Giving nature a home on RSPB reserves 2018
Visitor havens
These nature reserves are best equipped, with many having a café, shop and staff on hand to help people make the most of their visit.

Wild and wonderful
Our wilder nature reserves, with fewer or no facilities and staff.
Our nature reserves provide homes to around 16,500 species.
Our vision

Our vision is to secure a wildlife-rich future by expanding and managing our network of nature reserves, which contribute significantly to conservation across the landscapes they sit in. We will protect, enhance and create habitats for the species that depend on them, and aim to double the area of the nature reserves we manage over the next few decades, to give more nature a home. Through caring for our nature reserves, we aim to provide our visitors with inspiring places where they can build a deep and lasting connection with nature.
Introduction

Each year, our team of ecologists collate and review information from RSPB nature reserves to help inform the conservation work we undertake. This is only possible thanks to the hard work of staff and volunteers at each of the reserves.

In this report, we summarise the ups and downs of the 2018 bird breeding season on RSPB reserves, together with other selected wildlife highlights. First, though, we will provide a quick overview of the RSPB’s nature reserves.

Working across the UK

The RSPB currently manages 218 nature reserves in England, Scotland, Wales and Northern Ireland, which cover a total area of 158,300 hectares – that’s an area four times the size of the Isle of Wight. These reserves cover a wide variety of the UK’s habitats, from windswept blanket bogs in the north of Scotland to purple-clad heathlands in the far south of England.

Around 16,500 species have so far been recorded on our reserves, of which more than 3,000 are of conservation concern (near threatened or worse, or nationally rare or scarce). Although RSPB reserves only cover about 0.6% of the UK’s land surface, they support more than 10% of the UK’s breeding population of 32 bird species (see Figure 1 on page 8). For some of these, such as red-necked phalaropes and roseate terns, RSPB reserves support almost the entire UK breeding population.

Supporting threatened species

We manage RSPB nature reserves with the aim of benefiting a wide variety of wildlife, but with a special focus on rare and declining species, for which RSPB reserves are important in maintaining their UK population, or in demonstrating best practice management. We also seek to support birds that are colonising the UK (in some cases probably at least in part due to global warming), as well as those that are largely restricted to nature reserves.

Protecting biodiversity

Although our reserves are most often associated with birds, the land we manage is also home to an incredible range of other wildlife, from butterflies to slime moulds.

For instance, we have over 2,300 rare and scarce species of insect across our reserves, including flies and beetles associated with decaying wood, and solitary bees and wasps which burrow into bare ground to build their nests. We know that decaying wood and bare ground are important for many rare and scarce species and so we aim to ensure that there is a continual supply at reserves where these species are present.

We have recorded more than 1,300 species of flowering plant across our reserve network, including scarce species such as the twinflower at Abernethy Forest and Crannach, and Irish ladies-tresses orchids at several reserves including Portmore Lough, Lough Beg, Coll and Oronsay. For a full breakdown of all the taxa present on RSPB reserves, please refer to Figure 2 on page 8.

Not just nature

As well as providing valuable habitat for some of our most precious wildlife, RSPB reserves are also great places for people to visit and discover nature. We aim to offer more than just access to the countryside, but to enhance the experience by helping people to connect with nature through events such as guided walks.

Not only that, RSPB reserves have a cooling effect on our climate, help support local economies1 and provide other benefits such as reducing flood risk. These additional benefits are so important that we have quantified them as part of a Natural Capital Account for our reserves in England2,3.
**Figure 1: Bird species for which RSPB reserves support more than 10% of the UK breeding population.**

Only species that regularly breed in the UK are included.

<table>
<thead>
<tr>
<th>Species</th>
<th>Percentage of UK Breeding Population</th>
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<tbody>
<tr>
<td>Garganey</td>
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<tr>
<td>Great white egret</td>
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<td>Avocet</td>
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<tr>
<td>Common tern</td>
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<tr>
<td>Shoveler</td>
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<tr>
<td>Little egret</td>
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<tr>
<td>Black-tailed godwit</td>
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<tr>
<td>Guillemot</td>
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<tr>
<td>Pintail</td>
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<tr>
<td>Gannet</td>
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<tr>
<td>Red-necked phalarope</td>
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<tr>
<td>Razorbill</td>
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<tr>
<td>Common pochard</td>
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<tr>
<td>Marsh harrier</td>
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<tr>
<td>Wood sandpiper</td>
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<tr>
<td>Chough</td>
<td></td>
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<tr>
<td>Common scoter</td>
<td></td>
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<tr>
<td>Corncreke</td>
<td></td>
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<tr>
<td>Kittiwake</td>
<td></td>
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<tr>
<td>Bearded tit</td>
<td></td>
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<tr>
<td>European storm petrel</td>
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<tr>
<td>Spotted crake</td>
<td></td>
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<tr>
<td>Mediterranean gull</td>
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<tr>
<td>Cetti’s warbler</td>
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<tr>
<td>Black-necked grebe</td>
<td></td>
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<tr>
<td>Crane</td>
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<tr>
<td>Sandwich tern</td>
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<tr>
<td>Parrot crossbill</td>
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<tr>
<td>Bittern</td>
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<tr>
<td>Black-winged stilt</td>
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<tr>
<td>Roseate tern</td>
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<tr>
<td>Snow bunting</td>
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</table>

**Figure 2: The number of species in each taxa that have been recorded on RSPB nature reserves (includes some unconfirmed records).**

