem approaches to managing land for multiple uses; the direction being taken by the Welsh Government's emerging *Natural Environment Framework*.



Andy Hay (rsnb-images.com)

▲ **Black grouse** numbers will increase given properly targeted and adequately resourced conservation action.

► For each species, urgency of conservation action (grey numbers) depends on the population size (abundance and distribution) and trend. For species that lack recent systematic national surveys, assessments are based on best available information. Species in italics show assessments for wintering or passage populations.

Regional IUCN Category	Status ¹	Direct (by 2015) ²	Immediate future (by 2020)	Near future (by 2026)	Medium future (by 2030)
Regionally / functionally extinct	No longer a regular breeder/recently lost	Bittern (extinct breeder but winters) Corn bunting Corncrake Roseate tern Turtle dove			
	Rapid decline in range and abundance – now scarce and declining	Bar-tailed godwit Black-headed gull Golden plover Ringed plover Twite White-fronted goose (Greenland race)			
Critically Endangered	Rapid decline in range and abundance – now local and continuing to decline	Black grouse Grey partridge Ring ouzel Tree sparrow Yellow wagtail	Red grouse Willow tit		
	Rapid decline in range and abundance – still widespread, but continuing to decline		Curlew Kestrel Lapwing		
	Rapid decline in abundance – still widespread, but continuing to decline			Cuckoo Herring gull Pied flycatcher Wood warbler	
	Decline in abundance and range – still widespread			Lesser spotted woodpecker	
	Decline in range – local			Nightjar	
Endangered	Decline in abundance – still widespread			Bullfinch Marsh tit Redpoll Spotted flycatcher Starling Tree pipit Yellowhammer	
	Currently stable/increasing, scarce/local species, but factors/threatening processes evident that are likely to result in declines		Bewick's swan	Chough	
Vulnerable	Abundance and range stable or increasing – all require monitoring				Aquatic warbler Balearic shearwater Brent goose (dark-bellied race) Common scoter Dunnock Grasshopper warbler Hawfinch Hen harrier House sparrow Linnet Red-backed shrike (occasional breeder) Reed bunting Skylark Song thrush Woodlark

¹Status: Scarce = scarce breeder (<20 10x10 km squares from either of the two published BTO atlases if not already an occasional breeder using Rare Breeding Bird Committee & Welsh Rarities Panel definitions; 20 squares is the minimum range size for inclusion in the historic widespread breeding bird indicator). Local = localised breeder (<70 10 km squares in one or both atlases if not already scarce: 70 squares = 25% of Wales). Widespread = widespread breeder (all other species). For species that winter but do not breed, status was based on WeBS trends.

²Urgency is indicated by grey numbers: 1 is the most urgent and immediate priority for action, while 4 is the least urgent. 5 denotes a species vulnerable to changing conditions but the short- to medium-term action is to monitor only.

Conservation **action**

Urgency of action of BAP target revision

A first step in the process was to assess the urgency of action for each of the 51 **Principal Biodiversity Species**. As resources are limited, the work of the Forum, including the promotion of action, will be focused on those of highest priority.

Species targets

As a starting point to make targets for the **Principal Biodiversity Species** more ecologically realistic, the Bird Conservation Forum has agreed that the majority of short-term targets should be about halting decline. However, during the process of integrating targets across all species and habitats, even this approach may need refining.

Fundamental to the approach the Forum is promoting is the knowledge of the critical resources each species needs and expressing population size and range targets in terms of the

habitat extent and condition needed to support the target population. This will be based on best available information, with new information used as it becomes available, such that targets will need to be periodically revised. A timetable for revisions will be developed.

Progress in identifying the best locations for providing the resources has already been made for some species, allowing fine-scale targeting of action. For example, the integration of Glastir target areas, and the Important Upland Bird Area zones for designated sites (see *The State of Birds in Wales 6*). These places are considered to have the best opportunities to provide the needs of particular species within their existing ranges, but will still require landowner support and agreement before action can be taken. Data on bird ranges are updated every two years using informal records, with the latest revision having taken place in September 2011.

An example of a species target: **the curlew**

Species target: halt decline – **c1000 pairs** located in **c500 1 km squares** throughout Wales.

