LIFE 13 BIO/UK/000315

LIFE Waders for Real

E.2 Dissemination Report

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Abstract

This is the final dissemination report of LIFE Waders for Real. It reports on the dissemination and engagement activities conducted over the duration of the project. This includes online and written media, non-scientific and scientific events, community and education engagement events and the production of scientific and technical publications. All target audiences were successfully interacted with and positive feedback received during events and on written communications. Dissemination activities were highly success with all targets either achieved or exceed over the course of the project.

Contents

1 Introduction and Summary

The focus of this report are the dissemination activities that have been conducted within LIFE Waders for Real. These activities comprise both compulsory and voluntary actions across a range of communication methods with the aim to cover a variety of audiences at both local, national and international levels. These actions include online, written materials and engagement events. Online activities include the project website, social media and a project blog. Written materials such as press releases, posters and noticeboards, leaflets, organisational articles, stakeholder updates and scientific papers were produced and used for dissemination. The LIFE Waders for Real project also undertook direct engagement events with stakeholders, relevant organisations, schools, scientists, policy makers and the local community to further expand the reach of our dissemination. This report summarises and comments on efforts, for a fuller summary of activities see Annex 14.1.

The dissemination activities sought to share the approach and outcomes of LIFE Waders for Real widely to stakeholders, relevant audiences and relevant networks. Dissemination to European environmental networks, UK government agencies, local and regional government and other organisations responsible for wetland restoration and wader management were also conducted. Attendance at scientific meetings provided a platform for networking between stakeholders, project staff and other relevant institutions and projects within the European Union. Through the planned

communication, dissemination and community engagement activities there was an increased awareness of the surrounding wetlands and waders.

Online engagement grew throughout the project, with a significant rise in outputs after 2018 after expansion of the project team allowed more resources to be dedicated to dissemination. Press releases and written materials were well received throughout. Press releases were posted by regional news and national environmental, farming and field sport outlets, suggesting significant interest in wetland restoration and wading bird recovery with our audience. Significant interest was shown at direct communications events, in particular Open Farm Sunday's and seminars to local environmental groups.

This report focuses on the dissemination activities conducted, an explanation of the integration of activities and the intended communications approach after the project period can be found in the "After-LIFE Communications" section of the final report.

2 Acronyms

- British Trust for Ornithology, BTO
- Royal Society for the Protection of Birds, RSPB
- International Wader Study Group, IWSG
- Wildfowl and Wetlands Trust, WWT
- Natural England, NE
- Department for Farming and Rural Affairs, DEFRA
- International Union of Game Biologists, IUGB
- Forestry Commission, FC
- New Forest National Park Authority, NFNA
- Game and Wildlife Conservation Trust, GWCT
- Joint Nature Conservation Committee, JNCC
- Environment Agency, EA

3 Communication and Dissemination Strategy

This section brings together the dissemination elements of the original LIFE Waders for Real proposal and our agreed communications strategy against which dissemination activities will be assessed in this document.

3.1 Dissemination Strategy

The LIFE Waders for Real project brings together local, regional and national stakeholders to deliver a wader-focused management programme. The stakeholders are working together to develop and deliver a unique method for managing breeding waders on farmed wetland areas. Communication was one of LIFE Waders for Real project's core objectives. The LIFE Waders for Real communications strategy aimed to raise awareness of our project themes and help stakeholders understand environmental issues enabling them to play a better informed and more active role, both in the delivery of LIFE Waders for Real and in environmentally focused management. This happened through stakeholder events and dissemination, stakeholder meetings to disseminate project information and progress, public participation events and educational programmes. The communication tools outlined later were not just about information and dissemination but are also about involvement and engagement.

Our efforts were concentrated on target groups with messages tailored to audiences outlining the social and environmental impacts involved in declining wader populations. Communications with and involvement of stakeholders throughout the Avon Valley aimed to increase our shared understanding of the range of environmental, social and economic threats to waders. We planned to disseminate the results and findings of the project widely through stakeholders, relevant audiences and relevant networks. Dissemination of findings were made to other European networks, UK government agencies, local and regional government and others, responsible for wader

management. Throughout the project capitalised on expertise and networks already in place and on the results of other projects from across Europe where they were applicable. The project improved and added to European network of work on waders. We aimed to provide a platform for networking between stakeholders, project staff and other relevant institutions and projects within the European union. Through communication, dissemination and community engagement we aimed to generate an increased awareness of the Avon Valley environment.

3.2 Dissemination Objectives

- The development and maintenance of an interactive website
- The use of established networks, other stakeholder networks and contacts identified from other programmes and projects
- Present at conferences, workshops and public events
- Ensure the LIFE programme and the EU's contribution is recognised in all dissemination activities.
- Regularly inform and update the 22,000 GWCT members about the project.
- Provide opportunities for local community and students to engauge with the project.
- Organise visits to local schools and colleges to link the work of the project to education.
- Use social media to disseminate key messages
- Produce dissemination materials such as leaflets, noticeboards and peer-reviewed scientific papers.
- Utilise the press to disseminate key messages
- Continue the communication and dissemination activities beyond the project lifetime.

3.3 Target Audiences

- Farmers, landowners and gamekeepers within the Avon Valley
- Farmers, landowners and gamekeepers on wet grassland sites throughout the UK
- Local statutory agency officers, in particular Natural England, Environment Agency and New Forest National Park.
- Local government bodies with responsibility for biodiversity and policy issues.
- National environmental policy makers – DEFRA, Natural England, JNCC, Environment Agency.
- Wetland conservation and research community at a national level (e.g. RSPB, Wildlife Trusts, WWT, BTO)
- Wetland conservation and research community at a European level (e.g. IWSG, universities)
- Local community surrounding the Avon Valley
- Conservation and environment groups in the Avon Valley and surrounding area.
- The general public, schools, public and voluntary interest groups and members and members of the project participants.

3.4 Dissemination Tools and Methods

- Project logos
- Car merchandising
- Regularly updated open-access website
- Press releases to national, regional and local broadcast and print media
- Dissemination of information at public shows and events
- Publication of findings in international scientific journals
- Social media (Twitter 2015 – 2019 and Facebook 2018 - 2019)

- Project Blog
- Dissemination to local stakeholders via written project updates and annual feedback
- Debate and dialogue with stakeholders at appropriate forums and project meetings
- Attending and presenting at relevant international conferences on relevant themes
- Visits to project sites
- Dissemination to wider stakeholder groups through written articles
- Education visits to local schools and groups

3.5 Dissemination Product Targets (Quantified where possible)

- 1 x communication strategy developed and implemented.
- 4 x project noticeboards produced and placed throughout project area
- 1 x website established and regularly updated
- Increased awareness amongst local, regional, national and European community about the project.
- Increased awareness of the LIFE+ Programme and projects funded under the LIFE+ programme.
- Increased awareness of the European Union's contribution to conservation and environmental works.
- 1 x layman's report produced
- 1 x project leaflet produced and 400 distributed.
- 5 x press releases
- Technical publications
- 2 x peer-reviewed scientific publications.
- 1 x Initial seminar to launch project and engage farmers and key stakeholders.
- 1 x End of Project conference and workshop
- 1 x Final seminar to outline progress and results.

4 Dissemination Outcomes Summary Tables

The following tables summarise the dissemination and education outcomes of the LIFE Waders for Real project, against deliverables, expected results or inception tables where possible. Subsequent sections discuss the specific outputs and activities in greater detail.

Table 1 – Count of Workshops, Seminars, Conferences and other events either hosted or contributed too, separated by audience geographic spread and number of participants. Figures from inception tables are stated in ().

Target audience	**General public**			**Specialised audience (e.g. policymakers)**			**Very specialised audience (e.g. experts, academics)**		
Number of participants/ Geographic Spread	Local	National	International	Local	National	International	Local	National	International
0-25 participants	10 (8)	1		12		4	1	9	6
25-75 participants	10			7	3(1)	1			1
75-100 participants									(1)
More than 100 participants	5	1							5

Table 2 - Educational activities

Establishment involved	No. of students
Primary schools	160
Secondary schools	45
Higher education	224

Table 3 - Media and other methods of external communication. Where applicable figures from expected results or inception tables are stated in ().

Type of media	No.
Project website: average number of visitors per month	148 (70)
Press releases made by the project	8 (5)
General public article in national press	2 (2)
General public article in local press	6 (4)
Specialised press articles	10 (8)
Internet articles	7 (0)
TV news/reportage	1* (2)
Film produced	1* (0)
Project notice boards	4 (4)
Other - Project Dissemination Banners	2 (0)

*in production

Table 4 - Project publications

Type of publication	No. published	No. of copies
Layman's report	2 (1)	1000 (30)
Leaflets	3 (2)	600 (400)
Posters	9	60
Technical publications	1 (1)	100 (100)
Other - Scientific Papers	4	n/a

5 General Project Materials and Products

5.1 Project Logo

The LIFE Waders for Real logo was designed around our flagship species, the Lapwing. Flagship species are charismatic species that serve as symbols to stimulate conservation awareness and action (Figure 1). The Lapwing was chosen as it is well known throughout our target audiences due to its wild range, characteristic appearance and display behaviour. In addition, Avon Valley farmers, gamekeepers and landowners were particularly compelled to help restore the Avon Valley lapwing population. The logo was well received and featured on all project materials, equipment and communications alongside the LIFE logo. Though we cannot quantify the reach and impact of the logo, on 6 occasions visitors to events mentioned visiting the project website after seeing our vehicles in the project area with the logo signage.

Figure 1: LIFE Waders for Real project logo

5.2 Project Leaflets

A key piece of project material for the LIFE Waders for Real project was a leaflet to distribute at local events, to local organisations and relevant sites. An initial project leaflet was produced which outlined the project, indicating the main concerns and our approach to restoring the wader populations (Annex 14.2). We initially printed and distributed 300, which were placed on display in the GWCT conference centre, distributed to Blashford Lakes (a local Nature Reserve run by Hampshire and Isle of Wight Wildlife Trust) and the New Queen Inn (pub overlooking the Avon Valley) and Sparsholt College. Leaflets were also distributed to all interested parties at talks and engagement events. In addition to our proposal requirements, a revised project leaflet was designed by our Project Ecologist in 2018 with 300 subsequently printed and distributed (Annex 14.3). This new version was distributed at all events in 2018 and 2019, with copies again issued to key sites and partners within the valley. Copies were also distributed to all Avon Valley famers, gamekeepers and landowners alongside local statutory agency staff. A further leaflet on fox diet has been produced as part of the LIFE Waders for Real project deliverables, approximately 200 copies will be printed and distributed to appropriate parties. The target distribution number for the leaflet, as defined in project deliverables was 400, we have exceeded that number by 50% already, with a further 50% to be printed after the agreement of project reporting. Overall, leaflets enabled us to reach out to our target audiences with key messages and improve the awareness of the contribution of the LIFE programme and EU to conservation and environmental works.

5.3 Project Noticeboards

We proposed to erect 4 project noticeboards boards within the Avon Valley. This was achieved early in the project with a board produced summarising the declines in breeding waders and wetland habitats, the issues and our approach (Annex 14.4). In 2018, we aimed to update communication with the public specifically. A new poster board was designed and placed at 4 key sites later that year (Figure 2, Annex 14.5). Boards were distributed between sites with high public footfall and targeted visitor engagement. The New Queen Inn Avon Valley Footpath at Ibsley Bridge and Bisterne Common received one sign each. A further sign was placed on our Watton's Ford hotspot site. As a result of the project, estate staff from this site have started education and visitor events with a local college, schools and naturalist groups. Hence, a board where these groups are regularly taken was a valuable opportunity for dissemination.

Avon Valley Footpath, Ibsley/Hucklesbrook Hotspot

Avon Valley Footpath, Kingston Hotspot

Education Area, Watton's Ford Hotspot

New Queen Inn, Avon Tyrell Hotspot

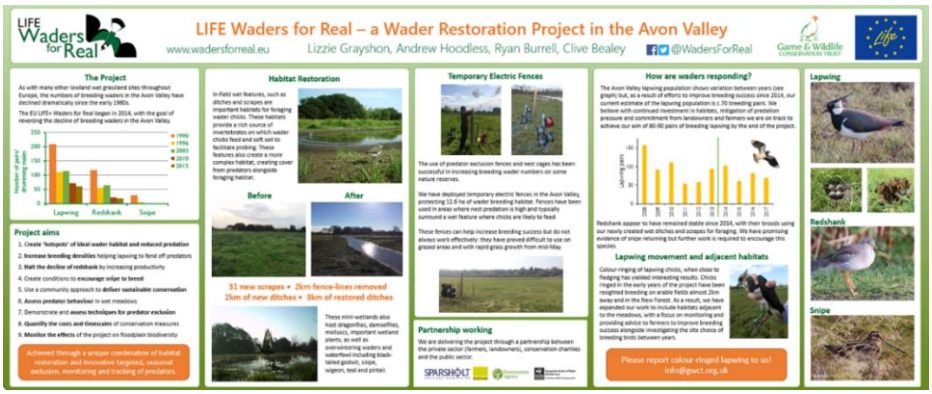
Figure 2: Project noticeboards 2018 version in-situ

5.4 Project Pull-Up Banners

Roll up banners were created for use at all talks, events and meetings (Annex 14.6). This advanced our professional presence at these activities. The occurrence of the LIFE and Waders for Real logos alongside our core project objectives, furthered achieving our dissemination objectives. In addition, these banners were both convenient to transport to events and cost-effective.

5.5 Project Posters

A range of project posters were designed and utilised at dissemination and engagement events with development of these materials as the project progressed (For examples - Figure 3). Posters were also distributed to HIWWT Blashford Lakes to be erected in the education centre on this reserve and hosted on the LIFE Waders for Real website. Key species identification, status and conservation posters were also created as distributed to farmers, landowners and keepers (60 printed). The effectiveness of posters is difficult to evaluate, as no data on their use or the insights gained by their audience can be directly collected. However, based on visitor interaction with them at engagement events, they were a useful medium for summarising the project themes to our audiences. In addition, the erection of the colour-mark reporting poster around the Avon Valley directly led to the reporting of colour-marked lapwing resightings.



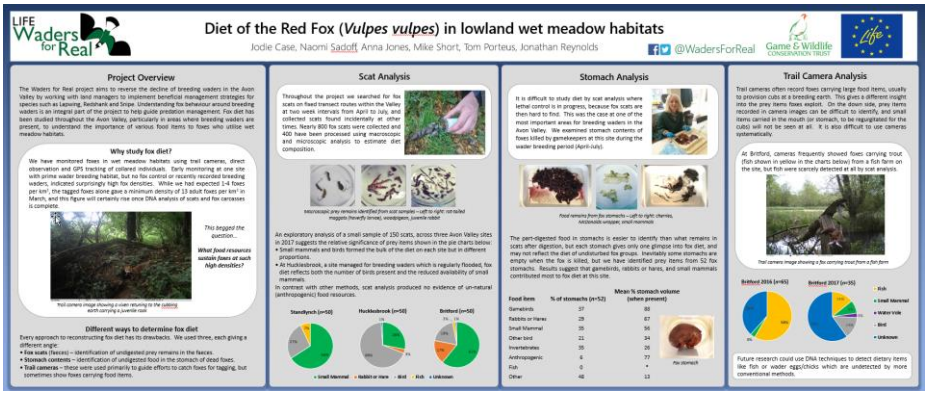


Figure 3: 9 Dissemination posters created by LIFE Waders for Real for use at all dissemination events. Posters were developed throughout the project as specific requirements arose.

5.6 Project Video

At the outset of the LIFE Waders for Real project there was no intention or deliverable to produce a project video. However, in 2018 after the recruitment of further staff along with the uptake of dissemination by this format, it was decided that we would exceed our dissemination targets by

producing a project video at the end of the project (Figure 4). This was targeted at providing an overview of the project, notable project outcomes, interviews with stakeholders and field sites. Filming for this video was conducted in 2018, 2019 and 2020. At the time of writing, the video was still under production with progress suspended due to Covid-19 pandemic.

Figure 4 - Still taken from LIFE Waders for Real project video

6 Website

This section reports and describes the work conducted and impact of the project website www.wadersforreal.eu

6.1 Overview

The LIFE Waders for Real project website was designed and implemented early in 2015 as a key communications tool. It was planned mainly to summarise the topics and approaches of LIFE Waders for Real and later hold key deliverables and other static information. Our target audience varied greatly in knowledge and understanding so a non-technical and easily navigable style was adopted. Though, specific technical information was not included, contact information for the project was provided so further enquires could be made by viewers who desired greater detail. Initially, the website summarised the background to the project, our planned approach and the status and conservation of wading birds and wetland ecosystems. This content remained fairly static with updates made as more actions were undertaken and when resources allowed. In 2018/19, significant updates were made after acquiring additional resources through a project extension (Annex 14.7). Through this period, content of all web pages was revised and updated along with 16 new pages created. New sections were created for the Avon Valley, Monitoring Birds, Monitoring Predators and Managing Habitats, with 3 – 4 pages within each section summarising the work of LIFE Waders for Real. Project resources were hosted alongside links to other relevant LIFE and non-LIFE projects and blogs.

6.2 Impact

In the inception tables, an average of 70 per month to the project website was hoped for, an average of 148 views per months was achieved. This was a fantastic result as shows the level of

interest in the project themes. The number of views of the website grew slowly throughout the project, with a significant rise in 2019 likely driven by increased communications output and the revised design discussed above (Figure 5). In total we had 8,863 visits to our website over the duration of the project. We are pleased with this number given our target audience and the other dissemination methods used. The website will be useful in the future for hosting final reporting and for ongoing reference to the project.

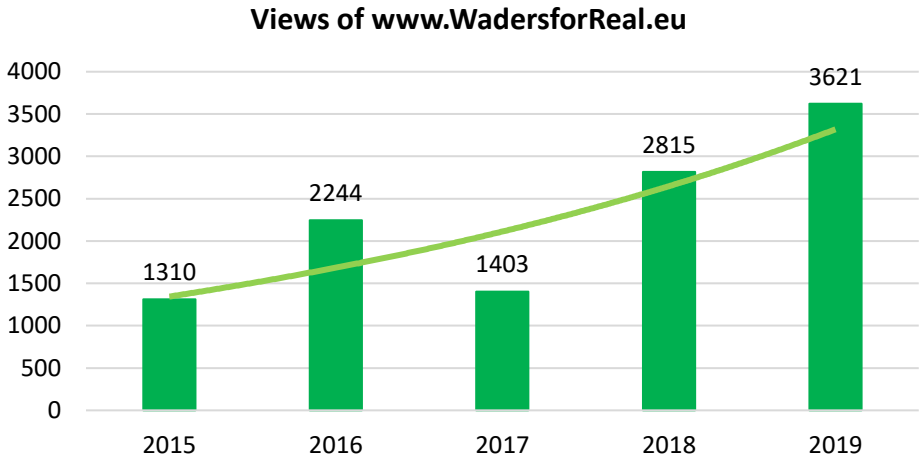


Figure 5: Views to www.WadersforReal.eu over the duration of the project

7 Social Media and Blogs

7.1 Twitter

Our twitter account was an extremely useful tool throughout the project (Figure 7). This platform is heavily used in the research and conservation sector for dissemination, networking and discussion. It also used widely within the general public, farming and gamekeeping communities. Twitter therefore enabled LIFE Waders for Real to engage with our target audiences at a wide geographic scale as sought in our dissemination objectives. Throughout the project it provided valuable discussion and created significant opportunities for networking with other projects, stakeholders and interested parties. On numerous occasions conversations which started on twitter were continued at events and conferences. Our key twitter messages on twitter were wader, lapwing and project and Avon Valley (Figure 6).

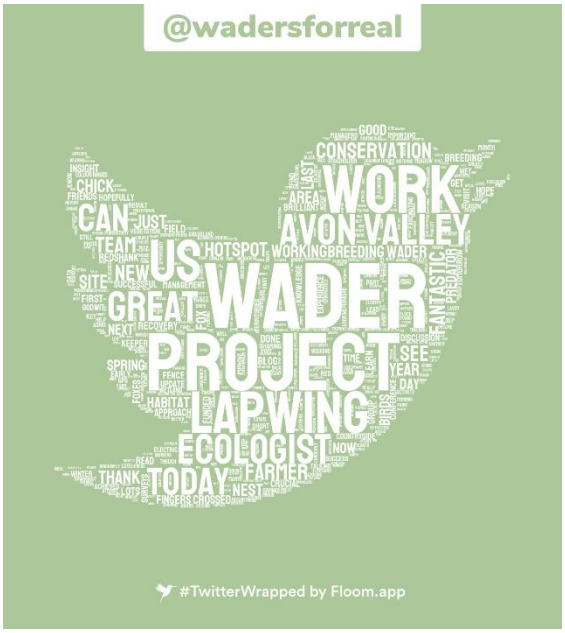


Figure 6: Word cloud summarising use of key words on @WadersforReal twitter

The total number of followers on twitter reached 721 while the total number of tweets was 950. Our overall number of impressions was 534,100 and grew each year (Figure 8). Impressions are a key metric for analysing twitter reach, each time a post is interacted with by a user, 1 impression is logged. Greater effort was placed on twitter after the recruitment of additional resources in 2018, which explains the rise in impressions from this time until the end of the period analysed at December 2019. The trend

in impressions varied monthly with peaks in interactions during each breeding season (April – June; Figure 9), these trends are driven by variation in our activity on twitter, with more content posted during the field season.

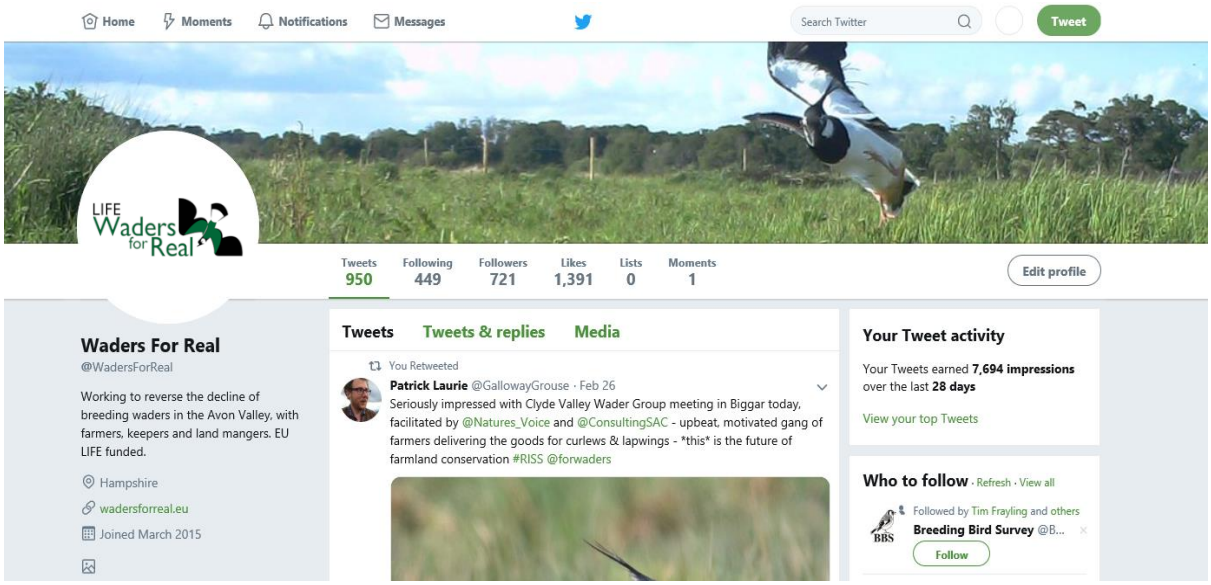


Figure 7: Front page of @WadersforReal twitter profile

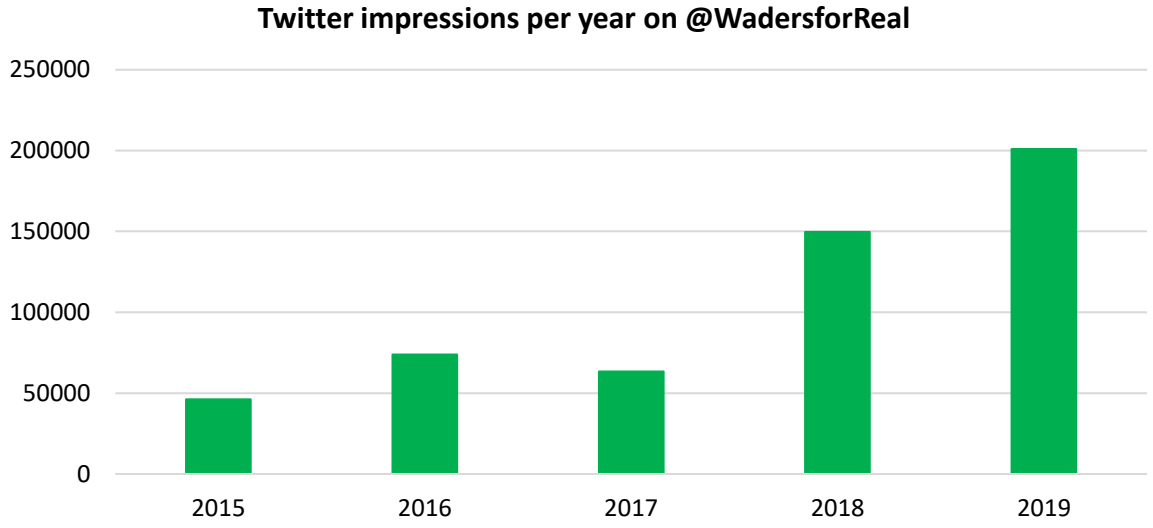


Figure 8: Twitter impressions summarised by year (1st June 2015 - 31st December 2019)

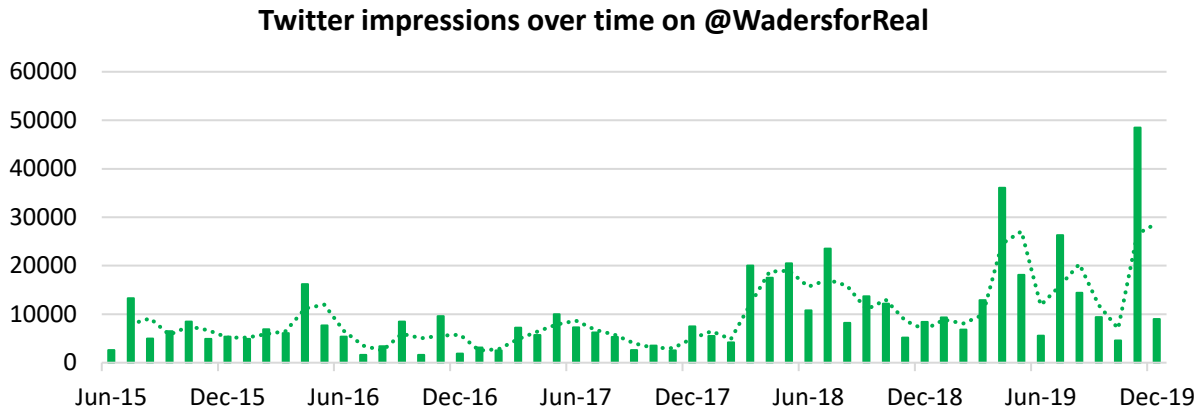


Figure 9: Monthly twitter impressions (1st June 2015 - 31st December 2019)

7.2 Facebook

Facebook was a less well used media for our audience and so initially a well-managed Twitter account was run in preference. However, a Facebook page (Figure 10) was created in 2018 after review of our social media activity in the previous reporting period and the recruitment of further resources to devote to communications activities. Our total number of Facebook followers was 106 and our page received 98 likes. LIFE Waders for Real content receives greater priority on the pages of followers than those who just like the page. Much of the content was shared between our Facebook and twitter pages though the content posted was redesigned for each platform. The demographic of our interactions was swung heavily towards females (68% female, 32% male) and to the United Kingdom (91%). Interactions were geographical orientated towards the project area, with Christchurch and Bournemouth featuring most heavily as the location of our Facebook engagements. This suggests through this media we were engaging with our target audiences, in particular the local community.