<table>
<thead>
<tr>
<th>Group</th>
<th>No. of species</th>
<th>Group</th>
<th>No. of species</th>
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<tr>
<td>Acarines (Acari)</td>
<td>38</td>
<td>Insect – fleas (Siphonaptera)</td>
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<td>Aigae</td>
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<td>Amphibians</td>
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<td>Birds</td>
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<td>Insect – orthopterans</td>
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<td>Bryozoans</td>
<td>5</td>
<td>Insect – scorpion flies (Mecoptera)</td>
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<tr>
<td>Cartilagenous fish (Chondrichthyes)</td>
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<td>Insect – silverfish (Thysanura)</td>
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<td>Centipedes</td>
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<td>Insect – snakeflies (Raphidiophora)</td>
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<td>Chromists</td>
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<td>Insect – stoneflies (Plecoptera)</td>
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<td>Clubmosses</td>
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<td>Insect – thrips (Thysanoptera)</td>
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<td>Insect – true bugs (Hemiptera)</td>
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<td>Conifers</td>
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<td>Diatoms</td>
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<td>Lichens</td>
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<td>Liverworts</td>
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<td>False scorpions (Pseudoscorpiones)</td>
<td>10</td>
<td>Marine mammals</td>
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<tr>
<td>Ferns</td>
<td>39</td>
<td>Millipedes</td>
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<td>Flowering plants</td>
<td>1,356</td>
<td>Molluscs</td>
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<tr>
<td>Fungi</td>
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<td>Mosses</td>
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<td>Fungi</td>
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<td>Quillworts</td>
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<td>Harvestmen (Opiliones)</td>
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<td>Hornworts</td>
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<td>Rotifers</td>
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<td>Horsetails</td>
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<td>Insect – bristletails (Archaeognatha)</td>
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<td>Insect – butterflies</td>
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<td>Springtails (Collembola)</td>
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<td>Insect – caddisflies (Trichoptera)</td>
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<td>Stoneworts</td>
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<td>Insect – cockroaches (Dictyoptera)</td>
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<td>Terrestrial mammals</td>
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<td>Insect – dragonflies (Odonata)</td>
<td>46</td>
<td>Tunicates (Urochordata)</td>
<td>8</td>
</tr>
<tr>
<td>Insect – earwigs (Dermaptera)</td>
<td>3</td>
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</table>
2018 in brief

It was a mixed breeding season for birds on RSPB reserves in 2018. Most of the species for which specific management is carried out on RSPB reserves continued to fare well, but some other species declined, most likely due to bad weather and factors operating away from their breeding sites in the UK.

Highlights included bitterns, cranes, roseate terns and Mediterranean gulls achieving their highest ever breeding populations on our reserves, and white-tailed eagles breeding on Orkney for the first time in 145 years.

Sadly, during 2018 several bird species experienced sharp declines, most of which appear to be related to the severe weather in early spring – the so called “Beast from the East”. In addition, there was a sharp fall in the number of nightingales on our reserves, a trend which echoes the worrying decline of this species in the wider countryside.

2018 saw the completion of the final phase of habitat creation at Wallasea Island Wild Coast in Essex, as part of the UK’s largest coastal wetland creation project (see page 19). We also made good progress towards our aim of acquiring new reserves, by taking on the management of Sherwood Forest in Nottinghamshire and Franchises Lodge in the New Forest.

Sherwood Forest is an iconic landscape which supports a rich variety of rare invertebrates, particularly species associated with decaying wood. Although Franchises Lodge is a less familiar site for many, it has an internationally important lichen community and surveys during 2018 demonstrated that the site is home to a good variety of woodland birds.

In the future, we will continue to look for opportunities to enlarge and complete our existing reserve network, helping to make the sites more resilient into the future.
Freshwater wetlands

Freshwater wetland habitats include ponds, lakes, rivers, streams, ditches, reedbeds, lochs, fens and marshes. These varied habitats support around 10% of the UK’s species, despite covering just 3% of the land area. We manage internationally important wetland habitats on our reserves and play a key role in the creation of new wetland habitats, including reedbeds. Such habitat creation formed an integral part of our successful work to boost the number of breeding bitterns at sites including Langford Lowfields, Lakenheath Fen and Ham Wall.
How is wildlife faring in lochs, fens, marshes and ditches?

At our Loch of Kinnordy reserve in Angus, an adult and several sub-adult beavers were seen together during a breeding beaver survey, indicating that at least two generations of beaver are living in the beaver lodge there.

Elsewhere on the reserve, almost 100 flowering stems of coralroot orchid were recorded during a count in 2018. This plant was first discovered on the reserve in 2015 and encouragingly, the number of flowering stems found in 2018 was four times as many as the previous highest count.

Good news for invertebrates

There are over 2,000 beetles on RSPB reserves, and various methods are needed to survey the rare and scarce species we are working to conserve. For example, the rare scavenging beetle *Thanatophilus dispar* feeds on rotting fish, and so at Loch Leven in Perthshire pitfall traps were set out across the reserve and baited with rotting fish. *Thanatophilus dispar* was successfully enticed and caught, re-confirming the presence of this rare species.

The little whirlpool ramshorn snail is one of the rarest freshwater snails in the UK, and is found at Pulborough Brooks and Amberley Wildbrooks, both in West Sussex and, historically, at Mid-Yare in Norfolk. At Pulborough, we surveyed existing ditches for the snails and created new stretches as part of the Back from the Brink project (see naturebftb.co.uk).