Habitat target: **30,000 ha** of **curlew** habitat.

Curlew habitat is open, continuous flat or gently undulating landscape with unrestricted views of >200 m. Damp, extensively grazed rough pasture or moorland (containing frequent damp habitats such as natural flushes and damp depressions) provides nesting areas, while adjacent improved pasture of around 5 cm sward height provides foraging areas. Alternatively, hay meadows can provide suitable nesting areas.

Although highly variable throughout the UK, there is evidence that an estimate of 30 ha of suitable land (a mixture of breeding habitat and foraging land in a ratio of 1:3) per pair is appropriate for Wales.

Location: in 500 1 km squares throughout Wales

Although higher breeding densities exist, two pairs per 1 km square is considered a reasonable expectation in Wales and therefore c60 ha of **curlew** habitat per identified 1 km square may need to be maintained/provided – although some allowance for overlapping foraging areas can be made.

A **curlew** targeting map (top) identifies the recently occupied 1 km squares throughout Wales within the best remaining **curlew** areas (Key Areas). Within these 1 km squares, and some adjacent squares, the best opportunities for **curlew** habitat management (based on land characteristics) have been identified in some locations (black line in the top map, with detail of opportunities for management in those 1 km squares in green in the bottom map).

Further work: consideration of impact on other species/habitat conditions may result in some modification and lowering of these targets once further integration work is completed.



Monitoring progress

Achieving species targets by providing the extent and quality of critical resources the birds need, in the form of habitats, is not new, but has probably not been attempted at a country level before. Once habitat extent and quality targets are agreed, they will also provide a way of charting progress towards meeting species targets, by annually reporting how much of their habitat target has been provided.

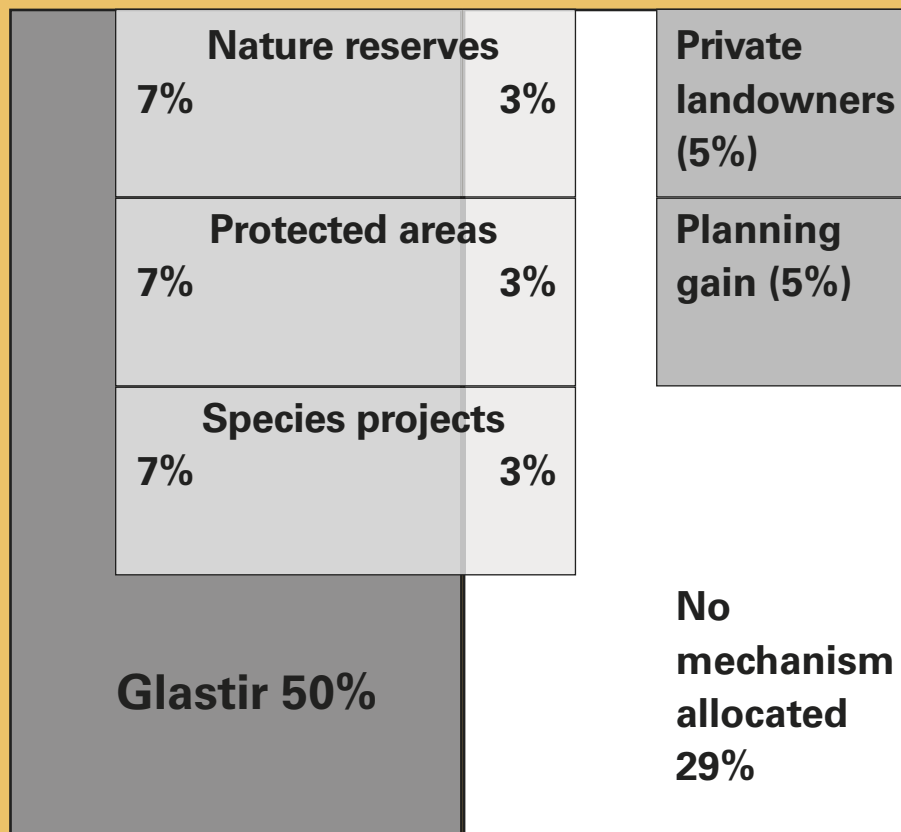
However, bird surveys will continue to be important both to directly assess whether species targets have been achieved, and to confirm that species are responding to habitat provision in the expected way. There is an example of using bird surveys to assess the condition of sites on the next page.

