

# Recovering the Eurasian Curlew in the UK and Ireland: progress since 2015 and looking ahead

David J.T. Douglas, Daniel Brown, Simon Cohen, Mary Colwell, Anita Donaghy, Allan Drewitt, Kathryn Finney, Samantha Franks, Danny Heptinstall, Geoff Hilton, Sean Kelly, Patrick Lindley, Ben McCarthy, Neil McCulloch, Barry O'Donoghue, Sarah Sanders, Patrick Thompson and Sian Whitehead

**Abstract** In 2015, the Eurasian Curlew *Numenius arquata* was described as the UK's most pressing avian conservation priority. The population is also in severe decline in the Republic of Ireland. Since 2015, Curlew-focused research, conservation delivery and awareness-raising has expanded in the UK and the Republic of Ireland. Here, we present an assessment of progress so far in recovering the Curlew population in the UK and the Republic of Ireland. Momentum is building but we are yet to see any wide-scale impact on breeding success that could translate into improved national trends or a reversing of the species' status. Stabilising declines and recovering the Curlew population in the UK and the Republic of Ireland will be a long-term process, requiring concerted effort and massive investment, and the scale of the task should not be underestimated.

## Introduction

As a consequence of its Near Threatened conservation status globally and of both the rapid decline and the significance of the UK breeding population, estimated at 19–27% of the global population, the Eurasian Curlew *Numenius arquata* was described by Brown *et al.* (2015) as the UK's highest conservation-priority bird. In that paper, the authors called for a comprehensive recovery programme for the species, including solution testing and other research, coordinated delivery of conservation measures, and greater consideration for Curlews in planning decisions. Here, we

present an update on the status of the Curlew in the UK and the planned recovery activities up to early 2021. The Curlew is in a similarly parlous state in the Republic of Ireland, and the parallels in land use and the drivers of the decline make it relevant to cover the UK and the Republic of Ireland (hereafter 'the UK and Ireland') together in this paper.

Between 2009 and 2016, the breeding population of Curlews in the UK declined from 68,000 pairs to 58,500 pairs (Musgrove *et al.* 2013; Woodward *et al.* 2020). In the UK as a whole, the rate of decline in the breeding population since 2015 has been slightly less

than the 1995 to 2018 long-term trend (Robinson *et al.* 2015; Harris *et al.* 2020). However, there is no evidence that breeding success has improved sufficiently to have caused this slowing, and drivers of low breeding success are unlikely to have lessened in magnitude. Further research is needed into the contradictions in the demographics.

In England, the rate of decline appears to have slowed since the early 2010s but the reasons for this remain unknown. There is no all-England breeding population estimate but a habitat-specific survey estimated 10,551–20,747 pairs on enclosed upland farmland (Siriwardena *et al.* 2017). An estimated 53% of English Curlews breed in this habitat, the vast majority of which are in northern England. In Scotland, there has been a 59% decline since 1995, though there is no recent population estimate. In Wales, the population has declined by 69% since 1995. A recent estimate put the population there at 1,101–1,578 pairs (Taylor *et al.* 2020), marginally higher than a 2006 estimate of 1,099 pairs (Johnstone *et al.* 2007), though this could be due to differing methodologies. The species is Red-listed in Wales (Johnstone & Bladwell 2016) and modelling suggests it is at risk of extinction within the next decade (Taylor *et al.* 2020).

In Northern Ireland, a survey across 75 lowland sites in 2018–19 found just 30

breeding pairs, a decline of 80% since 1985–87 (Booth-Jones *et al.* 2020). The only notable remaining concentrations elsewhere are 40–60 pairs in the Antrim Hills and c. 40 pairs in the Lough Erne basin area. Small populations persist in other areas, especially the Sperrin Mountains. The total breeding population is not known but it is likely to be considerably below the 526 pairs estimated in 2013 (Colhoun *et al.* 2015). The population in the Republic of Ireland was estimated at 138 pairs in 2015–17, a decline of 98% since 1987 (O'Donoghue *et al.* 2019). Breeding and wintering populations remain on the all-Ireland Red lists (Gilbert *et al.* 2021).

