

A future for curlew

An introductory factsheet
produced by the Game &
Wildlife Conservation Trust



Game & Wildlife
CONSERVATION TRUST

A species in decline

With so many of the world's curlew within our borders, the UK has an obligation to do all we can to protect them.



The Eurasian curlew was added to the UK red list in December 2015. (© Laurie Campbell)

The curlew we have in the UK is one of eight species found worldwide, two of which are already likely to be extinct. There have been no confirmed sightings of eskimo curlew for over 50 years¹ or slender-billed curlew for 15 years². Our species, the Eurasian curlew, is also facing this threat, and it is imperative that we do all we can to prevent the continued decline, and possible extinction of yet more of the curlew family.

The breeding population of Eurasian curlew (hereafter "curlew") is declining across almost all of its range, with estimates suggesting a 20 to 30% international decline in the last 15 years³. For this reason, the International Union for the Conservation of Nature (IUCN) classifies curlew as "vulnerable" on the European Red List, meaning that the species faces a high risk of extinction⁴.

Historically, the curlew was a common species in Britain, breeding across the country, in marshes, meadows and arable fields as well as on moorland. Although still numerous in some areas, overall the population has suffered a severe decline in recent decades. There are now only half the number of breeding curlew in the UK compared to 25 years ago⁵. The curlew was added to the UK red list in December 2015⁵, and it is argued to be the highest bird conservation priority within the UK⁶. The famously evocative and previously familiar call of the curlew is becoming increasingly rare.

The UK plays an important role in shaping the future for curlew because we support important breeding and overwintering populations – our coastal areas are estimated to hold a fifth of the world's curlew in winter; with UK sites hosting around a quarter of the world's breeding pairs in spring and summer^{7, 8}. With so many of the world's curlew within our borders, the UK has an obligation to do all we can to protect them. What happens to curlew in the UK will have substantial consequences for the global population.

There are now only half the number of breeding curlew in the UK compared to 25 years ago.

KEY POINT

The number of breeding curlew in the UK has declined by half in the last 25 years

KEY POINT

The remaining UK population is globally important

Threats to the curlew

70% of curlew nests failed to hatch a single chick.

A comprehensive report of the scientific literature relating to curlew was recently published by the Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA), which identified and assessed the main threats they face⁸. This concluded that population declines were caused by low breeding success, predominantly as a result of the following:

1. **Loss, degradation and fragmentation of breeding habitat**
2. **High levels of nest and chick predation**
3. **Afforestation**
4. **Land abandonment**
5. **Nest destruction due to agricultural activities**
6. **Human disturbance on breeding grounds**

These factors have combined to reduce breeding success to very low levels. Over 70% of nests observed across Europe in recent years failed to hatch a single chick. Of those that do hatch, chick survival from hatching to fledging (development of feathers and the ability to fly) is only 50%⁹.

It is important to examine these factors in a UK context, to identify how best to support curlew breeding here. Achieving the pragmatic double goal of conservation *alongside* economically successful farming is possible with the application of scientific knowledge, and represents the most sustainable approach to long-term improvements for curlew.

KEY
POINT

Loss of suitable breeding habitat, combined with high levels of predation, has reduced breeding success and this is driving population declines

Curlew face many threats, including habitat loss, predation pressure and disturbance.

(© David Kjaer)



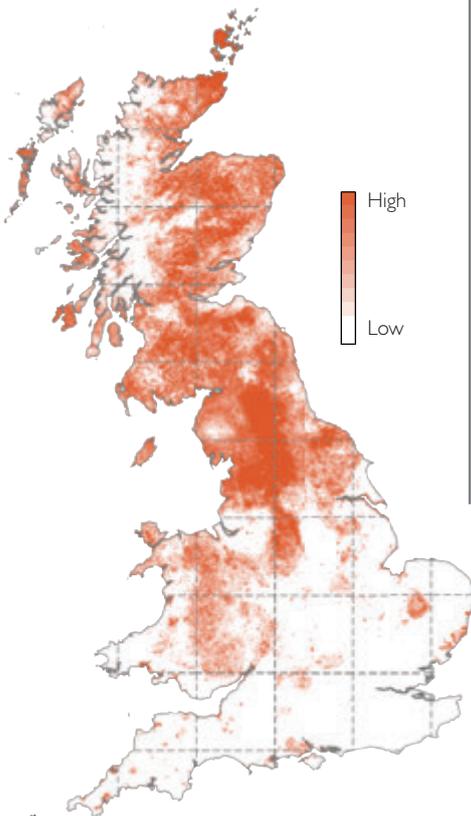
GWCT Auchnerran

The GWCT's recently acquired demonstration farm at Auchnerran in Aberdeenshire sits on the moorland edge, adjacent to 12,300 acres (5,000 ha) of heather moorland.