This is an ambitious, Heritage Lottery-funded project involving a wide range of conservation organisations, which aims to save 20 species from extinction and to support more than 200 others.

Visiting entomologists found 14 new caddisfly species at Insh Marshes in Inverness-shire taking the total number of caddisfly species recorded there to 54 – the largest number on any RSPB reserve. The rarest species found at the reserve was the window-winged sedge, which has been recorded at just two other sites in Scotland, and only 12 in the whole of the UK.
Bitterns continued their long-term increase on RSPB reserves with a record 89 booming males in 2018, compared to 77 boomers in 2017. This included the first breeding by bitterns at Brading Marshes on the Isle of Wight, and the first breeding bittern in 10 years at Leighton Moss in Lancashire. It is worth remembering that there were just 11 booming male bitterns in the whole of the UK in 1997, before the RSPB and other organisations began large-scale conservation efforts.

Another success story saw crane numbers increase to their highest ever level on RSPB-managed land – 14 pairs were recorded in 2018, compared to 10 in 2017. These birds come from both the expanding East Anglian population and the birds re-introduced to south-west England as part of the Great Crane Project (see thegreatcraneproject.org.uk). These 14 pairs fledged a respectable nine young.

Spoonbills returned to breed at Fairburn Ings in West Yorkshire, after nesting there for the first time in 2017. One pair nested and fledged four young, and six other spoonbills were present in the area during the breeding season. There is only one other regular breeding site for spoonbills in the UK, which shows just how important Fairburn Ings is for these birds.

Severe weather setbacks

Both bearded tits and Cetti’s warblers have been faring well in the UK, and have benefited from the RSPB’s programme of wetland
creation. However, the huge increase in numbers of Cetti’s warblers seen over recent decades was set back at many sites in 2018, apparently as a result of the “Beast from the East”.

Sites in eastern and south-eastern England, which felt the full force of the easterly winds and snow, were particularly badly hit. For example, there were declines from 90 to four singing males at Minsmere in Suffolk; from 11 to none at Titchwell Marsh in Norfolk; and from 17 to four at Northward Hill in Kent.

Bearded tits are also vulnerable to severe weather, but survived better, with total numbers across reserves only down by about 20% on those in 2017.

**Disappointing news**

It was another disappointing year for spotted crakes, with just six singing birds heard on RSPB-managed land due to the dry conditions. This compares with four in 2017, and a peak of 28 during the last big influx in 2014. Numbers of black-necked grebes were slightly lower than in 2017, with eight pairs breeding at three sites, compared to 13 pairs at the same sites in 2017.

There was also disappointing news for little bitterns at Ham Wall in Somerset. This site is their only regular UK breeding site, and birds have summered, and in some cases bred, there each year since 2009. However, this year no little bitterns were recorded.

**New colonisers**

Great white egrets first bred in the UK in 2012, with their main breeding site being at Ham Wall and the rest of the adjoining Avalon Marshes. Numbers declined slightly at Ham Wall, from nine pairs in 2017 to seven in 2018 (including birds whose nests were just outside the reserve’s boundary), but these birds managed to fledge more young than in 2017 (19 compared to 16).

Night herons successfully bred in the Avalon Marshes in 2017, and this was the first time this has been recorded in the UK. At least one night heron was recorded at Ham Wall during the 2018 breeding season. Meanwhile, cattle egrets, which bred for the first time at Ham Wall in 2017 (seven pairs), failed to breed there in 2018, but did breed elsewhere on the Avalon Marshes. Cattle egrets seem to have been badly affected by the severe weather in early spring.

As well as working hard to improve conditions for birds at Ham Wall, we have also installed an eel pass to help Critically Endangered eels to enter the reserve and make use of the wetland habitat within it.

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**Case study: Ouse Fen**

Since 2001, we’ve been working with Hanson to transform a working sand and gravel quarry in Cambridgeshire into the UK’s largest freshwater reedbed – Ouse Fen.

Once areas have been quarried, we set to work planting reeds and managing water levels to make conditions right for wildlife. It’s an ongoing process with more habitat created as new areas of the quarry are worked-out.

In 2018, we introduced rudd, tench and perch into one of the newer reedbeds to help develop a diverse fish population.

Encouragingly, we are already seeing positive results, with bitterns, bearded tits and marsh harriers breeding at the reserve. 2018 also brought the excitement of a singing little crake, which has never been recorded breeding in Britain.
The return of bitterns to Leighton Moss

Leighton Moss was traditionally the stronghold of bitterns in north-west England and, along with Minsmere, it was one of the sites that provided much research knowledge when the bittern population was at a very low ebb in the 1990s. However, while bitterns recovered elsewhere on the back of this research, they continued to decline at Leighton Moss.

During this time, the site continued to support one of the highest densities of European eels and other fish, the bitterns’ main prey, at any of our reserves – so what was going on?

The issue was that Leighton Moss is an old and “littered” reedbed. Recession of the reed margins away from silted pools and ditches was making the fish less available to foraging birds. The problem of reed recession in old reedbeds is well known. The formation of toxic by-products by the reed litter under anoxic conditions in a high, stable water regime reduces reed shoot density and vigour. This issue was compounded at Leighton Moss by high grazing pressure from greylag geese and an increasing population of red deer.

However, when reedbeds start to die back due to the ageing processes described above, or because of grazing (by geese or deer for example), the extent of healthy reed can be increased by lowering water levels to expose mud and allow new plants to germinate and establish. Periodic drying out can be used to vary the proportions of open water and swamp vegetation and effectively rejuvenate the habitat.