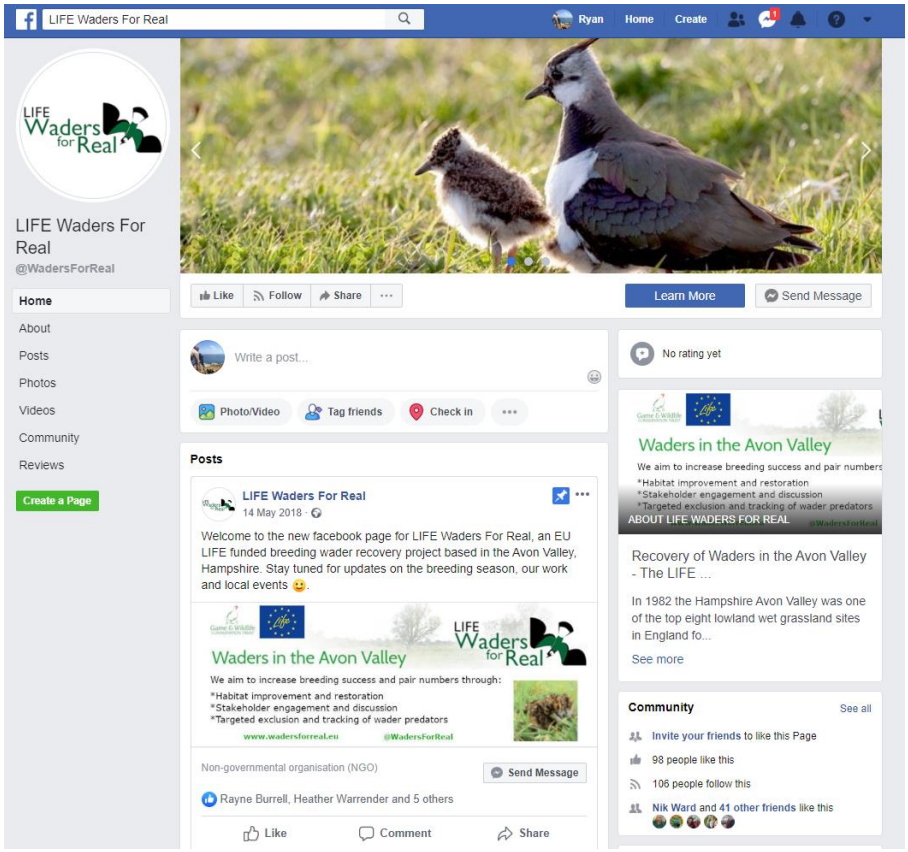


Figure 10: Homepage of @WadersforReal Facebook profile

7.3 LIFE Waders for Real Blog

The LIFE Waders for Real blog was targeted at being a non-technical method of disseminating regular updates about the progress of LIFE Waders for Real. Blogs covered a range of topics from specific areas of monitoring to more general conservation themes and education. Blogs were also used as a good way to highlight the work of other projects with which we had conducted networking. In total 25 blogs were posted, with a frequency of 1.75 blogs per month. Our average views per blog was 545, though the number of views varied significantly by the blog content (Table 5). Blog views also varied over time, with blogs in 2018/19 having an average of 670 views. As previously mentioned, communications resources increased at this time allowing for greater effort and impact. Our blogs were circulated either by email or social media to several local stakeholder groups and forums which also increased their readership by our target audiences.

Table 5: Summary of total views of each key theme of LIFE Waders for Real blogs

Key Theme	Total Views
Conservation careers/Volunteering	778
Networking/Other Projects	2110
Predator monitoring	5417
Project Status	1589
Wader monitoring	3831
Wetland habitats and biodiversity	879

8 Farmer, Gamekeeper and Landowner Engagement and Dissemination

Communications with and involvement of stakeholders throughout the Avon Valley aimed to increase our shared understanding of the range of environmental, social and economic threats to waders and wetland habitats. As such the famers, gamekeepers and landowners throughout the Avon Valley were involved both in day to day project activities and specific dissemination activities. Though it is not reported upon here, the importance of the dissemination conducted through regular contact with our farmers, landowners and keepers should not be underestimated. During the breeding season, many farmers and gamekeepers were contacted daily. During these conservations, updates about project work were often given, alongside project staff being asked relevant questions about environmental management, predator management and a range of other project themes.

8.1 Group Meetings

Meetings were held with Avon Valley farmers, gamekeepers and landowners, 1 – 2 times per year throughout LIFE Waders for Real, typically before the breeding season then again after. These events provided an opportunity to get all rural stakeholders into a room for open discussions and for the delivery of regular project updates (For example see Annex 14.8). Group meetings were also used to gain opinion on recent environmental, farming or project developments and deliver important updates about national environmental policy such as Agri-environmental schemes and licencing for wildlife management. At a basic level, meetings also allowed networking and relationship building between individuals which do not often get in the same room, even when two farms may be adjacent to each other. This is common with farmers and gamekeepers, due to the long and unsocial hours demanded by their work. These meetings have been crucial to building a bottom-up project and group mentality with our rural stakeholders. A feeling which has continued in the creation of the DEFRA Facilitation-funded Avon Valley Farmer Cluster as part of our After-LIFE plan. Local staff from relevant government agencies and environmental bodies were also invited to attend meetings, improving dissemination to this audience and building relationships between our stakeholder group and these agencies. This has significantly benefited the ability to gain appropriate derogations for wildlife management and farming, as well as demonstrating the value of agri-environmental scheme plans on farms involved in LIFE Waders for Real. In 2019, a group meeting was combined with a field visit to one of our hotspot sites, for a workshop on wet meadow grassland and predator management. Several local policy makers and government agency staff attended this meeting with it proving to be a very valuable opportunity with insightful and valuable discussion had.

8.2 1:1 Meetings

At the beginning of the LIFE Waders for Real project our farmers, gamekeepers and landowners were provided with contact information for project staff and informed that project staff could be contacted at any time and were able to offer advice and guidance on all aspects of environmental management in respect to wildlife, farmed habitats, predator management and environmental and agricultural policy. Initially, stakeholders were hesitant to utilise this resource but as relationships were built and the project progressed, the knowledge resource available was increasingly used. This led to 1:1 meetings and many telephone and email conversations covering a broad range of topics relevant to LIFE Waders for Real. Further, 1:1 meetings were had in reference to specific project developments such as the design of habitat management plans and biodiversity surveying.

8.3 Letters and updates

Avon Valley stakeholders were sent between 2 – 3 project letters per year. These were used as an important way to deliver written feedback, which this group could refer too if needed. It also provided a method of updating stakeholders that were unable to attend project meetings. After each breeding season, data was collated for each site and a tailored report written on the results of that season, including any advice on future habitat and predator management. These were followed up with 1:1 meetings where requested. Along with site-specific feedback, a general overview on LIFE Waders for Real was included which allowed stakeholders to place their site relative to the project as a whole and feel an important part of the project even if they did not currently have breeding waders (Annex 14.9).

9 Dissemination in the Community

9.1 Community engagement events

Our engagement events gave us the opportunity to interact with a range of target audiences and extend the reach of the waders for real project with the local, regional and national general public alongside farmers, gamekeepers and special interest groups. Our key engagement events are summarised in the following sections.

New Forest Show

A large stand was kindly donated by the organisers of the New Forest Show in both 2018 and 2019, specifically to the LIFE Waders for Real project (Figure 11). This 3-day show is a key regional rural event attended by 50 regional rural organisations, businesses and nature organisations and attended by greater than 100,000 members of the local and regional public.

The organisers of this event were particularly keen to provide their audience with greater engagement in local nature conservation projects. The stand included layman summaries of monitoring from the wetlands team in relation to wader decline in the Avon Valley, as well as from the Predation Team in relation to fox ecology diet. The monitoring was presented through two large posters, a timeline of the lapwing breeding season with integrated video visuals and activities, for example sterilised and sealed examples of fox diet viewable via microscope.

Materials were of great interest to visitors, some of which had encountered the project through social media, articles and press releases. Notable interactions were also had with other nature and farming organisations and local government agencies, new relationships on which to build collaborations (Annex 14.10).

Figure 11: LIFE Waders for Real ecologists just before NFS opened in July 2018. The range of activities and engagement material can be seen around the stand.

Bisterne Open Farm Sundays

LEAF Open Farm Sunday, managed by LEAF (Linking Environment And Farming), is one of the farming industry's biggest success stories. Since the first Open Farm Sunday in 2006, over 1600 farmers across the UK have opened their gates and welcomed over 2.5 million people onto farms for one Sunday each year. These events provide a fantastic opportunity for everyone, young too old to see what farms are like, how the food they eat is produced and understand how farmers and other rural stakeholders can work to help the environment and actively aid species and habitat recovery. The wonderful aspect of the Bisterne Open Farm Sunday is rather than being a single farm that puts on the event; farmers, rural staff, naturalists working throughout the Avon Valley are involved in its delivery. Over 4,000 members of the public attend the Bisterne Open Farm each year, with LIFE Waders for Real having a significant presence in 2017, 2018 and 2019 (Figure 12). The range of audiences at each Open Farm made it a particularly useful dissemination event. Attendees ranged from naturalists and local government agency staff (NE, EA, FC, NFNPA), to members of the public from locally and from towns and cities further afield. It was especially useful to engage and educate the latter group about wader conservation and wetland restoration and the issues farmers face balancing food production with environmental commitments.

Figure 12: LIFE Waders for Real stand at Bisterne Open Farm Sunday 2019

HIWWT Blashford Lakes Visitor Days

HIWWT Blashford Lakes, is a nature reserve within the Avon Valley, neighbouring our Ibsley and Hucklesbrook hotspot sites. The Avon Valley has limited public access itself and so the well-attended reserve provided a perfect location for engaging with the local community for dissemination and Planning for Real events. Over the course of LIFE Waders for Real, seven 1-day events were conducted at the reserve, with an average of 38 people spoken to each day. Planning for Real materials were used to gather data on the demography, awareness and opinions of visitors. Analysis of which is discussed in the Planning for Real reporting. In terms of efficiency, we would we found attending larger organised events such as the New Forest Show and Bisterne Open Farm are more valuable in terms of dissemination than one-off stands relying on the passing interest of visitors.

Countryfile Live

Countryfile Live is an event held at Blenheim Palace over a 4-days each year attended by 175,000 people. In 2018, LIFE Waders for Real shared a stand with the GWCT, Sparsholt College and the National Gamekeepers Organisation. This allowed LIFE Waders for Real to engage with farmers, gamekeepers and landowners attending the event as well as members of the general public in relation to shared themes on nature conservation. The show has national appeal allowing dissemination to a national audience rather than regional events like the New Forest show. There was a lot of interest from visitors about the project, with a varied amount of knowledge regarding wading birds and wetland conservation. There was also a good deal of interest from other wildlife organisations which were also exhibiting at the show, with project dissemination materials taken by statutory environmental agencies, nature conservation and land management organisations.

9.2 Community talks

Short lectures of around a 1 hour were a useful method of engaging with the local community. 7 talks were given at different stages of the project to local naturalist groups and the general public. These talks were delivered by members of the project team and often summarised the whole project with a specific focus on either wetland restoration, wading birds or predator monitoring depending upon the interests of the audience. These talks gave us the ability to cover a range of themes but also engage in discussions generated by the audience. The opportunity to educate the wider community about the ecological situation and requirement for activity for the conversation of wading birds was an important outcome.

9.3 Educational events

In this section, we discuss educational events, specifically where we directly interacted with individuals currently in education. Educational events were conducted by LIFE Waders for Real using a range of approaches: field visits including hands-on habitat management and interaction with project staff, seminars, field visits and interactive visits to educational establishments using project and Planning for Real materials (schools, colleges and universities). Community and other stakeholder events which were also educational are discussed elsewhere in this document.

In total, 17 educational events were conducted, during which the project interacted with 429 students. The age of these students was predominantly in the 17 – 21 age group studying at either college or university, with 254 students falling in that age bracket. Greater effort was placed in involving students at this stage of education due to the complex themes covered within LIFE Waders for Real. Seminars tied with field visits and practical habitat management were particularly well received and assisted with the delivery of a range of messages to students with different learning styles. Though, the school and local cub scout visits (ages 5 – 12) conducted were also extremely well received with project content and messages tailored to the capacity of the cohort (For example see Annex 14.11)

10 Scientific Dissemination

10.1 Participation in scientific conferences

In 2017, 2018 and 2019, members of the LIFE Waders for Real team attended the International Wader Study Group conference. Membership of this organisation and conference attendance is a key discussion and networking platform for European wader conservation stakeholders. In 2017, the Project officer presented in a workshop dedicated to Lapwing conservation and was later asked to join the European lapwing forum. In 2018, the Project Officer presented on restoration of wet grassland habitats and lapwing chick survival (Annex 14.12). In addition, that year our Predator Manager presented initial results from our fox GPS tracking and diet studies. In 2019, 2 further presentation were given by LIFE Waders for Real. In all cases, presentations stimulated important discussions, created new relationships and opportunities for collaborative working alongside disseminating messages to a key audience of wader scientists, land managers and policy makers. These conferences were a perfect opportunity to disseminate to national and European conservation organisations and government agencies.

In 2018, the workshop at this conference focused on “providing a utopia waders”. Colleagues from the RSPB (also from LIFE Project Godwit) and the LIFE Waders for Real were selected as experts on Lapwing conservation and asked to prepare a detailed plan for turning Friesland, Netherlands into a lapwing utopia. Presenting this work to Dutch policy makers, farmers and other scientists at the

conference gave an opportunity to impart our combined knowledge of lowland grassland conservation to a European audience.

Our Project Ecologist was asked to sit on the IWSG committee and its regional equivalent, these committees advise on international/regional wader conservation projects, engagement and educational activities.

In 2019, our Predator manager also presented at the International Union of Game Biologists meeting. This international conference is well attended by researchers and policy makers working on predator ecology, providing access to an additional audience. Attendance this conference acted as a dissemination and key networking opportunity and has subsequently led to collaboration with Dutch and Norwegian universities on predator ecology and management.

10.2 Peer-Reviewed Scientific Publications and Technical Reporting

At the time of writing scientific publications and technical reports are in preparation as part of the final reporting on the LIFE Waders for Real project. These will cover the following subjects:

- Technical publication on the direct and indirect predator control techniques for wader population stabilisation and increase, including implementation and efficacy of indirect measures
- Technical publication on the management of habitat hotspots for wader population stabilisation and increase.
- Peer-reviewed scientific paper on the importance of wet in-field features on lapwing chick survival
- Peer-reviewed scientific paper on lapwing breeding success in the LIFE Waders for Real project area before and during the LIFE project and contributing factors.
- Scientific paper summarising the results of Fox GPS tracking and insights gained on fox ecology.

11 Non-scientific Dissemination

11.1 Layman Articles - Game and Wildlife Conservation Trust and other sources

A key route of dissemination to gamekeepers, farmers, landowners and rural policy makers was LIFE Waders for Real drawing the media products of the GWCT. The GWCT Annual Review and Gamewise magazine are distributed to 22,000 members of GWCT along with staff from other conservation organisations and statutory agency officers which receive the GWCT media. Between one and two 2-3-page articles were written for the GWCT Annual Review each year, totalling 6 articles between 2015 – 2019 (Annex 14.13). The 2019 article is currently in preparation and so not included in the attached Annex. An additional article will be written in 2020 summarising the whole LIFE Waders for Real project. During the project, a further 3 layman's articles were written for the GWCT Gamewise magazine, these articles provided summarises of the project status as well as specific practical advice of management for breeding wader conservation (Annex 14.14). In addition, articles were written for non-GWCT media such as the NGO Education Trust and Sporting Shooter (Annex 14.15).

11.2 Layman's Report

A project Layman's Report has been produced and after approval will be made available on the project website and EU LIFE portal for public access. In addition, this report will be distributed directly to conservation practitioners, regional policy makers and LIFE Waders for Real stakeholders. For further information please see the Layman's report directly.

11.3 Additional Lay Report – Saving the Lapwing

A booklet outlining the issues facing lapwings, the rationale behind the project and the actions implemented has been produced. This document forms a more in-depth version of the LIFE Waders for Real Layman's report. It features interviews with stakeholders based in the Avon Valley, focusing on their engagement with the project and lessons learned. It is intended to inspire others to start lapwing conservation and suggest appropriate measures. A high-profile launch in London of this document alongside celebrating the success of the LIFE Waders for Real project is planned, along with articles in a national newspapers and relevant stakeholder literature.

Figure 13 - Front cover and example stakeholder case study from Saving the Lapwing document

11.4 End of Project Conference

Our End of Project conference was held on the 6th and 7th November 2020 and approached with the following aims:

- Celebrate the successes, difficulties and lessons learnt through the LIFE Waders for Real project
- Consider how we can take the Waders for Real approach and replicate it around the country
- Consider best practice, current knowledge gaps and future research opportunities

- What do we need from government and policy?
- How do you inspire farmers and wildlife managers to be better and bolder at conserving wildlife in the years ahead?

Delegates from a variety of organisations from the UK and Europe including RSPB, Natural England, the NFU, other NGOs as well as private landowners/managers/farmers and GWCT staff were present, with 50 – 60 people in attendance on both days of the conference.

The conference was an opportunity for conservationists from all walks of life, opinions and experiences to come together to openly discuss the above aims. The conference was structured with the intension to form usable outcomes, through a workshop approach and discussion of the current position in respect of breeding waders, the landscape scale approach, the role of working conservationists and how future management and policy should be shaped in respect to these areas (For further information see Annex 14.16).

Delegates were separated onto tables scenario (8 tables in total); the purposeful aim of this approach was so people could fully interact in the breakout discussions at the end of each themed session of presentations. Delegated were also distributed to mix different stakeholder groups both to improve networking but also to get mixed opinions on each table during discussions Specific themes important to wader conservation and wetland restoration were summarised by short talks from LIFE Waders for Real and other projects, followed by discussion of key allocated questions 1 -2 per table. All attendees were given a different table number for each of the three themed sessions over the two days, and therefore had the opportunity to sit with and talk to a variety of people throughout the conference. Each breakout discussion session included eight questions, one for each table to discuss and feed back to the room an overview of outcomes from their given question.

The approach used was extremely valuable dissemination and networking opportunity, with tangible outcomes summarised into a glossy document to be shared with attending delegates in the near future. During the conference and in conversations afterwards several delegates remarked on the positivity of the event and the useful insights they had gained from the workshop approach.

Figure 14: Mike Short, LIFE Waders for Real predator ecologist discussing the implications of the Fox GPS-tracking

12 Media and Press

Throughout the project we maintained communication with our key audiences through press releases. In total 8 press releases were written and circulated, 3 greater than our expected result (Annex 14.17). Two articles were written specifically for local newspapers, Bisterne News and Ringwood and Fordingbridge News (For examples see Annex 14.18). Press releases were distributed by the Game and Wildlife Conservation Trust's communications team through their network of press and media contacts. Although, uptake of press releases was difficult to monitor as there is no

convention to notify the authors of a press release being taken up and released, we know these released led to at least 14 articles in print or online. We believe our press releases were well received, and the uptake was good. In addition, all press releases were posted on the Game and Wildlife Conservation Trust and Waders for Real project websites further boosting readership. As an example, our 2018 press release covering the project extension was picked up by 3 external outlets and was viewed over 1200 times online (For example see Figure 15).

Figure 15: Example of press release picked up by external press outlet

13 Conclusions

This report has summarised the dissemination activities undertaken throughout the LIFE Waders for Real project. Overall, we are extremely satisfied with the results of our dissemination and engagement activities and amount undertaken. All dissemination activities were highly successful with all targets either achieved or exceed over the course of the project. We interacted with all audiences set out in our communications plan and have generated significant new relationships, understanding and collaborations. In addition, we have created a stakeholder group who have gained socially and in their environmental knowledge from the LIFE Waders for Real project.

14 Annexes

14.1 LIFE Waders for Real Communications Diary 2015 – 2019

LIFE Waders for Real Communications Diary 2015 - 2019

Start Date	Event	Place	Event Category	Event Audience General	Audience Specific	Audience Size	Event Reach	Event Type	Event Description
01/08/2015	Planning for Real meeting	Bristol Lecture Venue, UK	Project Management	Project Team	Planning for Real team	3	Project Team	Meeting	Meeting to discuss planning for real objectives and plans
10/09/2015	Avon Valley Farmer / Gamekeeper / Landowner meeting	GWCT HQ, UK	Dissemination & Networking	Farmers, Gamekeepers & Landowners	Landowners, farmers, keepers	40	Local	Meeting	Update on project and 2015 field season
17/09/2015	Habitat Work with Sparsholt College	Avon Valley field sites, UK	Dissemination	Education	Sparsholt College students & lecturers	15	Local	Habitat Work	Talk about project and how habitat work will help breeding waders
24/09/2015	Habitat Work with Sparsholt College	Avon Valley field sites, UK	Dissemination	Education	Sparsholt College students & lecturers	16	Local	Habitat Work	Talk about project and how habitat work will help breeding waders
01/10/2015	Habitat Work with Sparsholt College	Avon Valley field sites, UK	Dissemination	Education	Sparsholt College students & lecturers	17	Local	Habitat Work	Talk about project and how habitat work will help breeding waders
09/10/2015	IWSG Conference	Asbru, Iceland	Dissemination & Networking	Science / Environment groups / Government Agencies	International audience of scientists, nature organisations and government agencies	200	International	Conference	Talk on breeding lapwing in arable and water meadow habitats. Discussion and networking with international audience.
16/10/2015	Habitat Work with Sparsholt	Avon Valley field sites, UK	Dissemination	Education	Sparsholt College students & lecturers	18	Local	Habitat Work	Talk about project and how habitat work will help breeding waders
20/11/2015	Planning for Real and Project Community Event	HIWWT Blashford Lakes, UK	Planning for Real	Community	Local community	32	Local	Workshop	engaging with local community
21/11/2015	Planning for Real and Project Community Event	HIWWT Blashford Lakes, UK	Planning for Real	Community	Local community	32	Local	Workshop	engaging with local community
23/11/2015	GWCT Staff Conference	GWCT Fisheries Dept, East Stoke, UK	Dissemination	GWCT	GWCT staff	60	National	Presentation	Presentation about waders for real project
03/12/2015	Research Day with Sparsholt College / Planning for Real student event	GWCT HQ, UK	Dissemination	Education	Sparsholt College students & lecturers	25	Local	Workshop	Presentations about different aspects of the Project and GWCT work, field visit to Avon Valley
16/12/2015	Meeting with Natural England	GWCT HQ, UK	Dissemination & Networking	Government Agencies	Natural England staff	30	Regional	Presentation	Presentation about project and site visit
02/02/2016	National Conference on Lowland Breeding Curlew Recovery	WWT Slimbridge, UK	Dissemination & Networking	Science / Environment groups / Government Agencies	20 environmental, nature and government organisations	40	National	Workshop	Presentation on LIFE Waders for Real project, issues, achievements and working with stakeholders
16/02/2016	Visit from Dümmer Nature and Environment	Avon Valley field sites, UK	Dissemination & Networking	Environmental Organisations	Dümmer Nature and Environment	10	International	Visit	Visit from Dümmer Nature and Environment Protection Association, Lower Saxony, Germany

LIFE Waders for Real Communications Diary 2015 - 2019

	Protection Association				Protection Association				
03/03/2016	Habitat Work with Sparsholt College	Avon Valley field sites, UK	Dissemination	Education	Sparsholt College students & lecturers	19	Local	Habitat Work	Talk about project and how habitat work will help breeding waders
07/03/2016	Danish Hunting Association Visit	GWCT HQ, UK	Dissemination & Networking	Environmental Organisations	Danish Hunting Association	15	International	Workshop	Presentation about the project and GWCT, discussion about work and site visit.
11/05/2016	Visit to Elmley NNR and discussion on all project themes	Elmley NNR, UK	Dissemination & Networking	Environmental Organisations	Philip Merrics and Elmley NNR staff	5	National	Visit	Visit to Elmley NNR for knowledge exchange on wader recovery and wetland restoration
05/06/2016	Bisterne Open Farm	Bisterne Farm, Avon Valley, UK	Dissemination / Planning for Real	Community and General Public	Various: NGO's, Farmers, Local Community, Government Agencies,	20	Regional	Open Farm	Project dissemination and education
11/07/2016	Visit to Knepp Castle Rewilding Project and discussion on wetland restoration	Knepp Castle, Sussex, UK	Dissemination & Networking	Environmental Organisations	Kneep Castle Estate staff	?	National	Visit	Visit to Knepp Castle for knowledge exchange on wader recovery and wetland restoration
09/08/2016	Meeting with Christchurch Harbour Ornithological Group	Stanpit Marsh, Avon Valley, UK	Dissemination & Networking	Local Groups	Christchurch Harbour Ornithological Society members	?	Local	Meeting	Site visit to discuss habitat improvement and wader monitoring
10/08/2016	Avon Valley Farmer / Gamekeeper / Landowner meeting	Wattons Ford, Avon Valley, UK	Dissemination & Networking	Stakeholders	Bisterne Estate staff	6	Local	Meeting	Talk on 2016 results, a thank you for the work in 2026, discussing habitat plans for summer/autumn
25/08/2016	Planning for Real meeting	Bristol Lecture Venue, UK	Planning for Real	Community and General Public	Planning for Real team	4	Project Team	Meeting	Producing Theory of change
09/10/2016	IWSG Conference	Cork, Ireland	Dissemination & Networking	Science / Environment groups / Government Agencies	International audience of scientists, nature organisations and government agencies	200	International	Conference	Communication with people on similar projects on waders, gaining information. Discussion and networking with international audience.
10/10/2016	Planning for Real meeting	Bristol Lecture Venue, UK	Planning for Real	Project Team	Planning for Real team	2	Project Team	Meeting	Discuss socio-economic plan and report
13/10/2016	Meeting with Christchurch Harbour Ornithological Group	Southbourne, UK	Dissemination & Networking	Local Groups	Christchurch Harbour Ornithological Society members	25	Local	Presentation	Talk on lapwing focus on Avon valley (Christchurch Harbour Ornithological Group)
26/10/2016	GWCT Legacy Day	GWCT HQ, UK	Dissemination	GWCT	GWCT staff and members	22	National	Presentation	General talk on project
02/11/2016	Habitat Work with Sparsholt College	Avon Valley field sites, UK	Dissemination	Education	Sparsholt College students & lecturers	7	Local	Habitat Work	Talk about project and how habitat work will help breeding waders