This mixed arable, grass and wooded farm is typical of much of Scotland, and home to abundant game and wildlife, but is coming under increasing economic pressure with potential negative consequences for the wildlife.

Curlew currently thrive on the inbye land at Auchnerran. However, the necessary improvements in profitability for the farm will require changes in farming practice. The challenge is to balance conservation with profitable farming at the hill edge, including adopting farming approaches for inbye land that are sensitive to the needs of breeding waders.

Relative abundance of breeding curlew 2007-11



© BTO

1. Loss, degradation & fragmentation of breeding habitat

Modernisation of farming across Europe has changed large areas of previously suitable breeding habitat, which poses a critical threat to the curlew population. Curlew prefer to breed in environments with wet areas for feeding, dry areas for nesting, with a mixed but medium length vegetation structure and little disturbance (see figure 1)^{8,10}.

Areas with these characteristics are becoming increasingly scarce as modern farming methods "improve" pastures with drainage, application of fertilisers and grass reseeded to allow more intense grazing by livestock. This produces a drier, more uniform grassland with a reduced variety of plants; leading to a more limited mix and lower numbers of curlew food species, such as insects and earthworms. Intensification of arable farming across large swathes of the countryside has had a similar effect, and such environments are now also unsuitable for breeding curlew.

KEY POINT

Changes in farming practice have made large areas of breeding habitat unsuitable

Figure 1: Example of an ideal breeding habitat



© Ben Farnell

- Tussocky/mixed vegetation structure
 - Varied plant species
- } contribute to Thriving & abundant mix of accessible invertebrate prey

Within the UK, enclosed pasture on the farmland edge (inbye land), can provide important breeding habitat for curlew¹¹. Traditional management of these meadows and pastures consisted of grazing by sheep or cattle, with livestock exclusion during the spring and summer for cutting, perhaps with limited application of lime or manure. However, inbye land has also become more intensively managed, and therefore less suitable for breeding.

Furthermore, in part due to increased sheep grazing between the 1960s and 1990s, many breeding curlew have also been lost from the nearby unenclosed rough grazing between the inbye land and heather moorland (the moorland fringe). Increased management of this transition zone has contributed to substantial losses in both the number of breeding curlew and their breeding success in these areas in recent decades^{11,12}. This situation is reflected in lowland wet grasslands within the UK that are also improved for livestock by draining, and where breeding curlew have declined sharply¹³. Ironically, in response to worries about overgrazing, destocking to allow habitat recovery can reduce grazing pressure so far that the vegetation then becomes overgrown, dense and inaccessible. Concerns are now raised about undergrazing in some areas. This swing between too much grazing and too little typifies the balance of management needed to allow curlew to thrive.

Despite historically having bred throughout the UK, habitat loss in the lowlands and inbye land means that curlew are now more dependent on breeding on moorland, where some habitat remains more suitable and human disturbance is usually lower (see map). It is thought that there are now only 230 pairs of curlew breeding in the UK south of Birmingham.

KEY POINT

Conservation efforts to improve the moorland edge habitat may provide considerable benefits for breeding curlew



GWCT Upland Predation Experiment Results

The GWCT's Upland Predation Experiment clearly demonstrated that:

Without predator control:

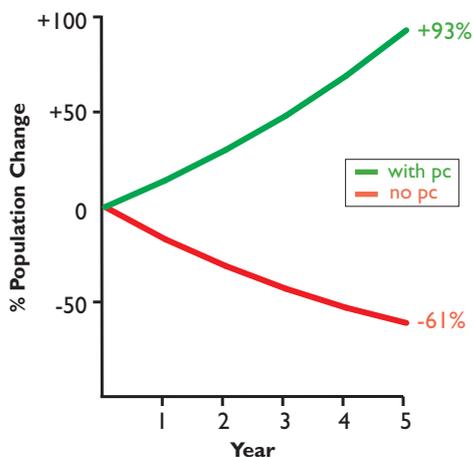
- **15%** of nesting curlew pairs fledged young
- The curlew population **declined** by **17%** per year

With legal predator control:

- **51%** of nesting curlew pairs fledged young
- The curlew population **increased** by **14%** per year (after a lag period where chicks reach breeding age)

This turnaround in the population trend, as a result of a single intervention, could be very important for curlew conservation²².

Predicted effect on curlew population



Based on the figures above, this graph predicts how the curlew population may grow with on-going predator control (pc), and decline without predator control over 5 years.

