Curlew Conservation Programme

Annual Report 2020

An Roinn Cultúir, Oidhreachta agus Gaeltachta
Department of Culture, Heritage and the Gaeltacht

An Roinn Talmhaíochta, Bia agus Mara
Department of Agriculture, Food and the Marine

Citation: O'Donoghue, B.G. and Carey J.G.J. (2020). Curlew Conservation Programme Annual Report 2020. National Parks & Wildlife Service, Killarney.

Cover Photo: Curlew breeding site in County Kerry, Hubert Servignat

Overview

- The Curlew Conservation Programme was established in 2017 to pioneer Curlew conservation efforts in Ireland. It is funded and coordinated by the National Parks & Wildlife Service of the Department of Culture, Heritage & the Gaeltacht and the Department of Agriculture, Food & the Marine, with a comprehensive framework that includes habitat maintenance, enhancement and creation; survey effort, nest protection; public and community engagement and much more.
- The Curlew Conservation Programme involves a wide range of actors, proactively working to help Curlew. Central among these are the landowners where Ireland's last remaining Curlew breed.
- A locally-led approach is taken. In 2020, nine geographical areas that are important for breeding Curlew in Ireland were assigned locally-based teams, working with local people and adapting techniques, efforts and priorities to what works best locally.
- The fourth year of the Curlew Conservation Programme, 2020, saw direct efforts in the following areas:
    - Stack's Mountains
    - Lough Corrib (North)
    - Lough Ree
    - North Roscommon/Mayo
    - Mid-Leitrim
    - North Monaghan
    - Donegal
    - Slieve Aughty Mountains
    - Laois-Kildare
- The latter areas of the Slieve Aughty Mountains and Laois-Kildare were new areas taken into the CCP in 2020.
- The local teams, known as Curlew Action Teams (CATs), are comprised of three main roles:
    - A Curlew Conservation Officer
    - A Nest Protection Officer
    - A Curlew Champion.
- An assistant role is assigned to CATs where required.
- The Curlew Conservation Programme is well received on the ground, where the local teams liaise closely with landowners and local communities, in the search and protection of breeding Curlew. The community and landowners in particular are a central part of the CCP, not apart from the CCP.

- In the nine operational areas, a total of 42 pairs were confirmed breeding, with possibly 22 additional pairs breeding (a total of up to 64 breeding pairs). The exact status of some sites was uncertain, following a five week period between March and May when surveys could not be undertaken due to coronavirus restrictions. The total number of pairs recorded by the CCP annually since 2017 has been 54 in 2017, 45 in 2018, between 41 and 56 pairs in 2019 and between 42 and 64 pairs in 2020. When the Curlew Action Team areas that were covered in each of the four years are compared, those figures are 46 in 2017, 42 in 2018, 41-56 in 2019 and 41-58 in 2020.
- Of the 42 pairs for which breeding was confirmed in 2020, at least 26 reached hatching stage (62%), with a minimum of 57 chicks hatched. A minimum of 14 pairs produced fledglings (possibly others did so but were not confirmed), so the breeding success rate was at least 33%. The total number of juveniles recorded to have fledged was at least 25, but again may have been more. This represents a breeding productivity of 0.60 fledglings/breeding pair, which is above the threshold of 0.425 fledglings/pair required for a stable population. While it is the second highest fledging rate since the CCP began, it is a decrease on the breeding productivity recorded in 2019. The first year of the CCP (2017) saw a breeding productivity in the action areas of 0.38 and in 2018, it was 0.43. In 2019, it was 0.81 fledglings per breeding attempt.
- The Curlew Conservation Programme continues to build skillsets, experience and momentum. The programme is widely supported, both nationally and internationally and most importantly in the local areas where it is active.
- It is intended that the principles applied by the Curlew Conservation Programme will continue into the future, acting for Curlew conservation with local people, particularly landowners. The Curlew Conservation Programme is multifaceted, with various aspects of conservation applied, from nest protection to habitat enhancement to education, promotion and community liaison and much more.

Background

The first national breeding Curlew survey, undertaken between 2015 and 2017, found drastic declines of the national breeding population of Curlews. Whereas 3300-5500 pairs are estimated to have bred in the Republic of Ireland in the late 1980s, there now remains no more than 150 pairs (O'Donoghue et al., 2019). This represents at least a 96% decline. Breeding productivity is so low that population viability analysis undertaken in 2017, predicted that unless an average of 0.425 fledglings were produced per breeding pair, the Curlew will go extinct as a breeding species in Ireland before 2030 (A. Lauder, unpubl. data, 2017).

The National Parks & Wildlife Service of the Department of Culture, Heritage and the Gaeltacht introduced the Curlew Conservation Programme in 2017. The Department of Agriculture, Food & the Marine became partners on the CCP in 2020. This brought many positives, including the facility for the programme to have a presence in two additional areas, namely the Slieve Aughty Mountains and Laois-Kildare. This brought the total number of Curlew Action Teams operating across the country to nine. This report presents the main points of the Curlew Conservation Programme in 2020.

Introduction

The Curlew Conservation Programme (CCP) has been designed to deliver action on the ground, at a local level, engaging with local people so that they are part of the project, not apart from it. The Agri-Ecology Unit of the National Parks & Wildlife Service manages the CCP. In 2020, the Programme was financed by both the Department of Culture, Heritage & the Gaeltacht and the Department of Agriculture, Food & the Marine, with a total budget of approximately €365,000. The additional support from both Departments in 2020 allowed the Curlew Conservation Programme to begin earlier and to have a presence in nine geographical areas across Ireland.