LIFE Waders for Real Communications Diary 2015 - 2019

02/11/2016	Habitat Work with Sparsholt College	Avon Valley field sites, UK	Dissemination	Education	Sparsholt College students & lecturers	9	Local	Habitat Work	Talk about project and how habitat work will help breeding waders
07/11/2016	Meeting with Bisterne Estate	Avon Valley field sites, UK	Dissemination & Networking	Farmers, Gamekeepers & Landowners	Bisterne Estate staff and Ditching contractor	2	Local	Habitat Work	Discussion on site and talk about new scrape locations
09/12/2016	Meeting with Natural England and Environment Agency	GWCT HQ, UK	Dissemination & Networking	Government Agencies	Natural England, Environment Agency	4	Regional	Meeting	Discuss habitat work
13/12/2016	Presentation to Christchurch Harbour Ornithological Group	Stanpit Marsh, Avon Valley, UK	Dissemination & Networking	Local Groups	Christchurch Harbour Ornithological Society members	2	Local	Visit	Viewing new habitat work, assessing work done and talk of future work
16/12/2016	Meeting to discuss new Agri-environment Scheme	GWCT HQ, UK	Dissemination	GWCT	GWCT staff	7	Local	Meeting	Peter to give guidance and advice on new agri-environment schemes
09/01/2017	Steering Group meeting	GWCT HQ, UK	Dissemination & Networking	Stakeholders	LIFE Waders for Real steering group meeting	120	Regional	Meeting	Steering group meeting to update and discuss project delivery
10/01/2017	Meeting with local wader ecologists	GWCT HQ, UK	Dissemination & Networking	Local Groups	Farlington Ringing Group	1	Local	Meeting	Meeting to discuss future collaborations
28/02/2017	RSPB Stone Curlew LIFE Conference	David Attenbourgh Building, Cambridge, UK	Dissemination & Networking	Science / Environment groups / Government Agencies	Various: NGO's, Farmers, Local Community, Government Agencies,	40	International	Conference	Other LIFE project discussion and knowledge exchange
09/03/2017	Avon Valley Farmer / Gamekeeper / Landowner meeting	GWCT HQ, UK	Dissemination & Networking	Farmers, Gamekeepers & Landowners	Avon Valley farmers, gamekeeper & landowners	30	Local	Meeting	Project update
09/03/2017	Meeting with Somerley Estate	Avon Valley field sites, UK	Dissemination & Networking	Farmers, Gamekeepers & Landowners	Somerley Estate staff	5	Local	Field Visit	Meeting to discuss habitat improvements
14/03/2017	Ringing talk and demonstration	GWCT HQ, UK	Dissemination	GWCT	GWCT staff	17	National	Demonstration	Education seminar about wader monitoring methods
15/03/2017	Meeting with HIWWT	HIWWT Blashford Lakes, UK	Dissemination & Networking	Environmental Organisations	HIWWT staff	5	Regional	Meeting	Meeting to discuss project and knowledge exchange on wader recovery and habitat management
22/03/2017	Annual River Avon Catchment meeting	Salisbury, UK	Dissemination & Networking	Environmental Organisations	Wiltshire Wildlife Trust	20	Regional	Conference	Presentation to update catchment group about LIFE Waders for Real
02/05/2017	Visit from LIFE Laser Fence	Avon Valley field sites, UK	Dissemination & Networking	Other LIFE Projects	LIFE Laser Fence team	5	National	Field Visit	Talk about project and how habitat work will help breeding waders
11/06/2017	Bisterne Open Farm	Bisterne Estate, Avon Valley, UK	Dissemination / Planning for Real	Community and General Public	Various: NGO's, Farmers, Local Community, Government Agencies,	4000	Regional	Open Farm	Engaging with local community

LIFE Waders for Real Communications Diary 2015 - 2019

01/07/2017	Visit from Danish Hunting Association	GWCT HQ, UK	Dissemination & Networking	Environmental Organisations	Danish Hunting Association	?	International	Danish Visit	Visit, talk and field visit
Jul-17	Planning for Real and Project Community Event	Fordingbridge Library, UK	Planning for Real	Community and General Public	Local community	41	Local	Workshop	Engaging with local community
18/07/2017	Meeting with Natural England and Environment Agency	GWCT HQ, UK	Dissemination & Networking	Government Agencies	Natural England, Environment Agency	6	Local	Meeting	Update statutory agencies and exchange knowledge
31/08/2017	Visit from RSPB	GWCT HQ, UK	Dissemination & Networking	Environmental Organisations	RSPB	2	Regional	Meeting	Meeting to discuss local breeding waders, similarities with projects and areas where collaboration is possible
15/09/2017	IWSG Conference	Czech University of Life Sciences Prague, Czechia	Dissemination & Networking	Science / Environment groups / Government Agencies	International audience of scientists, nature organisations and government agencies	200	International	Conference	Discussion and networking with international audience.
24/09/2017	HIWWT Young Persons Bird Race / Planning for Real Community Event	HIWWT Blashford Lakes, UK	Dissemination / Planning for Real	Education / Community & General Public	Local community	52	Local	Workshop	Engaging with local community
17/10/2017	Avon Valley Farmer / Gamekeeper / Landowner meeting	GWCT HQ, UK	Dissemination & Networking	Farmers, Gamekeepers & Landowners	Farmers, Gamekeepers & Landowners	12	Local	Meeting	Update presentation on lapwing, predators and habitat
01/11/2017	Research Day with Sparsholt College / Planning for Real student event	GWCT HQ, UK	Dissemination / Planning for Real	Education	Sparsholt College students & lecturers	25	Local	Workshop	Lectures and education about waders, wetlands and predators
21/11/2017	Meeting with Avon Tyrell Estate	Avon Tyrell North	Dissemination & Networking	Farmers, Gamekeepers & Landowners	Farmers, Gamekeepers & Landowners	2	Local	Visit	Clive identified several poisonous plants which likely caused the death of several seep in the summer
28/11/2017	GWCT Staff Conference	GWCT HQ, UK	Dissemination	GWCT	GWCT staff	120	National	Conference	Short presentation about working with the Farmers and Keepers on the project
16/01/2018	Visit to Newport Wetlands and discussions with NRW	Newport Wetlands, UK	Dissemination & Networking	Government Agencies	NRW Ornithologist and Reserve Warden	2	National	Meeting	Advice on monitoring lapwing chicks and productivity.
24/02/2018	Hampshire Ornithological Society Annual meeting	Littleton, UK	Dissemination	Local Groups	Hampshire Ornithological Society members	50	Regional	Conference	Presentation on project and initial results
25/03/2018	Wild New Forest meeting	New Forest, UK	Dissemination & Networking	Local Groups	Local Ornithologists and Naturalists	15	Local	Meeting	Discussion of local conservation projects including projects focused on breeding waders.
Apr-18	Predator management meeting	GWCT HQ, UK	Dissemination & Networking	Farmers, Gamekeepers & Landowners	Bisterne Estate staff	3	Local	Meeting	Meeting to discuss predator management and effectiveness of predator control
15/04/2018	Wild New Forest meeting	New Forest, UK	Dissemination & Networking	Local Groups	Local Ornithologists and Naturalists	15	Local	Meeting	Discussion of local conservation projects including projects focused on breeding waders.

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20/05/2018	Wild New Forest meeting	New Forest, UK	Dissemination & Networking	Local Groups	Local Ornithologists and Naturalists	15	Local	Meeting	Discussion of local conservation projects including projects focused on breeding waders.
21/05/2018	Visit from BTO and FRG	Avon Valley field sites, UK	Dissemination & Networking	Environmental organisations	BTO / FRG	2	National	Field Visit	Field visit from visiting BTO staff
22/05/2018	Education event at Six Penny Handley School	Six Penny Hanley School, UK	Dissemination	Education	Students and staff of Six Penny Handley School	120	Local	School Visit	School visit where presentation was given, and all classes visited, and educational material delivered
26/05/2018	Planning for Real and Project Community Event	HIWWT Blashford Lakes, UK	Dissemination	Community and General Public	Local community	34	Local	Workshop	Engaging with local community
12/06/2018	Visit from Fundacion Artemisan	GWCT HQ, UK	Dissemination & Networking	Environmental organisations	Agricultural and environmental policy makers (Spanish gov)	14	International	Talks and Field visit	Presentation covering project introduction covering waders/habitats (LG) and predator monitoring (MS).
13/06/2018	Visit to LIFE Project Godwit	WWT Welney/RSPB Nene Washes, UK	Dissemination & Networking	Other LIFE Projects	Project Godwit team / RSPB / WWT / GWCT staff / Bisterne Estate	10	National	Workshop	Networking and knowledge exchange visit to the Project Godwit sites. The whole of both LIFE project teams were involved. Both Godwit fields sites were visited. 2 W4R presentations were given by MS & LG and 1 by JS on Project Godwit
17/06/2018	Wild New Forest meeting	New Forest, UK	Dissemination & Networking	Local Groups	Local Ornithologists and Naturalists	15	Local	Meeting	Discussion of local conservation projects including projects focused on breeding waders.
23/06/2018	Planning for Real and Project Community Event	HIWWT Blashford Lakes, UK	Dissemination	Community and General Public	Local community	39	Local	Workshop	engaging with local community
24/07/2018	New Forest Show	New Forest, UK	Dissemination & Networking	Community / Environment Groups / Government Agencies	Regional community	>100,000	Regional	Countryside show	Stall incorporating the Waders for Real project (Lapwing and fox work) activities for children and literature available
04/08/2018	Countryfile Live	Blenheim Palace, UK	Dissemination	Community and General Public	Various: NGO's, Farmers, National Community, Government Agencies,	>150,000	National	Countryside show	Stall set up within the GWCT stand to provide information about the W4R project
05/08/2018	Cornwall and Devon Countryman's Fair	Launceston, Cornwall, UK	Dissemination	Community and General Public	Local community	8500	Regional	Countryside show	Stand set-up to provide information about the W4R project
01/09/2018	Education seminar at Uppingham School	Uppingham School, Rutland, UK	Dissemination	Education	Uppingham school students 14-18 years	30	National	Seminar	presentation
01/09/2018	Visit from USGS	Avon Valley field sites, UK	Dissemination & Networking	Environmental Organisations	GWCT staff, 1 Farmer and USGS Wetlands Scientist	5	International	Field Visit	Field visit and knowledge exchange regarding shared themes on wetland conservation
Sep-18	Avon Valley Farmer / Gamekeeper / Landowner meeting	GWCT HQ, UK	Dissemination & Networking	Farmers, Gamekeepers & Landowners	Landowners, farmers, keepers, statutory agencies, farmers union and	37	Local	Meeting	Project update and future projects

LIFE Waders for Real Communications Diary 2015 - 2019

					Bournemouth Water				
02/09/2018	Wild New Forest meeting	New Forest, UK	Dissemination & Networking	Local Groups	Local Ornithologists and Naturalists	15	Local	Meeting	Discussion of local conservation projects including projects focused on breeding waders.
19/09/2018	LIFE Volunteers in Nature Conservation	Tartu, Estonia	Dissemination & Networking	Other LIFE Projects	Various LIFE projects		International	Conference	Paul prepared a presentation on LIFE volunteers and JC prepared a video as a volunteer for a LIFE program
02/10/2018	Visit from Polski Związek Łowiecki	GWCT HQ and Sopley Meadows	Dissemination & Networking	Environmental Organisations	Polski Związek Łowiecki	1	International	Meeting and Field Visit	Information on W4R project
16/10/2018	Meeting and field visit with Fundacion Artemisan	GWCT HQ, UK	Dissemination & Networking	Environmental Organisations	Agricultural and environmental policy makers (Spanish gov)	25	International	Talks and Field visit	Presentation covering project introduction covering waders/habitats (LG) and predator monitoring (MS).
19/10/2018	Education seminar at University of Bath	University of Bath, UK	Dissemination	Education	Undergraduate students, postgraduate students and university staff	52	National	Careers Day	Stall with information about project and wider GWCT work, advertising undergraduate and master's placements and career opportunities
28/09/2018	IWSG Conference	Workum, Netherlands	Dissemination & Networking	Science / Environment groups / Government Agencies	International audience of scientists, nature organisations and government agencies	200	International	Conference	LG presented on chick survival and MS presented on fox diet and tracking. Communication with people on similar projects on waders, gaining information. Discussion and networking with international audience.
Nov-18	Article in Bisterne News	n/a	Dissemination	Community and General Public	Local community	200	Local	Article	Article providing project update
Nov-18	Meeting with BirdLife Netherlands	Zeist, Holland	Dissemination & Networking	Environmental Organisations	Vogelbescherming (BirdLife Netherlands)	10	International	Meeting	Discussion on future collaborative projects involving predator monitoring and tracking.
Nov-18	Avon Valley Farmer / Gamekeeper / Landowner meeting	GWCT HQ, UK	Dissemination & Networking	Farmers, Gamekeepers & Landowners	Landowners, farmers, keepers, statutory agencies, farmers union and Bournemouth Water	26	Local	Meeting	Discussion of future project planning
09/12/2018	Wild New Forest meeting	New Forest, UK	Dissemination & Networking	Local Groups	Local Ornithologists and Naturalists	15	Local	Meeting	Discussion of local conservation projects including projects focused on breeding waders.
15/01/2019	Meeting with Natural England	GWCT HQ, UK	Dissemination & Networking	Government Agencies	Natural England	5	National	Meeting	Meeting with Natural England advisory team to give an update on the project, discuss issues in relation to exclusion fencing and the possibility of derogations on designated sites
Feb-19	Feedback letter on work done so far on project. Site specific feedback.	n/a	Dissemination & Networking	Farmers, Gamekeepers & Landowners	Avon Valley farmers, gamekeeper & landowners	40	Local	Farmer Feedback Letter	Letter to provide a project update and site-specific feedback

LIFE Waders for Real Communications Diary 2015 - 2019

Mar-19	Article for Sporting Shooter	n/a	Dissemination	Farmers, Gamekeepers & Landowners	Hunters and Gamekeepers	n/a	National	Article	Article on the LIFE project and conservation gamekeeping by Rupert Brewer
13/03/2019	Presentation to Christchurch Harbour Ornithological Group	Southbourne, UK	Dissemination	Local Groups	Christchurch Harbour Ornithological Society members	30	Local	Presentation	Talk on lapwing focus on Avon valley (Christchurch Harbour Ornithological Group)
14/03/2019	Avon Valley Farmer / Gamekeeper / Landowner Lapwing Workshop	Bisterne Estate, Avon Valley, UK	Dissemination & Networking	Farmers, Gamekeepers & Landowners / Government Agencies / Environment Groups	Farmers, keepers, landowners and statutory agencies	40	Local	Farmer Meeting	Informal meeting, lapwing update, visit to hotspot water meadows, discussion of project achievements, lapwing management and next steps following completion of project
15/03/2019	Research Day with Sparsholt College	GWCT HQ, UK	Dissemination	Education	Sparsholt College students & lecturers	11	Local	Sparsholt College Visit	Presentations on W4R project and on predator monitoring in the Avon Valley
20/03/2019	Visit from LIFE Project Godwit	GWCT HQ, UK	Dissemination & Networking	Other LIFE Projects	Project Godwit team / RSPB / WWT / GWCT staff / Bisterne Estate	20	National	Meeting and Field visit	Presentations covering W4R project and talk from Project Godwit on the outcomes of the project to date
07/05/2019	Presentation to Bournemouth Natural History Society talk	Bournemouth, UK	Dissemination	Local Groups	Bournemouth Natural History Society	31	Local	Lecture	Presentations on W4R project and on predator monitoring in the Avon Valley
04/06/2019	Visit by Duke of Westminster to discuss wetland management	Avon Valley field sites, UK	Dissemination	Farmers, Gamekeepers & Landowners	Duke of Westminster and staff	2	National	Field Visit	Field visit including discussion re W4R project
09/06/2019	Bisterne Open Farm	Bisterne Estate, Avon Valley, UK	Dissemination	Community and General Public / Environment Groups/ Government Agencies	Various: NGO's, Farmers, Local Community, Government Agencies,	4000	Local	Open Farm Sunday - planning for real event	Engaging with local community
12/06/2019	Education Day for Countryside Trust (schools)	Bisterne Estate, Avon Valley, UK	Dissemination	Education	School children - ages 5 to 10	20	Local	School activities	School visit where presentation was given, and all classes visited, and educational material delivered
08/07/2019	Visit to Lough Erne Project	Lough Erne, Ireland	Dissemination & Networking	Other Non-LIFE Projects	Both project teams / landowners / gamekeepers / farmers	2	International	Meeting and field visits	Field visits and meeting
14/07/2019	Planning for Real and Project Community Event	HIWWT Blashford Lakes, UK	Dissemination	Community and General Public	Community	31	Local	Workshop	Engaging with local community

LIFE Waders for Real Communications Diary 2015 - 2019

24/07/2019	Visit from Ympäristöministeriö (Finnish Ministry of the Environment)	Avon Valley field sites, UK	Dissemination & Networking	Other Non-LIFE Projects	Heidi Kylnn, Game Management Specialist	5	International	Field visit and meeting	Field visit and knowledge exchange regarding shared themes on predator management
27/08/2019	New Forest Show	New Forest, UK	Dissemination	Community and General Public / Environment Groups/ Government Agencies	Various: NGO's, Farmers, Local Community, Government Agencies,	>100,000	Local	Countryside show	Stall incorporating the Waders for Real project (Lapwing and fox work) activities for children and literature available
12/09/2019	Visit from Moorland Association	Avon Valley field sites, UK	Dissemination	Farmers, Gamekeepers & Landowners	Dick Bartlett, Moorland Association	3	National	Advisory visit	Avon valley visit to discuss practical options for waders
20/09/2019	IWSG Conference	Morecombe, UK	Dissemination & Networking	Science / Environment groups / Government Agencies	International audience of scientists, nature organisations and government agencies	200	International	Conference	AH Presentation about predation pressure on breeding waders. Discussion and networking with international audience.
11/10/2019	Visit from University of Gloucestershire	GWCT HQ, UK	Dissemination & Networking	Universities	Mark O'Connell, University of Gloucestershire	4	National	Meeting	Discussion regarding the LIFE Waders for Real project, field sites, monitoring and management.
05/11/2019	LIFE Waders for Real End of Project Conference	GWCT HQ, UK	Dissemination & Networking	All Audiences	Various: NGO, GO, farmers, land managers, GWCT staff	60	International	W4R Conference	End of LIFE Project Conference and Workshop
18/11/2019	Presentation to Salisbury and District Natural History Society	Salisbury, UK	Dissemination	Local Groups	Salisbury and District Natural History Society members	40	Local	Presentation	Presentation on project and predator management
21/11/2019	Research Day with Sparsholt College / Planning for Real student event	GWCT HQ, UK	Dissemination	Education	Sparsholt College students & lecturers	15	Local	Presentation and demonstration	LG project info plus wader surveying techniques, Mike Short Fox tracking and behaviour, Mike Swan Snaring ticket
21/11/2019	Education day for Burgate School	Burgate School, Fordingbridge, UK	Dissemination	Education	Burgate School students and wider community	30	Local	Stand to demonstrate GWCT projects	Careers day
27/11/2019	GWCT Staff Conference	GWCT HQ, UK	Dissemination	GWCT	GWCT staff	100	National	Conference	Combined talk from wader team, comms, Avon Valley Keeper and policy
26/02/2020	Education Day for Six Penny Hanley Scouts	GWCT HQ, UK	Dissemination	Education	Six Penny Handley Scouts and leaders	20	Local	Cub Scout Visit	Various wader and wetland educational activities

14.2 LIFE Waders for Real Project leaflet version 1

Our Approach

Partnership working
We will deliver the project through a partnership between the private sector (farmers, landowners), conservation charities (Game & Wildlife Conservation Trust, Hampshire & IOW Wildlife Trust), higher education institutions (Sparsholt College) and the public sector (Natural England, Environment Agency).

New conceptual approach
Considerable investment has been made in the Avon Valley through agri-environment schemes, but this has involved solely habitat management. We will test whether management of habitat and predation levels at the farm scale, to create 'hotspots' of increased breeding success, is more effective for reversing wader population declines.

Advice and engagement
Detailed, site-specific advice on habitat management and reducing predation will be essential to halt further decline in the waders. We will identify groups of fields suitable for the creation of 'hotspots', where increased resources will be targeted.

On-site actions
Life+ funding will be used to finance measures that could not otherwise be implemented through HLS. Predator exclusion fencing and nest cages will be trialled to increase wader nest survival. In-field wet features will be created to improve conditions for wader broods.

Monitoring
Numbers and breeding success of lapwings and redshank, abundance of predators and changes in other taxa will be monitored to measure the effectiveness of interventions.

For enquiries, send an e-mail to: **info@wadersforreal.eu**

Find out more about project progress on our website: **www.wadersforreal.eu**

Follow us on twitter - **@wadersforreal**

Integration of processes for wader recovery in a non-reserve landscape

Integrated approaches involving both habitat and predator management are starting to be adopted on a few nature reserves. However, these sites consist of large, open landscapes with species-poor grassland reverted from arable land and are managed by single landowners with complete control over the grazing and other management of the site. At present we do not know whether it is feasible to implement the combination of habitat improvement and reduced predation in the wider countryside, such as more enclosed river floodplains with multiple small landholdings.
The Avon floodplain differs from other key breeding wader sites in England in that it is not managed wholly or partially as a nature reserve by a conservation organization. The Avon Valley therefore makes a very good site for demonstrating what is achievable through a local farmer-led initiative. Achieving wader recovery at non-reserve sites is likely to be logistically more difficult than on reserves, because it requires co-operation between landowners and some of the methods employed on reserves may need to be modified in order to be acceptable to farmers. We believe that the key to success lies in tailoring a wide range of predator exclusion measures to individual circumstances based on an understanding of how different predators use the landscape.

The Game & Wildlife Conservation Trust is an independent wildlife conservation charity which carries out scientific research into Britain's game and wildlife. We advise farmers, land managers and landowners on improving wildlife habitats and we lobby for agricultural and conservation policies based on science. For more information go to **www.gwct.org.uk**

Waders for Real

Breeding wader recovery in the Avon Valley

www.wadersforreal.eu

Game & Wildlife CONSERVATION TRUST

Predated Lapwing eggs

Wader declines: a pan-European issue

Along with many other farmland birds, breeding waders have been declining across Europe for at least the last 30 years. This is primarily due to agricultural improvement of their favoured wet grassland habitats, involving drainage, fertilization of grass swards and increases in livestock densities. Agri-environment schemes in several countnes have attempted to address these problems by compensating farmers for maintaining higher field water levels and practicing lower intensity farming. However, there is an increasing body of evidence from scientific studies conducted on breeding waders across Europe that high levels of predation by widespread, generalist predators is likely to be limiting wader population recovery in many situations.
Methods of reducing predator impacts are being developed and trialled by some landowners and other organizations, but these are in large, open landscapes, typically nature reserves. They have focused mainly on predator exclusion fencing. However, this is unlikely to be feasible in all situations, especially river valleys and areas with regular livestock movements and is only likely to be effective against mammalian predators, not against avian ones.
The Avon Valley is typical of river valley situations where other biodiversity considerations are also important and the feasibility of effectively reducing predator impacts is more constrained by the landscape and multiple land ownership.

Lapwing chicks in the nest

For the lapwing, there is evidence that low breeding success, rather than reduced adult survival, is the main driver of population decline.

The Avon Valley

The River Avon develops into a large calcareous lowland river south of Salisbury, which is of national and international importance for its wildlife communities. The floodplain consists of humid, species-rich grassland, with ditches and some standing water usually persisting through the spring months. The floodplain SPA and SSSI designations reflect its value for a wide range of species, including breeding waders, wintering wildfowl and waders, otters and certain insects, molluscs and plants of national importance. The traditional farming pattern of the valley reflects the propensity for winter flooding, with relatively low-intensity livestock farms and a predominance of grazed pastures and hay fields.

The decline of waders in the Avon Valley

The Avon Valley has historically supported nationally important populations of breeding lapwings, redshank and snipe. In common with other lowland wet grassland sites throughout Britain, the numbers of breeding waders in the Avon Valley have declined dramatically since the early 1980s, with declines of 64% in lapwing, 75% in redshank and 97% in snipe during 1982-2002. Since 2003, farmers have been encouraged to join the Higher Level Stewardship (HLS) scheme and uptake by farmers within the valley has been high. In total, this amounts to a considerable investment in habitat restoration over the last 20 years, but to date there has been no reversal of the trend in wader numbers.
The GWCT has been involved in monitoring breeding waders in the Avon Valley for over 20 years. We hold data on field conditions and wader numbers and, since 2007, we have collected data on lapwing breeding success on 15 farms. Our data for 2007-2014 show clearly that poor breeding success is driving the decline in lapwings and that low nest survival resulting from high levels of predation is the key issue.

Lapwing productivity in the Avon Valley has averaged 0.41 fledged young per pair: this is well below the threshold of 0.7 fledged young per pair per annum needed to maintain a stable population

Clutch of Lapwing eggs

Project aims

The project seeks to reverse the decline of breeding waders in the Avon Valley. We urgently need to intervene to improve breeding success, which should lead to increases in breeding density. The objectives are, through a unique combination of habitat restoration and innovative targeted, seasonal exclusion, monitoring and tracking of predators to:

1. Increase lapwing numbers in the Avon Valley, through the novel approach of creating strategic 'hotspots' of optimum habitat with reduced predation pressure.
2. Increase numbers of lapwing chicks fledged at 'hotspots' to the point where breeding densities become sufficient to enable lapwings to better fend off potential predators on their own.
3. Halt the decline of redshank in the Avon Valley by increasing productivity.
4. Create conditions to encourage snipe to return to breed.
5. Using a new approach called 'Planning for Real' to deliver sustainable conservation actions.
6. Demonstrate how far habitat manipulation can be used to push the balance in favour of waders rather than predators. We will assess predator behaviour in manipulated landscapes.
7. Demonstrate the most appropriate techniques for the efficient assessment and exclusion of predators and quantify any benefit or problems associated with predation control.
8. Quantify the costs of different techniques for increasing wader breeding success and the timescale over which this translates into higher wader numbers.
9. Monitor the effects of restoration for waders on other key elements of floodplain biodiversity, particularly the flora, invertebrates and wintering wildfowl.

14.3 LIFE Waders for Real Project leaflet version 2

Lapwing typically lay 4 eggs in a shallow scrape, lined with vegetation

Wader declines: a pan-European issue

Along with many other farmland birds, breeding waders have been declining across Europe for at least the last 30 years. This is primarily due to agricultural improvement of their favoured wet grassland habitats, involving drainage, fertilization of grass swards and increases in livestock densities. Agri-environment schemes in several countries have attempted to address these problems by compensating farmers for maintaining higher field water levels and practicing lower intensity farming. However, there is an increasing body of evidence from scientific studies conducted on breeding waders across Europe that high levels of predation by widespread, generalist predators are likely to be limiting wader population recovery in many situations.

The decline of waders in the Avon Valley

The Avon Valley has historically supported nationally important populations of breeding lapwing, redshank and snipe. In common with other lowland wet grassland sites throughout Britain, the numbers of breeding waders in the Avon Valley have declined dramatically since the early 1980s, with declines of 64% in lapwing, 75% in redshank and 97% in snipe between 1982-2002. Our data for 2007-2014 show clearly that poor breeding success is driving the decline in lapwing and that low nest survival resulting from high levels of predation is the key issue. The Avon Valley is typical of river valley situations where other biodiversity considerations are also important and the feasibility of effectively reducing predator impacts is constrained by the landscape and land ownership.