So in 2014, we lowered water levels at Leighton Moss to reveal acres of gloopy mud, with the aim of drying the site during the summer months over a number of years. In addition, we began to manage the red deer population, to reduce the impact of their grazing on the reeds.

Two years later and significant changes had taken place. The gloopy mud had consolidated and vegetation was spreading across it. Reed was both germinating in the damp mud and spreading out by extending runners from the established clumps. We maintained the low water levels for subsequent years, before returning to a normal water regime.

After all this hard work by the reserves team, the reward has been the return of breeding bitterns at Leighton Moss for the first time in 10 years.
One of our highest priorities on RSPB reserves is to maintain the populations of waders that breed on lowland wet grasslands, as the breeding populations of these birds have declined catastrophically in the wider countryside over recent decades.

Based on figures from the last full England and Wales lowland wet grassland breeding wader survey (carried out in 2002), RSPB reserves support a high proportion on breeding waders on lowland wet grasslands.

The total number of curlews breeding on RSPB lowland wet grassland reserves is fairly stable. There were 124 pairs in 2018 compared to 120 in 2017. West Sedgemoor had 29 pairs and Lower Lough Erne had 38 pairs breeding during 2018.

Ruffs are only occasionally recorded breeding in the UK, however they regularly lek at several of our reserves and a female and three young were seen at an RSPB site in 2016. Eighteen lekking ruffs were recorded across five RSPB reserves in 2018.

The “Beast from the East”
There was a decline in the number of breeding lapwings at several RSPB reserves in 2018. They seem to have been badly hit by the
“Beast from the East,” with dead lapwings found on a number of reserves. Despite the decline in total numbers, productivity was generally good across reserves, with a mean of 0.8 chicks fledged per pair at the 18 fenced sites for which productivity data were collected in both 2017 and 2018. This compares with 0.6 young fledged per pair at the same sites in 2017. Lapwings are thought to require breeding productivity of about 0.6–0.8 young fledged per pair to maintain a stable population.

Redshanks and snipe seemed less affected by the weather conditions. Both Rainham Marshes in Essex and Shorne Marshes in Kent had their highest recorded redshank numbers: 77 pairs at Rainham, compared to the previous highest total of 60; and 79 pairs at Shorne compared to the previous highest total of 70.

However, redshank numbers were, unsurprisingly, low at the Nene Washes in Cambridgeshire, due to flooding during the breeding season. The Ouse Washes was also flooded during the breeding season, resulting in large numbers of waders breeding on wet grassland nearby, which we have created to provide alternative nesting habitat when the rest of the Washes are flooded.

Figure 3: Long-term trend in the number of breeding redshanks on RSPB lowland wet grassland reserves.

The graph shows the number of breeding redshanks on the area of RSPB reserves present in 1995 (ie excluding those on land acquired since then). Numbers at the Ouse Washes fluctuate in relation to the extent of summer flooding, which is outside of the control of the reserve. The long-term, relative stability in the number of redshanks on this 1995 land area contrasts with their estimated 41% decline in the UK as a whole between 1995 and 2016².
Case study:
Success for Project Godwit

Virtually all of the UK’s *limosa* race of black-tailed godwits breed on RSPB reserves, and so our sites play a key role in Project Godwit, a partnership between the RSPB and WWT which aims to increase the breeding productivity of these birds (see projectgodwit.org.uk).

A conservation technique called headstarting is being used in this project. This involves collecting eggs from the wild (the birds then relay), incubating the eggs and then rearing the chicks in captivity before releasing them into the wild. Headstarted birds from this project have been seen at other locations in the UK, France and Portugal.

In 2018, we were delighted when two pairs of black-tailed godwits nested at the Ouse Washes, where their population ceased regularly breeding in the mid-2000s following an increase in the frequency of late spring/summer flooding. One of the nesting pairs included a female reared in 2017 as part of Project Godwit, who paired with an un-ringed male. The other successful nesting pair included a female ringed as a chick 19 years ago at the Nene Washes, again paired with an un-ringed male. These two pairs fledged one and three chicks, respectively.

Breeding by black-tailed godwits at the Nene Washes was hampered by a big flood in April. There were 31 pairs in 2018, compared to 35 in 2017. But despite this, black-tailed godwits were reasonably productive at the Nene Washes, fledging 13 young. Additional scrapes have been created to increase the availability of feeding habitat for these young birds.
Coastal

The UK’s coastal habitats are diverse and often fragile, and include saltmarshes, coastal lagoons, mudflats, dunes, shingle and beaches, as well as soft and hard rock cliffs. We have a diverse range of these habitats across our reserve network and have played a key role in some innovative coastal habitat creation and enhancement projects, such as Wallasea Island Wild Coast.
How is wildlife faring on coastal habitats?

The number of redshanks breeding on saltmarsh at RSPB reserves remained low in 2018. Flooding during the breeding season caused a big drop in numbers at Snettisham in Norfolk, where numbers fell from 89 pairs to an all-time low of 53 pairs, and at Tetney Marshes, where numbers declined by 30 pairs to 44 – the lowest figure since 2002.

Redshank numbers also fell from 29 pairs to ten at Kirkconnell Merse in Dumfries and Galloway, and although numbers increased slightly at Frampton Marsh in Lincolnshire (from 91 to 102 pairs), the population is still at a historically low level.