In parallel, in 2018 the Irish Breeding Curlew EIP was established, co-funded by the Department of Agriculture, Food & the Marine and the EU's European Agricultural Fund for Rural Development (EAFRD). This three season project focusses on two areas (Lough Corrib South and South Leitrim), with a budget of €1.1m (€0.36m per annum) and has an Organisational Group comprised of BirdWatch Ireland, the Irish Natura and Hill Farmers Association (INHFA), the Irish Grey Partridge Conservation Trust and Teagasc.

In addition, the national agri-environment programme, GLAS, is scheduled to pay approximately €8m over 5 years (€1.25m per annum) for farmers in any area where Curlew were recorded in the past decade, to voluntarily manage their lands in a Curlew-friendly manner by delivering a suitable sward structure, avoiding machinery operations during the breeding season and avoiding chemical inputs.

All of these efforts are undertaken in a wider context of ongoing threats and pressures, which have been identified, along with proposed solutions, by the Curlew Task Force, which in May 2019, produced a suite of recommendations for Curlew conservation.

The Curlew Conservation Programme was implemented on the ground in the form of field surveys, working with landowners to protect nests from disturbance and predation (an acute issue in relation to breeding success) and habitat maintenance, creation and enhancement. Community liaison, promotion of the Curlew and education were also significant aspects of the work undertaken. Each area had a locally based team (primarily consisting of local people) to carry out this action. In total, 32 people were contracted to form the local teams between late March and August. Early season contracts (January to mid-March) were given to Nest Protection Officers and Curlew Advisory Officers in particular areas. National Parks & Wildlife Service regional staff were centrally involved in a number of areas.

Figure 1. The nine Curlew Conservation Action Areas.

Curlew Action Teams and the Curlew Conservation Partnership

The introduction of Curlew Action Teams in some of the most important areas has allowed for dedicated surveys and concrete conservation action there. The Curlew Conservation Programme (CCP) has now built a tangible profile for conservation efforts with the local communities and nationally. These teams were given dedicated geographical areas and the support and autonomy to provide local solutions that were appropriate to the sites in question. The roles involved in the Curlew Action Teams are now described.

Curlew Advisory Officer

This was the lead role locally. The Curlew Advisory Officer (CAO) was the primary link between their local project team, the local community and the Curlew Conservation Programme manager. The CAO was tasked with nest finding, nest protection, liaising with and providing advice to landowners and coordinating efforts on curlew conservation, local administration and ecological recording. In the early season, CAOs engaged with members of the public, landowners and agri-environmental consultants that were acting as planners for Curlew GLAS plans.

Curlew Champion

This was a vital role in fostering and maintaining positive relations between the project and the community. One of the main ingredients in realising success in any conservation effort is to gain real 'buy in' from the landowners and local community. The Curlew Champion was tasked with encouraging close working relationships between project personnel and landowners, building a positive profile for Curlew and the Curlew Conservation Programme among landowners and local community, highlighting issues and proposing solutions. In 2020, physical engagements were obviously limited and non-existent due to coronavirus, so the efforts of the Curlew Champion focused primarily on helping with surveys. It should be noted also, that the majority of people contracted on the Curlew Action Teams were from the local area themselves and this further helped with community and landowner engagement.

Curlew Nest Protection Officer

One of the primary constraints for breeding Curlew is the difficulties they are experiencing in hatching eggs and rearing young (Franks et al., 2017). Predation is believed to be a main cause of breeding failure (Ainsworth et al., 2016). In order to address the issue of predation, a two-pronged approach was designed – nest protection fences and lethal predation risk management. The role of the Nest Protection Officer was to humanely cull Fox, Mink, Hooded Crow and Magpie in the vicinity of Curlew breeding territories (primarily within 1km of nest sites), in accordance with the law and to assist in

efforts to find breeding Curlew, and in assembling and maintaining nest protection fences. The presence of Nest Protection Officers proved to be largely welcomed by locals, particularly livestock farmers.

Curlew Action Team Assistant

The breadth of work involved in Curlew conservation efforts is significant and additional resources are required in some of the larger and busier areas. The assistant role was to be utilised as required, whether in terms of supplementing survey effort or community engagement or any other aspect of the local team effort.

Figure 2. Curlew Action Team – sum of the parts

Curlew Conservation Partnership

In order to engage proactively with those who own and manage lands where Curlew breed, the Curlew Conservation Partnership (the public engagement aspect of the Curlew Conservation Programme) has been designed to allow payments for landowners (primarily farmers, but also others as appropriate), for their time and efforts with the Curlew Conservation Programme. Payments are operated under the auspices of the National Parks & Wildlife Service Farm Plan Scheme (NPWS, 2020) and any double-funding/contradiction for works planned under the Green Low-carbon Agri-environment Scheme (GLAS) are avoided. Where there are other agri-environmental programmes (e.g. the Hen Harrier Project in the Hen Harrier SPAs), communication between projects at management level and on the ground ensures compatibility and synergies. Plans are designed and agreed with landowners/land

managers to deliver a better environment for breeding Curlew. Payments can be made for various aspects of maintaining, creating and improving habitats and for a participant's time investment in liaising with the local CAT. The partnership element is very important in building strong and positive relationships between the local landowners/land managers and the local CAT.

At the time of publication, a community fund under the Curlew Conservation Partnership is open for applications for local projects with objectives to help Curlew. These grants will allow for local efforts to be undertaken in advance of or throughout the 2021 breeding season.