There are numerous projects monitoring the abundance of breeding Curlews but few systematically monitor productivity, and methods differ among those that do. Nevertheless, recent estimates of chicks fledged annually include 0.1 per pair in lowland England (Colwell *et al.* 2020), 0.16 in eastern England (Zielonka *et al.* 2019), 0.31 across Wales (Taylor *et al.* 2020),  $\geq 0.8$  at a site in Aberdeenshire ([www.gwct.org.uk/auchnerran](http://www.gwct.org.uk/auchnerran)) and 0.38–0.81 within Ireland's Curlew Conservation Programme (O'Donoghue & Carey 2020). Many of these estimates are below the 0.48–0.62 chicks fledged per pair per year required to maintain the population (Grant *et al.* 1999).



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**237.** Eurasian Curlew *Numenius arquata*, Norfolk, April 2013.

Recent estimates for the annual survival of full-grown birds of 0.86 and 0.92 (Mendez *et al.* 2018; Robinson *et al.* 2020) are similar to previous estimates and reinforce low breeding productivity as a driving factor of the declines.

Changes in wintering numbers are difficult to interpret owing to climate-induced shifts in winter distributions (Brown *et al.* 2015). However, trends in the number of wintering birds in England, Wales and Ireland do not differ markedly from the trends shown by breeding populations in the UK, Ireland and continental Europe (Burke *et al.* 2018; Woodward *et al.* in prep.).

### Research and projects

Across the UK and Ireland, there are many projects focused on Curlew conservation. For example, marking and tracking of adult Curlews is ongoing at multiple locations, and tracking of chicks is planned to take place in Shropshire in 2021. In the uplands, the RSPB, supported by Natural England and NatureScot, has tested the response of breeding Curlews to habitat management and predator control with a landscape-scale Curlew Trial Management Project (<https://bit.ly/3vFG4G2>). The project, which was terminated early owing to Covid-19 restrictions, is due to publish results in 2021–22.

Conservation initiatives for Curlews have generated a broad awareness of their plight as well as a high level of political engagement. Policy for Curlews is managed by the devolved governments across the UK. In England, Scotland and Wales, parliamentary ‘species champions’ are tasked with scrutinising relevant policies and raising parliamentary questions to ensure that the Curlew remains on government agendas. Following the UK’s departure from the European Union, the devolved governments still need to clarify how they will replace key policies such as the Nature Directives and Rural Development Programmes.

Stroud *et al.* (2016), in their third review of UK Special Protection Areas (SPA), recommended the classification of SPAs for breeding Curlews. There are currently none. Natural Resources Wales (NRW) has identified draft options for Curlew SPAs and extensions to several existing SPAs where Curlews may benefit. Similarly, the Northern Ireland Environment Agency (NIEA) is investigating

the feasibility of revising the boundary of the existing Antrim Hills SPA to include Curlews and other breeding waders, while inclusion of the Lower Lough Erne islands in a new SPA for breeding waders is a possibility.

The implementation of Agri-environment Schemes (AES) is key for widespread delivery of sympathetic land management but, on a European scale, AES have been largely ineffective for Curlew conservation in their current form (Franks *et al.* 2018). However, elements of AES on upland farmland in England, especially grazing and habitat restoration options, do appear to be at least partly responsible for limiting local extinctions (Siriwardena *et al.* 2017). Additionally, an Environmental Land Management Scheme (ELMS) is in development in England but the extent of Curlew-friendly options is unclear.

Although intensive agriculture has degraded much Curlew breeding habitat, low-intensity mixed livestock grazing may provide suitable habitat if correctly maintained. Across the UK uplands, the future of such farming systems is uncertain because they rely on public funding.