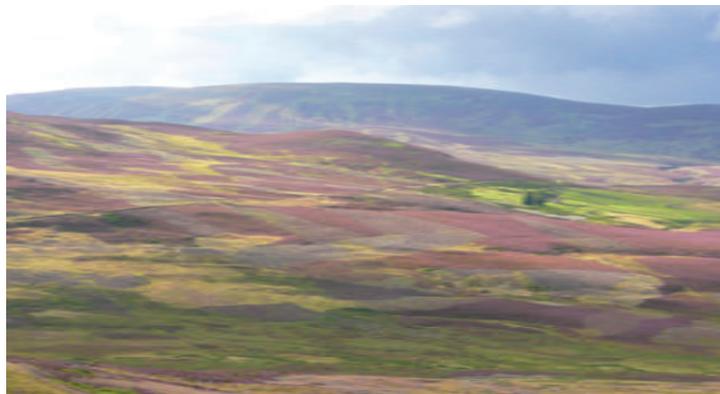
2. High levels of nest and chick predation

As curlew nest on the ground, eggs and chicks can be very vulnerable to predation. This vulnerability, along with curlew population declines driven by habitat loss, has led to smaller populations that are less able to withstand negative pressures. However, predation pressure may have risen in recent decades as fox¹⁴ and crow¹⁵ populations have shown long term increases.

Estimates of the impact of predation on breeding curlew vary, but a European-wide analysis concluded that predation has increased from 16% of nests predated per year prior to 1980, to 65% between 1996-2006⁹. In Northern Ireland, one study on nesting success found that up to 97% of nest failures and 74% of chick mortality were due to predation, mainly from foxes and predatory birds¹⁷.



Increased levels of predation reduce breeding success in curlew populations



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Focus on grouse moors

Moorland primarily managed for red grouse shooting forms an integral part of the land use patchwork in the British uplands, and as such it overlaps considerably with the current breeding range of curlew. This alone makes grouse moors and the marginal farmland around them very important for curlew conservation. This importance is increased by evidence showing that other upland bird species in addition to grouse also thrive on grouse moors. Gamekeepers aim to optimise conditions for red grouse. The habitat they produce, along with the reduced number of predators, is beneficial to a number of other species, including curlew. Comparative studies have consistently shown a higher density of curlew breeding on grouse moors than on moors not managed for grouse^{10, 18-21}. Given the population declines seen elsewhere, it may be that the management undertaken on grouse moors makes them a refuge for breeding curlew.

On a background of almost universal declines in curlew populations, it is important to ask: why is it that curlew do better on grouse moors? What could be done on a wider scale to improve the outlook for curlew? The GWCT Uplands Predation Experiment (see box) was undertaken to explore these questions, and demonstrated that when predators were controlled, curlew were able to breed three times more successfully than they did on the same moorland when predator control was then withdrawn²². This makes sense when we remember that high levels of nest and chick predation is one of the most important factors threatening curlew breeding success.



Curlew breeding success is higher on grouse moors than on moors not managed for grouse

Around 20% of UK moorlands are now afforested with coniferous plantations.

3. Afforestation

Commercial afforestation has contributed directly to loss of curlew breeding habitat, as previously suitable areas have been forested²³. In fact, around 20% of UK moorlands are now utilised for coniferous plantations²⁴.

Afforestation also has indirect impacts, with the influence of the forestry block on wildlife stretching past its borders into the surrounding landscape. Ground-nesting birds, including curlew, breed less successfully near forestry blocks - probably as a result of there being more predators living in and taking advantage of the cover provided by woodland¹⁸. Furthermore, studies show that curlew breed more successfully in open, continuous landscapes, rather than fragmented patches of seemingly suitable habitat^{25,26}. It is well recognised that so-called "edge effects" from commercial afforestation have negative impacts on breeding waders, that can be detected up to 1km from the woodland itself⁸.

Commercial forestry is known to have other environmental impacts, including lowering the water table and acidification of streams, as well as peat subsidence, compression and shrinkage²⁴.

KEY POINT

Commercial forestry blocks have negative impacts on breeding curlew because of habitat replacement and increased predation



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4. Land abandonment

Curlew prefer medium length vegetation for breeding sites (10-45cm)²⁷ therefore where land becomes overgrown, breeding sites become unsuitable and the abandonment of farming witnessed in some areas across the world can have serious effects on curlew breeding in that area. For example, following the collapse of the Soviet agricultural scheme, under-management of some important farmland breeding areas led to degradation of that habitat as it reverted to coarse grassland and shrub.

In the heavily farmed landscape of the UK lowlands, land abandonment is not a common occurrence. However, changes in land management in the uplands can indeed have this effect. The reduction in land area managed for red grouse may have reduced the availability of suitable breeding habitat. One of the management techniques employed in moorland management particularly for red grouse, but also for livestock, is prescribed heather burning, whereby small patches of heather are burnt in early spring to stimulate regeneration. This has two effects: one is to provide young, nutritious shoots for the grouse and livestock to feed on, and the second is to prevent heather progressing to a taller, more overgrown state which is less suitable for both feeding and nesting for red grouse, but is also too long for curlew nesting. The loss of moorland managed for grouse may further reduce the availability of suitable breeding habitat.