Conservation Action in 2020

Areas

As already stated, the fourth year of the Curlew Conservation Programme saw direct efforts in the following Curlew areas:

- Stack's Mountains
- Lough Ree
- North Roscommon/East Mayo
- Mid-Leitrim
- North Monaghan
- Donegal
- Lough Corrib (North)
- Slieve Aughty Mountains
- Laois-Kildare

Surveys

At the outset of the breeding season, the same geographical areas were targeted as in 2019, along with the additional areas of the Slieve Aughty Mountain and Laois-Kildare. Should Curlew have been reported to the Curlew Action Team or NPWS during the breeding season outside of but relatively close to these areas, CATs were encouraged to follow up on these reports and to monitor the breeding efforts and apply conservation action if possible. Therefore as the season progressed, the footprint of efforts in 2020 did not precisely match that of previous years.

Surveys were largely focussed within 3km of Curlew territories known since 2015 (the first year of the national survey), but were not limited to these areas and a wide net was cast by the Curlew Action Teams where they sought and received reports of Curlews from elsewhere in their regions. Word of mouth and local media and outreach materials were used to seek reports of Curlew during the breeding season. Curlew Action Teams and/or NPWS staff in each area adopted survey techniques to suit their landscape, terrain and individual site requirements. A combination of walkover surveys, vantage point surveys, use of tape lures and discussions with local landowners were used. For the lake areas (Lough Corrib and Lough Ree), added logistics included the use of boats to access islands and this brought its own intricacies (in terms of avoiding disturbance of birds as boats approached the islands). Even though each CAT had the flexibility to adopt the survey techniques that best suited the local circumstances, data collection was standardised and collated centrally.

Some of the core objectives of the survey work were to determine as closely as possible, where the Curlew were nesting, where they were feeding and the outcomes of the breeding efforts. Determining nest and feeding locations was imperative to directing nest protection efforts and informing habitat maintenance, creation and enhancement works. These data and data pertaining to breeding results were also central to providing data to the Birds Unit of NPWS, which has the remit for Curlew data and policy.

Figure 3. (From left to right) A shy and retiring Mark Craven, Mark Davenport, Jim Sheridan and Paudie Barron in the uplands of Inishowen, Co. Donegal, surveying for Curlew. (Photo: Martin Moloney).

Nest Protection

Predation of Curlew nests (eggs and chicks) has been identified as excessive and population viability analysis shows that in the absence of action, Curlew will become virtually extinct as a native Irish breeding bird after 2025 (Alan Lauder, unpubl. data). The need for predation risk management was recently outlined in a publication by McMahon et al. (2020) and has been discussed in other publications and various fora including the Curlew Task Force. Nest Protection efforts primarily focussed on the selective removal of North American Mink (*Neovison vison*), Red Fox (*Vulpes vulpes*), Magpie (*Pica pica*) and Hooded Crow (*Corvus cornix*). This is termed Predation Risk Management, as the objective is to reduce the risk of the Curlew's nest or chicks or indeed the adults themselves being predated, giving the birds an increased chance of survival for that short but crucial window of opportunity to rear their young. The reduction of generalist predators has also benefitted various other breeding birds. Nest protection fences were deployed by CAT members at nine sites in 2020, the largest number in a year so far. Eight of these successfully reached hatching stage. The only one that did not reach hatching stage, was disturbed by an unusual sequence of events involving a large number of people collecting turf using a dumper on a wet 'shaky' bog at a distance of 135m from the nest for a total of 10 hours, leading to the parent birds abandoning incubation for that period. The usefulness of nest protection fences and the impact that ground predators are having on the species is evident in the high hatching rate for those sites where nest protection fences were erected. One site (featured in Figure 4 below), is suspected to have lost two of its four eggs prior to the nest protection fence being erected. The pair subsequently went on to hatch the two remaining eggs.

Figure 4. Erecting a nest protection fence in the Stack's Mountains. The landowner allowed the fence to be electrified by connecting the nest protection fence to a nearby livestock fence (Photo: Hubert Servignat).

Figure 5. One of the chicks that hatched from inside that protection fence, caught on trail cam with parent bird (Photo: Barry O'Donoghue).

Engagement with Landowners, Communities and the Wider Public

The Curlew is a well-known and much loved bird in Ireland, with links to landscape, literary, cultural and social heritage dating back centuries. Naturally, given the serious decline of the population, conservation efforts for Curlew in Ireland have been of interest to the public and the media whether local, national or online have featured the work of the Curlew Conservation Programme. There have been positive features in various national and local newspapers and radio stations and television. In addition, there was prolific social media coverage in 2020, particularly in the context of Coronavirus, which restricted physical meetings and events. One such effort was by the much loved artist, Don Conroy, who posted a video on his very successful 'Draw with Don' YouTube channel. A dedicated

Facebook page was created for World Curlew Day, with numerous contributions by the public. An attractive workbook was created for school children to learn about Curlew. A piece on the situation with Irish Curlew featured on the Curlew Action podcast series, which featured efforts by some prominent figures to help Curlew across the world. TG4 undertook some filming (under licence) on the CCP as part of a programme that will air in 2021, featuring nature during the coronavirus 'lockdown'. A Master's thesis focussed on the cultural links between Irish people and Curlew. There was much more engagement at local and national levels also. The positive profile of the Curlew Conservation Programme is important in maintaining the public support that the species has enjoyed. This is backed-up on the ground by good public relations through the local Curlew Action Teams, which themselves are primarily composed of local people.

Figure 6. Don Conroy with his artwork produced as part of his 'Draw with Don' series (Photo: Richie Conroy).