In Scotland, the Agri-Environment Climate Scheme (AECS) is the principal manifestation of AES. Up to 2019, contracts were issued for mown- and grazed-grassland for waders over a total combined area of >68,000 ha. Moorland management and predator control prescriptions may have also benefited breeding Curlews. However, there is currently a lack of evidence for the effectiveness of AES as a whole for nature conservation in Scotland, and the take-up of one of the most beneficial options for waders – reducing rush cover on upland pastures – is low, no doubt due to the drop from a £100-per-ha reimbursement in older schemes compared with the current rate of £7.45 per ha in AECS.

Glastir, the AES in Wales, has three advanced Curlew-specific options. However, take-up is low owing to the prescriptive nature of the options and the lower payment rates compared with standard grassland management. Options are for single fields only, which does not meet the large-scale delivery required for Curlews, and guidance on which types of fields may be suitable is lacking. The Welsh Government is currently working on a post-Brexit replacement for Glastir, the Sustainable Farming Scheme.

In Northern Ireland, the largest contribution to Curlew conservation by the Department for Agriculture, Environment and Rural Affairs (DAERA) is the Environmental Farming Scheme (EFS). High uptake within eligible areas, including that of the breeding wader management option, includes a collaborative EFS farmer group within the RSPB's Antrim Hills Breeding Wader Programme. NIEA will monitor the effectiveness of the scheme for birds.

Ireland's AES, the Green, Low-Carbon, Agri-Environment Scheme (GLAS), includes Curlew-specific options for habitat management. Farmers in areas where Curlews breed or have recently bred receive priority entry to GLAS. Currently, 385 farmers, managing 4,374 ha of land, access GLAS Curlew measures. The Curlew Conservation Programme and Irish Breeding Curlew European Innovation Project (IBCEIP) engage as 'higher level' AES.

Among the greatest threats to breeding Curlews across the UK and Ireland are the ambitious afforestation targets set by governments. Not only does the planting of trees lead directly to the loss of open-ground habitat, but it also increases predation by increasing habitat edge, which benefits predators (Ratcliffe 2007; Douglas *et al.* 2014; Franks *et al.* 2017). Guidance from the Forestry Commission and Natural England aims to aid early screening of proposals that may impact on important wader breeding sites (<https://bit.ly/3vHkmRT>). Similarly, in Northern Ireland, NIEA assesses forestry proposals and can recommend refusal or modification where a significant risk to Curlews is identified. Ultimately, sparing important open ground requires demonstrable support for Curlews from forestry decision-makers, and a precautionary approach to consenting new planting.

Curlews are susceptible to the impacts of windfarm development and greater consideration needs to be given for the species when planning for new infrastructure. Knowledge gaps remain over the impacts of single-site developments on breeding Curlews, the cumulative impacts of developments across multiple sites and of the effectiveness of mitigation. In Northern Ireland, NIEA takes a generally precautionary approach to applications, since the fate of

birds displaced by development is unclear and any further loss to the breeding population is likely to have a marked impact (Pearce-Higgins *et al.* 2009, 2012). In general, however, there is little evidence that the impact of developments on breeding or wintering Curlews is influencing planning decisions across the UK or Ireland.

Climate change brings challenges for Curlew conservation: a northward shift in range, the loss of southern populations and further declines in numbers nationally are predicted by climate-change modelling (Renwick *et al.* 2012; Pearce-Higgins *et al.* 2015; Natural England & RSPB 2020). A move to higher elevations and a decline in breeding abundance has already been observed and has been correlated with a warming climate and a decline in summer rainfall (Massimino *et al.* 2015; Franks *et al.* 2017). Habitat restoration to increase resilience, including through rewetting, is essential to lessen the effects of climate change. In the non-breeding season, management of food-rich coastal grazing pastures will be required to buffer against the loss of intertidal foraging habitat due to rising sea levels (Navedo *et al.* 2019).