It has been estimated that, between 1985 and 2011, the number of saltmarsh-breeding redshanks has declined by 53%, and it is clear that a wider decline is still taking place. However, we have seen an encouraging increase in the number of breeding redshanks at Hesketh Out Marsh in Lancashire. We breached the sea wall here in 2007, to allow saltmarsh to develop, and in 2018 we recorded 70 pairs of redshanks – the highest ever figure recorded here, up from 32 pairs in 2017.

It was a disappointing year for black-winged stilts, a species which uses both freshwater and saline lagoons and which has now nested in the UK in each of the last five years. This follows their most successful breeding season in the UK in 2017, when three pairs fledged nine young on RSPB reserves, and a record 13 young fledged in the UK as a whole. Only one pair nested on an RSPB reserve in 2018 and this attempt failed at an early stage. We hope that some of the young fledged in 2017 might return to breed in the UK in 2019.

Case study: Wallasea Island Wild Coast

We’ve reached a major milestone in the habitat creation work at Wallasea Island Wild Coast in Essex, with the completion of the last phase of work.

This is the largest and most innovative coastal wetland creation project in the UK, and the last phase of work involved installing bunds and water control structures to create a 225-hectare complex of shallow saline lagoons and coastal grassland. We believe that this will form the largest complex of shallow, saline lagoons in north-west Europe.

The first phase of major works was completed in 2015, and by 2018 the site already supported 88 pairs of avocets and 46 pairs of Mediterranean gulls. The site includes a variety of habitats, including saline pools, ditches and saltmarsh which are home to a number of rare and scarce invertebrates, including sea-wormwood weevils.
Ringed plovers have declined on RSPB reserves, as part of their large-scale decline elsewhere in the UK. There were 80 pairs on the RSPB’s coastal reserves in 2018, compared to 84 in 2017. At Old Hall Marshes, ringed plovers continued to nest (together with five pairs of little terns) on an area we created by depositing dredged material. This clearly demonstrates the wider potential of this technique to provide valuable coastal nesting habitat.

A mixed season for seabirds

The start of the seabird breeding season seems to have been very slow everywhere this year, with birds coming in late, and then in some cases leaving again as the “Beast from the East” covered cliffs and islands with snow. But once things warmed up (and they really did get warm!) it seems to have been a reasonable breeding season for many species, although the weather remained challenging for seabirds at times.

The geographic variation in the trends of cliff and burrow-nesting seabird species on RSPB reserves reflects wider UK trends, with species generally faring poorly in the far north.

A highlight in 2018 was the discovery of breeding Manx shearwaters on Ailsa Craig in the Firth of Clyde. With the help of night-vision equipment, at least 20 Manx shearwaters were seen flying in to burrows on the island, confirming breeding for the first time since rats were eradicated in 1991.

Meanwhile, a survey of Leach’s petrels on Gruney in Shetland, where small numbers were recorded in 2004, did not find any occupied burrows. This result is in line with apparent declines in Leach’s petrels elsewhere in the North Atlantic.

Gulls on the up

Mediterranean gulls continued their spectacular increase, with numbers rising from 834 to 1,736 pairs at Langstone Harbour in Hampshire, which supports a large proportion of their UK breeding population. There were further increases at Minsmere (five pairs in 2016, 35 in 2017, and 48 in 2018), and at Titchwell Marsh too, following the installation of a new predator-exclusion fence (from none in 2016, to 11 in 2017, and 56 in 2018).

Numbers also increased at Cliffe Pools in Kent (from five pairs in 2017 to 45 in 2018), but there was a decline at Snettisham. Here, Mediterranean gulls have been nesting on saltmarsh, and the breeding colony was flooded out by a high tide last year.

Varied fortunes for terns

Reserve management and habitat creation can play an important role in providing nest sites for terns and small gulls that have little or no human disturbance or predation. Nesting little terns and Sandwich terns are vulnerable to the combined impacts of expected climate-driven coastal change and increased recreational pressure on the coast.

Total numbers of Sandwich terns increased again on our reserves, due to a further increase at Hodbarrow in Cumbria, where we have carried
out work to benefit them. Numbers rose from 22 pairs in 2016, to 550 in 2017, and 1,950 in 2018. There were also 32 pairs at Minsmere in 2018, where Sandwich terns have now bred for the last three years, following a period in which they only nested in three out of 20 years.

Overall, productivity was mixed, however at Blue Circle Island at Larne Lough in County Antrim the terns fledged an average of 0.78 young per pair. At Pagham Harbour in West Sussex, this figure was 0.62 young per pair.

Efforts to benefit little terns on RSPB reserves, including through a wider EU LIFE project, have been proving successful and numbers of breeding little terns were reasonably high in 2018 (132 pairs). Importantly, though, they suffered a poor breeding season.

At Langstone Harbour, the colony survived a period of bad weather and high tides only to succumb to gull predation shortly after chicks hatched. Only a single chick fledged from the 57 pairs. The 16 nests on The Reef only fledged two young, with most nests lost to heavy rain courtesy of Storm Hector. At Loch Gruinart on Islay three pairs nested on a sand bar but were flooded out by the high tide.

There was better news at Hodbarrow, where 11 pairs fledged ten young; at Pagham Harbour where 20 pairs fledged 13 young; and at Old Hall Marshes where five pairs fledged five young. To find out more about the EU LIFE little tern project (see littleternproject.org.uk).