Commitment

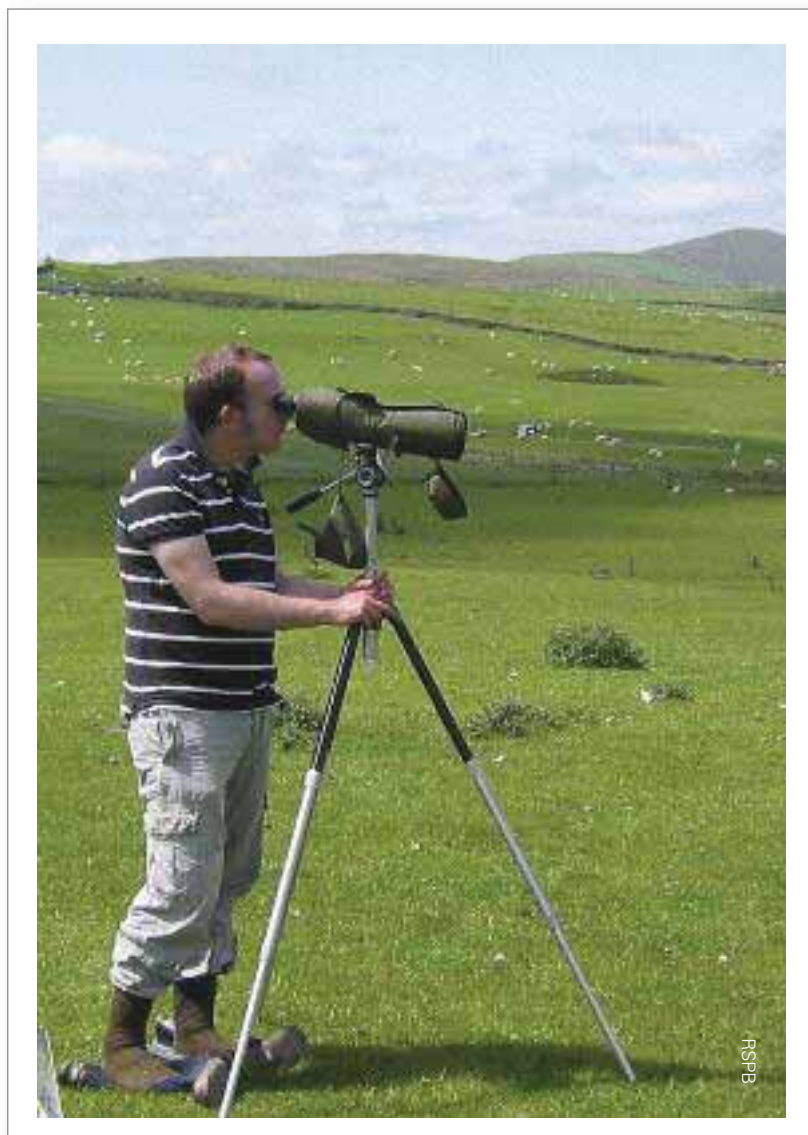
Expressing species targets in terms of both population size and the extent, quality and location of the habitats required to support them makes it easier to apportion their delivery between mechanisms and identify any shortfalls. We will have a much more realistic understanding of what Welsh Government, statutory bodies, other organisations and individual land managers need to commit to in order to improve the state of priority bird populations in Wales.

Below is a diagram to illustrate the current mechanisms for delivering a BAP species target – in this case **curlew**, and their integration. The whole square represents 100% of the BAP **curlew** target (ie 1000 pairs or 30,000 ha of “**curlew**” habitat) with the different sections representing the percentage of target delivery allocated to 6 delivery mechanisms¹. With such a widely distributed species the principal delivery mechanism is Glastir (50% of target), but other mechanisms (nature reserves, protected areas, species projects) are all identified as significant (30% of target). However, as the land involved is predominantly “farmed” land, these three mechanisms are eligible for Glastir funding, and it is anticipated that there will be a significant overlap (eg seven of the 10% of the **curlew** target to be met by protected areas is funded by Glastir). Two other mechanisms (planning gain and private landowners, accounting for 10% of the target) are considered independent of Glastir resources. The net result is that although Glastir is clearly fundamental to achieving the target, 29% of it is not currently allocated to a mechanism.