The conservation of a single, threatened species is, in our opinion, justified and should be supported; but we recognise that funding for nature conservation is often limited and opportunities for species-focused initiatives should strive to bring wider nature and environmental benefits, such as restoration of peatland. In Wales, for example, NRW has funded an assessment of the potential wider biodiversity and environmental benefits in Wales associated with Curlew management.

Internationally, an International Single Species Action Plan (ISSAP) for the Conservation of the Eurasian Curlew was developed under the Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA) (Brown 2015). A priority action for the resulting AEWA Eurasian Curlew International Working Group remains maintaining a hunting moratorium on Curlews in France and the establishment of an 'adaptive harvest management plan' (AHMP) to determine if Curlews can be sustainably killed, and whether hunting



threatens the work done by the numerous Curlew conservation initiatives across Europe. At present, work on the AHMP has stalled and a permanent resolution is needed.

### Conservation delivery

Partnerships are bringing together land managers, communities, conservationists and policymakers to shape the response for a species that is still widespread across the UK and Ireland. High-level initiatives have included summits convened by the Prince of Wales at Dartmoor and Highgrove, a summit at 10 Downing Street (*Brit. Birds* 112: 545–546) and the formation of the UK and Ireland Curlew Action Group, which brings together statutory agencies and conservation organisations. Grass-roots initiatives have included the creation of Curlew Action ([www.curlewaction.org](http://www.curlewaction.org)) and the development of over 50 Curlew conservation projects across the UK, varying in scale from small farms to landscape-scale initiatives, with many relying on volunteers and around half delivering active management (Wilson *et al.* 2020).

In England, the Curlew Recovery Partnership England was launched in March 2021 and brings together stakeholders to drive action for Curlews. Regional fora include the ‘Call of the Curlew’ forum across lowland and southern Britain (Colwell *et al.* 2020) and the Northern Upland Chain Local Nature Partnership. The Shropshire-based Curlew Country and WWT’s Severn and Avon Vale Curlew Recovery Project are working with farmers to recover southern lowland populations of 35–40 pairs through monitoring, solution-testing such as nest fencing, delayed mowing, head-starting – with >50 fledglings released in recent years – and, in Shropshire, predator control. Eggs for the Severn and Avon Vale head-start programmes are provided by the Eastern England Curlew Nature Recovery Network project, a multi-partner initiative working with military bases where Curlew nests and eggs would otherwise be licensed for destruction for air safety.

The New Forest National Park holds a declining population of 40–45 pairs of Curlews. Monitoring by Wild New Forest and Forestry England has revealed that intense recreational use is a local pressure in addition to predation. Mitigation and education including seasonal closures of car parks, press releases, and a feature on the BBC’s *Countryfile* are being implemented. In Devon, the Dartmoor Curlew Recovery Project aims to restore breeding populations of Curlews on Dartmoor by implementing habitat and predator management and a head-starting programme. In the Peak District, the South West Peak Landscape Partnership is using Heritage Lottery Funding to support work with farmers to deliver management for an important upland population of Curlews and other waders.

Various Scottish ‘wader and wetland’ initiatives work with farmers to deliver habitat management through AES or additional management. These are focused around important farmland and wetland breeding areas for Curlews and other waders, such as the Clyde Valley (which receives statutory funding support), Strathspey and Caithness. These initiatives are RSPB-led with support at some sites from Scotland’s Rural College (SRUC) and Working for Waders, the latter being the main national initiative for facilitating partnership working and delivery, funded by NatureScot.



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238. Area of cut rush for breeding Curlews, Caithness, June 2019.

The Game & Wildlife Conservation Trust's Scottish demonstration farm in Aberdeenshire ([www.gwct.org.uk/auchnerran](http://www.gwct.org.uk/auchnerran)) has maintained a high productivity rate of  $\geq 0.8$  young fledged per pair of Curlews. They share knowledge of their management at the site with visiting practitioners. The Orkney Native Wildlife Project aims to eradicate non-native Stoats *Mustela erminea* from the islands to benefit a range of wildlife, including Curlews.