**Cause for celebration**

A highlight of the year was the roseate terns at Coquet Island reaching a record high of 118 pairs (111 was the joint previous highest in 2015 and 2017). The 118 pairs fledged an impressive 108 young.

Elsewhere, single pairs of roseate terns nested on The Skerries, off Anglesey, and on Larne Lough Islands, with both fledging two young. The pair on the Skerries was the first to successfully fledge young for over a decade.

![Graph](image-url)  
**Figure 4: Long-term trend in the number of breeding roseate terns on RSPB reserves.**  
The graph shows the number of breeding pairs on the area of RSPB reserves present in 1995.
Case study: Tern islands

After years of planning, work to raise the height of some islands at Dungeness in Kent was carried out in 2017 through the “Re-tern” project. The aim was to increase the area available for breeding seabirds and roosting wintering wildfowl, as well as create a better viewing experience for visitors in an area of the reserve known as Burrowes Pit.

Work was carried out to create 45 new islands, using an excavator on a pontoon. This formed about 22,000m² of exposed shingle – an area around the size of three football pitches!

The project has been hugely successful, with a total of 72 common tern nests (the highest number since 1999) and 77 fledglings (the highest number since 1991). The season started slowly, with only five common tern nests, however the failure of the colony at Rye Harbour resulted in an influx of adult birds which then went on to breed. There were frequent reports of Sandwich and little terns, although no breeding attempts were made. There was even a fleeting visit by a roseate tern over the August bank holiday weekend.

We have installed an anti-predator fence around a cluster of islands and although no terns nested within this area during 2018, we are hopeful for future years.

Natterjack toads doing well

At Mersehead in Dumfries and Galloway, the results of our monitoring showed that natterjack toads are thriving. We recorded 302 adults during night-time surveys, compared to 240 in 2017. These toads laid 75 strings of spawn, the highest number ever recorded at Mersehead.

Back in 2013, we were concerned that Mersehead’s natterjack population could have been wiped out by severe winter storms, and so we launched a project to help them by creating new breeding ponds. We are also working to improve the sand dune habitat to benefit the toads and other species, and have reduced the amount of scrub to expose more bare sand.

Eagles soar in Orkney

A pair of white-tailed eagles on Hoy fledged two chicks in 2018 – the first on Orkney for 145 years. A second pair of white-tailed eagles fledged two chicks at another RSPB reserve, and there was a pair and a single white-tailed eagle present during the breeding season at two other RSPB reserves.
Lowland heathland

Lowland heathlands provide vital open spaces for wildlife, including for many rare and threatened species. We manage a number of heathland reserves, and have also recreated areas of heathland, including at Broadwater Warren, Farnham Heath and The Lodge. Characteristic heathland birds, such as Dartford warblers, woodlarks and nightjars, breed on our heathland reserves, as well as all six of the UK’s reptile species. We also have heathland populations of natterjack toads. Our lowland heathland reserves support good numbers of rare and scarce invertebrates, including the Purbeck mason wasp at Arne, and threatened plants such as heath cudweed at Farnham Heath.
How is wildlife faring on lowland heathlands?

Numbers of breeding nightjars remained fairly stable on reserves with a total of 167 churring males in 2018. We were pleased to find that nightjars had bred at The Lodge in Bedfordshire for the first time ever during 2018, following a long programme of heathland creation at the reserve.

Another heathland species, the woodlark, declined slightly from 87 to 76 singing males, largely as a result of a decline at Minsmere associated with the severe weather in early spring. On other reserves, woodlark numbers were similar to in 2017. Dartford warblers, which are also vulnerable to harsh weather, survived well, with a slight increase on reserves from 134 pairs in 2017 to 148 in 2018.

Figure 5: Changes in the number of breeding nightjars, woodlarks and Dartford warblers at Farnham Heath since it was acquired by the RSPB.

At Farnham Heath in Surrey, we have recreated about 100 hectares of heathland and acid grassland by removing conifer plantation from afforested heathland.
In the 1980s, the field cricket population in the UK had declined to just one group of less than 100 individuals. However, the future is looking brighter for these threatened insects thanks to the Heritage Lottery-funded Back from the Brink project.

This project aims to restore patches of grassy heath that connect to existing habitat, and establish new populations of field crickets by releasing nymphs onto restored heathland.

Twelve field cricket nymphs were released at Farnham Heath in Surrey, and a further thirteen were released onto 10 hectares of restored habitat at Pulborough Brooks in West Sussex. Encouragingly, males were heard singing at both sites during May and June. We hope that these populations will continue to increase and expand across areas of suitable habitat on the reserves.

Case study: Back from the Brink

Twenty-one sand lizards were released at Farnham Heath in an effort to boost the population and extend its range on the restored heathland there. By the autumn, these lizards had been joined by 91 hatchlings. Elsewhere on the reserve we discovered sand lizard “test burrows”, which indicate that a previously introduced population is breeding.

Silver-studded blue butterflies had a record year at Hazeley Heath in Hampshire, with 325 recorded in one day. These beautiful butterflies have responded well to small-scale habitat management, such as heather mowing, and colonised a new area of the reserve in 2018.

We manage our reserves carefully for many rare plants, and one of these is the spotted rock-rose, which is found on the maritime heath at South Stack on Anglesey. This year a total of 1,320 plants were counted on the reserve, which is slightly down on the 1,528 plants recorded in 2017 and 1,816 in 2016. However, an extra colony was recorded this year, which is encouraging news.