Curlew prefer short to medium length vegetation for breeding sites.

(© Tom Streeter)

KEY POINT

Land abandonment leads to longer vegetation, which is less suitable for curlew breeding



Adjustments to farming practices may help accommodate curlew nests.

(© Curlew Country)

5. Agricultural nest destruction

Curlew breeding in farmland can be susceptible to accidental nest destruction by agricultural machinery or livestock. Lowland breeding sites are now little used in some heavily farmed areas of the UK, however curlew frequently utilise such areas in other countries. For example, two thirds of curlew in Sweden, and over 90% of Finnish curlew populations breed on farmland and in meadows⁹. In Scotland, many curlew nest in lowland sites and adjustments to farming practices during the breeding season may help accommodate their needs and promote thriving local populations. Practical advice on this is given in the GWCT document *Conserving the Curlew*.

As curlew used to breed in UK lowlands, and continue to do so in many European countries, it may be possible to encourage a recovery here for the lowland curlew population. It is interesting to note that, although much of the UK has recently experienced losses in breeding curlew, some of those areas where populations are increasing, albeit still small, are in the lowlands¹⁶. Conservation steps taken in lowland wet grassland, farmland and meadows may have the potential to provide important gains for breeding curlew. However, further studies are needed to identify the most appropriate areas on which to focus our resources and effort.

6. Human disturbance on breeding grounds

Curlew nesting in the UK uplands have typically been associated with areas of low potential disturbance¹⁰, which in some countries can be a cause of nest loss. The main breeding areas of the UK, Fennoscandia and Russia, which together host over 90% of the global population, are likely to experience relatively low levels of disturbance as a result of the land use where curlew tend to nest. However, in some Dutch moorland habitats recreational disturbance associated with walkers and dogs is thought to have a negative effect on breeding curlew⁸.

Along with direct threats from humans, disturbance that forces an incubating adult to leave the nest may be associated with predation of eggs before they return, or alert predators to the location of the nest or brood⁸. The AEWA assess disturbance as being one of the main factors exerting a negative impact on breeding curlew as a result of potentially severe local consequences.

An additional source of disturbance that has been increasing with the necessity to produce energy from sustainable sources is the construction of wind farms on moorland habitats. These have been shown to negatively affect the density of several upland bird species, including curlew whose densities may decline by up to 40% during construction^{28,29}. It may be prudent to consider the breeding bird assemblage when planning such projects to reduce disruption at important sites or times of year.

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As curlew nest on the ground, eggs and chicks can be very vulnerable to predation

(© Laurie Campbell)

Curlew - a summary



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Key points

- The number of breeding curlew in the UK has declined by half in the last 25 years
- The remaining UK population is globally important
- Loss of suitable habitat, combined with high levels of predation, has reduced breeding success and this is driving population declines
- Changes in farming practice have made large areas of breeding habitat unsuitable
- Conservation efforts to improve the moorland edge habitat may provide considerable benefits for breeding curlew
- Increased levels of predation reduce breeding success in curlew populations
- Curlew breeding success is higher on grouse moors than on moors not managed for grouse
- Commercial forestry blocks have negative impacts on breeding curlew because of habitat replacement and increased predation
- Land abandonment leads to longer vegetation, which is less suitable for curlew breeding

What does this mean for curlew conservation?

The conclusions that we can draw from the evidence detailed in this report are:

1. Habitat protection/restoration is critical, as part of an integrated approach.
2. In conjunction with this, low predation pressure will maximise the chance of recovery for the curlew population. Where habitat remains suitable, the addition of predator control can be important in helping reverse population declines.
3. Predator control as a component of grouse moor management, especially that typical of driven shooting, should be recognised as an important factor in the conserving ground nesting birds including curlew.
4. Curlew conservation and recovery is a long term commitment. Curlew are long lived, but they mature to breeding age slowly and produce relatively small clutches. Population responses to conservation measures will take time.

Next steps

1. The recently formed Britain and Ireland Curlew Action Group, of which the GWCT is a part, aims to tackle these issues, and is working to produce and execute an effective action plan for curlew recovery.
2. The GWCT is involved in several areas of research, in an advisory and awareness-raising capacity, and in co-ordinating input from other organisations, to work towards the successful implementation of this plan.
3. Maximum engagement with the process, and therefore the highest likelihood of success, will be achieved with agreement between all interested organisations and stakeholders. This is the basis of the Curlew Action Group and this cooperative premise should be taken forward in all aspects of its future work.
4. Action for curlew conservation needs to be prioritised so that our effort and resources have maximum impact.
5. The GWCT have launched the Action For Curlew initiative, to promote awareness, and provide information and advice to those who wish to support breeding curlew on their land. www.actionforcurlew.com



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