In Wales, Gylfinir Cymru (Curlew Wales), supported by the Welsh Government and NRW, has been established to set the strategic direction of Curlew conservation. A Wales Single Species Action Plan (WSSAP) is being developed to support the AEWASAP (Gylfinir Cymru/Curlew Wales 2021), and delivery will focus on stabilising declines in breeding numbers across 12 Important Curlew Areas (ICAs). These ICAs aim to provide a network of heath and grassland landscapes, managed at a sufficiently large scale to benefit breeding Curlews and other biodiversity priorities (<https://bit.ly/2QUzi0i>).

In Northern Ireland, no formal national partnerships have yet been established but a new Species Action Plan (SAP) for the Curlew remains an aim. DAERA has, through the NIEA, funded breeding-wader conservation and continues to work on habitat management and surveys with NGOs. The network of reserves and other areas delivering management around Lower Lough Erne is the most important lowland area for

breeding Curlews and other waders nationally, and declines have been less severe here than elsewhere (Booth-Jones *et al.* 2020). The most important upland initiative in Northern Ireland is RSPB's Antrim Hills Breeding Wader Programme, where an intensive campaign offering advice to farmers has maintained suitable Curlew habitat over an area of more than 45 km<sup>2</sup>, although Curlew breeding productivity remains low. Elsewhere, the Lough Neagh Partnership is working towards landscape-scale habitat management for Curlews, grant-aided by NIEA. The rearing and release of broods hatched from clutches rescued from wildfires in 2020 (<https://bit.ly/3hfRCMj>) has provided an opportunity to trial methods for a possible future head-starting project, although no plans for this exist at present.

The All-Ireland Curlew Conference in 2016 yielded the Curlew Task Force (CTF). The two main resulting delivery initiatives were the Curlew Conservation Programme (CCP) and the BirdWatch Ireland-led Irish Breeding Curlew European Innovation Project (IBCEIP). Both work with landowners and communities to deliver advice, habitat management, nest protection and monitoring. The CCP has increased the number of chicks fledged by a population of 40–60 pairs from an average of 0.38 per pair in 2017 to 0.43 in 2018, 0.81 in 2019 and 0.60 in 2020 (O'Donoghue & Carey 2020). A research project in collaboration with University College Dublin will publish further results from IBCEIP in the near future. Finally, the recent Prioritised Action Framework for Natura 2000 sites includes specific actions for Curlews.

Across a broader area, the EU-funded multi-partner Cooperating Across Borders for Biodiversity project (CABB; <https://bit.ly/33gbx5l>) aims to protect key sites and wildlife – including Curlews – in southwest Scotland, Northern Ireland and border counties of Ireland.

Around 6% of breeding Curlews in England, Wales and Northern Ireland are found in



Phil McLean/FLPA

**239.** Curlew, Lammermuir Hills, Borders, spring 2009.

1-km squares containing National Trust (NT) land. The breeding trend from 1994 to 2013 on sample NT sites in England was -4%, compared to -30% across England as a whole over the same period (Noble *et al.* 2015). NT holdings also support notable open-coast wintering populations (Noble *et al.* 2018). The NT works in partnership with the RSPB at Curlew sites in northern England, Wales and Northern Ireland and, in Shropshire, the NT-led, multi-partner Stepping Stones Project (<https://bit.ly/3eijjgt>) includes work on monitoring and protecting Curlew nests.

The RSPB has audited its work across its most important Curlew breeding sites and work is under way to ensure that recommendations for management and monitoring can be delivered. Curlew breeding abundance at their Geltsdale reserve in Cumbria, for example, increased where more moorland vegetation was mown to reduce the dominance of rank Heather *Calluna vulgaris* (Douglas *et al.* 2017). Less than 2% of the UK's Curlews breed within RSPB reserves and, while reserves of other organisations also support breeding Curlews, recovery of the species will clearly require effective off-reserve delivery as well as work on reserves. The RSPB has recently secured EU Life funding to deliver management for Curlews on five landscape-scale sites across the UK, linking management across a reserve and wider off-reserve land.