Lapwing chicks in the nest

Lapwing need to fledge 0.7 young per pair per year to maintain a stable population.

Prior to the project, lapwing productivity averaged only 0.41 young per pair

Our Approach

Partnership working
We deliver the project through a partnership between the private sector (farmers, landowners), conservation charities (Game & Wildlife Conservation Trust, Hampshire & IOW Wildlife Trust), higher education institutions (Sparsholt College) and the public sector (Natural England & Environment Agency).

SPARSHOLT COLLEGE HAMPSHIRE · Hampshire & Isle of Wight Wildlife Trust · Natural England · Environment Agency

New conceptual approach
Considerable investment has been made in the Avon Valley through agri-environment schemes, but this has involved solely habitat management. We are testing whether management of habitat and predation levels at the farm scale, can create 'hotspots' of increased breeding success, and whether this approach is more effective at reversing wader population declines.

Advice and engagement
Detailed, site-specific advice on habitat management and reducing predation is essential to halt further decline in the waders. We have identified groups of important fields and created a network of 'hotspots', where increased resources are targeted to improve productivity.

On-site actions
EU Life+ funding has been used to finance measures that could not otherwise be implemented through HLS. Predator exclusion fencing and nest cages are being trialled to increase wader nest survival. In-field wet features are being created to improve wader chick foraging resources and increase survival.

Monitoring
Numbers and breeding success of lapwing and redshank, abundance of predators and changes in other taxa are being monitored to measure the effectiveness of interventions and provide novel ecological insight.

Want to learn more?

Email info@gwct.org.uk
Visit wadersforreal.eu
Follow us online @wadersforreal

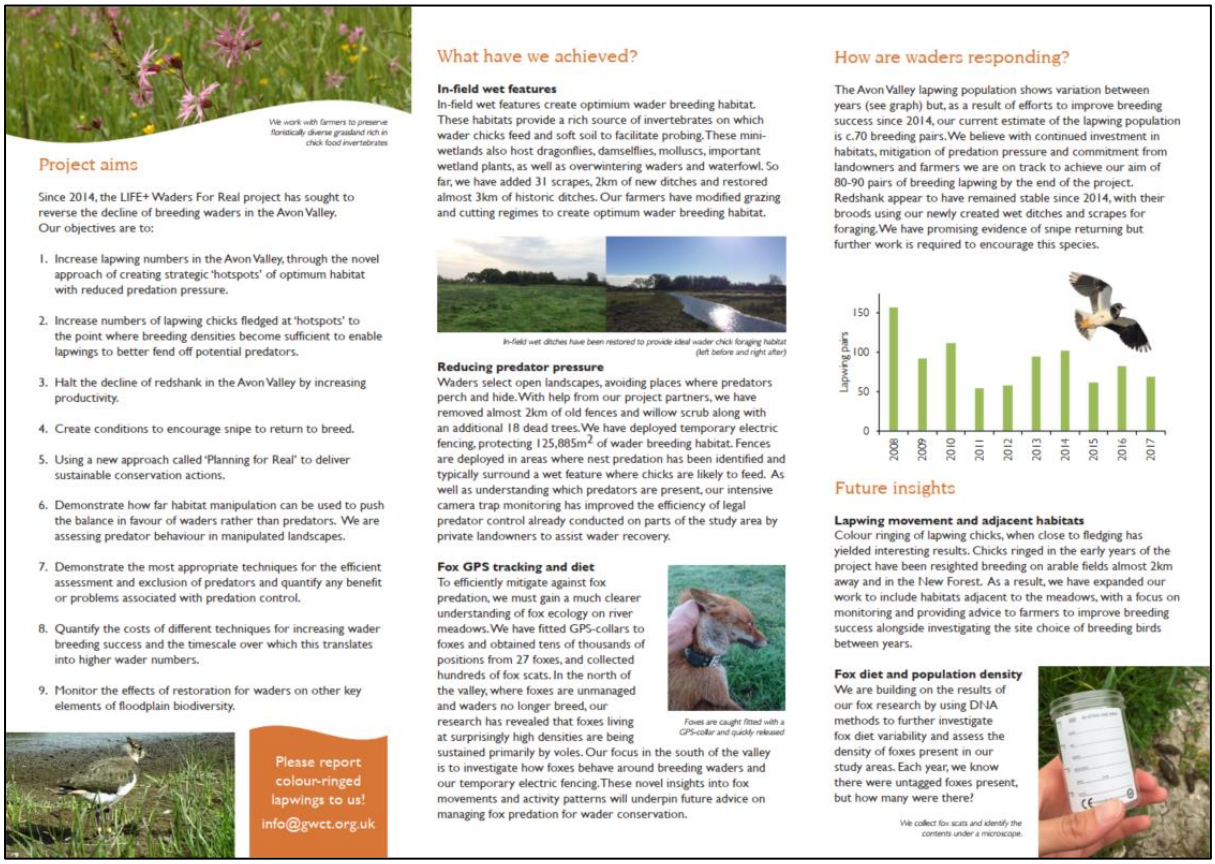
LIFE Waders for Real

Breeding wader recovery in the Avon Valley

@wadersforreal

LIFE Waders for Real
www.wadersforreal.eu

Game & Wildlife CONSERVATION TRUST



We work with farmers to preserve floristically diverse grassland rich in chick food invertebrates

Project aims

Since 2014, the LIFE+ Waders For Real project has sought to reverse the decline of breeding waders in the Avon Valley. Our objectives are to:

1. Increase lapwing numbers in the Avon Valley, through the novel approach of creating strategic 'hotspots' of optimum habitat with reduced predation pressure.
2. Increase numbers of lapwing chicks fledged at 'hotspots' to the point where breeding densities become sufficient to enable lapwings to better fend off potential predators.
3. Halt the decline of redshank in the Avon Valley by increasing productivity.
4. Create conditions to encourage snipe to return to breed.
5. Using a new approach called 'Planning for Real' to deliver sustainable conservation actions.
6. Demonstrate how far habitat manipulation can be used to push the balance in favour of waders rather than predators. We are assessing predator behaviour in manipulated landscapes.
7. Demonstrate the most appropriate techniques for the efficient assessment and exclusion of predators and quantify any benefit or problems associated with predation control.
8. Quantify the costs of different techniques for increasing wader breeding success and the timescale over which this translates into higher wader numbers.
9. Monitor the effects of restoration for waders on other key elements of floodplain biodiversity.

Please report colour-ringed lapwings to us!
info@gwct.org.uk

What have we achieved?

In-field wet features
In-field wet features create optimium wader breeding habitat. These habitats provide a rich source of invertebrates on which wader chicks feed and soft soil to facilitate probing. These mini-wetlands also host dragonflies, damselflies, molluscs, important wetland plants, as well as overwintering waders and waterfowl. So far, we have added 31 scrapes, 2km of new ditches and restored almost 3km of historic ditches. Our farmers have modified grazing and cutting regimes to create optimum wader breeding habitat.

In-field wet ditches have been restored to provide ideal wader chick foraging habitat (left before and right after)

Reducing predator pressure
Waders select open landscapes, avoiding places where predators perch and hide. With help from our project partners, we have removed almost 2km of old fences and willow scrub along with an additional 18 dead trees. We have deployed temporary electric fencing, protecting 125,885m^2 of wader breeding habitat. Fences are deployed in areas where nest predation has been identified and typically surround a wet feature where chicks are likely to feed. As well as understanding which predators are present, our intensive camera trap monitoring has improved the efficiency of legal predator control already conducted on parts of the study area by private landowners to assist wader recovery.

Fox GPS tracking and diet
To efficiently mitigate against fox predation, we must gain a much clearer understanding of fox ecology on river meadows. We have fitted GPS-collars to foxes and obtained tens of thousands of positions from 27 foxes, and collected hundreds of fox scats. In the north of the valley, where foxes are unmanaged and waders no longer breed, our research has revealed that foxes living at surprisingly high densities are being sustained primarily by voles. Our focus in the south of the valley is to investigate how foxes behave around breeding waders and our temporary electric fencing. These novel insights into fox movements and activity patterns will underpin future advice on managing fox predation for wader conservation.

Foxes are caught fitted with a GPS-collar and quickly released

How are waders responding?

The Avon Valley lapwing population shows variation between years (see graph) but, as a result of efforts to improve breeding success since 2014, our current estimate of the lapwing population is c.70 breeding pairs. We believe with continued investment in habitats, mitigation of predation pressure and commitment from landowners and farmers we are on track to achieve our aim of 80-90 pairs of breeding lapwing by the end of the project. Redshank appear to have remained stable since 2014, with their broods using our newly created wet ditches and scrapes for foraging. We have promising evidence of snipe returning but further work is required to encourage this species.

Future insights

Lapwing movement and adjacent habitats
Colour ringing of lapwing chicks, when close to fledging has yielded interesting results. Chicks ringed in the early years of the project have been resighted breeding on arable fields almost 2km away and in the New Forest. As a result, we have expanded our work to include habitats adjacent to the meadows, with a focus on monitoring and providing advice to farmers to improve breeding success alongside investigating the site choice of breeding birds between years.

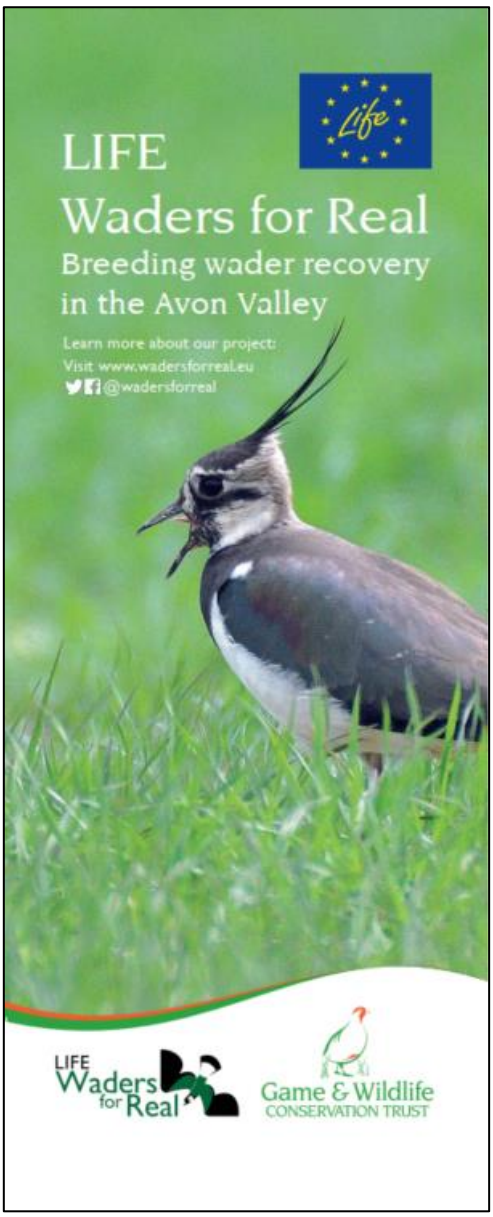
Fox diet and population density
We are building on the results of our fox research by using DNA methods to further investigate fox diet variability and assess the density of foxes present in our study areas. Each year, we know there were untagged foxes present, but how many were there?

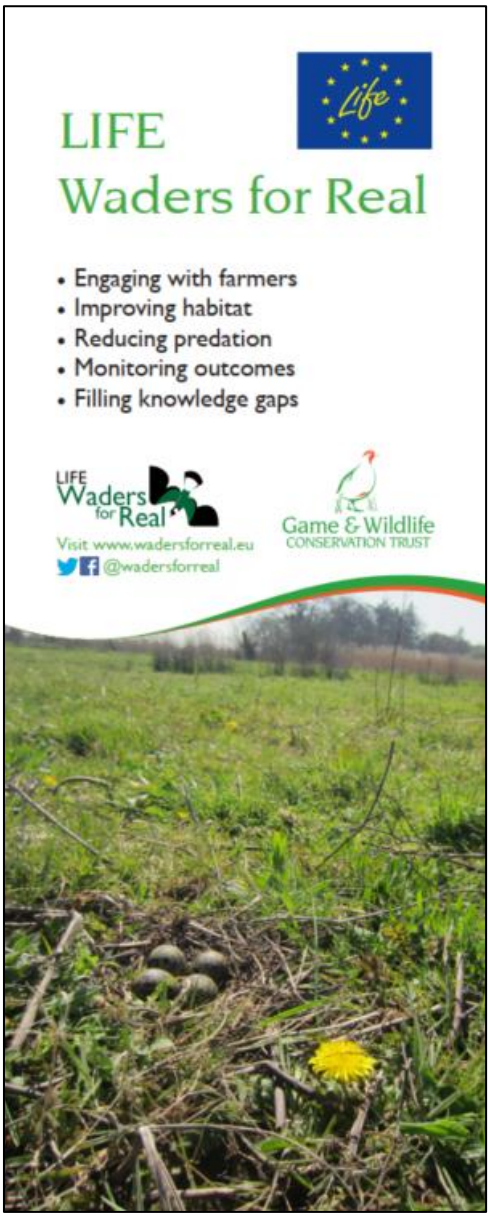
We collect fox scats and identify the contents under a microscope.

14.4 LIFE Waders for Real Project noticeboard 1

14.5 LIFE Waders for Real Project noticeboard 2

14.6 LIFE Waders for Real Pull-up banners

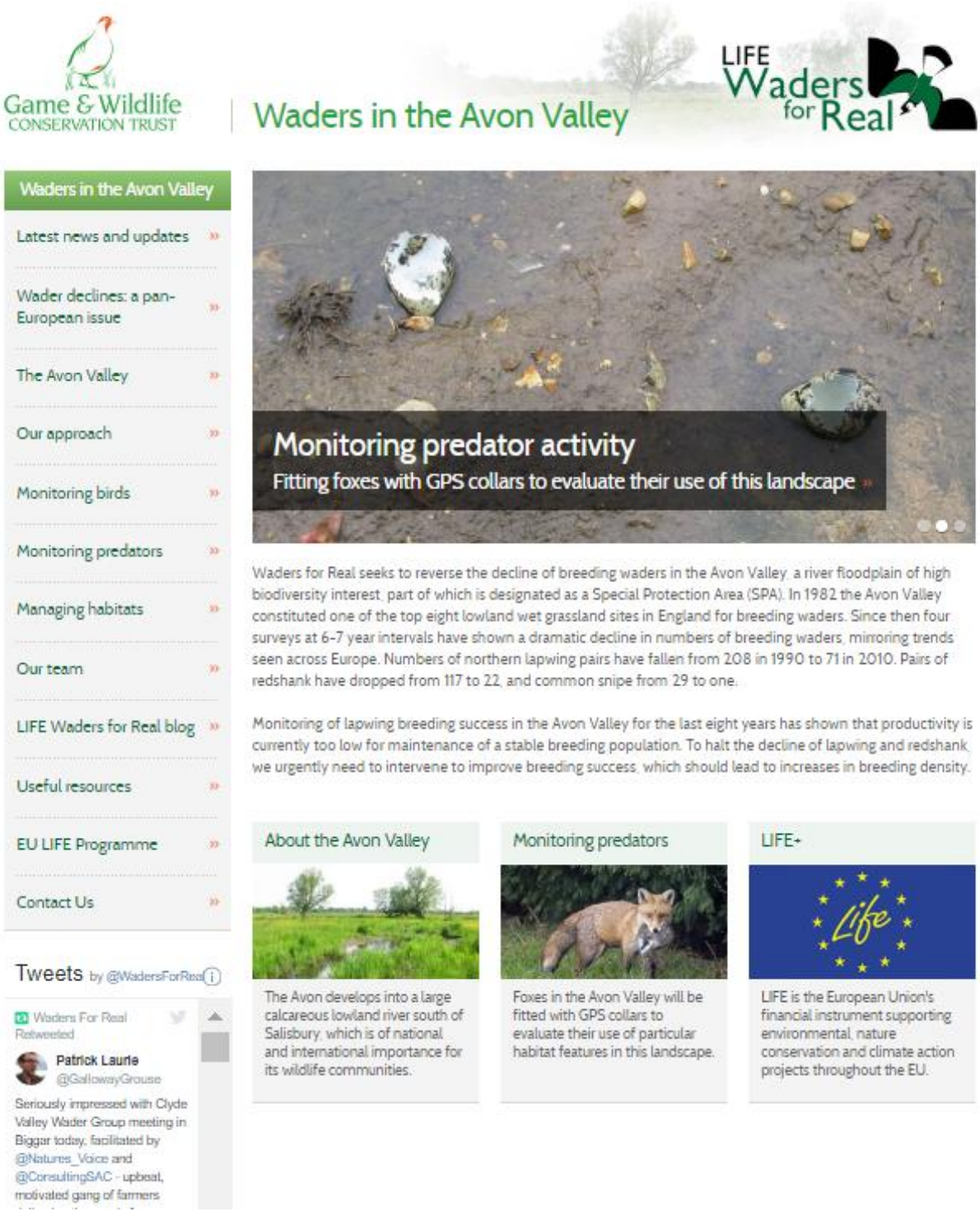




14.7 LIFE Waders for Real Project website summary

LIFE Waders for Real Website Summary

Homepage



Example Section 1 - The Avon Valley

Game & Wildlife CONSERVATION TRUST

Waders in the Avon Valley

LIFE Waders for Real

- Waders in the Avon Valley
- Latest news and updates
- Wader declines: a pan-European issue
- **The Avon Valley**
  - The landscape
  - The decline of waders
  - The wildlife
- Our approach
- Monitoring birds
- Monitoring predators
- Managing habitats
- Our team
- LIFE Waders for Real blog
- Useful resources
- EU LIFE Programme
- Contact Us

The Avon Valley

The Avon Valley, also known as the Salisbury or Hampshire Avon is a river valley situated in central southern England. The river begins as two small rivers just north of Salisbury in the in the Vale of Pewsey. These smaller rivers merge flowing southwards across Salisbury Plain and through the town of Salisbury itself. At Salisbury, the Avon is joined by three of its major tributaries - the Rivers Bourne, Nadder and Wylye, and a short distance downstream by the River Ebble. After which it enters Hampshire, flowing alongside the lowland heath of the New Forest National Park and down through Ringwood to Christchurch where it merges with the River Stour and flows into Christchurch Harbour. The overall catchment area is about 1,750 square kilometres, made up of steep sided chalk valley in the north and extensive open wet grassland in the south.

The Avon and associated wetlands support habitats and species of national and international importance, with Sites of Special Scientific Interest (SSSI), Special Area of Conservation, Special Protection Area and Ramsar designations. In recent years populations of breeding waders have undergone significant declines.

The Landscape

The lower reaches of the Avon Valley are characterised by extensive lowland wet meadow grassland

The Wildlife

The Avon Valley is one of the most bio diverse river systems in lowland Britain, supporting a very rich diversity of fish, birds and invertebrate fauna

The Decline of Waders

The numbers of breeding lapwing, redshank and snipe using the Avon Valley have undergone significant decline

Example Section 1 – Page 1 - The landscape

Game & Wildlife CONSERVATION TRUST | Waders in the Avon Valley

LIFE Waders for Real

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The landscape

The steep-sided chalk valleys of the River Avon develop in to extensive wet meadow grassland in its lower reaches. The floodplain is one of the largest areas of species-rich unimproved grassland in Britain. Since 1945, the extent of semi-natural grassland in the UK has declined significantly, with around 90% of this lost in the lowlands, which demonstrates the importance of the Avon Valley landscape.

Water meadows are areas of grassland, which are deliberately flooded over-winter using a system of channels, ditches and sluice gates. Historically, this was conducted at the discretion of the landowner for two main purposes: to promote early grass growth and to improve grass quality. The traditional wet meadow farming pattern of the valley reflects the propensity for winter flooding, with relatively low-intensity livestock farms. Unfortunately, the technique of water meadow management declined from the 1930s due to the changes in farming practice, drainage and expanding human settlements. However, many landowners still operate parts of practice with vary degrees of intensity and maintain species-rich wet meadows.

Moving away from the river, toward the rise, the valley holds extensive areas of agriculturally improved grassland and mixed farmland, with typically small woodland patches, dry heath and mire. Woodlands are typically broad-leaved though there has been some improvement with coniferous plantation. The east of the Avon Valley rises to the New Forest National Park, an extensive area of open heathland, mire and woodland. There are several large manors in the south of the valley, which hold extensive landscaped parklands with mature trees and lakes. Other terrestrial habitats include marshy grassland, reedbeds and rich fens.

Above Ringwood, adjacent to one of our wet-meadow hotspot sites are a series of lakes, associated with gravel extraction. Gravel extraction still occurs in the Valley, though historic extraction has created new wetland habitats which in places have been turned over to nature reserves, such as our partner HIWWT, Blashford Lakes Reserve.

Despite changes, the Avon Valley still holds proportions of wet meadow grassland of national and European importance, earning it a designation as RAMSAR site. The floodplains remaining wet grasslands are ideal for breeding waders and hence where we focus the work of LIFE Waders for Real to improve habitats. Our hotspot sites are spread throughout the south of the Avon Valley, being centred approximately on Ringwood.

Example Section 1 – Page 2 - The wildlife

Game & Wildlife CONSERVATION TRUST

Waders in the Avon Valley

LIFE Waders for Real

Waders in the Avon Valley

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The wildlife

The Avon Catchment is one of the most bio diverse river systems in lowland Britain, supporting a very rich diversity of flora, fish, birds and invertebrate fauna more so than any other chalk river in Britain. Within the overall catchment, there are two areas of natural beauty, two environmentally sensitive areas, nine special areas of conservation (SAC) and 71 sites of species scientific interest. The lower reaches are classified as a RAMSAR site and includes several of the overall designated sites. This clearly demonstrates the importance of the lower Avon Valley for a whole host of species.

The lower valley hosts a nationally important assemblage of breeding wetland birds, particularly those associated with lowland wet grassland such as lapwing (Vanellus vanellus) and redshank (Tringa tetanus). Historically, the site was listed as of the eight most important areas in Britain for these species, though their populations have experienced declines in recent times. Notable regularly recorded breeding songbird species include cetti's warbler (Cettia cetti), reed warbler (Acrocephalus scirpaceus) and reed bunting (Emberiza schoeniclus). Though not regularly recorded, low numbers of the red-listed nightingale (Luscinia megarhynchos) remain breeding in the valley.

In addition to breeding birds, the lower supports nationally or internationally important populations of 5 species of wintering waterfowl or waders including 3.1% of the UK population of wintering Gadwall and nationally important populations of wintering Black-tailed Godwit, Shoveler and Pintail.

Over 180 species of aquatic plant have been recorded within the river, with further diversity in the accompany species-rich grasslands. There are still limited areas of diverse MG8 (Cynosurus cristatus-Caltha palustris) swards, supporting species such as brown sedge (Carex disticha), fen bedstraw (Galium uliginosum), water avens (Geum rivale) and marsh valerian (Valeriana dioica). Alongside, scarce flora such as small fleabane (Pulicaria vulgaris) and mudwort (Limosella aquatica).

The river itself, is nationally one of the most diverse fish populations in Britain and is renouned for trout, grayling and salmon. Although these populations have faced pressures and experienced declines in recent decades. There are several projects focused on improving the status on the Avon Valley fish population. The range of river and wetland invertebrates the Avon Valley is richer and more varied than most rivers in the UK, including national important populations of Desmoulin's whorl snail (Vertigo moulinsiana) and Pea mussel (Pisidium tenuilineatum).

Various Avon Valley wildlife (top right to bottom right): Desmoulin's whorl snail, gadwall, red fox, banded demoiselle, redshank and watervole.

Example Section 1 – Page 3 - The decline in waders

Game & Wildlife CONSERVATION TRUST

Waders in the Avon Valley

LIFE Waders for Real

The decline of waders

The Avon Valley has historically supported nationally important populations of breeding northern lapwing (*Vanellus vanellus*), redshank (*Tringa totanus*) and common snipe (*Gallinago gallinago*). In common with other lowland wet grassland sites throughout Britain, the numbers of breeding waders in the Avon Valley have declined dramatically since the early 1980s, with declines of 64% in lapwing, 75% in redshank and 97% in snipe during 1982-2002.

The Avon Valley was designated as an Environmentally Sensitive Area (ESA) in 1993. Since 2003 farmers have been encouraged to join the Higher Level Stewardship (HLS) scheme, and uptake by farmers within the valley has been high. In total, this amounts to a considerable investment in habitat restoration over the last 20 years, but to date there has been no reversal of the trend in wader numbers.

The GWCT has been involved in monitoring breeding waders in the Avon Valley for over 20 years. We hold quantitative data on field conditions and wader numbers and distribution on sites with breeding waders in the Avon Valley in four years: 1990, 1996, 2003 and 2010. Since 2007, we have collected data on lapwing breeding success on 15 farms. Our data for 2007-2014 show clearly that poor breeding success is driving the decline in lapwings and that low nest survival resulting from high levels of predation is the key issue.

Lapwing productivity in the Avon Valley has averaged 0.41 fledged young per pair, reaching a maximum of 0.92 in just one year: this is considerably below the threshold average of 0.7 fledged young per pair per annum needed to maintain a stable population. This is similar to the situation documented in other parts of the UK, e.g. the Norfolk Broads, and in the Netherlands, where mammalian predation on lapwing nests has been recorded at levels where it is limiting population growth.

Example Section 2 – Monitoring birds

Game & Wildlife CONSERVATION TRUST | Waders in the Avon Valley

LIFE Waders for Real

- Waders in the Avon Valley
- Latest news and updates
- Wader declines: a pan-European issue
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- Our approach
- Monitoring birds
  - Breeding birds
  - Lapwing chick-tracking
  - Lapwing colour-ringing
  - Wintering waterfowl and waders
- Monitoring predators
- Managing habitats
- Our team
- LIFE Waders for Real blog
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Monitoring birds

Since the early 1990s, management to restore breeding wader populations has been focused on habitat restoration and improvement. Large sums of money have been spent on habitat management, but in many cases, there has been little monitoring of its effectiveness. Owing to limited resources for monitoring and difficulties with detection, the typical measures of success, have been the area of habitat restored and counts of pairs of breeding waders.

Habitat quality and predation both have important influences on breeding wader populations and population recovery is unlikely to be achieved without addressing both issues. The level of productivity of Lapwing in the Avon Valley prior to the start of LIFE Waders for Real was not enough for the population to remain stable. Therefore, part of our work has focuses on breeding success. To enable us to gain the best possible understanding of the effect of LIFE Waders for Real the team employ a range of monitoring methods, focused on obtaining important data on wader abundance and productivity.

In addition, our work has the potential to impact a whole range of wetland birds in addition to waders, both breeding and wintering in the Avon Valley. Our team undertake surveys to understand the beneficial impacts we are having on the whole avian community.