¹ All figures are indicative only



Conservation **action**



New SSSI monitoring project underway

Many species, habitats and geological features considered to be nationally or regionally significant are notified Sites of Special Scientific Interest (SSSIs) by CCW. More than 12% of the area of Wales, made up of over 1000 SSSIs, is now protected in this way; 96 of these have designated bird features (245 bird features). However, the condition of these bird features, determined by monitoring, has not been reported systematically, making it hard to assess how successful the network is at safeguarding their special features.

Under the Environmental Protection Act 1990, the JNCC was required to develop a set of common standards for the monitoring of features on designated sites, enabling consistent reporting to JNCC on a six-year cycle. The next report is due by the end of 2012. To meet this deadline, and as part of the CCW/RSPB strategic partnership, the Designated Sites Bird Monitoring Project will allow CCW to comprehensively evaluate the condition of bird feature status on SSSIs and report to JNCC. Seventy-four features have been monitored so far, representing 30% of the total (many of the remaining 70% of sites are already monitored by existing schemes such as WeBS and data will be collated and presented for these).

◀ **SSSIs are being monitored to see how their birds are faring.**

▼ **Numbers of SSSI assemblage and species features monitored by the RSPB Designated Sites Bird Monitoring Project since 2008 (species are grouped by broad habitats occupied)**

Feature	No. of features	No. monitored
Breeding bird assemblage of lowland damp grassland	4	4
Breeding bird assemblage of lowland open waters and their margins	9	9
Breeding bird assemblage of sand dunes and saltmarshes	2	2
Breeding bird assemblage of upland moorland and grassland (with and without water bodies)	13	11
Breeding bird assemblage of woodland	12	10
Birds of farmed habitats	31	23
Seabirds	73	10
Wetland birds	90	2
Other birds	11	3
Total	245	74

Looking forward

New BTO Cymru office

To increase its presence and research capacity in Wales, the BTO has established a new office based at Bangor University. It is staffed by Senior Ecologist Dr Rachel Taylor and Development Officer Kelvin Jones. This team will be working hard to raise awareness and volunteer numbers for the major surveys, strengthening the Welsh contribution to the BTO's research, and together with colleagues from the BTO's UK headquarters in Thetford, undertaking new projects to provide the evidence needed to support effective conservation efforts in Wales.

▼ **Whinchats** have recently disappeared from many traditional Welsh sites.

Surveys in 2012

In addition to annual surveys such as BBS, SMP and WeBS, and plans (funding permitting) for UK-wide surveys of species such as nightingale, which last bred in Wales in 1981, there are also plans for a Welsh Chat Survey. Although too scarce to be monitored effectively by the BBS, provisional results from the new Bird Atlas provide evidence of disappearances of **whinchats** from many Welsh sites. **Wheatears** may also be in decline, and although **stonechats** have increased enormously since 1994, recent cold winters are likely to have reduced numbers. The BTO is planning a volunteer-based survey of these charismatic species to provide a baseline against which future changes can be compared.



Steve Knell (fspb-images.com)

Bird conservation online

Many organisations provide useful information via their websites, including details of how to get involved in bird surveys and practical land management advice to benefit birds in Wales. Whilst not an exhaustive list, the following suggestions are good places to begin.

www.birdatlas.net – stay up to date with the results of the Atlas project.

www.bto.org – includes details of how to take part in a range of surveys such as the Breeding Bird Survey and the Wetland Bird Survey, and to report ringed birds.

www.birdtrack.net – the online bird recording scheme to increase the personal, local and national value of your sightings.