Grouse moors cover large areas of the British uplands and hold some of the UK's highest densities of breeding Curlews, which benefit from habitat management and intensive predator control (Fletcher *et al.* 2010; Littlewood *et al.* 2019; Ludwig *et al.* 2019). The management of grouse moors is contentious, and the costs and benefits of grouse moors to wildlife, the environment and the economy are hotly debated. In 2020, the Scottish Government announced the intention to license grouse moor management during the next parliamentary term but, despite public calls to do so, no government has announced any intention to ban driven grouse shooting. Such a ban could, in some situations, prove detrimental to some populations of breeding Curlews if, for example, land currently used for grouse moors was replaced with sheep pasture, forestry or windfarms. The less-intensive alternative of walked-up

shooting may not offer an economically viable model for predator and habitat management to continue at the current scale or intensity (Sotherton *et al.* 2017).

### The future of the Curlew in the UK and Ireland

Despite conservation efforts, Curlews continue to decline across much of the UK and Ireland. Away from northern England and Scotland, the outlook is bleak. Productivity remains substantially below the level required to maintain populations, let alone increase them. Although some projects are boosting fledging through targeted management or head-starting, the scale of delivery still falls far short of what is required. In many areas, monitoring efforts may simply be documenting the annual return of senescing adults. Such a population demographic could quickly lead to a dramatic crash in numbers, while limited genetic diversity may be further hampering breeding productivity (Rodrigues *et al.* 2019). There is also no evidence to suggest that, for example, the current AES will boost Curlew numbers.

There are four immediate and overriding challenges facing Curlews. First, intense predation pressure in many breeding areas limits fledging success. The UK and Ireland's high density of mesopredators and immigration rates of Red Foxes *Vulpes vulpes* during culling highlight the scale of the issue (Roos *et al.* 2018; Porteus *et al.* 2019). Temporary measures such as electrified fences around Curlew nests can exclude ground predators and increase hatching success but do not protect mobile chicks (Meyer & Jeronin 2017; O'Donoghue & Carey 2020). Urgent research into the landscape-scale drivers of high predation pressure is required, including landscape configuration (including forestry), the mass release of non-native gamebirds that provide predators with a potential food subsidy, and rare or missing apex predators (Douglas *et al.* 2014; Franks *et al.* 2017; Pringle *et al.* 2019). Crucially, we must examine how to alleviate these drivers to more naturally rebalance predator–prey interactions (Hancock *et al.* 2020). This links to aspects of rewilding, and while it is questionable whether Curlew and other open-ground species would thrive in 'no-intervention' land-



scapes that would ultimately become partially or wholly wooded, definitions of rewilding differ and can include human intervention. Curlews and other open-ground species will likely require more actively managed restoration of habitats and food webs, with the explicit aim of retaining open ground.

The second challenge is accommodating Curlews and other open-ground species within government policies for woodland expansion and onshore windfarms. Previous failures in forestry and economic policy, where afforestation devastated vast areas of carbon- and nature-rich moorland, must not be repeated (Stroud *et al.* 1987; Ratcliffe 2007).

The third challenge is ensuring that farming is able to deliver for food, nature and the wider environment. Evidence-based AES prescriptions for Curlews are required, adequately funded and delivering the key actions at the right spatial scale and the right time, for example delayed mowing to reduce nest and chick losses (Ewing *et al.* 2017; Colwell *et al.* 2020; Taylor *et al.* 2020). The role of live-stock in the loss of nests also needs to be better understood. Support for environmentally friendly livestock farming, delivering public goods including biodiversity, healthy soils and flood regulation, could help to maintain farmland that provides suitable Curlew breeding habitat.