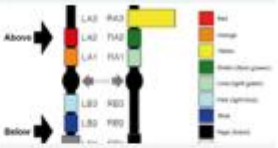
Wintering waterfowl and waders

Our work has the potential to improve conditions wintering waterfowl and waders of national importance

Lapwing chick-tracking

Our team radio-track lapwing chicks to investigate survival and habitat use

Lapwing colour-ringing



Lapwing chicks are fitted with colour-rings to provide data on juvenile recruitment and breeding site choice

Breeding birds

It is key that we monitoring our impact on breeding waders and associated wetland birds

Example Section 2 – Page 1 – Wintering waterfowl and waders

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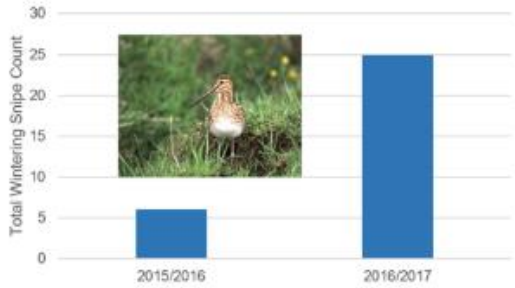
Wintering waterfowl and waders

Although the focus of our project and habitat works is principally the improvement of habitats for breeding waders. However, our work has the potential to positively influence the populations of wintering waterfowl and waders utilising the Avon Valley. Take a scrape for example, these are utilised by breeding lapwing in the spring and summer then by overwintering snipe in the colder months.

The Avon Valley floodplain holds both SPA and SSSI designations for wintering wildfowl and waders and given their importance it crucial that we document any affects our management may have. As a result, since 2015, the LIFE Waders for Real team have been undertaking winter bird surveys, focused on waterfowl and waders.

During this time, we aim to visit each of our study sites at least once every month over a three-month winter period. This is timing is focused on the peak counts of wintering birds. Commonly recorded wintering waders include black-tailed godwit, curlew, common snipe, jack snipe, lapwing and green sandpiper alongside wintering waterfowl such as gadwall, wigeon and teal.

A wintering species which LIFE Waders for Real is particularly interested in is Common Snipe. This species dramatically declined as a lowland breeding bird in the UK, since the 1940's and part of the LIFE Waders for Real project aims to create habitats for this species to return as a breeder. However, until then the valley continues to hold important numbers of migrant snipe which overwinter in the wet meadows and our work has the potential to support this population.



Our surveys so far, have shown increases in the snipe counted on our hotspot sites, such as on one site above where an increase from an average of 6 to 25 snipe were observed during our winter bird surveys. This is fantastic news and a trend we hope continues until the end of the project.

Additional, ad-hoc monitoring is conducted at specific sites using camera traps. These camera traps have shown that many of the in-field wet features created by the project are used as day-time feeding and night time roost sites for wintering waterfowl, often teal and wigeon.

Example Section 2 – Page 2 – Lapwing chick-tracking

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Lapwing chick-tracking

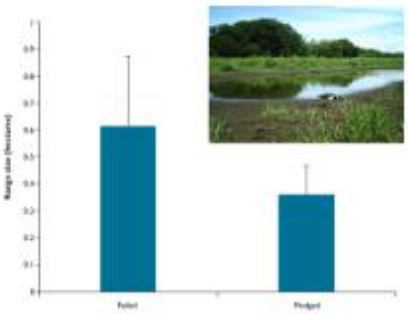
As low productivity is the cause of decline in many lapwing populations, there has been fantastic work taking place on lapwing nest and chick survival across Europe and in the UK. Although, a literature base exists on creating suitable habitats for breeding waders on nature reserves, in the context of private land, where profitable farming is also a key land-use, it is important to understand what features are selected most by foraging lapwing broods and thus the most efficient to implement. In addition, lapwing chicks rely on camouflage to evade predation, hence detectability and especially in late spring can be an issue for monitoring survival purely based on observation. Disturbance through repeated observation also has the potential to influence chick survival.

To provide reliable estimates of lapwing chick survival, information on chick movements and use of newly created habitats as well as minimising disturbance, we radio-tag one chick in each brood captured.

We aim to catch the chicks as they are hatching or a few days old, one chick within the brood is fitted with a small radio-tag (see above). These tags weigh 0.4g, which is less than 2.5% of the chicks body weight when they first hatch, they are attached to the back of the chicks and camouflaged, they fall off once they lose their downy feathers. These tags allow us to monitor chick survival in depth with very low levels of disturbance and have been proven to have no effect on chick survival. All tagging is done under a specific BTO licence.

Below is an example of a radio-tagged chick who was tagged in the nest on day one and its movement recorded, it even crossed a large channel of the river. We know it must have swam across the river as it was not old enough to fly at this point. This behaviour has infact been recorded in several waders and highlights the potential for dispersal even when broods are small. This individual had a home range of size 12.552m².

We radio-tagged one chick in each of 25 lapwing broods in 2015 and 27 broods in 2016. Survival at age of fledging, 35 days was estimated at 17% in 2015 and 46% in 2016. We believe chick survival was higher in 2016, due to habitat improvements and wetter field conditions. In addition, our radio-tracking showed that chicks typically ranged over shorter ranges to find food and cover in 2016 (see below). Our tracking also indicated selection of our in-field wet features for foraging.



In these years, chick survival was inversely related to range size, meaning that the further a chick has the travel, the more susceptible it is to predation, hence justifying the creation of new-infield wet features in fields favoured for nesting.

Mean range size (ha ± 1 se) of lapwing chicks which failed to fledge (n=14) was significantly higher than of chicks that fledged (n=15) in both 2015 and 2016.

This work has continued since 2016 and we will report on our overall findings at the end of LIFE Waders for Real.

Example Section 2 – Page 3 – Lapwing colour-ringing

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Lapwing colour-ringing

Once a lapwing brood reaches around 25 days we aim to catch them to fit colour rings. Colour-marking is used in our project to inform our understanding of lapwing survival, site fidelity and movement.

Colour rings are a great non-invasive and cost-effective way to monitor surival and movement in birds. Once rings are fitted there is no need for re-capture the bird as each individual has a unique combination of colour rings and a black flag unique to our project. Without the need for recapture we can gather more data on survival and dispersal without disturbance.

Resightings of birds during the breeding season tell us the breeding site preferences of our lapwing, which help us deduce what is driving site choice and whether it is consistent between years. Overwinter sightings can inform us about the pressures our lapwing may face whilst on their wintering grounds beyond the Avon Valley. We are utilising this information improve how we promote lapwing recovery in the Avon Valley.

Lapwing chicks that we have colour-ringed, when close to fledging, have been resighted in subsequent years breeding back in the valley close to where they fledged, but also breeding on adjoining arable fields and in the New Forest 22 km away.

Take the bird in the video below (please watch video in full screen mode for best viewing experience):

The bird shown, Nf//RN-G//Nm or in full "left above: black-flag, left below: red over black, right above: green, left below: black over metal". She (...we can tell because of the white in her breast, black-brownish colour of her breast throat and head and short crest...) was ringed as a just fledging chick in May 2015 on a water meadow and resighted breeding on an adjacent arable field 7.07km away in April this year. We were excited when we resighted this bird as it had not been seen breeding back in the valley, since it was originally colour ringed, but as you can see, she was attentively sitting on a nest. As we have only started monitoring arable fields this year, we cannot say if she has been breeding at this site previously, but we will now see if she is faithful to this site in sequent years.

In addition to breeding on other sites within the valley, to date, c.30% of resightings of colour-ringed lapwings during the breeding season have been outside the Avon Valley. Understanding the extent of post-juvenile dispersal and juvenile recruitment is important when working on a recovering population and it is something we are trying to gather more information on through the Waders for Real project.

Colour rings are a very popular method of monitoring wading birds as their legs are often exposed when roosting and feeding. There are many different projects across the world using this method with some very exciting findings, including longevity records and details on migration. So, make sure you check the legs for colour rings next time you are out bird watching!

If you spot a colour-ringed lapwing you can contact us directly at info@gwct.org.uk or through our contact us page to report the sighting and recieve information back on the history of the bird

Example Section 2 – Page 4 – Breeding birds

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Breeding birds

The Avon Valley supports a nationally important assemblage of breeding wetland birds. Although we have selected waders due to their significant declines, our management has the potential to benefit the breeding populations across avian taxa from small songbirds like sedge warblers which utilise the vegetation at the edges of our ditches of forage to ducks like Gadwall which benefit from increased wetness and in-field wet features.

We undertake regular breeding bird surveys throughout the spring during which all wetland associate birds are recorded. The key outcome of these surveys are data on breeding wader abundance, but the method also provides monitoring for species such as Sedge Warbler, Reed Bunting and Gadwall.

So far on our water meadow surveys of hotspot sites, we have recorded 24 amber-listed birds and 7 red-listed birds. The later is highest conservation category given to British birds, with our surveys including Cuckoo, Curlew, Herring Gull, Skylark, Grey Wagtail, Whinchat and Nightingale.

Breeding lapwing are monitored most intensively as our key species demonstrating the quality of the wet meadow grassland. For this species we undertake detailed pair counts and collect data on nest and chick survival. Nests are monitored using small temperature loggers (1cm diameter) which allow us to identify the outcome of a nest based on knowledge of the trend in temperature shown by successfully incubated and hatched nests compared to those which are predated or abandoned. As a result of improving breeding success due to LIFE Waders for Real, our current estimate of the lapwing population is 70 pairs. We are hoping to reach a target of 90-100 pairs by the end of the project. We currently hold 30 pairs of breeding redshank, with chicks fledging inside our predator exclusion fencing. We have created more suitable swards for redshank and with protection from predation, we are hopeful of seeing increase in this species by the end of the project.

Example Section 3 - Useful Resources

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Useful resources

Please navigate our resources using the sections below. This page will be regularly updated over the course of LIFE Waders for Real as further resources are produced or useful documents on wader conservation and wet grassland management are published by our collegues at other organisations.

Project Resources

Documents produced by LIFE Waders For Real so far

Related Projects and Blogs

We work closely with other wader recovery projects

Management Help and Scientific Studies

Documents on management techniques and scientific studies

Example Section 3 – Page 1 - Project Resources

Game & Wildlife CONSERVATION TRUST | Waders in the Avon Valley

LIFE Waders for Real

Project resources

Below are documents produced by the LIFE Waders for Real team so far. Further project outputs will be made available over the course of the project.

Project leaflet 2014

Our leaflet written at the start of the project which summarises what we want to achieve.

Project leaflet 2018

Leaflet updated at the beginning of 2018 with our progress so far.

Project noticeboard

This poster has been erected at various public sites in the valley. Informing and updating the local community about our project and the efforts of our stakeholders is important to achieve long-term recovery of breeding waders.

Colour-ring re-sighting poster

Colour-ring resightings are important to understand where our birds go in winter and where juveniles are breeding. This poster has been erected at several locations in the valley and surrounding areas where colour-ringed lapwing from our project have been observed.

GWCT Annual Review 2014 – Reversing the decline of waders

An introduction the LIFE Waders for Real project and historic declines of waders in the Avon Valley.

GWCT Annual Review 2016 – Breeding wader recovery in the Avon Valley

Lizzie Grayshon, our project ecologist gives insight into the survival of lapwing chicks from our radio tracking study and discusses how our habitat management is helping.

GWCT Annual Review 2017 – Lapwing nest predation and predator monitoring in the Avon Valley

Monitoring and improving nest survival alongside understanding the suite of predators using our hotspot sites is important for establishing breeding wader recovery.

GWCT Annual Review 2017 – Ecology of Foxes in the Avon Valley

We must gain a better understanding Red Fox Vulpes vulpes behaviour in wet meadow grassland. To do this we are utilising GPS tracking and dietary studies with this article provides an update on what we have learnt so far.

Example Section 3 – Page 2 - Related Projects and blogs

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Related projects and blogs

Waders Tales Blog

WaderTales blogs are written by Graham Appleton, to celebrate waders and wader research. Many of the blogs are based on previously published papers, with the aim of making wader science available to a broader audience. Our team highly recommend these for interesting and accessible updates on Wader conservation science.

LIFE Project Godwit

Project Godwit is a five-year, EU LIFE-funded project undertaking action, research and engagement to secure the long-term future of this species in the UK. The remaining Black-tailed Godwit breeding in the UK, do so on lowland wet grassland in East Anglia. Our projects overlap on several topics, such as habitat management and predator exclusion so we are working closely to the benefit of both projects and our populations.

Curlew Country

Curlew, like Lapwing and Redshank are iconic waders and are a UK conservation priority. Curlew Country are researching methods of improve Curlew productivity in the Shropshire and Welsh Marches. We are working closely with their team to share insights and knowledge on habitat management and predator exclusion to benefit breeding waders.

LapwingConservation.org

This website is the output of a knowledge exchange partnership between scientists, conservationists as well as farmers and other stakeholders involved in the Lapwing conservation. It aims at giving both the necessary background information as well as practical advice for a better protection of the species in Europe and will be updated on a regular basis. The Waders for Real team is part of this partnership.

LIFE Laser Fence

The LIFE Laser Fence project aims to develop an innovative technology, Agrilaser, to keep animals away from agricultural fields. It will be demonstrated in Scotland and Spain. The technology involves using a laser fence as an alternative to chemicals or harmful barriers. Under LIFE Waders for Real we are trailing electric fencing to exclude predators, it may be that the Agrilaser system provides an alternative non-lethal method of exclusion.

Example Section 3 – Page 3 - Management help and scientific studies

Game & Wildlife CONSERVATION TRUST | Waders in the Avon Valley

LIFE Waders for Real

Management help and scientific studies

Management Documents

Please take a look at the resources below for information and advice on practical management techniques for breeding waders and predator management.

GWCT Advisory Service Management Fact Sheets

This page is regularly updated with summary guides produced by GWCT on a broad range of topics including many of relevance to breeding waders and legal predator management, such as Camera Trapping for Game and Wildlife, Code of Good Shooting Practice and Fox Snaring Guidelines.

RSPB Wet Grassland Practical Manual: Breeding Waders

A useful practical manual on wet meadow restoration. Under LIFE Waders for Real we are working to update guidance and develop specific management plans for key sites in the valley.

Historic England - Conserving Historic Water Meadows

This guide provides advice to conservation groups, farmers, landowners, community projects or individuals undertaking work to restore historic water meadow sites. It demonstrates how if managed senestively these habitats can provide a variety of habitats and support willdife of conservation concern.

Reprofiling historic ditches: adding shallow edges promotes in-field wet areas and allows waders and their chicks to forage.

Scientific Papers

The LIFE Waders for Real project aims to produce scientific papers from our research after project completion but for now here are recently published papers by other teams on breeding wader recovery.

- Franks, S.E et al. 2018. Evaluating the effectiveness for conservation measures for European grassland-breeding waders. 8. 10555-10568. Click to view in full
- Malpas, L.R et al. 2013. The use of predator-exclusion fencing as a management tool improves the breeding success of waders on lowland wet grassland. Journal for Nature Conservation. 21. 37 – 47. Click to view abstract
- Mason, L.R et al. 2017. Tracking day and night provides insights into the relative importance of different wader chick predators. Ibis. 160. 71 – 88. Click to view in full
- Eglinton, S.M et al. 2008. Restoration of wet features for breeding waders on lowland grassland. Journal of Applied Ecology. 45. 305 – 314. Click to view in full

14.8 LIFE Waders for Real Farmer meeting agenda 20.09.2018

LIFE13BIO/UK/00315

LIFE Waders for Real Meeting

Agenda

Type of meeting: Avon Valley Farmers Meeting

Venue: Burgate Manor, Fordingbridge

Date & Time: 20th Sept 2018 16:00 – 18:00

Number of Hours: 2

16:00 Arrival, tea and coffee

16:10 Welcome address (Teresa Dent)

16:20 Update from 2018 lapwing breeding season (Lizzie Grayshon)

16:35 Fox diet in the Avon Valley (Jodie Case)

16:45 Update on conservation outputs and targets of the Waders for Real project (Lizzie Grayshon)

17:00 Report on weed-cutting meeting with NE/ NFU/ Desmond Swayne (Ron Lakey/Sam Dovey)

17:15 Future funding opportunities, how do you think we should take things forward (Teresa Dent)

1. The possibility of a new LIFE bid. EU funding will still be available for UK applications in 2019.
2. Facilitation Funding. This is Agri-Environment mid-tier funding available to fund *Farmer Clusters*. It pays for a biodiversity adviser for the *Farmer Cluster*, and farmers in the *Cluster* also receive a top-up of 20% on Countryside Stewardship.
3. Local sponsorship.
4. Wessex Water/Entrade. The Avon is an important catchment for Wessex Water and Entrade, a subsidiary of Wessex Water, is interested in working with, and rewarding farmers for reducing the amount of phosphates going into the watercourse. WW is interested in using this Farmer Group as a test case.
5. The Prince's Trust. The work of the gamekeepers in the valley has been very material in stabilising the lapwing population. Something like the Prince's Trust may be interested in funding an apprentice gamekeeper which could extend that work.

18:00 Meeting end

14.9 LIFE Waders for Real 2019 Update

2019 Highlights from Waders for Real project...

The Lapwing breeding season of 2019 started early, with the first Lapwing nest found on 22 March, followed by a flurry of nests being found thereafter, with some nests still being found until mid-July. This meant that many chicks were hatching in close succession, keeping our Waders for Real team on their toes, finding them to radio-tag a sample so their progress could be carefully monitored throughout the season.

First Lapwing nest found of the 2019 field season (22 March 2019)

The weather over the 2019 field season was less variable than previous years, although field conditions became quite dry towards the later summer months. However, as long held wetter areas started to dry, many of the early chicks which progressed well had reached fledging age by this stage and were no longer solely reliant on parched in-field wet features for cover and foraging opportunity; they were able to join adult flocks and utilise other wet areas. We are pleased to report that Lapwing pairs continued to rise this year (105 pairs up from 73 pairs in 2018), continuing the increasing trend we have seen over the course of the project, as well as finding Lapwing breeding on an area north of Fordingbridge. Productivity this year was also encouraging, we saw an increase at 0.9 chicks fledged per pair compared to 0.7 in 2018 (0.7 is the level required to maintain a stable population).

30 day old lapwing chick

We have also seen a promising increase in Redshank pair numbers over the course of the project and are happy to report 35 pairs were surveyed during the 2019 field season, a significant increase from 19 pairs at the beginning of the project in 2015. We hope to learn more about this species in the coming years and to continue to see an increase in pair numbers going forward.

Non-lethal predator control was again undertaken in 2019, using temporary electric fencing. In March, eight fences were deployed in suitable areas of the valley where Lapwing had frequently nested in previous years and where habitat was suitable. Following fence breaches by GPS-tagged foxes in 2018, an improved fence design and increased maintenance schedule was deployed. Fences were tested regularly with accompanied vegetation management, as well as incorporating metal intermediate stakes for rigidity. Three of the 'improved' fences were located on meadows where foxes were tagged; one fence contained five pairs of nesting lapwing, and two others were purposefully erected around pockets of meadow shown to be well-used by tagged foxes.

Our tracking data suggests that none of these fences were breached by tagged foxes, during the period they were tracked, which is encouraging. Also, we can report that 100% of nests in fenced areas survived compared to 67.5% nest survival in unfenced areas.


Fox fitted with GPS tracking collar

In 2019, four adult males and six females were GPS-tagged on our Ibsley and Hucklesbrook hotspot site and tracked from April-July. These tagged foxes provided some fascinating insights into their daily lives in wet meadow habitats, and two family groups held territories in areas where Lapwing were breeding. Despite high levels of fox activity in key nesting and chick rearing areas, ten pairs of lapwings managed to fledge, on average, 1.41 chicks per pair.

Although most of the tagged foxes held distinctive, quite close-knit territories, one non-breeding vixen made some fascinating movements. After being tagged just north of the Ibsley Causeway, overnight she travelled across the New Forest to Totton. She remained in this area for almost two weeks, before heading back to the Avon Valley just south of Ringwood. This has given us a glimpse into the distance foxes will travel and spurred a new area of research which will focus on better understanding the origins of the Avon Valley fox population.

As well as tracking foxes, the Waders for Real team continued to monitor predator activity using camera traps across our hotspot sites. Overall, our team have processed thousands upon thousands of photographs from our trail cameras during the breeding season of various mammalian predators, including foxes, badgers and otters as well as small mustelids such as mink, stoats and weasels.

Lastly, our fox research in 2019 included the collection of a further 270 fox scats (faeces) in areas where foxes were tagged, and the analysis of stomach contents of foxes killed on local shooting estates. This dietary information will help us understand the relative importance of different food resources in the valley, and how they might influence fox ecology.

In relation to wider wildlife, the Waders for Real project have also monitored ditch invertebrates, worm abundance, dragonflies and butterflies *(see below pictures)* throughout the course of the project to understand the impact the project actions may have on other wildlife groups, as well as understanding the effect on chick food availability on growing wader chicks during the crucial spring period.


Foxes surprised us in their choice of food items - McDonalds was on the menu!


Invertebrates are important components in wet meadow habitats

This last year of the Waders for Real project kept up momentum and continued to share the project activities and current results through public engagement opportunities.

Members of the team attended various countryside shows, including the New Forest Show and Open Farm Sunday which were great successes. The project also hosted a number of farmer meetings, allowing everyone involved in lapwing recovery to talk habitat management, predator control and general conservation goals. We also received visits from other conservation organisations such as Project Godwit (a project aiming to secure the future of black-tailed godwits in the UK), land owners from further afield and international visitors looking to share knowledge on wader conservation.

The New Forest Show

Lastly, we held our End of Project Conference in early November to discuss future opportunities for wader management with a variety of experienced individuals and conservation organisations; we hope to release outcomes from the conference discussions in due course.

The conference also gave us the opportunity to celebrate the achievements of everyone involved in the Waders for Real project, sharing the news that a dedicated community of land managers and farmers in the Avon Valley have made positive changes for waders on their land, helping to stabilise a previously declining Lapwing population.


Open Farm Sunday

The Waders for Real project will now analyse all data collected and write up actions and results for the wider community and policy makers to share knowledge of what management works for lapwing recovery and what doesn't!

We end by thanking you for the time you have given to the project and for sharing your knowledge and experiences with us; the resulting positive improvement in lapwing and redshank numbers during the course of this project, from the actions of those on the ground, is something everyone should be extremely proud of. We thank you all.


Avon Valley farmer meeting


Project Godwit visit

14.10 LIFE Waders for Real New Forest Show 2018

LIFE Waders for Real Stand At The New Forest Show

24 July 2018 to 26 July 2018

Waders for Real were invited to The New Forest show for the first time in order to inform people of what the project is about and its overall aims. This was an opportunity to meet with local people as well as people further afield to talk about wader decline.

The stand included research from the wetlands team in relation to wader decline in the Avon Valley, as well as research from the Predation Team in relation to fox ecology in the valley and fox diet. The research was presented through two large posters, a timeline of the lapwing breeding season with integrated activities/visuals and examples of fox diet with microscope. The activities on the stand included:

- 'Find the lapwing nest' (showing lapwings are ground nesting birds and the choice of habitat lapwings choose to nest, as well as the extent of camouflage/vulnerability when nesting)
- Listen to a lapwing display call/alarm call – two speakers were available to hear these sounds. There were also decoy lapwings for the public to visually understand size.
- Lapwing nest display with fake eggs and nest temperature logger.
- Colour ringed lapwing decoy
- Pictures showing the lapwing chick process from nest to colour ringing age.
- Camera trap on display with examples of pictures taken with this technology in the field
- Fox displayed with GPS collar and snare to show tagging and tracking research
- 'Match the Tracks' activity to help aid understanding of various wader predators
- 'How many animals are lapwing nest predators?' – a number of images of lapwing predators were presented on a sheet to aid understanding of the numerous amount of predators, waders are at risk from.
- Fox diet samples obtained from scats and fox stomachs – to show what a fox diet consists of. The public were able to view scat contents (ie small mammal bones, bird remains, beetle segments) under a microscope).
- There was also a brief section presenting the woodcock research

We found that the microscope with the sign 'Come and take a look at the diet of a Red Fox' intrigued people which attracted people to the stand, including lots of children and their parents. From this, many children quickly got involved with the activities on offer and asked lots of questions about the research. They were very interested in the camera trap work and finding the camouflaged lapwing nests in the various pictures – the activities seemed to prompt many questions and was set out well to clearly present the research to many ages.

The stand was busy all three mornings but visitor numbers seemed to dip in the afternoon – this may have been due to the hot weather (approx. 28oC). However, during the peak times, we had visitors who lived locally and individual that managed land to other conservation organisations which were interested in the research in relation to their work.

We also had on display copies of Gamewise, the 2018 Review and Working Conservationists publication, as well as the Wader for Real leaflet. We encouraged people to take leaflets if they did not want to stand and read the research there and then.

Wader recovery poster and available publications

Lapwing breeding season timeline with associated activities and visuals (also showing poster of woodcock research)

Camera trap example area

Fox diet examples

Fox research table and poster

Lead Predator ecologist Mike Short interacting with visitors to the stand

Notable interactions

- Gardener from nearby estate, setting up shoot (first time in 3 years) wanting to set Ip shoot with conservation in mind. Looking for advice for woodland. Given a copy of working conservationist and leaflet to get some information on what we do and to contact in future.
- New forest member living locally and worried about breeding birds, invited us to visit and give advice on management, given review and contact information. Minstead – Barry Ollerenshaw.
- 2 new forest keepers asking for advice about breeding waders, habitat renovation and predator control.
- RSPB local team re project.
- New forest WP head ecologist – project and wader conservation

RB to arrange site visit and talk to New Forest stakeholders on the Waders for Real project.

- Local NE adviser asking for project update and more collaborative working

RB to send revised leaflet to local NE, WT, EA, NFNP, HOS, SOS, DBC, CHOC, Sparsholt.

- Spoken to University of Southampton prof re student projects and collaborative working.
- Beaulian Estate keeper
- Head of Dorset Mammal Group – interested in otters, practical solutions. Interestedin numbers of otters in the Avon Valley.
- Leaflets given to local recruiter (1/2 pack)
- Nicky Stevens – adjacent land owner near Couldings Farm. She believes number of lapwing increasing on her land – very particular on who she lets on the land, knows Nick Sotherton, took a leaflet and said she would be in touch.

14.11 LIFE Waders for Real Eco Week at Six Penny Hanley Junior School

Eco Week at Six Penny Hanley First School

22nd May 2018

Lizzie Grayshon, Lucy Capstick, Maureen Swan.

We were invited to Sixpenny Hanley First School to help with their Eco Week. We visited on the British Wildlife day and were talking to the children about the Lapwing project at GWCT.

We started with a presentation to the whole school and teachers (approx. 100 children, 8 teachers & assistants). There were 5 year-groups ranging from Reception (age 5) through to Year 4 (age 9). The presentation started with a large picture of a lapwing compared the call of a displaying lapwing. There were several suggestions of what it might be with a number of children knowing what it was. We then went on to explain a bit about lapwings, where they nest and what their chicks feed on. I also outlined my job roles as making sure these birds are doing well with good nesting areas and food for chicks.

We then visited the five different classes separately, we gave a radio-tracking demonstration and then split into three groups.

Group 1. Spot the lapwing nest

The group was shown our dummy lapwing nest and the concept of camouflage was explained in relation to predation.

The children were then given a selection on photos where they needed to spot the lapwing nests. The photos were split into different levels and we worked from easy – difficult, all children were very engaged with the activity and had great fun finding all the nests, even some of the particularly shy children opened up over the course of the game.


An example of easy photo and a difficult photo of the 'Spot the Nest' game.