To ensure we continue to have a good population of spotted rock-roses we are carrying out some small-scale management trials to increase the area of bare ground in areas close to where the plants have been found.
The UK’s uplands consists of hills, valleys, moors and mountains. A significant proportion of our reserve area is upland, including upland hay meadows, heather moor and blanket bog. There are many specialist species associated with the uplands, many of which are present on our reserves, including the aptly named mountain ringlet butterfly at Haweswater and mountain hare at reserves including Crannach, Hoy and Abernethy. Hen harriers, snow buntings and many other birds associated with upland habitats can also be found on our reserves.
How is wildlife faring on uplands?

Numbers of breeding red-necked phalaropes remained high on our reserves for a fourth year running, following the spectacular numbers present in 2015. We recorded 46 males in 2018, as in 2017. This means that RSPB reserves support most of their UK breeding population.

Three pairs of Slavonian grebes nested on our sites in 2018, compared to one in 2017. This figure included an increase from one to two breeding pairs on the RSPB section of Loch Ruthven in Inverness-shire, and a pair breeding on another reserve for the first time.

The number of breeding hen harriers on our reserves has fluctuated in recent years, but has shown neither a long-term increase or decline. In 2018, there were 30 territories on our reserves in Orkney and 16 nests on reserves elsewhere. This compares to 32 and 17, respectively, in 2017.

In 2018, we recorded a total of 29 lekking male capercaillie at Abernethy in The Highlands, the same number as in 2017. This is the only RSPB reserve on which they breed. The total number of lekking male black grouse increased slightly between 2017 and 2018 (from 116 to 132), this being largely due to an increase from 37 to 58 at Corrimony in Inverness-shire, offsetting a slight decline from 45 to 42 at Geltsdale in Cumbria. There were no lekking males recorded at Lake Vyrnwy in Powys in 2018, where numbers had declined from 11 to one between 2016 and 2017. Numbers remained stable (28 lekking males) at Abernethy, the other main RSPB site for black grouse.

The total number of breeding curlews on RSPB reserves appears to be fairly stable, and numbers on regularly-monitored upland reserves were similar in 2018 to in 2017. However, ring ouzels declined from 34 to 30 singing males on reserves at which they are monitored annually.

In 2017 we re-discovered rare pine hoverflies at a site in Abernethy Forest, but unfortunately none were recorded this year. However, we have provided more stumps to act as breeding sites for the hoverflies and are hopeful for next year.

Case study: Mardale Meadow

In 2017, we launched an exciting new project to restore native alpine plants to the fells around Haweswater in Cumbria, alongside our partners United Utilities, the Alpine Garden Society and Natural England.

The land surrounding Haweswater reservoir, which is owned by United Utilities and partly managed by the RSPB, is made up of oak woodland, ancient juniper scrub, bogs and upland hay meadows, as well as rocky cliffs. The native mountain plant communities in this area have suffered serious declines as a result of grazing by sheep and deer, and so we fenced off around 42 hectares of land to exclude grazing animals and allow native trees, shrubs and herbs to be planted.

The resulting Mardale Mountain Meadow is developing much faster than we expected, and in 2018 we saw a huge increase in bulky, palatable herbs in response to the removal of grazing. This includes more mossy saxifrage, lesser meadow rue, green spleenwort, brittle bladder fern, parsley fern and Devil’s-bit scabious. We are also protecting juniper at the reserve, as well as growing plants from seed in our nursery and then planting them out. We will continue to monitor how the vegetation develops in response to the removal of grazing.
Farmland and machair

Farmland makes up around 75% of the UK’s landscape and the alarming declines of some of the species found here are well documented. Many of the species associated with farmland are found on our reserves, including turtle doves at Minsmere and Fowlmere.

Machair is a rare, diverse coastal grassland and the majority of this habitat occurs in north and west Scotland. Traditional low-intensity management by crofters is intrinsically linked to the abundant wildlife this habitat supports and so at our nature reserves with machair present, such as Balranald on North Uist, we work closely with crofters to care for this special habitat. Each summer the machair is transformed into a spectacular floral display alive with insects and birds.
How is wildlife faring on farmland and machair?

The population of breeding stone-curlews on RSPB reserves in 2018 (21 pairs) was similar to in 2017 (19), with numbers having been more or less stable for the last eight years. This follows a period of growth in the population on RSPB reserves, largely as the result of the establishment of a breeding population on grassland created on ex-arable land at Minsmere.

The breeding productivity of stone-curlews on reserves was reasonably good in 2018, with the 21 pairs fledging 19 young. We have also created suitable conditions for stone-curlews on ex-arable land at Winterbourne Downs in Wiltshire.

Turtle doves had a disappointing year, contributing to our concerns for this species. Numbers have declined dramatically on RSPB reserves, in line with their decline in the wider countryside, but there had been a slight increase on reserves during the last two years, giving cause for optimism. However, numbers fell back in 2018, from 34 to 26 pairs.

The population of breeding cirl buntings remained similar at Labrador Bay in Devon, following a dramatic increase in response to dedicated management work (see Figure 6 on page 30). Meanwhile, the total number of choughs breeding on RSPB reserves declined slightly from 33 to 30 pairs.

Breeding waders

Important breeding populations of lapwings, redshanks and snipe have fluctuated, or remained relatively stable, on the RSPB’s machair reserves, although there was a slight dip in the numbers of all three species on Coll this year. Ringed plovers, by contrast, have declined on machair reserves, as they have elsewhere in the Outer Hebrides².