One-to-one engagement with local people, especially landowners, was a central tenet of the Curlew Conservation Programme throughout the course of the breeding season and indeed in advance of and since the breeding season. In 2020, this all had to be undertaken in novel ways, due to coronavirus restrictions. Some nests in silage fields were protected from silage harvesting or trampling by stock, all in close cooperation with the farmers/turf cutters. Signs were erected at sites to inform dog-walkers or other individuals to be mindful of breeding birds, so as to avoid undue disturbance. Habitat enhancement works have been undertaken with a number of landowners. In a number of areas, local gun clubs have been particularly helpful in lessening the risk of Curlew egg and chick predation. Engagement with agri-environmental planners was primarily by phone and email and hopefully can be scaled-up in future using novel techniques. Reports from local landowners and people living in the

Curlew areas have been central to the survey efforts of the Curlew Action Teams on the ground. There was very welcome engagement with some agri-environmental planners in particular areas, which brought added value to their efforts and those of the Curlew Conservation Programme.

Figure 7. A Curlew at sunrise, presented to the CCP by a member of the public, showing the affinity that Irish people have with the Curlew (Photo: Janice Mulligan).

Populations (numbers and breeding outcomes)

Curlew can be elusive birds to survey in their natural habitat and terrain, particularly in relation to determining precise nest locations and breeding productivity (the number of young fledged). In a number of cases, it could not be determined with certainty if a single bird had a mate, or if two birds together settled to breed. This was made somewhat more uncertain due to a period of five weeks between late March and early May, during the coronavirus 'lockdown' when no surveys could be undertaken, unfortunately at the peak time for breeding Curlew survey work. Therefore, minimum and maximum number of pairs are presented in Table 2, which summarises the survey results for each of the CAT areas. Where a pair was noted to have fledged young (e.g. young seen/heard or adults exhibiting protective/chick communicative behaviour more than five weeks after hatching) and where the number of fledglings was not certain, a value of one fledgling was noted (though there may have been more fledged, it could only be definitively stated that at least one fledged). Furthermore in the interests of consistency and reliability, breeding productivity was taken as the minimum number of fledglings that were produced by pairs that were confirmed breeding. In addition, at a number of sites, without the use of colour rings, it became impossible to differentiate what young birds belonged to what parents and towards the end of the season, some post-breeding Curlew arrivals in certain areas led to future potential for confusion with resident breeding birds.

Table 2. Survey results for breeding Curlew in the CAT areas 2020

Region	Min Pairs	Max Pairs*	Min. Pairs Reached Hatching	Min. Pairs Reached Fledging	Min. Number of Fledglings	Min. Breeding Productivity*
Stacks	2	5	1	0	0	0
Lough Ree	14	18	7	6	9	0.64
Roscommon/Mayo	5	7	4	2	4	0.8
Mid-Leitrim	8	11	6	1	1	0.13
Monaghan	2	7	1	1	3	0.6
Donegal	3	3	2	0	0	0
Lough Corrib (North)	7	7	4	4	8	1.3
Slieve Aughties	0	2	0	0	0	0
Laois-Kildare	1	4	1	0	0	0
TOTAL	**42**	**64**	**26**	**14**	**25**	**0.60**

*the minimum number of chicks that fledged from confirmed breeding pairs

Population figures are not readily comparable across years, since the inaugural year of the CCP in 2017. This is principally because the Irish Breeding Curlew EIP was established in 2018 in South Leitrim and in 2019 in Lough Corrib (South), both areas where the CCP was originally active. Consequently, there were no surveys by the CCP in South Leitrim since 2017, nor Lough Corrib (South) since 2018. Data for those two areas are held by the Irish Breeding Curlew EIP. Also, the original CAT area of North Roscommon-Leitrim has evolved into two areas, Roscommon/Mayo and Mid-Leitrim. Table 3 compares the 'like for like' geographical areas covered by the CCP since 2017.

Table 3. Number of recorded Curlew breeding pairs in the 2020 geographical footprint of the CCP.

Region	2017	2018	2019	2020
Stacks	6	6	2-6	2-5
Lough Ree	16	16	14-17	14-18
Roscommon/Mayo	5	5	5-6	5-7
Mid-Leitrim	4	5	8-11	8-11
Monaghan	4	5	3-6	2-7
Donegal	2	2	4	3
Lough Corrib (North)	9	3	5-6	7*
Slieve Aughties	n/a	n/a	n/a	0-2
Laois-Kildare	n/a	n/a	n/a	1-4
TOTAL	**46**	**42**	**41-56**	**42-64**

*one of these pairs was on South Lough Mask (7km from the nearest Lough Corrib pair)

Overall, the number of confirmed breeding pairs in the areas covered by the CATs since 2017 has remained relatively stable since 2017. However, it should be noted that even within these geographical areas, there are individual breeding sites that have been lost or newly discovered since the CCP began. Given that Curlew are generally faithful to the location of their breeding grounds, this a serious cause of concern and would be in-keeping with projections for population extinction in the absence of conservation action.

Of the 42 pairs for which breeding was confirmed in 2020, at least 26 reached hatching stage (62%), with a minimum of 57 chicks hatched. A minimum of 14 pairs produced fledglings (possibly others did so but were not confirmed), so the breeding success rate was at least 33%. The total number of juveniles recorded to have fledged was at least 25, but again may have been more. This represents a breeding productivity of 0.60 fledglings/breeding pair, which is above the threshold of 0.425 fledglings/pair required for a stable population according to Irish specific data (A. Lauder, unpubl. data) and meeting the threshold of 0.48-0.62 previously calculated by Grant et al. (1999). The national survey (2015-2017) estimated breeding productivity to be as low as 0.15; the first year of the CCP (2017) saw a breeding productivity in the action areas of 0.38 and in 2018, it was 0.43. In 2019, it was 0.81 fledglings per breeding attempt. While it is the second highest fledging rate since the CCP began, it is a decrease on the breeding productivity recorded in 2019, so the potential green shoots of the conservation action that were apparent then, were kerbed somewhat in 2020.