Group 2. Lapwing chick growth

The group was shown a number of pictures of lapwing ranging in age from a nest with eggs to 35 day old chicks about to fledge. The group were asked to work together to work out what order the pictures should go in. From youngest (eggs) to oldest (fledgling).

The children were involved in the game and enjoyed discussion about each individual picture. Lots of questions arose over the course of looking at each picture. For example, why were the 10 day old chicks a different colour to the 35 day old chicks? How did the chicks get out of the egg?


An example of a 1 day old and a 24 day old chick from the Lapwing chick growth game.

Group 3. Lapwing predators

We started this section by asking the children if they knew what a predator was? Some of the younger children had heard the word before but didn't understand what it was but most of the older children knew and we had a quick chat about predators & prey.

We then looked at a picture of 4 sets of footprints of mammals known to be predators of lapwing nests and chicks. The children made various suggestions as to what the animals were, including dogs, foxes, rats, meerkats etc... We then looked at pictures of the animals and the children had to say what they were and then work out which set of footprints belonged to which mammal. All the children easily identified the fox and badger but only one or two guessed the otter and nobody got

the mink (not even the (teachers!) We made it into a bit of a competition with the other groups to see how many footprints and mammals they could match up correctly.

We then moved onto a sheet with lots of pictures of animals (birds & mammals) with the question at the top 'How many of these animals could destroy a lapwing's next?

The pictures showed carrion crow, jay, fox, badger, rook, mink, sparrowhawk, hedgehog, weasel, stoat, sheep and otter. The children loved trying to identify all the pictures (remembering the 4 shown for the activity before) and even the quieter children were happy to be brought into the discussion by being asked to identify the easier ones such as hedgehog, fox and sheep. The children then tried to answer the question of how many of the animals could destroy a nest – all were very surprised that the answer was 'all of them'! We then had a group discussion about crows & rooks being very good at finding nests and eating the eggs, not just of lapwings but including lots of other bird species too. We talked about the differences between weasels and stoats in terms of size and appearance, as well as how good they are at predating nests and chicks! All the children were surprised to know that hedgehogs love to eat birds' eggs. Only a handful of children worked out why sheep were included in the list, because they can destroy lapwing nests by treading on them.

Both these activities definitely interested and engaged the children in all the classes. Encouragingly most of the children, especially the older ones, were able to identify quite a few of the animals. A handful of children were very knowledgeable about wildlife in general, but sadly this is not very common, even for children living in rural areas.

The children all gave a rousing 'Thank you' to us when we left their class and I had positive feedback from parents afterwards saying how much their child had enjoyed our visit to their school.

Feedback from the teachers after the event was very positive, the children were talking about it all week and we have been invited back next year.

14.12 LIFE Waders for Real IWSG Abstract 2018 - wet features and lapwing productivity

The importance of wet features for increasing lapwing productivity in non-reserve landscapes

Lizzie Grayshon and Andrew Hoodless

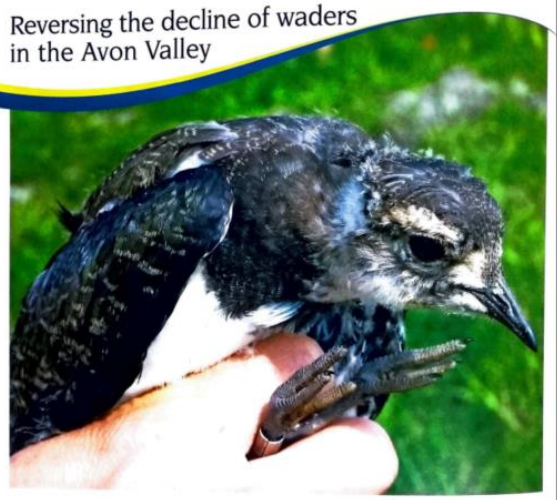
The Game & Wildlife Conservation Trust, UK

The value of footdrains and scrapes for increasing lapwing breeding density and providing feeding areas for chicks on nature reserves has been well documented. On grassland farms outside reserves, such as in lowland English river valleys, the density of in-field wet features tends to be very low compared to reserves, despite options within agri-environment schemes for ditch and scrape creation. In the Avon Valley, a site in southern England supporting c.60-100 pairs of lapwings, we found that, during 2008-2017, annual productivity was positively related to rainfall in the previous winter. Records of soil penetrability at brood foraging locations showed that, on average, lapwing chicks frequented parts of fields with softer soil than paired random locations in both relatively dry and wet years. This suggested that the availability of suitable brood rearing areas might be limiting chick survival.

In 2015, we started ditch restoration and scrape creation, targeted at key lapwing nesting fields, as part of an EU LIFE+ wader recovery project. We monitored the movements and survival of samples of radio-tagged lapwing chicks during 2015-2018. When conditions in the field where chicks hatched were relatively dry, broods tended to range over larger areas and their survival was lower than when damp feeding areas were available close to nest locations. We suggest an interaction between brood range area and chick predation rate. The provision of in-field wet features should be better promoted within agri-environment schemes, alongside the maintenance of appropriate swards for nesting.

14.13 GWCT Annual Review - LIFE Waders for Real articles 2014 – 2019

Reversing the decline of waders in the Avon Valley



Increasing breeding success so that more chicks fledge is essential. © Andrew Hoodless/GWCT

BACKGROUND

Waders breeding on farmland are in trouble throughout Europe owing to agricultural intensification over the last 60 years. More recently, increased predation has become an issue alongside habitat loss and degradation.

Agri-environment schemes have yet to reverse the declines of birds like the lapwing, redshank and snipe. We have initiated a landscape-scale project in the Avon Valley, which picks up on the aims of the Lawton (2010) report (bigger, better, more joined-up), to increase wader numbers. 38 farmers are involved and we are working over a total area of c.1700 ha.

We have been monitoring numbers of breeding waders in the Avon Valley between Salisbury and Christchurch periodically since 1990 and have assessed lapwing breeding success in each of the last eight years. We estimate that between 1990 and 2010 lapwing numbers declined from 208 to 71 pairs, redshank from 117 to 22 pairs and snipe from 29 displaying males in 1990 to none in 2010, although a single male has been recorded since. Numbers of young fledged by lapwings in recent years have typically been at about half the level required to maintain a stable population and our evidence suggests that this is mainly owing to high rates of nest predation (see *Review of 2013*, pp.24-25).

In 2013 we contacted all the farmers in the valley and held meetings to discuss the perceived issues responsible for the wader declines and obstacles to achieving higher lapwing breeding success. It was agreed that to halt the decline in lapwing and redshank we urgently needed to intervene to improve breeding success which, in the longer term, should lead to increases in breeding density. Thus was born a farmer-led initiative to demonstrate what could be achieved through collaboration, and we started applying for funding to support additional work on the ground.

Considerable financial investment through agri-environment schemes has been made in the Avon Valley, primarily to benefit the breeding waders, over the last 20 years. However, this has involved solely habitat creation and management, and in places the work has been dispersed and at a small scale. Our intention is to create 'hotspots' of increased breeding success in the landscape by addressing management of habitat and predation across groups of fields. In April 2014, we heard that we had been successful with an EU LIFE+ funding bid for a four-year project, commencing in July 2014, to pursue this approach and monitor the outcome. Partnership working is essential and, as well as the farmers, we are working closely with the Hampshire & Isle of Wight Wildlife Trust, Natural England and the Environment Agency. We will also trial, adapt and implement a new approach called *Planning for Real* to deliver engaged, owned and lasting delivery of conservation actions.

Example of a lapwing nest predated by a corvid or gull. Clutch survival in recent years has been low. © Andrew Hoodless/GWCT

KEY FINDINGS

- Breeding waders in the Avon Valley have declined rapidly since 1990 owing to poor breeding success.
- A farmer-led initiative aims to tackle issues of habitat suitability and predation.
- A new, four-year, EU LIFE+ project will enable us to implement measures at four 'hotspots' to increase lapwing and redshank productivity. Predator and prey responses will be monitored.

Andrew Hoodless

We plan to work on four 'hotspots' of about 100–150 ha each, where we aim to increase lapwing and redshank productivity and numbers, with a view to boosting numbers of both species in the valley as a whole by at least 50%. Achieving this will require habitat works additional to those already implemented under Higher Level Stewardship (HLS) schemes on our trial sites, to extend the areas of habitat suitable for nesting and to ensure that there are in-field features which remain optimal for broods into summer. Detailed plans are being drawn up for each site, but all include some tree felling, pollarding, scrub clearance, rush management, ditch clearance, and ditch and scrape creation. The LIFE+ funding will enable us to monitor the effects of restoration for waders on other typical floodplain species, particularly the flora, invertebrates and wintering wildfowl.

Fundamental to the success of the project will be devising effective and practical methods of reducing predation of wader eggs and chicks in this wet meadow landscape. Our monitoring of lapwing breeding success in recent years indicates that nest survival has only been about 32 ± 4%, with 82% of clutch losses attributable to predation. We need to raise nest survival above 50% in order to produce sufficient fledged chicks for a stable or increasing population. Our proposal to the EU LIFE+ fund incorporated both predator exclusion measures and lethal control of fox, mink and corvids. However, we were only able to secure agreement for funding of the non-lethal measures. This left us in the difficult position of being unable to deploy the tool that we believed would be the most effective. Nevertheless, exclusion measures such as nest cages and electric or combination fencing have been deployed successfully on nature reserves. Our challenge will be to integrate such measures alongside farm operations, and any lethal control undertaken by the farmers themselves, and test and modify designs to improve their effectiveness. It is important that we quantify whether non-lethal measures can increase breeding success sufficiently and in what circumstances. We hope to monitor an extra site outside our 'hotspots' where there is interest in stepping up predator control: if this goes ahead, it would provide a valuable comparison site.

ACKNOWLEDGEMENTS

Our monitoring to date has been part-funded by Natural England and contributors to the Breeding Waders Appeal. We are grateful to all the landowners and farmers who have allowed us onto their land during the course of the study.

Increasing the area of brood-rearing habitat with scrapes and shallow ditches will be important. © Andrew Hoodless/GWCT

Breeding wader recovery in the Avon Valley

An old scrape versus a new one. These provide increased chick foraging habitat away from field edges. © Lizzie Grayshon/GWCT

ACKNOWLEDGEMENTS

We would like to thank all the landowners, farmers and keepers in the Avon Valley for their support and co-operation. The project is part-funded by the EU LIFE+ programme.

Waders for Real

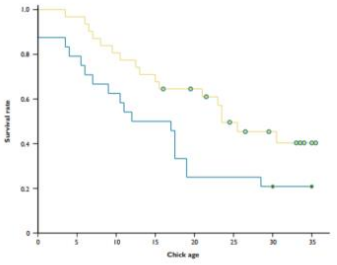
The Avon Valley is typical of lowland river valleys where breeding waders were once numerous and are currently a conservation priority, but where reducing predator impacts is constrained by the landscape and multiple land ownership. The 'Waders for Real' project combines a local farmer-led initiative within the private sector (farmers and landowners), conservation charities (GWCT, Hampshire & IOW Wildlife Trust), and the public sector (Natural England and the Environment Agency) in an attempt to find workable options for wader recovery.

Our approach is to put into practice the three principles applied in wild game management, namely (1) ensuring appropriate nesting habitat; (2) creating brood rearing habitat; and (3) reducing predation pressure. Habitat assessments, monitoring data and tracking data from radio-tagged lapwing chicks from previous studies have allowed us to plan habitat improvements more effectively.

We have removed 1.3 kilometre (km) old fence lines, 1km of willow scrub and 13 small trees to open up some of the smaller fields and reduce the number of perching posts for corvids. This creates open areas where sward structure can be better managed to encourage lapwings to nest in loose colonies. We have re-profiled 2.9km of ditches and dug 1.6km of new ditches, we have also added 23 new scrapes to add more in-field wet features which are providing increased chick foraging habitat

Figure 1

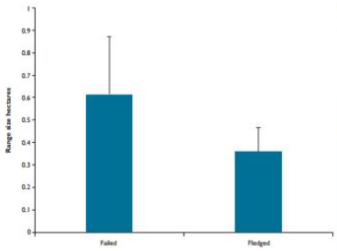
Lapwing chick survival 2016 was significantly higher than survival in 2015 p=0.031 n=28



Lapwing chicks © Lizzie Grayshon/GWCT

Figure 2

Mean range size (ha ± 1 se) of lapwing chicks who failed (n=14) was significantly higher than chicks that fledged (n=15) in both 2015 and 2016 (p=0.045)



away from field edges, because the edges are often used by mammal predators when hunting. This creates a more complex habitat, creating patches of rushy cover to escape from avian predators and open areas alongside for foraging.

We recorded an increase in lapwing pairs from 62 in 2015 to 81 in 2016 and an increase in redshank pairs from 19 in 2015 to 28 in 2016. This is likely to have been the result of increased recruitment following a good breeding season in 2014 and wetter field conditions (2015 penetrability M=6.89 SD=0.23, 2016 penetrability M=5.09 SD=0.16) in spring 2016 than in 2015. Samples of 58 and 64 lapwing nests were located in 2015 and 2016 respectively, with nest survival increased above the average from years preceding the project (50% in 2015 and 45% in 2016 compared with an average of 35% for the years 2008-2014).

To provide reliable estimates of lapwing chick survival, information on chick movements and use of new scrapes and foot-drains, we radio-tagged one chick in each of the 25 lapwing broods in 2015 and 27 broods in 2016. The average age at the time of tagging was nine days. Survival up to 35 days (age of fledging) was estimated at 17% in 2015 and 46% in 2016. We believe that chick survival was higher in 2016 (see Figure 1) because field conditions were wetter and broods typically had smaller ranges from where they hatched to find food and cover. Chick survival in both years was inversely related to range size, meaning the further the distance travelled the more likely to be predated, hence justifying the creation of new in-field wet features in fields favoured for nesting (see Figure 2).

Lapwings need an average productivity of 0.7 chick per pair per year to maintain stable numbers. In 2015, total productivity was 0.29 chick/pair, with the low value attributable to high levels of chick predation. 2015 was a particularly dry year and many wet features had dried out by the time nests had hatched, so chicks had to move further to find foraging locations. Productivity on four core sites was only slightly higher at 0.30 chick/pair. In 2016, total productivity reached 0.63 chick/pair and in the core sites productivity reached 0.78 chick/pair. Nest survival was very similar for the two years, however, chick survival in 2016 was dramatically higher leading to the increased productivity.

A large amount of habitat work was undertaken at one core site in autumn 2015 (1.3km old fence lines removed, 1km willow scrub removed, 2.9km of ditches re-profiled and 1.6km of new ditches and seven scrapes dug) and the benefits were seen in 2016, with pairs of lapwing using the site increasing from five to 15. Further habitat work at other sites will continue in winter 2016/17 and we hope that by increasing our efforts to exclude mammalian predators though the use of nest exclusion cages and electric fences at these sites, next year we will have another season of high wader productivity.

BACKGROUND

Over the past 25 years the GWCT has documented a 70% decline in numbers of breeding lapwings and an 83% decline in breeding redshank in the Avon Valley, with evidence that the lapwing decline is driven by poor breeding success. The EU LIFE+ 'Waders for Real' project was launched in 2014 with the aim of halting these declines and reversing them.

Our approach is to create strategic hotspots of optimum habitat with reduced predation pressure, where the birds are able to fledge sufficient chicks to increase recruitment to the population in subsequent years.

KEY FINDINGS

- Breeding lapwing increased from 62 pairs in 2015 to 81 pairs in 2016.
- We recorded an increase in lapwing productivity in 2016 owing to wetter field conditions and increased chick survival.
- Over both 2015 and 2016 lapwing chicks that fledged had a significantly smaller range size than those who failed.
- Habitat work is increasing the amount of in-field wet features to create more chick foraging habitat.

Lizzie Grayshon
Andrew Hoodless

Lapwing nest predation in the Avon Valley

A fox entering a field containing breeding lapwings at 1604 on 25 March 2017 (below) A badger using the same bridge. © Lizzie Gryshan/GWCT

BACKGROUND

The number of lapwings breeding in the Avon Valley has fallen by 70% in the last 25 years, initially driven by changes in water meadow management leading to the loss of lapwing nesting habitat. Agri-environment schemes acted to support land managers to practise lower intensity farming to improve suitability for breeding waders on wet grassland. However, population recovery is not limited by habitat alone, with nest and chick predation by avian and mammalian predators playing a role. Our approach within the EU LIFE+ Waders for Real project is to create hotspot sites, with reduced predation pressure, to increase breeding success and future recruitment.

Low breeding success is the main limiting factor across many species of wader. In the *Review of 2016* (see page 22-23) we outlined our approach and the habitat modification implemented in the Avon Valley, and here we provide an update on our predator and nest monitoring.

Since the start of the project in 2015, we monitored the success of 171 lapwing nests using field observations and temperature loggers (small devices the size of a 5p coin placed under the eggs, which record temperature every 15 minutes, pinpointing the time of predation events).

Hatching success over the three years 2015-2017 averaged 46% (SE ±3.9%). Out of the 53 nests known to be predated (other outcomes include unknown failure, trampled and abandoned) we have temperature logger data for 40 nests. Twenty-eight of these predation events took place after dark and 12 during daylight hours, indicating that 70% of nest predation was at night, probably by mammalian predators.

Although we can identify the timing of predation events using this method, we lack a good understanding of terrestrial predator abundance and how they behave in wet meadow landscapes, thereby making it difficult to mitigate their impact. We used motion-activated camera traps at our four hotspot sites to provide insight into

how we may reduce the impact of predators and on three of the sites improve the efficiency of fox control.

Each year we deployed 10 camera traps at each hotspot, alternating between 20 paired locations from mid-April to the end of June. Over 2016 and 2017, badgers were detected at 8% of camera sites with foxes present at 9%. Badgers and foxes were recorded on average 0.07 ± 0.01 and 0.17 ± 0.03 times per 24 hours per camera during the wader breeding season respectively.

In addition, camera traps tell us about the timing of predator activity on the water meadows. As expected, badgers are a crepuscular or nocturnal visitor with all detections between 6pm and 6am (n=510). Foxes, also remain predominately active after dark, with the highest proportion of detections at 10pm (14% 168/1209). However, it is apparent from a small number of detections that foxes are accessing the water meadows during the day, with 6% (70/1209) of detections between 7am and 5pm (see main photo) and hence, foxes need to be considered among the range of predators potentially responsible for day-time predation events.

Our camera traps have also identified bottle necks in the movement of predators with man-made bridges appearing significant to how they navigate this habitat.

Future analyses will use our camera trap and nest monitoring data to consider the relationship between fox and badger abundance and lapwing nest survival. This work, alongside other methods of predator monitoring and exclusion within the Waders for Real project, will help wildlife and land managers to develop more effective strategies for increasing lapwing productivity.

KEY FINDINGS

- Predator monitoring forms an important part of our LIFE+ Waders for Real project in the Avon Valley.
- Lapwing nest survival averaged 46% during 2015-2017. Two-thirds of clutch predation occurred at night, suggesting foxes and badgers as the likely culprits.
- Badgers and foxes frequented almost all the key wader nesting fields: badgers were detected at 8% of hotspot camera trap sites with foxes present at 9%.
- This project will help us devise more effective strategies for improving lapwing breeding success.

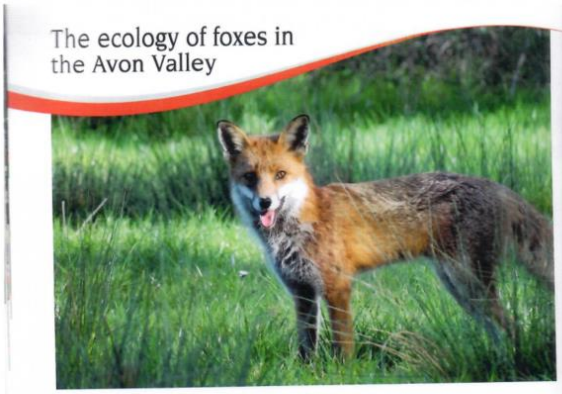
Lizzie Grayshon
Ryan Burrell
Rebecca Robinson
Thomas Oakley
Andrew Hoodless

A mink (top), fox (above) and otter (left) using the same bridge which leads to the water meadows.

ACKNOWLEDGEMENTS

We would like to thank all the landowners, farmers and keepers in the Avon Valley for their support of the Waders for Real project. The project is part-funded by the EU LIFE+ programme.

The ecology of foxes in the Avon Valley



The red fox features prominently in most detailed studies of predation on waders. © Mike Short/GWCT

BACKGROUND

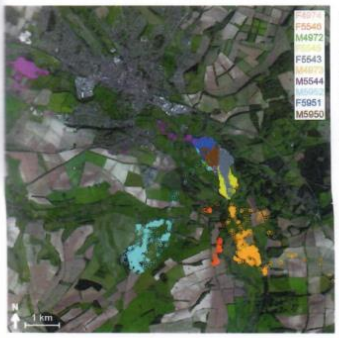
The Avon Valley in Hampshire is a river floodplain with outstanding biodiversity interest. In 1982, it constituted one of the top eight lowland wet grassland sites in England for breeding waders. Since then, our regular surveys have revealed dramatic declines in numbers of breeding lapwing, redshank and snipe, mirroring trends seen across Europe. Our data show that for lapwings, on average, 61% of nesting attempts fail and that 82% of nest failure is caused by predation. The EU LIFE+ 'Waders for Real' project was launched in 2014 with the aim of reversing these declines.

The red fox figures prominently in most detailed studies of predation on ground-nesting birds, especially lapwing. It is one of a number of generalist predators that are very successful in modern man-made landscapes, and whose densities are unlikely to be related to the abundance of breeding waders. The Avon Valley supports many small villages, several large towns, and a variety of rural enterprises like fish-farming, outdoor pig-rearing and released-game shooting, which generate food resources that might be exploited by foxes.

The fox is difficult to manage and a fundamental management decision is whether to (a) use lethal control measures to continually remove foxes that pose or might pose a threat, or alternatively (b) rely on physical barriers such as electrified fencing or watercourses to prevent foxes from reaching vulnerable birds. Both of these well-established predation control techniques have merits and shortfalls, but in this time of wildlife management austerity, which approach gives the best value for money in terms of delivering more waders, and what advice can we give to land managers to ensure that their efforts are effective?

At the present time, the simple answer is that we're working on it. The road to efficiently mitigating against fox predation hinges on a much clearer understanding of fox ecology and behaviour on river meadows. We're still seeking answers to lots of fundamental questions: How important are wader nesting habitats to foxes whose territories include them? How much time do foxes spend in them, and does this vary seasonally? How do foxes move around river valley habitats? What can we learn about their hunting patterns which might give clues as to how they could be disrupted? How much of a barrier are electrified fences, and how do water-filled channels and the main river itself influence fox movements and territories? What densities are foxes living at? How quickly are culled foxes replaced by others? How detectable are the foxes that use wader breeding habitats? What do river valley foxes eat? There are a lot of gaps in our knowledge.

Since 2015, we have used neck snares to catch adult foxes and fit them with GPS collars to explore their use of river meadows during the nesting season. This research falls under The Animals (Scientific Procedures) Act 1986, and is strictly regulated by the Home Office. So far, we have tagged foxes on a single site in the upper Avon Valley just south of Salisbury. This site supported breeding waders in the recent past, but no longer. There has been no concerted fox culling effort here during the last decade. The



GPS tagging shows that foxes are living at very high densities in the upper Avon Valley, near Salisbury. The coloured dots indicate repeated locations of 10 adult foxes tagged on our study site in March-June 2017 (see key at top right; M = male, or F = female). The locations of some individuals are partially masked by the sheer density of overlaid data. The purple, light blue and orange circles show the movements of the males that dispersed in April, the red squares show the movements of a female that left the study site and shed her collar within 24 hours of being tagged. (Contains Bing imagery). © Microsoft Corporation 2017

…ites is bounded by a small village and the main river Avon, and includes small spinneys, …ttle-grazed pastures, relict water-meadows, a network of carrier-channels and wet …ches. Hence the landscape is representative of wader-breeding areas lower down …e valley.

To familiarise ourselves with the technology, we tagged two male foxes in July …5. We tagged a further six males and three females in March-May 2016; and five …les and five females in March-April 2017. We recovered our collars using a remote …op-off mechanism, so it's possible that some foxes were tagged in multiple years. All …xes were snared on a core 30 hectares (ha) area of river meadow.

The very active lives of captured foxes after release illustrates our long-held view …at snares are not intrinsically injurious if used with care. This site also supports otter,

KEY FINDINGS

- Fitting foxes with GPS collars has revealed that they are capable of living at very high densities in the Avon Valley.
- In the upper Avon Valley, analysis of macroscopic prey remains suggests that small mammals are the most important food resource.

Mike Short
Tom Porteus

Analyses of macroscopic remains in fox scats suggests that field voles and water voles are important prey species for foxes in the upper Avon Valley. We have watched foxes successfully hunt water voles, found them outside active vole runs (see inset) and camera traps often record foxes carrying them. © Mike Short/GWCT

GPS tagging is revealing how foxes use river valley habitats. Wildlife managers use camera traps to assess predation risk. Tagging foxes will enable us to calculate their detectability using cameras and other survey methods. © Mike Short/GWCT

badger, roe deer and rabbit, but very careful selection of snare locations restricted non-target captures. Combining the 2016 and 2017 tagging seasons, fox capture rate and non-target capture rate was 15.3 and 3.3 captures per 1,000 snare/days, respectively. All non-targets (three roe deer, three rabbits) self-released from snares. This illustrates the value of modern-day-neck snares for wildlife research and fox management purposes.

We are using remotely programmable GSM-type satellite collars set to take a fix every 10 minutes, or every hour, depending on our wider fieldwork objectives. Battery life is determined by the number of fix attempts; our current scheduling generates up to 6,000 fixes per collar. A web portal allows continual scrutiny of fox movements and it includes a battery-life indicator for each active collar. Once the drop-off is activated via the portal, the collar slips off the fox and emits a radio-beacon, enabling us to retrieve it. So far we have obtained 66,869 useable GPS locations for 19 adult foxes between March and June.

In 2016 and 2017, we maintained camera traps (one per 5ha) and conducted 140 point counts from high-seat positions, for 90 minutes around sunset and with a thermal-imager at night. This informed us about untagged foxes occupying the same area, and will enable us to calculate the detectability of tagged foxes. Camera traps

ACKNOWLEDGEMENTS

We thank the landowners in the upper Avon Valley where this study took place, and our students who helped collect and analyse fox scats. Our fox-tagging research is part-funded by the EU LIFE+ 'Waders for Real' programme.

Waders for Real

and high-seat watches are commonly used by wildlife managers to assess predator activity; shooting foxes from high-seats is a popular method of control in flat wetland landscapes. Thus, adequate detectability is fundamental both to the reliable assessment of predation risk and to the success of predation control measures.