Numbers of breeding ringed plovers appear to have now stabilised at The Reef on Tiree and at Balranald on North Uist, but were very low at Vallay, also on North Uist, in 2018. The four pairs at Vallay in 2018 compares to 12 in 2012, and 24 in 2007.

Hope for corncrakes

Corncrakes showed a large increase on the RSPB’s machair reserves during the 1990s and early 2000s, but have since declined. The total number of calling males on reserves in 2018 was almost the same as in 2017 (137 compared to 135).

A pioneering project to reintroduce corncrakes to the Nene Washes in Cambridgeshire took place between 2002 and 2016. We have continued to monitor corncrakes and manage habitat for them, and this year there were 11 calling males at the Nene Washes, two at Ouse Washes and two at the nearby WWT reserve at Welney.

Four of those recorded were found to be wild bred in 2017 (as all the released birds were ringed), and one was a wild bred bird caught for the second year in a row. A wild bred bird has never before been caught in a subsequent year so this gives us some hope.

Buzzing about bumblebees

The great yellow bumblebee is one of our rarest bumblebees and it is now restricted in the UK to machair and other flower-rich areas in the far north and west of Scotland. RSPB staff have been surveying this species while on sabbatical, and this year an incredible 242 great yellow bumblebees were recorded on a single visit to Marwick Head on Orkney.
Case study:

Butterfly banks

RSPB Winterbourne Downs lies in a gap between the large areas of chalk grassland on Salisbury Plain and Porton Down in Wiltshire. As well as creating habitat for stone-curlews at Winterbourne Downs we’ve converted ex-arable land to flower-rich grassland, and have created two large butterfly banks.

Since 2006, we have seeded ex-arable fields with a mixture of wildflowers and grasses suited to the soil conditions, however the fields remained unsuitable for species that rely on very thin, chalky soils. They also lacked small-scale variation in topography and the steep, warm, south-facing banks important to many warmth-dependent species, such as Adonis blue butterflies, so we set about creating chalk butterfly banks to support these species. The first bank is approximately 150m long and the second about 180m long. Both are about 12m wide and have an S-shaped design to ensure they have varied aspects to provide a range of different microclimates for insects.

After the banks were constructed we added plants and seeds of a range of species typical of thin chalky soil. Some of the UK’s scarce butterflies associated with chalk grassland have already been attracted, including small blue butterflies, marsh fritillaries and, in 2018, the first Adonis blue.
Woodland

Much of Britain was once covered by woodland, but it now accounts for just 12% of the land area¹. Woodlands can include scrub, coppice, carr, copse, wood pasture and parkland and can be home to a spectacular variety of wildlife. People have had a profound influence on woodlands. Our ancient woodlands are often home to special communities of plants and invertebrates that reflect the long history of human management activities, such as coppicing for heath fritillary butterflies at Blean Woods.
How is wildlife faring in woodlands?

A dramatic, but unwelcome, trend in 2018 was the sharp fall in numbers of nightingales across reserves and elsewhere in the UK. Declines were particularly severe at Blean Woods in Kent (from 23 to 16 singing males), Minsmere in Suffolk (from 17 to eight), Cliffe Pools in Kent (from 18 to seven), Highnam Woods in Gloucestershire (from 12 to six) and the Stour Estuary in Essex (from four to one). Coppicing in woodlands and sensitive scrub management are key habitat management actions we carry out on reserves for this species.

The highlights of 2018 included taking on the management of Franchises Lodge in Wiltshire and Sherwood Forest in Nottinghamshire.

**Franchises Lodge**

At Franchises Lodge in the New Forest, we have been busy increasing our ecological knowledge of the species present to help inform our management plans for the site. To date, the site has been under the careful stewardship of the previous owners.

Initial surveys confirm the site has a good woodland bird community, including wood warblers, hawfinches, spotted flycatchers, firecrests and redstarts. These woods are also known to be fascinating botanically,
with an internationally important lichen community. They are also good for a range of invertebrates, and wood crickets were recorded during 2018.

**Sherwood Forest**

Sherwood Forest will be more familiar to many. This iconic forest is important for its large number of ancient oaks and is internationally important for its assemblage of saproxylic (decaying wood) invertebrates. These include rare species such as the cardinal click beetle and Midas tree weaver spider. Other rare invertebrates present include the hazel pot beetle, ghost spider and Welsh clearwing moth.

Entomologists also discovered the very rare magnificent crane-fly at Budby South Forest, which is close to Sherwood. This rare rot-loving fly is best known from Windsor Great Forest and the New Forest, and this is only the third record of it in Nottinghamshire.

Further north, in Scotland, a pair of aspen hoverflies was seen mating at Invertromie Wood during a deadwood audit of our Insh Marshes reserve. This scarce hoverfly is largely restricted to aspen woodland in Strathspey, Scotland.
References

Introduction
1. Natural Foundations: conservation and local employment in the UK. Available at: rspb.org.uk/naturalfoundations


Freshwater wetlands

2. BTO Breeding Bird Survey reports. Available at: bto.org/volunteer-surveys/bbs/bbs-publications/bbs-reports

Coastal


Farmland and machair


Woodland

1. BTO Breeding Bird Survey reports. Available at: bto.org/volunteer-surveys/bbs/bbs-publications/bbs-reports
Making it happen
Nature needs all of us. Thanks to our staff, volunteers, partners and supporters we deliver vital conservation work on our nature reserves.

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All other images
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