The percentage of confirmed pairs progressing to chick stage and the percentage of pairs fledging chicks and the overall number of chicks confirmed as fledged was reduced compared to 2019. Even if this was above or at the stated threshold for maintaining a stable population and the second highest number of chicks confirmed to be fledged in the four years of the CCP to date, it was disappointing. Given the stark situation in which Curlew have been left, the progress of last year, the fact that four of the nine areas saw no chicks fledged and the fact that two of those areas were within days of fledging seven chicks, but sadly all perished within days of each other. This is particularly difficult for the local Curlew Action Teams and CCP management and local landowners, who invested so much time and effort to safeguard the chicks, following them on a daily basis from egg stage through to near fledged.

It is difficult to say, but the reduced success in 2020 could be partially as a result of a five week period in late March to early May, during the coronavirus lockdown, which meant that surveys and conservation action could not be undertaken by the CCP. During the lockdown period, some sites experienced increased disturbance (e.g. from walkers, dog walkers, quad bikes and scramblers), while others received much less disturbance than usual. Certainly, it lead to a wider range between the number of confirmed breeding sites and confirmed plus possible breeding sites (i.e. 42-64 breeding sites) and there was evidence of some sites that were active prior to 'lockdown' in late March, which were not active again when surveys resumed in May. This however should not detract from the obvious issues that Curlew are faced with. It is clear that the pressing issues of habitat loss, degradation and fragmentation, which have led to the current situation for Curlew are still present and in fact continue to expand and intensify, despite the best efforts of agri-environmental and conservation measures. Until the situation with habitats and the wider environment is secured, Curlew in Ireland are likely to continue to decline and be lost from particular areas.

Figure 7. A female Curlew (highlighted by yellow oval shape) on a Lough Corrib Island, where her nest came within 30cm of being mowed. The nest site was near the wall on the picture to the right.

It is clear that the nest protection fences have proven beneficial in progressing breeding attempts beyond the egg stage to chick stage. Of a total of 20 breeding attempts protected by fencing to date, 16 have hatched chicks, representing an 80% hatching success rate. This will need to be up-scaled in future years to derive greatest benefit. The teams did particularly well to locate these nests as soon as possible, given the lockdown restrictions happened at a particularly important time for finding Curlew displaying and nesting. An interesting observation was made by the Nest Protection Officer in County Monaghan, when he noticed (using night vision equipment) that each night for the first couple of weeks of their lives, the male Curlew was brooding his chicks within the nest protection fence, i.e. the family would return to the fence each evening presumably having recognised the safety that it provided them from predators.

Another one of the more interesting observations during 2020 was that of a Curlew family in Inishowen, Co. Donegal. Four chicks hatched from within a nest protection fence. Within a couple of days of leaving the fence perimeter, the first chick had been lost to Fox predation. The male Curlew

then lead the chicks a total of 1.6km away from that site, across boggy terrain, while the chicks were less than the size of a tennis ball.

Figure 8. Man and nature. A Curlew stands on his breeding grounds, in front of a track machine for turf cutting (Photo: Kathryn Sheridan)

Reviewing results from the CCP to date, over the 2017-2020 period, it is apparent that the lake areas (Lough Corrib North and Lough Ree) are performing well in terms of breeding productivity, most likely due to the fact that losses to predation are more easily controlled on islands surrounded by a natural barrier to most ground mammals (expanses of water). That said, through the summer, a number of chicks disappeared from island sites without any apparent explanation. On Lough Corrib at least, there were some concerns from the Curlew Advisory Officer that food availability might be an issue, as was the case at a site in Kerry in 2019 when chicks were confirmed to have starved. An added complication on the island sites is that it becomes impossible (without colour ringing/electronic tracking) to determine which families are still active, when the young chicks from multiple pairs are traversing the same ground. This issue also manifested itself in the Roscommon-Mayo area, where multiple pairs bred within close proximity on a bog complex. The Roscommon-Mayo area again was one of the best performing areas in terms of the minimum number of chicks fledged per confirmed pair. The area was also noted towards the end of the breeding season, to be an important post-breeding area for Curlew to congregate. The origins of those birds are unknown. Mid-Leitrim has seen an increase in the number of confirmed breeding pairs since the national survey and since the CCP first started there. This year, 8-11 pairs were active in the area. It is strongly believed by the local Curlew Action Team that more