The final challenge is ensuring that areas currently supporting high Curlew densities continue to do so. Whilst there is understandably attention on recovering the most vulnerable Curlew populations, core populations must also be maintained through appropriate land management.

We recommend the following priority actions for Curlews in the UK and Ireland:

- A presumption against new forestry within important Curlew breeding areas
- Integrated land-use policies that prevent perverse outcomes
- Refinement of AES to support evidence-based prescriptions known to benefit Curlews, with a test of whether predator control as a farmland conservation tool can improve breeding success
- Introduction of collaborative AES supporting landscape-scale delivery across multiple land holdings

- Monitoring of the effectiveness of AES for Curlews, with prescriptions modified where required
- The establishment of a network of European protected sites for breeding Curlews including SPAs
- Carry out research into how to reduce mesopredator densities in the countryside
- Prevention of further drainage of Curlew breeding areas and reversal of historical drainage
- Establish locally led and nationally coordinated networks of Curlew action groups in key areas, working alongside land managers to deliver Curlew-friendly management
- Acquire a comprehensive understanding of regional and national Curlew abundance, trends and distribution
- Further trialling of head-starting, delivered alongside habitat restoration and other management
- Improved community engagement in Curlew conservation issues

Sustained, evidence-based action has been successful in recovering locally distributed birds such as Cirl Bunting *Emberiza cirlus* and Eurasian Bittern *Botaurus stellaris*. Reversing the fortunes of a widespread species like the Curlew is a tougher prospect. Evidence is required that land-use policies and conservation delivery enable Curlews to consistently fledge between 0.48 and 0.62 chicks per pair per year to maintain populations, and to exceed that to increase the population. Recovery rates should be detectable by both a slowing in population declines and an increase in breeding populations. Such increases from large-scale projects may only be detectable a decade after sustained delivery (Ludwig *et al.* 2019). We are only at the beginning of Curlew recovery in the UK and Ireland. One thing that the Curlew does have on its side is the weight of public affection and a desire to secure its future. If we all work together, we might just have a chance of doing so.

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David J. T. Douglas, Daniel Brown and Sarah Sanders, RSPB Scotland, 2 Lochside View, Edinburgh Park, Edinburgh EH12 9DH; e-mail [david.douglas@rspb.org.uk](mailto:david.douglas@rspb.org.uk)



Simon Cohen, NatureScot, 1 Fodderty Way, Dingwall Business Park, Dingwall IV15 9XB

Mary Colwell, Curlew Action, 1 Somerset Street, Kingsdown, Bristol BS2 8NB

Anita Donaghy and Kathryn Finney, BirdWatch Ireland, Unit 20, Block D, Bullford Business Campus, Kilcoole, Greystones, Co. Wicklow, A63 RW83 Ireland

Allan Drewitt, Natural England, Foss House, Kings Pool, 1–2 Peasholme Green, York YO1 7PX

Samantha Franks, BTO, The Nunnery, Thetford, Norfolk IP24 2PU

Danny Heptinstall, JNCC, Monkstone House, City Road, Peterborough PE1 1JY

Geoff Hilton, WWT, Bowditch, Slimbridge, Gloucestershire GL2 7BT

Sean Kelly and Barry O'Donoghue, National Parks and Wildlife Service, 90 King Street North, Dublin 7, D07 N7CV Ireland

Patrick Lindley, Natural Resources Wales, Maes-y-Ffynnon, Penrhosgarnedd, Bangor, Gwynedd LL57 2DW

Ben McCarthy, National Trust, Heelis, Kemble Drive, Swindon SN2 2NA

Neil McCulloch, Northern Ireland Environment Agency, Klondyke Building, Cromac Avenue, Malone Lower, Belfast BT7 2JA

Patrick Thompson, RSPB, c/o NEA House, Suite 3, 2nd Floor, Ellison Place, Newcastle NE1 8XS

Sian Whitehead, GWCT Uplands Research, The Coach House, Eggleston Hall, Eggleston, Barnard Castle DL12 0AG

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