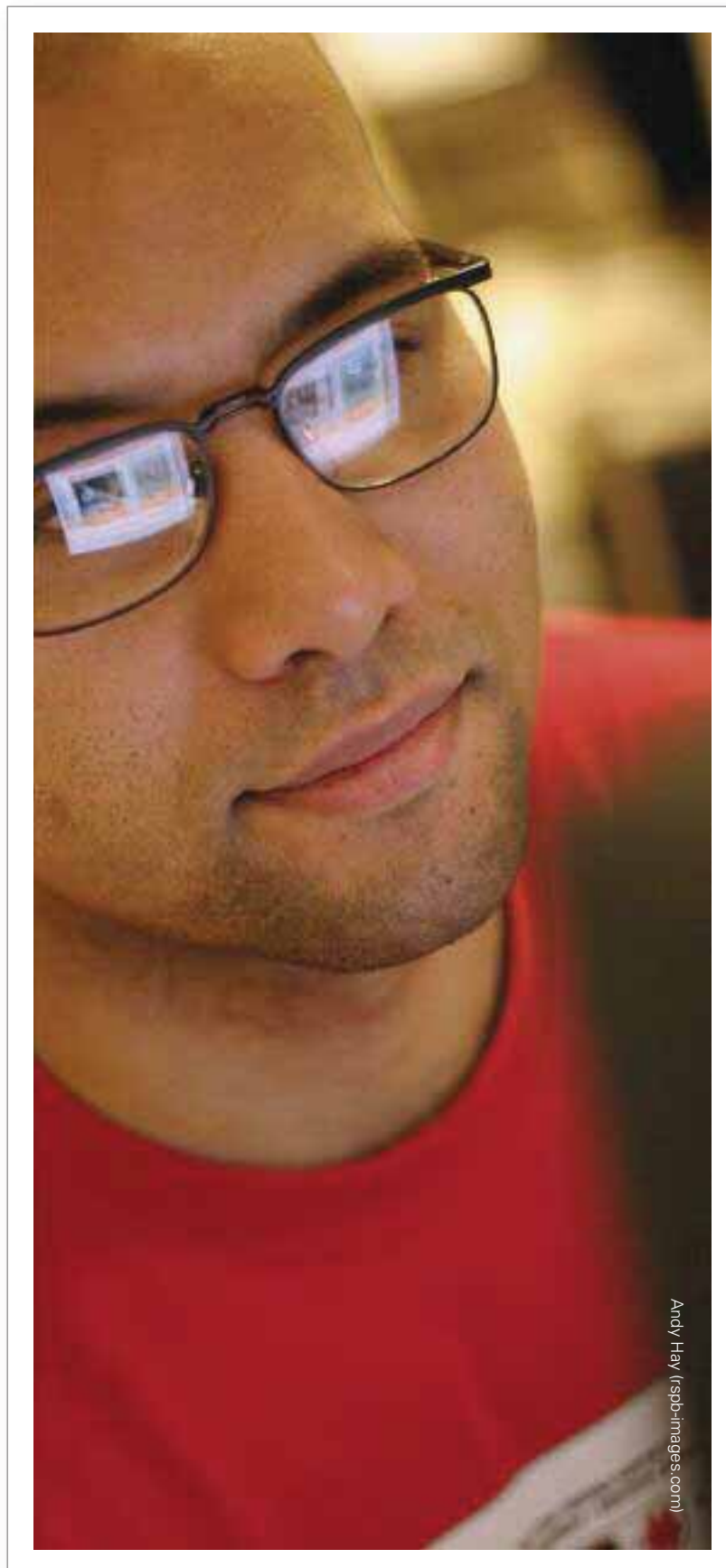
www.rspb.org.uk – includes details of farmland bird surveys, as part of the *Volunteer & Farmer Alliance*, and the annual *Big Garden Birdwatch*, which takes place every January, and *Make Your Nature Count*, which takes place over the summer months.

www.birdsinwales.org.uk – the website of the Welsh Ornithological Society tells you who your local county bird recorder is, how to contact them, and how to obtain copies of annual county bird reports. The society's journal *Birds in Wales* can also be obtained through this website.

www.rbbp.org.uk – provides information about which species the Rare Breeding Birds Panel collates information on and how to submit records. Annual reports on rare breeding birds and non-native birds are available to download.

www.jncc.defra.gov.uk/page-4461 – latest information from the SMP and other seabird surveillance schemes.

www.wwt.org.uk/research/monitoring – details of WWT waterbird monitoring, including the WWT/JNCC/Scottish Natural Heritage goose and swan monitoring programme.



Andy Hay (rspb-images.com)