chicks were fledged than were confirmed (i.e. one chick), but for obvious reasons, the CCP can only include definitive data in its results. Locating and getting confirmation of fledged chicks in Leitrim proved particularly difficult this year. This may further the case for the use of colour rings and/or electronic tags. Should such work be progressed in future years, it would have to be run in parallel to the CCP, given the focus of the CCP is on immediate nest protection, community engagement and habitat improvements. The Stack's Mountains (4 fledglings), Monaghan (4 fledglings) and Donegal (2 fledglings) have clearly not produced enough young chicks (an amalgamated productivity of 0.29 chicks fledged per attempt) since 2017 to maintain a stable population going forward. The Stack's Mountains have not seen fledglings reared in the past three years. Illegal fires have been and continue to be an issue there annually in the last number of years. Two chicks were within days of fledging this year but were lost, possibly, to drainage ditches in rough terrain. This breeding attempt happened to be on an area of bog that the CCP manager happened to save from a large fire in 2019. This site was also subject to a fruitful discussion between the CCP manager and the organisers of a car rally that was due to pass by where the Curlew eventually settled. The rally organisers had kindly agreed to avoid that particular area, showing the importance and usefulness of proactive and positive engagement between conservation and events. Another site in the Stack's Mountains was lost to a freak incident involving a large number of people collecting turf using a dumper on a wet 'shaky' bog at a distance of 135m from the nest for a total of 10 hours, leading to the parent birds abandoning incubation for that period, resulting in chilled eggs. Overall however, it is clear that decades of afforestation in particular, have created a very fragmented landscape that is unconducive to Curlew breeding success. Hancock et al. (2020) show how the population of predators like foxes can increase substantially when previously open areas are planted with forestry and this seems to be the root cause of issues in the Stack's Mountains and indeed many areas for Curlew. Donegal also continues to be a great concern, given there has been for some years now, a conservation presence by INTERREG projects (HELP and CABB), GLAS and CCP. This year provided a much needed boost for Monaghan, when three chicks were successfully reared by a pair. Interestingly, the young remained onsite together for a week after the final parent (the male) had left the area. New possible breeding territories were located in Monaghan this year also, which should receive attention in future surveys.

The two 'new' areas of the Slieve Aughty Mountains and Laois-Kildare had particularly disappointing returns, both in terms of the number of sites found to be active and the lack of any chicks reared. No more than seven territories were recorded with activity, with just one pair confirmed breeding. In the 2015-2017 national survey, 16 breeding pairs were recorded in these areas. The low detection rate may also have been a reflection of the difficult start which coronavirus presented to the new teams in these areas, though it is clear that significant issues exist in both areas in terms of habitat loss, degradation and fragmentation as well as apparently large predator abundances.

Figure 9. Fox captured by trail cam predating Lapwing nests during the coronavirus 'lockdown' period. An adult Lapwing can be seen in the background, highlighted by the yellow oval shape. (Photo: Denis Judge).

It was noted in 2020, that a number of species that have suffered declines in recent decades appeared to be doing well, perhaps as a result of predation risk management, which can benefit multiple species. Irish Hare, Red Grouse and Lapwing were among those that appeared to have 'rebounded' in particular localities, albeit further species specific studies would illicit greater detail on this perceived positive spin-off from the Curlew Conservation Programme work. At a site in Kildare, specific intervention was made at a newly discovered Lapwing colony, to safeguard the breeding attempt of these red-listed birds, whose breeding attempts prior to intervention had been completely destroyed by a single fox.

Given the sensitive nature of the species, the locations of Curlew breeding territories are held by the National Parks & Wildlife Service are not disclosed in this report.

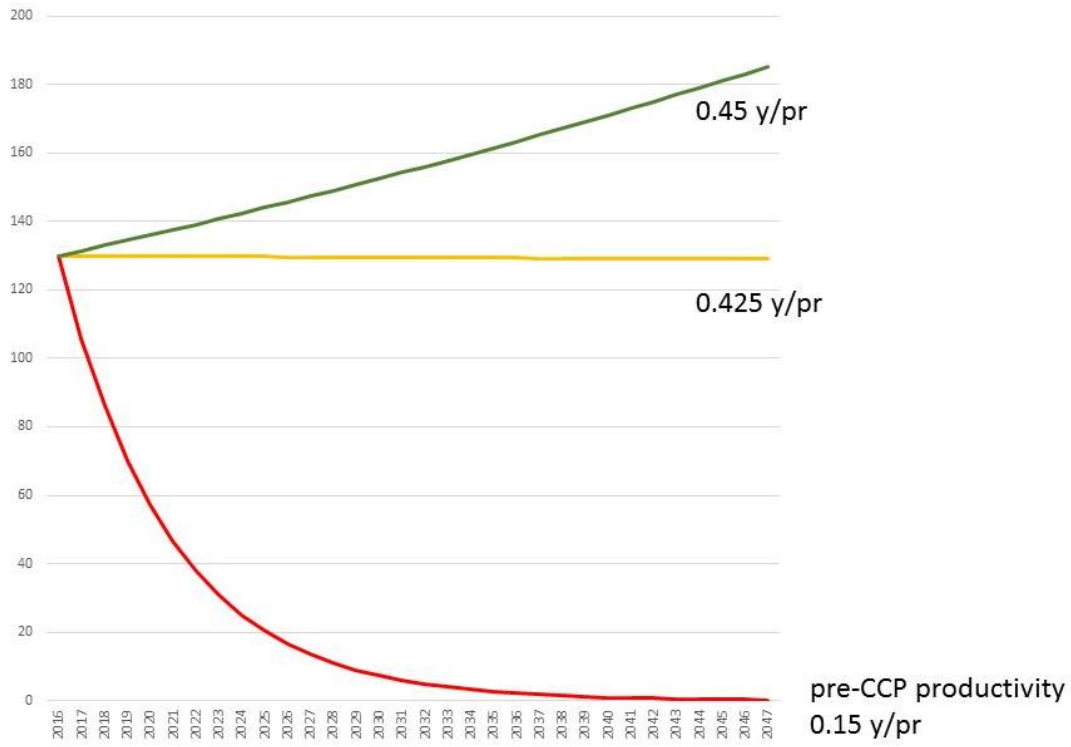

Figure 10. National Population Viability Analysis Graph based on mixed data sources from NPWS/BWI/BTO/RSPB (Lauder, unpubl. data).