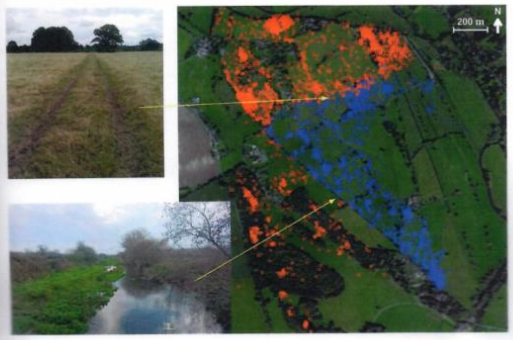
Analysing the huge volume of GPS material, and marrying it with camera trap and high-seat data to calculate detectability, is an enormous and currently incomplete task, but it is clear that foxes are capable of living at high densities in the Avon Valley. Combining these different data types suggested that during the period March and June 2016, a sample square kilometre of river valley was accessible to, and used by, 18 adult foxes (nine of which we had tagged). This is not a density estimate, rather it reflects the minimum number of adult foxes that would have to have been culled to keep this area fox-free during the wader-nesting season. It excludes cubs, and any adult foxes that might have moved in during this removal period. Importantly, the GPS data showed that many of these foxes lived and bred exclusively within the river meadow habitat during this crucial time of year.

In 2017, we again followed 10 tagged foxes; of these, three adult males dispersed in late April. All three re-settled within 10km, and were subsequently shot by gamekeepers. Judging by their age, build and submissiveness when handled, it is likely that two of these individuals were subordinate to other adult foxes occupying the study area, and that their simultaneous dispersal was driven by social pressures. This may reflect greater competition for food resources, compared with 2016.

All of this begs the question of what food resources sustain the foxes at such a density, since it clearly is not wading birds! In 2017, we collected fox scats along a four kilometre transect route through the study area, at two-week intervals, to investigate diet. Scats were also collected away from the transect, whenever they were found. Visual identification of prey remains from a random sample of scats suggested that field voles and water voles formed the bulk of fox diet. The remaining scats are destined for DNA analysis at a specialist laboratory, to check that we are not missing any important food types, and to check our inventory of the individual foxes present.

In 2018, we plan to repeat this work on a different site lower down the Avon Valley where lapwing and redshank still breed.

Shooting from high-seats is a popular method of fox control in wet grassland landscapes, which are typically flat and hard to access by vehicle. However, by May, visibility from high-seats is much reduced due to the rapid growth of vegetation. © Mike Short/GWCT



The red and blue dots represent the repeated locations of two territory-holding dog foxes. Note how distinctive their territory boundaries are. The western edge of the blue territory followed a water carrier channel, whereas the northern edge was defined by a discreet grass track, which split the two territories. Understanding how landscape features influence fox movements will help us understand how much of a physical barrier they are. (Contains Bing imagery) © Microsoft Corporation 2017

Breeding waders in the Avon Valley

Wet scrapes are important for wader foraging. Three fourweek-old lapwing chicks, two adult lapwing and an adult redshank can be seen on this scrape. © Lizzie Grayshon/GWCT

BACKGROUND

Over the past 25 years, the GWCT has documented a 70% decline in numbers of breeding lapwing and an 83% decline in breeding redshank in the Avon Valley. Our monitoring has provided evidence that the lapwing decline is driven by poor breeding success. The EU LIFE+ Waders for Real project was launched in 2014 with the aim of halting these declines and reversing them. Our approach is to create strategic hotspots of optimum habitat with reduced predation pressure, where the birds are able to fledge sufficient chicks to increase recruitment to the population in subsequent years.

The Avon Valley is typical of lowland river valleys where breeding waders were once numerous and are currently a conservation priority, but where reducing the impacts of predators is constrained by the landscape and multiple land ownership. The Waders for Real project comprises a local farmer-led initiative involving the private sector (farmers and landowners), conservation charities (GWCT, Hampshire & Isle of Wight Wildlife Trust), educational establishments (Sparsholt College) and the public sector (Natural England, Environment Agency) in an attempt to find workable options for wader recovery.

Our approach is to put into practice the three principles applied in wild game management, namely: (1) ensuring appropriate nesting habitat; (2) creating brood-rearing habitat; and (3) reducing predation pressure. Habitat assessments, monitoring data and tracking data from radio-tagged lapwing chicks have allowed us to plan habitat improvements more effectively.

Habitat work

We understand that low breeding success of lapwing is partially caused by unfavourable habitat. Our hotpot sites are focused on areas already holding important numbers of breeding waders and have each received habitat management improvements, monitoring and advice targeted at increasing productivity and breeding densities.

We have removed 1,260 metres of old fence lines and 6,015 metres of scrub along ditch lines to create groups of fields with more open boundaries. We have re-profiled 3,890 metres of ditches and added 1,690 metres of new ditches along with 10,540m² of scrapes. These shallow depressions of exposed soil retain water and provide a rich source of invertebrates on which wader chicks feed, along with soft mud to make feeding by probing easier (see *Review of 2016*, pp 22-23).

Working with land managers

Many of the farmers involved in the project have modified grazing and cutting regimes to help us maintain a short, damp sward perfect for lapwing, with scattered tussocks

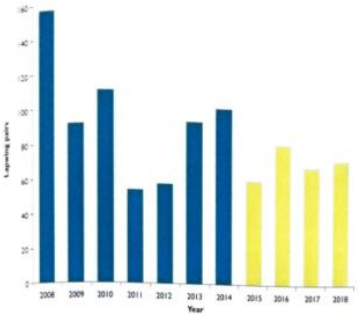


Figure 1
Trends in lapwing pairs in the Avon Valley since 2008. This work demonstrates what can be achieved when conservation organisations work closely with land managers: the combined knowledge and resources can halt decline, be that for breeding waders or any other farmland wildlife, with scope for recovery in the future

Before project

During recovery project

of soft rush, the favoured nesting habitat of redshank. To alleviate predation pressure from mammal predators and improve productivity, we have been trialling electric exclusion fencing to protect nests. Although we know they are not entirely fox-proof, we have records showing that they can improve nest survival rates. Local gamekeepers have received training in best-practice predation control methods, with some of them using new equipment; two estates have invested in thermal imaging scopes. They have increased levels of legal, targeted predator control in spring to give wader nests and chicks better protection than previously.

Monitoring

We have documented a change in the trend of breeding lapwing since the start of the project and are starting to see numbers stabilise at close to 80 pairs (see Figure 1). We put this down to a combination of habitat restoration, increased predator management and engagement with the land managers involved. Despite exceptional, extensive flooding in April 2018, followed by a very dry summer, lapwing and redshank fledging rates were good, with broods making heavy use of in-field features that remained damp. Redshank have responded better than lapwing, increasing from 19 to 33 pairs and, for the first time for at least 10 years, two pairs of snipe were present at one hotspot site throughout the summer of 2018. There is still much more to be done to achieve a fully functional landscape for waders throughout the valley, but it is encouraging to see a halt in the downward trend recorded prior to 2015 and a collective desire among the farming community to see more birds on their farms again.

KEY FINDINGS

- Each of our four hotspot sites for breeding waders has seen habitat management improvements, targeted advice and detailed monitoring of outcomes.
- Working closely with farmers, keepers and land mangers has been essential to the project and its success.
- Since starting the project we have seen a stabilisation in numbers of breeding lapwing in the valley and an increase in numbers of breeding redshank.

Lizzie Grayshon
Ryan Burrell
Andrew Hoodless

ACKNOWLEDGEMENTS

We would like to thank all the landowners, farmers and keepers in the Avon Valley for their support. We are grateful to the student work parties from Sparsholt College and to Natural England and the Environment Agency for advice. The project is part-funded by the EU LIFE+ programme.

Waders for Real

Electric fences are being used to exclude foxes and badgers to improve nest and chick survival. © Lizzie Grayshon/GWCT

14.14 GWCT Gamewise – LIFE Waders for Real articles 2016 & 2018

BIRDS • WADERS FOR REAL

Encouraging the evocative call of waders

65%

Lapwing numbers in the Avon Valley declined by c.65% between 1990 and 2016.

Lizzie Grayshon outlines an exciting project that aims to reverse the decline of breeding waders in the Avon Valley

The 'Waders for Real' Life+ project was launched in 2014 with the aim of reversing the decline of breeding waders in the Avon Valley. This project combines a local farmer-led initiative within the private sector (farmers and landowners), conservation charities (GWCT, Hampshire & IOW Wildlife Trust), and the public sector (Natural England, Environment Agency).

Our monitoring of lapwing clearly shows that poor breeding success is driving the decline and that low nest and chick survival is the result of high levels of predation. The Avon Valley is typical of river valley situations where other biodiversity considerations are also important and the feasibility of effectively reducing predator impacts is constrained by the landscape and multiple land ownership.

Our approach is to put into practice the three principles applied in wild game management:

1. Creating appropriate nesting habitat.
2. Creating brood-rearing habitat.
3. Reducing predation pressure.

Habitat assessments, monitoring data and tracking data from radio-tagged lapwing chicks have allowed us to effectively plan habitat improvement. EU Life+ funding is being targeted at restoring four 'hotspots' to optimal wader breeding habitat. We hope that with improved habitat and lower predation levels, nest and chick survival will be noticeably higher over the course of the four year project.

Improving nesting habitat

We have been working with Sparsholt College to remove old fence lines and scrub to open up some of the smaller fields and reduce the number of perching posts for corvids. Creating open areas with appropriate swards should provide and encourage the lapwing to nest in loose colonies.

Through this work we are able to provide hands on work experience for the game and wildlife management students on a practical conservation project. In return they provide us with valuable labour for addressing some of the fundamental habitat work. For example, last winter students training for their chainsaw licence were able to get good practice taking out small alders and willows along some of the old ditches.

Lizzie Grayshon is our Waders for Real Project Ecologist who has been working on the project since it began and is passionate about waders, especially lapwing.

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www.gwct.org.uk/wadersforreal

"...creating these wet areas will also benefit wintering waders and wildfowl..."

(Above) The same location before (left) and after (right) the ditch has been re-dug and vegetation cleared to create new in field wet areas.

(Below) Before (left) and after (right) a new ditch and scrape have been added to a field to create a more complex structure and chick foraging habitat.

BIRDS • WADERS FOR REAL

Creating in field wet features

Wet features, mainly ditches and scrapes are extremely important for lapwing and redshank to raise chicks. These habitats are rich in invertebrates which the chicks feed on and the soft ground facilitates feeding. In many areas we have been removing vegetation that is blocking ditches and re-digging ditches that have dried out.

By creating more in-field wet features we are providing increased chick foraging habitat within the fields away from field edges, which are often used by many mammal predators when hunting. This creates a more complex habitat, in turn creating cover from avian predators and open areas alongside foraging.

The benefit of creating these wet features will also be seen during the winter months for wintering waders and waterfowl, including black-tailed godwit, snipe, wigeon, teal and pintail.

Reducing predation pressure

The use of predator exclusion fences and nest cages has been successful in restoring breeding wader population on some reserves, however, our system is a little different and initial problems have been found with both methods. We have found that the lapwings have not accepted the nest cages on many attempts, although hatching rate has been high when they have been used. Electric fences have proved difficult on grazed areas, and owing to rapid grass growth from mid-May.

Further work will enable us to try to improve designs and assess the extent of benefits from deploying these measures.

For more information on the project please go to www.gwct.org.uk/wadersforreal

(Top left) Poor breeding success is driving the decline of lapwing.

(Below Left) The red circles show two female lapwing nesting within 20 metres of each other; students from Sparsholt have been removing small alders and willows to reduce the number of corvid perching posts; a flock of around 3,000 black-tailed godwit that spend many weeks over the winter in the Avon Valley.

www.gwct.org.uk/wadersforreal

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RESEARCH | CONSERVATION | POLICY | BIODIVERSITY | EDUCATION

Gamewise

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Spring 2020

Uniting for salmon

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Waders bounce back in the Avon Valley

Waders for Real sees wader populations make a comeback

COUNTYWISE

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The end of an era

Looking back at the research on red grouse management and raptor conservation on Langholm Moor

www.gwct.org.uk

Game & Wildlife CONSERVATION TRUST

AVON VALLEY

WADERS

LIFE Waders for Real

EU LIFE PROGRAMME

The LIFE programme is the EU's funding instrument for the environment and climate action created in 1992. To date LIFE has co-financed more than 4,600 projects. Until 2013, LIFE had contributed approximately €3.1 billion to the protection of the environment. During the current 2014-2020 funding period the programme will contribute approximately €3.4 billion more. LIFE provides 50% of our funding.

0.7

Fledged young per pair per season are needed to maintain a stable lapwing population

© Dave Kjaer

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www.gwct.org.uk/wadersforreal

WADERS

AVON VALLEY |

Waders bounce back in the Avon Valley

Lizzie Grayshon reports on the Waders for Real project which has seen wader populations make a comeback

Lizzie Grayshon is GWCT ecologist who is in charge of the Waders for Real Project and has been working closely with local farmers to help them restore their wader populations.

The farmer-led Waders for Real project started in 2014, seeking to reverse the decline of breeding waders in the Avon Valley, a river floodplain of high biodiversity interest, part of which is designated as a Special Protection Area (SPA) and Site of Special Scientific Interest (SSSI).

In 1982, the Avon Valley constituted one of the top eight lowland wet grassland sites in England and Wales for breeding waders. Since then surveys at six to seven year intervals have shown a dramatic decline in the number of breeding waders, mirroring trends seen across Europe. By 2010, the number of lapwing pairs had fallen from 208 in 1990 to 71, pairs of redshank had dropped from 117 to 22 and common snipe from 29 to one.

Monitoring of lapwing breeding success before LIFE Waders for Real, showed that productivity was too low to maintain a stable breeding population, with low nest and chick survival attributed to high levels of predation. In addition, to predation issues, the increased prevalence of intensively grazed short swards, inappropriate water levels and encroaching scrub were reducing the extent of suitable sites within the Avon Valley for breeding waders. To halt the decline of lapwing and redshank, work was needed to improve breeding success by reducing predation and increasing habitat suitability.

In a time of increasing threat to our wildlife, the good news is that this initiative which involved conservation organisations working closely with landowners, farmers and gamekeepers has helped Avon Valley wader populations make a comeback. During the project, the lapwing population is now holding stable at 70-80 pairs with a record year recorded in 2019 of 105 pairs, the highest seen since 2010. The number of breeding redshank has increased from 19 pairs in 2015 to 35 pairs in 2019 and drumming snipe were also heard on the water meadows in 2018 and 2019.

PROJECT ACHIEVEMENTS

40
FARMERS, GAMEKEEPERS AND LANDOWNERS WERE INVOLVED

61
LAPWING PAIRS IN THE STUDY AREA IN 2015

105
LAPWING PAIRS IN THE STUDY AREA IN 2019

84%
INCREASE IN REDSHANK NUMBERS BETWEEN 2015 AND 2019

37
FOXES FITTED WITH GPS TRACKING COLLARS

80
CAMERA TRAPS USED ON HOTSPOTS EACH YEAR

1.3KM
OF FENCING REMOVED

31
NEW SCRAPES

7.5KM
OF DITCHES CREATED OR RESTORED

www.gwct.org.uk/wadersforreal

GAMEWISE • SPRING 2020 27

(L-R) Shallow wet scrapes are important for foraging wader chicks. Three four-week-old lapwing chicks, an adult redshank and its brood can be seen on this photo from an Avon Valley scrape taken in 2018. temporary electric fences were used during the wader breeding season to exclude foxes and badgers and improve nest and chick survival.

Establishing an environment to aid wader recovery has focused on the creation of wader hotspots, where a combination of intensive habitat improvements and management of wader chick predation has been conducted. In-field wet features provide optimum conditions for foraging wader chicks, supplying a rich source of invertebrates to eat and soft soil to facilitate probing.

Waders select open landscapes, avoiding places where predators perch and hide. With the help of students from Sparsholt College (see page 15), over two kilometres of old fence lines and willow scrub have been removed and 123,885m² of wader breeding habitat protected from terrestrial predators by electric fencing. In addition, intensive camera trap monitoring has improved the efficiency of predator control already conducted on parts of the study area by private landowners to assist wader recovery.

The red fox was identified as the main predator of lapwing clutches in several studies prior to 2014. However, very little was known about fox hunting behaviour, particularly in wet grassland habitats. Foxes in the Avon Valley were fitted with GPS collars to evaluate their use of particular habitat features in this landscape, including temporary electric fencing. Red fox scat and stomach sampling was conducted to investigate the diet of this predator and assess the importance of wader prey items. This information will be used to inform our approach to the issue of mammalian predator management.

We monitored foxes with GPS collars to find out more about their diet and how they use habitat features in the landscape.

DID YOU KNOW?

When they hatch, lapwing chicks weigh only around 0.03g. They can run to forage by themselves, but rely on their mother to brood them, as they are unable to regulate their own body temperature. They are very vulnerable in the air relying on the parent birds to alert of the sign of danger and their camouflage to protect them from predator.

THE PEOPLE ON THE GROUND

The successes seen through the project have only been possible with the help and support from the farmers, keepers and landowners involved. Their commitment and passion for conserving waders has been paramount throughout the project.

WADERS FOR REAL CONFERENCE

The Waders for Real project held an end of project conference in 2019 to celebrate the successes, difficulties and lessons learnt through the LIFE Waders for Real project. Delegates from a variety of organisations including the RSPB, Natural England, the NFU, other NGOs as well as private landowners/managers, farmers and GWCT staff were invited with around 60 attendees. This was an opportunity for discussing best practice, current knowledge gaps and future research opportunities.

14.15 LIFE Waders for Real other written articles


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PLASTIC WADS vs FIBRE

CONSERVATION

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GUNDOGS Should your dog live indoors or in a kennel?

GAMEKEEPING Why the hard work begins as the shooting season ends

PIGEONS Making the most of windy conditions

FEATURE WITH RUPERT BREWER

A haven for Hampshire lapwings

Gamekeeper Rupert Brewer is taking an intelligent approach to predation control in the Avon valley in Hampshire. Joe Dimbleby reports

Walking onto the water meadows on the Bisterne Estate in Hampshire in February, you can see great clouds of lapwings swirling in the wind. This beautiful sight is increasingly rare in England and Wales where the species has declined by 80% since 1960. Bisterne is a partner in the GWCT's LIFE+ Waders for Real project, an EU-funded programme involving scientists, farmers and the local community working together to reverse the decline of breeding waders in the Avon Valley. The fact that the estate is bucking the national trend with a growing population of breeding lapwings is thanks in a large part to the work of gamekeeper Rupert Brewer.

The Hampshire Avon is similar to other river valleys in that it comprises many small farms, and only a handful of larger, privately-owned estates where gamekeepers are employed. A lot of farmers have successfully created the right habitat for waders with the help of agri-environment schemes, but without addressing predation, they are struggling to increase numbers. As elsewhere in Britain, lapwing productivity in the Avon Valley is currently poor due to high levels of nest and chick predation, with many lost to common generalist predators like foxes and carrion crows.

Rupert explained: "The Bournemouth Airport area to the south of us has one of the highest densities of urban foxes in the UK. To the north, we have Ringwood and the New Forest, where there is no predator control. In the week before Christmas, we culled 23 foxes on the meadows.

Rupert Brewer and his two trusty companions

To find out more, visit www.bisterne.com

The other problem we have is carrion crows. If you go to any car park in the New Forest, you will see two carrion crows waiting by the bin and in the early hours of the morning we have a massive flight over us."

While controlling foxes and crows is clearly important, Bisterne also has its fair share of protected predators, notably badgers and otters, which have returned to the Avon. Rupert welcomes the otters' return but has witnessed them taking ducklings and goslings as well as emptying a swan's nest of eggs, making them a potential threat to the young of any ground-nesting bird. Currently, the only way of protecting nests from badgers and otters is electric fencing, but it's expensive and can be difficult to use on wet river meadows grazed by cattle.

When the LIFE+ Waders for Real project was looking to establish four hotspot sites from which to build up the local lapwing population, it is no accident that three of the sites selected were on two keepered estates – Bisterne, owned by Hallam Mills, and Avon Tyrrell. Here, efforts to increase wader numbers are working. Lapwing need to fledge on average 0.7 chicks per pair each year to sustain a population. Before the project began, lapwing on Bisterne were averaging about 0.4 chicks per pair, but in 2016 they averaged 1.3 chicks per pair.

Rupert explained: "It is a two-part job for me. Part of my core work is for the shooting syndicate, but there is also the whole conservation aspect, which they fully support. We always did a bit to control foxes and crows, but we have really been stepping it up and at the right time. When we started, I remember seeing a pair of lapwings and 25 crows on the meadows. Last year I saw about 25 lapwings and one crow. That means they've got a chance to see it off."

A great amount of work and skill goes into effective fox control, and Rupert has been

'Walking onto the water meadows on the Bisterne Estate in February, you can see great clouds of lapwings swirling in the wind'


CONSERVATION

Lapwings are abundant on the Bisterne Estate due to the conservation work carried out

FARM FACTS

- Location: Bisterne, Hampshire
- Type of farming: Arable, dairy, beef
- Acreage: 4,000
- Amount in conservation: 39%
- Funding grants: Three Higher-tier agreements
- Conservation measures: Mosaic cropping, hedgerow maintenance, wild bird mix cover crops, pollinator mix, woodland management, hedge and tree planting, fencing, predation control, water meadow grazing, winter feeding, overwinter stubbles, feeders, scrapes, lapwing plots and beetle banks.
- Wildlife highlights: Lapwing, curlew, black-tailed godwit, grey partridge, oyster catcher, mute swan, snipe, redshank, mallard, teal, pintail, brown hare, sand lizard and otter.

working with GWCT to make sure it's targeted. GWCT wader scientists run around 20 camera traps across the Bisterne river meadows during the nesting season to monitor predator activity, and the fox records and other signs of activity are helping Rupert understand how foxes access the area.

On his side, Rupert is keeping a meticulous diary, detailing all of his fox culling activities. As well as recording when, where and how he kills foxes, he notes how much effort he puts in with different control methods, such as by lamping, using night-vision and thermal imaging equipment, and with fox snares and cage traps. This information will help GWCT scientists calculate how much effort is required to minimise fox predation risk when waders are vulnerable.

Mike Short, a predation scientist at GWCT, explained: "Bisterne Estate has worked hard to improve wader productivity by getting the breeding habitat right, but the key icing on the cake is Rupert's steadfast resolve to keep these areas free of foxes and other generalist predators during the nesting season. Elsewhere in the valley, we've collected lots of fox scats on river meadows to investigate fox diet, but in 2017 our team didn't find a single fox scat on Bisterne, which gives an indication of how thorough Rupert's fox culling effort is. His detailed record keeping will complement the results of our fox-tagging work elsewhere in the valley. I'm fitting foxes with GPS trackers to help answer a whole string of important questions about how foxes use river meadows. This will enable us to provide better guidance on how to reduce the impact of foxes on breeding waders."

This research has wider implications. For those farmers without a gamekeeper on their land, predator control presents an extra expense both

For control to fail to make sure that conservation efforts are not done in vain

in time and money. It's clear that predation must be addressed if lapwing and other waders are to breed better. For this reason, Mike is keen to see both lethal and non-lethal predation control funded through countryside stewardship agreements. However, this will need to be done as cost-effectively as possible, which is why the current research is so valuable.

One of the tools that make Rupert's huge challenge possible is snaring, and he is keen to get past the misconception that a snare chokes the fox. The snare simply tethers the animal until the keeper arrives to humanely despatch it, and by law they are checked at least once a day. Rupert uses a breakaway snare design developed by the GWCT, which allows heavier non-target species such as badgers or deer to escape.

Rupert explained: "There is nothing inherently cruel about snaring provided it is done properly. I have the policy that six carefully sited snares are better than 100 random snares. I film the area first or use fieldcraft to establish that there is a fox present, then set the snare and if I don't get it within two or three days I pack it up and try somewhere else. This minimises the risk of capturing a non-target species."

Of course, waders would not be present if the right breeding habitat wasn't there, and Bisterne's 4,000 acres has an extraordinary range of landscapes including water meadows, heathland, arable, permanent pasture, mature oak woodland and softwood plantation. Its owner, Hallam Mills, is a committed conservationist. He previously entered the estate into Higher Level Stewardship

CONSERVATION

Monitoring of redshank has allowed the project to better understand what is affecting breeding success

and has just entered Higher Tier Stewardship. In addition, the home farm has switched to an all-grass dairy, which supplies milk to Morrisons through Arla.

On the arable side, the farm grows a wide range of crops including rye for the Ryvita factory in Poole. The use of pesticides on all headlands is limited and a system employed that minimises use of the plough, reducing nitrogen use and helping look after the soil. Rupert said: "Hallam encourages everyone involved in land management on the estate to help decide what conservation measures we select. Recently, I've opted for more hedges as well as nectar and pollen mixes, as I feel we need to do more for insect life."

As well as work on the pheasant shoot that benefits farmland birds, such as cover crops and winter feeding, Rupert has implemented specific measures aimed at waders. He said: "The GWCT has close connections with Sparsholt College and they arranged for students to help us take out any alders that made good lookout trees for crows. We've dug several scrapes, pulling the surface off with a digger at low points in the meadows so that water lies on the surface. These save chicks from foraging too far which makes them more susceptible to predation."

Another key element for successful lapwing conservation is the commitment and co-operation of all those on the ground, from the keeper to the farm contractor. Monthly estate meetings ensure everyone is in the loop, and co-ordinating cropping regimes and cover crop rotations is vital. Bisterne used to have numerous tractor drivers but now has just one; contractors are used occasionally, but importantly they are kept abreast of the requirements of the Waders for Real project. Rupert explained: "We had lapwings going down in the field next to the house, which was due to be ploughed, so our arable manager's wife went out with markers and the contractor

Kevin made the effort to plough round them. It saved eight nests and the following week there were 16."

GWCT hosts two open house meetings a year at its Fordingbridge headquarters for all the farmers, landowners and conservation bodies involved directly in the Waders for Real project, as well as anyone in the local community with an interest. The aim is to have as many farmers on board as possible. If you have just 100 acres of unkeepered ground among 2,000, it could harbour enough foxes and crows to scupper the control effort of others.

In addition, Rupert's wife edits the *Bisterne News*, which always includes an article about the project to help to get the word out to the wider community. Rupert said: "When people walk a footpath and see a grey partridge or a lapwing, they understand that if the keepers weren't there they simply wouldn't see them in the future."

Rupert recognises the importance of public access to educate people about the countryside and show off the successes public money has helped to achieve. The estate created a public area on the edge of the water meadows where people were invited to come and walk.

Looking ahead, Rupert wants to build up his Japanese-cross pheasants to eventually switch to a wild bird shoot where he no longer releases, enabling him to focus more resources on conservation measures. He is also planning to step up his predator control on the part of the estate where he has curlew nesting.

His advice to those who want to be successful conservationists is: "Look at what you've got on your doorstep, grab a species and you'll find that your interest grows. A lot of people wouldn't be interested in a lapwing, but it does it for me and, if you can sort things out for them, many other species will benefit."

LIFE+ WADERS FOR REAL

Lizzie Grayshon, GWCT Wetlands research assistant explains: "The Waders for Real project has brought together a network of farmers, landowners and keepers to target lapwing conservation. As a result of this cooperation, we are beginning to see some successes through the implementation of new habitat features, increased habitat management, increased predator control, well-managed grazing regimes and the use of temporary electric fences.

"Increased monitoring of lapwing and redshank has allowed us to better determine the factors affecting breeding success. In particular, our monitoring of lapwing chick movements is improving our understanding of what habitat features are needed for foraging, and this is being fed directly back into management techniques.

"Wet features, mainly ditches and scrapes, are extremely important for lapwing and redshank chick rearing. These habitats are rich in invertebrates which the chicks feed on, and the soft ground facilitates feeding.