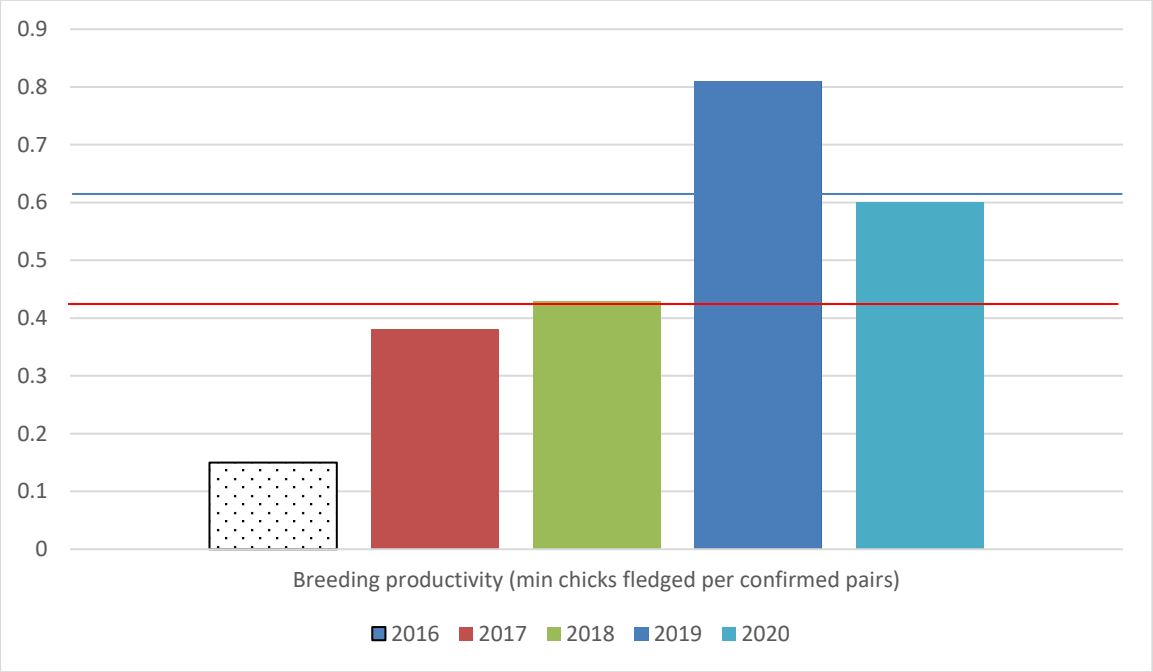

Figure 11. Breeding productivity within the CCP areas. The CCP began in 2017. The 2016 data comes from the national survey undertaken prior to the CCP. The red horizontal line denotes the 0.425 fledglings per pair calculated by A. Lauder as necessary for a stable population. The navy horizontal line denotes the 0.48-0.62 fledglings per pair calculated by M. Grant as necessary for a stable population.

Conclusion

The populations of the areas where the Curlew Conservation Programme has been active in previous years have remained relatively stable during those years. Within each area however, it is believed that some sites have been lost, while new sites have been found. The presence of Curlew Action Teams in these areas for four years now has led to a greater familiarity and knowledge of the localities and strong relationships with local landowners and communities. It was interesting to note that the populations of the Slieve Aughty Mountains and Laois-Kildare may have declined in the same period, although further survey work will be required to fully establish the situation in both areas. Certainly, the work undertaken by CATs in those 'new' areas in 2020 provided insight on how efforts for Curlew may best be taken forward in the short to medium-term.

While 2020 saw the second highest breeding productivity in the four years of the Programme to date, and the breeding productivity was in line with what is a stated threshold for maintaining a stable population, it was in reality disappointing for all involved. Particularly so, when one considers that four of the nine areas did not rear chicks, including Donegal and the Stack's Mountains once again, compounded by a much reduced confirmed breeding productivity in Leitrim compared to previous years.

It should at all times be remembered, that while the Curlew Conservation Programme and the Irish Breeding Curlew EIP and GLAS are positive forces for Curlews in Ireland, there are still many more and stronger negative forces that have brought the population to the verge of extinction. The wider policy context that influences conservation has been examined by the Curlew Task Force, which involved a wide range of relevant stakeholders, coordinated by an independent Chairperson. Many sites and areas across Ireland have not received any targeted intervention and it is not known how the populations are faring there. The coming years will be pivotal for Curlew and for the efforts of all concerned.

It seems clear now that greater intervention will be required, given the crisis situation, which the Curlew is in here. Large-scale habitat remediation and improvement works will be required in many if not all areas, concentrating firstly in those areas where breeding productivity has been consistently low. In the interim, head starting (rearing chicks in captivity to the point of release at fledging) appears necessary, to ensure that the birds are not lost from those areas before the landscape and wider environment is improved for them. At a very minimum, if breeding Curlew are to remain a sight and sound in the counties of Kerry and Donegal and elswhere, policies and circumstances and activities (legal and illegal) leading to habitat loss and degradation need to be urgently addressed. The Curlew Task Force has provided clear recommendations in this regard.

The pilot phase of the Curlew Conservation Programme, has however shown that prospects can be improved by following the model of locally based teams, engaged positively and proactively with relevant stakeholders, most especially landowners, to find and safeguard the breeding attempts and improve the immediate habitat and environment for breeding attempts. The wider landscape and environmental issues that have been at play for decades need to now be definitively addressed in tandem, to provide realistic hopes of a sustainable future for Curlew in Ireland.

The efforts of the CCP, particularly the local teams, in building and maintaining a positive profile for the Curlew cannot be over-stated. Oftentimes, conflict can arise between the desires of those involved

in conservation and the desires of landowners to manage their land as they see best. The understanding and communication skills (which involve listening as well as talking) of those involved in the CCP has been exemplary and the experience to date has been largely positive with countless landowners and local people helping with reporting sightings, facilitating access, providing advice and undertaking efforts to help the Curlew. With widespread concerns over the future of farming in these areas, many farmers are also seeing the value to conserving the Curlew (and other habitats/species), by way of deriving an additional income via agri-environmental schemes, which may be the difference between their farming enterprise continuing or not.

Acknowledgements

Josepha Madigan for her support of and interest in the Curlew Conservation Programme during her time as Minister for Culture, Heritage & the Gaeltacht. Katherine Licken, Niall Ó Donnchú and Ciarán O'Keeffe for their leadership and vision. Jack Nolan and Niall Ryan of the Department of Agriculture, Food & the Marine for their continued support of and interest in the CCP, and allowing for greater presence in different areas and for a longer period in 2020.

All landowners who engaged proactively with and facilitated the efforts of the Curlew Action Teams, many of whom went above and beyond what was expected or required. Your assistance and encouragement was greatly appreciated by all concerned.

All who worked on or provided input and advice to the Curlew Conservation Programme, including Chris Barron, Paudie Barron, Donal Beagan, Merlin Becker, Annie Birtwistle, Bob Birtwistle, Emma Birtwistle, Helen Birtwistle, Rebecca Birtwistle, Dr. Andy Bleasdale, Vincent Campbell, Michelle Carey, Grace Claydon, Dr. Kendrew Colhoun, Eoin Connolly, William Cormacan, Mark Craven, Michael Cunniffe, Mark Davenport, Eoin Duffin, Edward Flannelly, Fidelma Flannelly, Paula Flannelly, Vincent Flannelly, Laura Gallagher, Lorna Grehan, Michael Hackett, Cathryn Hannon, John Higgins, Dr. Seán Kelly, Kerry Motor Club, Evelyn Kirwan, Kevin Kyne, Séamus Lyons, John Matthews, Pat McKenna, Tom McKenna, Sue Moles, Daniel Moloney, Martin Moloney, Isobel Oakes, NPWS GIS Unit, Dr. Barry McMahon, Owen Murphy, Tim O'Donoghue, P.J. O'Dowd, Tim Roderick, David Ryan, Pat Ryan, Dr. David Scallan, Hubert Servignat, Joe Shannon, Jim Sheridan, Kathryn Sheridan, Andrew Speer and Catherine Vernor. Dr. Seán Kelly of NPWS Birds Unit with remit for Curlew has been involved with the CCP in various roles since 2017 and has always been helpful and supportive throughout, which again was greatly appreciated.

Members of the public, colleagues in the NPWS and the Hen Harrier Project EIP who submitted records of Curlew during the breeding season, inside and outside of the core CCP areas. Furthermore, the Hen Harrier Project has been a good ally of the Curlew Conservation Programme in terms of synergies between surveyors, nest protection officers, information exchange and habitat management.

Colleagues in various sections of the Department of Culture, Heritage & the Gaeltacht for their good will and support. Most notably Róisín O'Hara, Máire T. Ní Chonghaile, Sarah Morris, Gareth John and Frank Henry (Frank Communications) for their assistance in social media and IT.

Colleagues in the Department of Agriculture, Food & the Marine and with the Irish Breeding Curlew EIP for concerted efforts to help Curlew; ní neart go cur le chéile.

All those who contributed to World Curlew Day, making it a success in raising awareness and support for the bird, even when coronavirus restrictions curtailed physical events.

The various media outlets and community groups that featured the Curlew Conservation Programme in 2020. While operating at a national level, this is very much about the local story and the local efforts to protect a bird that is very much part of our local areas.

References

Ainsworth, G., Calladine, J., Martay, B., Park, K., Redpath, S., Wernham, C., Wilson, M. & Young, J. (2016). *Understanding predation: a review bringing together natural science and local knowledge of recent wild bird population changes and their drivers in Scotland.* Scotland's Moorland Forum, Dumfries, UK.

Franks, S.E., Douglas, D.J.T., Gillings, S. and Pearce-Higgins, J.W. (2017). Environmental correlates of breeding abundance and population change of Eurasian Curlew *Numenius arquata* in Britain. *Bird Study* 64: 1-17.

Grant, M., Orsman, C., Easton, J., Lodge, C., Smith, M., Thompson, G., Rodwell and S., Moore, N. (1999). Breeding Successes and Causes of Breeding Failure of Curlew *Numenius arquata* in Northern Ireland. *Journal of Applied Ecology* 36: 59-74.

Hancock, M., Klein, D. & Cowie, N. (2020). Guild-level responses by mammalian predators to afforestation and subsequent restoration in a formerly treeless peatland landscape: Predator responses to afforestation and restoration. *Restoration Ecology.* 10.1111/rec.13167.

McMahon B.J., Doyle S., Gray A, Kelly S.B.A., Redpath S.M. (2020). European bird declines: Do we need to rethink approaches to the management of abundant generalist predators? *J Appl Ecol*. 2020;00:1–6. https://doi.org/10.1111/1365-2664.13695

National Parks & Wildlife Service (2020). National Parks & Wildlife Service Farm Plan Scheme Terms & Conditions. Department of Culture, Heritage & the Gaeltacht, Dublin.

O'Donoghue, B.G., Donaghy, A. and Kelly, S.B.A. (2019). National survey of breeding Eurasian Curlew Numenius arquata in the Republic of Ireland, 2015–2017. *Wader Study* 126: 43-48.

Figure 12. Curlew calling on the shores of a Lough Ree island. (Photo: Owen Murphy).