"In many areas, we have been removing vegetation that is blocking ditches and redigging ditches that have dried out. By creating more in-field wet features we are providing increased chick foraging habitat away from field edges, which are often used by mammal predators when hunting. The benefit of creating these wet features will also be seen during the winter months for wintering waders and waterfowl, including black-tailed godwit, snipe, wigeon, teal and pintail."

Sand lizards are one of many creatures that thrive on the estate, thanks to the conservation measures Rupert has implemented

Tracking foxes in the Avon Valley: An update

By Mike Short, Senior Field Ecologist

Our fox-tagging work in the Avon Valley got underway just as the bitterly cold 'Beast from the East' hit towards the back-end of February, and it's just drawn to a close amid one of the hottest, driest summers we've experienced for years. River meadows that were laden with snow, and then totally immersed in floodwater, are now bone-dry and sun-scorched.

LIFE Waders for Real

Weather-wise, it's been an atypical year, which we will consider carefully as we make sense of the tens of thousands of GPS-fixes that we've obtained from tagged-foxes this season. For instance, the extreme weather patterns will undoubtedly have affected the abundance and availability of field voles – a key prey item for foxes that occupy grassland habitats.

To recap, in 2016 and 2017 we studied an unmanaged fox population using GPS-collars in the Upper Avon Valley, just south of Salisbury. Our research revealed that foxes were living at surprisingly high densities and that small mammals, especially water voles and field voles, were the most important food resource.
Historically lapwing, redshank and snipe all bred on these meadows, but there have been no known nesting attempts for at least a decade: a decade in which local landowners were paid a lot of money through agri-environment schemes to provide better habitat for breeding waders.

Photo: In the Upper Avon Valley water voles are an important food resource for foxes. (Photo © Mike Short/GWCT)

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Tracking foxes in the Avon Valley: An update

Recently, I was poring over historical wader survey data for the upper valley, and was amazed to learn that in June 1990, 24 lapwings (including at least 8 juvenile birds) and 2 redshanks, were recorded on two wet meadows – totalling 18 ha – in the heart of our fox study area. In 2017, nine adult foxes that we tracked, plus several more that were untagged, occupied those same two river meadows during the nesting season.

They were clearly no threat to breeding waders, because there were none, but according to Natural England's 'MAGIC' maps – a publicly accessible interactive mapping tool – Lapwing remain a priority species for Countryside Stewardship in this area. Unless local landowners can be persuaded to try and reduce fox densities and the risk of predation more generally, then there's little hope of breeding Lapwing and Redshank ever making a recovery there. Back to this year's fieldwork. I've been GPS-tagging foxes on one of our Waders for Real project 'hotspot' sites lower down the valley, where lapwing and redshank still breed, but not very well. The landscape here is quite different – the floodplain is broader, the river wider, there are far fewer linear drainage ditches, and as we saw, the river meadows properly flood, and are subject to different management and grazing practices.

In recent years, there has been a concerted effort to cull foxes overwinter, which left me to catch resident foxes that had survived or had moved in from neighbouring ground. The wet spring made it a really challenging field-season, mainly due to the difficulty of finding locations where I could securely anchor snares (which we use to live-catch foxes for tagging-purposes) coupled with unexpectedly high levels of non-target activity, especially otter and badger. Prior to the unprecedented flooding in April, I tagged two adult males caught within a stone's throw of several new wader-scrapes, dug to provide invertebrate-rich foraging areas for lapwing chicks through our Waders for Real project. At the time, we were excited to learn how those foxes might forage on river meadows that are usually occupied by breeding lapwing, and where manmade micro-habitats were created to improve chick-survival. Alas, perhaps due to the flooding, both foxes left the area, one settling on mixed farmland several miles west of the valley, and the other on drier meadows where waders no longer breed.

After a forced break from snaring, perseverance paid off. In late-April and early May, I tagged two more dog foxes and two vixens, both of whom were lactating when caught. Annoyingly, the £2000 GPS-tag on one vixen – the 27th fox that I've tagged in the valley – failed after only 3 days, which left me a little irate to say the least, but fortunately I managed to recapture her and fit her with a new collar.

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Tracking foxes in the Avon Valley: An update

An advantage of using snares is that foxes cannot learn to avoid them. To say this feisty little vixen was unhappy to see me for a second time, would be an understatement: she did her very best to sink her sharp teeth into my hands, before grabbing hold of a piece of foam pipe insulation that I gave her as a distraction.

Fig 2. GPS tagging is revealing how foxes use river valley habitats. When handling foxes, we offer them something soft to bite on, which helps to occupy them whilst the collar is being fitted. (Photo © Mike Short/GWCT)

Tagging foxes is helping us answer a great raft of important questions concerning their management. As we move into an age of enlightened thinking on conservation, there is greater acceptance that breeding wader populations will only recover if we also address the impact of predators. It's essential that we understand which methods work best: lethal or non-lethal control methods. For the latter, we're particularly interested to know how fox movements are influenced by natural and artificial barriers, like rivers and electrified-fencing. Permanent mains-powered electric-fences are used successfully to deter foxes and badgers from entering reserves managed for wildlife, but how effective are temporary electric-fences used to protect vulnerable birds in the wider countryside?

Fortunately for us, several pairs of lapwing nested in fields occupied by tagged-foxes, and two separate nesting areas were subsequently 'protected' with 8-strand electrified-fences, energised by a solar-charged battery. Temporary electric fencing is commonly used on arable farmland to protect lapwing and stone curlew nesting on fallow plots, and it's been trialled on upland pastures where curlew still breed. But is it fox-proof?

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Tracking foxes in the Avon Valley: An update

Fig 3. Temporary electric-fencing is commonly used to try and protect breeding waders from foxes. In the Avon Valley, the GWCT's wader monitoring team is trialling an 8-strand fencing design across multiple sites, but how effective is it? (Photo © Mike Short/GWCT)

The accuracy of the GPS-fixes we receive is largely determined by the availability of satellites when the fix is taken. Prior field-testing of our collars suggests that for 'active' fixes. i.e. those taken when the fox is moving, fixes are typically accurate to within ten metres, but usually less than five. The very clever technology we're using also enables us to create 'geofences' within their territories, such that we receive mobile phone texts when a GPS-location marks the fox inside a geofenced area.

We created a geofence around the largest electric-fenced area, which encircled a short sward approximately 150m x 100m in size. We don't think there was any substantial loss of power due to the circuit shorting-out on grass growing around the wire, yet one tagged-fox was recorded inside the protected area on several occasions, once, at least 50 metres inside the fence. We also found fresh fox scat inside the protected area, and camera traps facing inwards from corner straining posts recorded untagged foxes, and an otter inside the fence. Our sample size is small, but clearly, despite the careful thought that went into its design, this electric-fencing arrangement isn't predator-proof. Next year, we plan to do more research on foxes and electric-fences and will use an alarm device which sends a text message should the fence's voltage ever drop too low or if the circuit is broken.

In case you're wondering, the lapwing nest inside the geofenced area failed due to predation… but not by a fox or otter. A very experienced member of our Wader Monitoring team attributed its loss to either a Corvid, or a gull, which serves as a timely reminder that electric-fences will never protect vulnerable wader eggs from avian nest predators.

All the foxes that I tagged this season have now been relieved of their collars. It still amazes me that we can simply send the collar a message to drop off the fox, using a mobile phone… but that's how the technology works… most of the time!

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Tracking foxes in the Avon Valley: An update

Follow the Waders for Real project

Visit the Waders For Real website and get all the latest project updates on Twitter and Facebook.

The NGO Educational Trust wishes to thank the Game & Wildlife Conservation Trust for permitting us to reproduce this article for the benefit of our website users.

Registered Charity Number: 1076923

14.16 LIFE Waders for Real Conference booklet

Waders in the Avon Valley

LIFE Waders for Real End of Project Conference

6th – 7th November 2019
GWCT HQ Fordingbridge, Hampshire

Game & Wildlife CONSERVATION TRUST

Waders in the Avon Valley

Programme Contents

Waders in the Avon Valley

LIFE Waders for Real team

From left: Clive Bealey, Ryan Burrell, Lizzie Grayshon, Mike Short, Jodie Case, Tom Porteus, Jonathan Reynolds, Andrew Hoodless. Photo credit, Ellie Jackson-Smith.

Lizzie Grayshon, Project Officer (Tel: 07779419358)

Lizzie has worked on the project since it started in 2015, conducting research on wader breeding success, improving habitats and trialling non-lethal methods of predator exclusion. Lizzie has overseen the LIFE Waders for Real project on the ground, working with all the stakeholders involved.

Dr Andrew Hoodless, Head of Wetland Research

Andrew's work has focused on wader ecology and migration, wetland management and predation of ground-nesting birds. He has conducted periodic wader surveys in the Avon Valley since 1996 and more intensive wader research during the last decade. He set up the LIFE Waders for Real project in 2014.

Mike Short, Predation Ecologist

Mike has worked as a mammal ecologist in the GWCT's predation research team since 1996. He is highly experienced in the detection and live-capture of foxes and other mammalian predators, and has led the fox GPS-tracking work in the valley. Mike provides specialist advice on pest and predator management techniques.

Clive Bealey, Wetland Ecologist

Clive has long term experience of the Avon Valley, his knowledge of a number of taxonomic groups and ecology has been applied to the studies of how vegetation quality impacts breeding waders, as well as associated wetland ecology and ecosystem services.

Paul Stephens, Project Administrator

After a varied background on ecological projects, Paul developed a crucial talent at successfully seeking grants to fund important work like LIFE Waders for Real. Paul leads on project administration which allows our ecologists to focus on the work they do best.

Ben Stephens, Project Administrator

Ben assisted Andrew and Paul with all aspects of the project management alongside his ongoing involvement in several other EU-funded projects.

Dr Tom Porteus, Predation Ecologist

Tom began work at GWCT using mink rafts to develop American mink *Neovison vison* control strategy, and then completed his PhD investigating the effect of control on the population dynamics of red fox *Vulpes vulpes*. Tom helped the LIFE Waders for Real project collect data on mammalian predator abundance and has used statistical models to analyse predator monitoring data.

Ryan Burrell, Wetland Ecologist (Tel: 07723326461)

Ryan joined the LIFE Waders for Real team in 2018 and concentrated on breeding success of Lapwing on habitats adjacent to wet meadow grassland, monitored predator abundance using camera traps and lead on project communications.

Jodie Case, Research Assistant (Tel: 079195592800)

Jodie volunteered on the project whilst undertaking her undergraduate degree at Sparsholt's University Centre, one of the LIFE Waders for Real project partners. Jodie was employed in 2018 as a research assistant and has been involved in all aspects of the project with a focus on studying the diet of the red fox *Vulpe Vulpes* in lowland wet meadow habitats.

Dr Jonathan Reynolds , Head of Predation

Jonathan leads the Predation Research team at GWCT. Focusing on mammalian predators, with the aim to improve the management of predator and pest species from all perspectives, making it more efficient and effective, but also more rational and humane.

Also, a big part of the team have been the 25 students who have worked on the project over their placement years or for their Masters dissertations and our committed farmers, landowners and gamekeepers.

LIFE Waders for Real project overview

Waders for Real started in 2014, seeking to reverse the decline of breeding waders in the Avon Valley, a river floodplain of high biodiversity interest, part of which is designated as a Special Protection Area (SPA) and Site of Special Scientific Interest (SSSI).

In 1982, the Avon Valley constituted one of the top eight lowland wet grassland sites in England and Wales for breeding waders. Since then surveys at 6-7 year intervals have shown a dramatic decline in the numbers of breeding waders, mirroring trends seen across Europe. By 2010, numbers of lapwing *Vanellus vanellus* pairs had fallen from 208 in 1990 to 71, pairs of redshank *Tringa tetanus* had dropped from 117 to 22, and common snipe *Gallinago gallinago* from 29 to one.

Monitoring of lapwing breeding success before LIFE Waders for Real showed that productivity was too low to maintain a stable breeding population, with low nest and chick survival attributed to high levels predation. In addition, to predation issues, the increased prevalence of intensively grazed short swards, inappropriate water levels and encroaching scrub were reducing the extent of suitable sites within the Avon Valley for breeding waders. To halt the decline of lapwing and redshank, work was needed to improve breeding success by reducing predation and increase habitat suitability.

Shallow wet scrapes are important for wader chick foraging. Three 4-week-old lapwing chicks, an adult redshank and its brood can be seen on this photo from an Avon Valley scrape taken in 2018

The good news, in a time of increasing threat to our wildlife, is that this initiative, with conservation organisations working closely with landowners, farmers and gamekeepers, have helped Avon Valley wader populations make a comeback. During the project, the number of breeding redshank has increased from 19 pairs in 2015 to 33 pairs in 2018 with the Lapwing population now holding stable at 70 – 80 pairs. Drumming Snipe were also heard on the water meadows in 2018. Initial 2019 data will be presented.

Establishing an environment to aid wader recovery has focused on the creation of wader hotspots, where a combination of intensive habitat improvements and management of wader chick predators has been conducted. In-field wet features provide optimum conditions for foraging wader chicks, supplying a rich source of invertebrates to eat and soft soil to facilitate probing.

Waders select open landscapes, avoiding places where predators perch and hide. With the help of students from Sparsholt College, over 2km of old fence lines and willow scrub have been removed and 125,885m^2 of wader breeding habitat protected from terrestrial predators by electric fencing. In addition, intensive camera trap monitoring has improved the efficiency of legal predator control already conducted on parts of the study area by private landowners to assist wader recovery.

Temporary electric fences were used during the wader breeding season to exclude foxes and badgers and improve nest and chick survival

The red fox was identified as the main predator of lapwing clutches in several studies prior to 2014. However, very little was known about fox hunting behaviour, particularly in wet grassland habitats. Foxes in the Avon Valley were fitted with GPS collars to evaluate their use of particular habitat features in this landscape, including temporary electric fencing. Red fox scat and stomach sampling was conducted to investigate the diet of this predator and assess the importance of wader prey items. This information will be used to inform our approach to the issue of mammalian predator management.

EU LIFE Programme

The LIFE programme is the EU's funding instrument for the environment and climate action created in 1992. To date LIFE has co-financed more than 4,600 projects. Until 2013, LIFE had contributed approximately €3.1 billion to the protection of the environment. During the current 2014-2020 funding period the programme will contribute approximately €3.4 billion more. LIFE provides 50% of our funding.

Game and Wildlife Conservation Trust

The LIFE Waders for Real Project is delivered by a collaboration between the GWCT Wetland and Predation Research departments. This combined approach allows skills and expertise to be shared to improve the status of breeding waders.

Project Partners

Sparsholt College & University Centre

The habitat works required led to a valuable partnership with Sparsholt College & University Centre, which runs diploma and degree courses in conservation and land management. The college is always looking for places where students can gain practical experience of habitat management techniques, such as willow clearance and tree felling. The project has provided experience for groups of 15-20 level 2 and level 3 diploma students each winter, with scrub clearance work being of particular value. Students have also attended lectures at the GWCT in relation to wildlife conservation and predator management, as well as site visits with the gamekeepers and land managers involved in LIFE Waders for Real.

Natural England and Environment Agency

Throughout the project we have worked closely with Natural England and the Environment Agency. Both organisations have been heavily involved in consultations about the management of project sites and the options available to assist breeding wader recovery. In addition, each has played an important role on our Project Steering Committee, helped guide habitat work and continue to provide support throughout the Avon Valley.

Waders in the Avon Valley

LIFE Waders for Real Conference Information

The conference is aimed at outlining the LIFE Waders for Real Project, what we proposed in the beginning, what we have achieved, what we have learned, what we can do next and how we can influence policy. We would like this to be an inclusive event with lots of opportunity for discussion and the sharing of knowledge and experience.

The format will be in the form of several themed sessions, where there will be a one or two talks from LIFE Waders for Real staff, talks from other projects then an open discussion.

Conference Aims

- Celebrate the successes, difficulties and lessons learnt through the LIFE Waders for Real project.
- Consider how we can take the Waders for Real approach forward.
- Consider best practice, current knowledge gaps and future research opportunities.
- What do we need from government and policy?
- How do you inspire farmers and wildlife managers to be better and bolder at conserving wildlife in the years ahead

Table Displays

- Dave Butler, Perdix Wildlife supplies (description P.16)
- Jodie Case – Fox diet research and an interactive display
- Curlew Country - Project overview

Posters

- Jodie Case – Fox diet research
- Lizzie Grayshon - Lapwing in the Avon Valley
- Mike Short— Red fox movements in the Avon Valley

Wednesday 6th November		
07:00-08:30	Breakfast	Sandy Balls
	Welcome and introduction talks GWCT Conference Centre	
09:00-09:05	Welcome and Introduction	Lizzie Grayshon - GWCT
09:05-09:10	Introduction to the GWCT	Nick Sotherton - Director of Research GWCT
09:10-09:20	LIFE Waders for Real – what started the project?	Andrew Hoodless—GWCT
Theme 1- Monitoring waders and management to increase breeding success		
09:20-09:25	Opening Talk	Chair – Andrew Hoodless - GWCT
09:25-09:50	Waders in the Avon Valley	Lizzie Grayshon - GWCT
09:50-10:10	Elmley Conservation Trust (ECT)	Gareth Fulton - Estate Manager, Elmley NNR
10:10-10:40	Local and landscape-scale management for threatened breeding wader populations	Harry Ewing - University of East Anglia
10:40-11:00	Project Godwit – Saving black-tailed godwits in the UK	Jen Smart - RSPB
11:00-11:30	Coffee Break	
11:30-11:50	Securing the Future of the Stone-curlew in the UK	Nick Tomlin - RSPB
11:50-12:30	Break out session	Each table has a set of questions
12:30-13:00	Discussion	Full discussion and collation of ideas
13:00-14:00	Lunch	
Theme 2– Monitoring predator activity and predator management		
14:00-14:10	Opening Talk	Chair – Jonathan Reynolds GWCT
14:10-14:30	GPS-tracking foxes on river meadows: understanding their ecology around breeding waders	Mike Short - GWCT
14:30-14:50	Non-lethal predator management including temporary electric fencing, its uses and limitations	Lizzie Grayshon - GWCT
14:50-15:10	LIFE Laser Fences	Dave Parish – GWCT Scotland
15:10-15:30	The effect of culling foxes on the Bisterne Estate	Tom Porteus - GWCT
15:30-15:50	Coffee Break	
15:50-16:10	Monitoring small mammalian predators	Jonathan Reynolds - GWCT
16:10-16:30	Insights into lapwing nest and chick predation.	Ryan Burrell - GWCT
16:30-16:50	Boa Island Breeding Wader – Lough Erne Wildfowlers' Council	Michael Stinson - Lough Erne Wildfowlers' Council
16:50-17:30	Break out session	Each table has a set of questions
17:30-18:00	Discussion	Full discussion and collation of ideas
18:00	Cars returning to Sandy Balls Accommodation	
19:00	Dinner and Drinks (Sandy Balls)	

Thursday 7th November		
09:00-13:00	Field Trip to Hotspot Site - Bisterne Estate, Lower Avon Valley (see page 16) Cars leaving Sandy Balls car park 08:45 Coach leaving GWCT HQ Fordingbridge 09:00 Travelling to Bisterne Water Meadows, Nr. Ringwood Leave Bisterne Water Meadows at 12:30 Arrive back at GWCT HQ for lunch at 1pm	
13:00-14:00	Lunch (GWCT HQ)	
Theme 3- Working with farmers and land managers, maintain momentum and next steps		
14:00-14:15	Opening Talk – our journey from research to results	Chair - Lizzie Grayshon - GWCT
14:15-14:35	Curlew Country	Amanda Perkins – Curlew Country
14:35-14:55	Farmland Advisory	Jess Brooks – GWCT Advisory
14:55-15:15	Working with partners for wader monitoring & conservation	Sam Franks - BTO
14:15-15:30	What does a future lapwing option for ELMS look like?	Andrew Hoodless - GWCT
15:30-15:50	Coffee Break	
15:50-16:30	Break out session	Each table has a set of questions
16:30-16:50	Discussion	Full discussion and collation of ideas
16:50-17:00	Conference End	Thank you and goodbye

Waders in the Avon Valley

Breakout questions

Theme 1- Monitoring waders and management to increase breeding success

1) How can land managers and farmers manage habitat across boundaries to improve wader habitat?
2) How can wader monitoring be easily incorporated into farming practices to increase participation? (i.e. survey packs/submission of survey data/app).
3) Is monitoring of habitat creation enough to assume that waders will be present and breeding?
4) Do we actually know enough about the habitat requirements for target species (lapwing redshank snipe)? And what else do we need to find out?
5) Do we know enough about landscape scale requirements of these waders (lapwing, redshank, snipe) particularly in the breeding season?
6) Is it better to manage habitat less intensively across all fields on a farm or to concentrate effort on a smaller number of fields?
7) How much scope is there to do more habitat work in the Avon Valley/How much is possible whilst maintaining farming practices?
8) What approach to grazing suits wader conservation and farming practices?

Theme 2– Monitoring predator activity and predator management

1) Is some form of predator management necessary to retain these wader species in the Avon Valley?
2) Is non-lethal predator management helpful? (inc. exclusion fencing, habitat manipulation, nest cages)
3) Why are some predator species so numerous in this area? What can we do about it?
4) Is there a good rational case for lethal predator control? Is it...
   effective?
   affordable?
   humane?
   proportionate to the conservation benefit?
5) Are we focussing on the right predator species?
6) Are Defra/Natural England policies helpful with respect to predator management? How could they be improved?
7) If predator management is necessary, how can we afford to do it? Is farming for waders compatible with farming for a living?
8) Are we committed to indefinite intervention? Will there ever be a 'hands off' stage?

Theme 3- Working with farmers and land managers, maintain momentum and next step

1) What are the management options needed?
2) Should habitat management be instigated without accompanying measures to protect nests and chicks from predators?
3) Should management be rotated around a site over a few years to prevent predators keying into particular fields?
4) What would be needed to enthuse uptake or continuation of the schemes?
5) How would success be monitored? How will the targets be decided?
6) How could 'in house' monitoring of wildlife be encouraged to help assess success?
7) What is not working? What makes the schemes unrealistic?
8) Would an ELMS framework be better than what we already have?

Accommodation and Meals

Getting to and from Sandy Balls

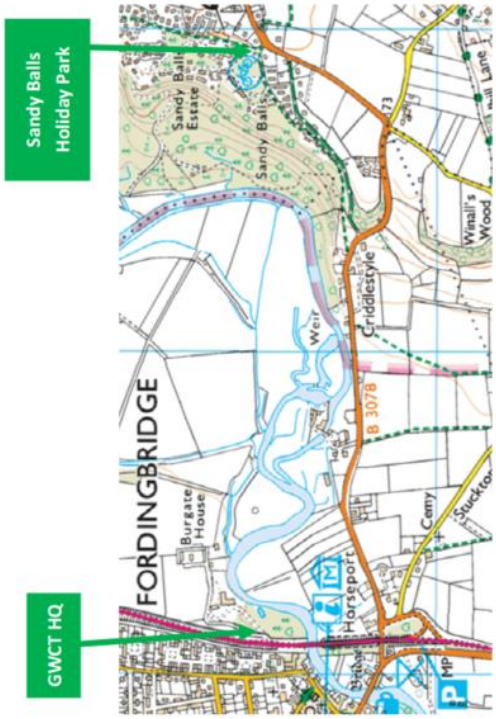
- Sandy Balls Holiday Village, Southampton Road, Fordingbridge, SP6 2JZ
  Contact Telephone: 01442508850
- Game & Wildlife Conservation Trust, Fordingbridge, SP6 1EF.
  Contact Telephone: see W4R team page 4/5

From Game and Wildlife Conservation Trust HQ turn left onto the A338, take the first left onto the B3078 towards Fordingbridge/Alderholt/Sandleheath/Godshill and continue until the junction. Turn right onto Southampton Road/B3078 and Sandy Balls is the third left. The site is signposted and takes roughly 5 minutes from the Game and Wildlife Conservation Trust HQ.

Lifts will be provided for those without a car to and from Sandy Balls - GWCT HQ, leaving Sandy Balls car park at 08:45 in the morning and returning at the time required in the afternoon.

Meals

Breakfast will be served at Woodside Inn (point M) and dinner will be served at Woodside Suite (point N). Please refer to the timetable for timings. For those just attending the dinner please park in the main car park, first right as you enter the park.



Bisterne Estate Hotspot - Excursion

The Bisterne Estate is a partner in the GWCT's LIFE Waders for Real project, together with many other land managers and farmers in the Avon Valley, working together at a landscape scale for wildlife, with project sites stretching from Salisbury down to Christchurch.

The estate hosts two of our four hotspot sites, with these hotspots focusing on areas holding important numbers of breeding waders and have each received intensive management, advice and monitoring, targeted at increasing productivity and breeding densities. We hope this approach will allow lapwing and redshank to recolonise unoccupied sites beyond these areas in the future.

The Bisterne estate comprises of 390-400 fields, with a range of habitats including a variety of forestry, sandy heaths, farm fields, wet bog and water meadows. Making room for nature is a priority for the estate by incorporating many nature friendly management options. There is also a rough shoot managed on the estate which provides recreational and cultural services to the local community, in addition to providing benefits to farmland birds by integrating cover crops and winter feeding through integrated game management. Predation control for the protection of all ground nesting birds is also carried out on the estate, through careful monitoring and targeted lethal control.

The Waders for Real project has worked closely with the Bisterne Estate in relation to their water meadow habitats to target lapwing conservation. Through working together, and as a result of this cooperation we have seen successes through the combined activities of habitat creation (i.e. ditches and scrapes), increased habitat management, increased predator control and the use of temporary electric fences. Lapwing pairs on the water meadows have increases from 21 in 2015 – 30 in 2019, redshank pairs have increased from 4 in 2015 - 16 in 2018.

The whole of the Bisterne Estate team is committed to successful lapwing conservation and monthly estate meetings ensure everyone working on the ground is in the loop in relation to conservation objectives and that farming activities such as grazing, cropping regimes and cover crop rotations etc are timed and well coordinated.

Thank you to the Bisterne Estate for hosting our conference excursion

WIFI, Perdix and Social media

WIFI

Please feel free to access the free WIFI available at Sandy Balls and Game and Wildlife Conservation Trust's HQ.

Sandy Balls

Sign in to the free guest WiFi and follow the instructions

Game and Wildlife Conservation Trust HQ

Name: gwctpublic

Code: a1Ect0r15

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Social media

We would love to hear what you think of the conference and see any photos taken during the two days. If you have a Twitter account please use include **#W4RConf** on any tweets and do not forget to follow us on social media by following **@WadersForReal** for the latest LIFE Waders for Real project updates.

For those without Twitter, follow our Facebook page by searching **WadersForReal.** Find out more about project progress on our website: **www.wadersforreal.eu**.

We would be grateful if any slides or content during the conference showing this symbol, are not shared on social media. Thank you for your cooperation.

Notes

Notes

www.wadersforreal.eu

14.17 LIFE Waders for Real Press releases

LIFE Waders for Real Press Releases

August 2014 – Valley Farmers set fourth to save the lapwing

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27 August 2014

Valley farmers set forth to save the lapwing

A 1.25 MILLION Euro EU Life+ funded project will help farmers in the Avon Valley between Salisbury and Christchurch reverse the fortunes of the iconic and much revered lapwing, which has suffered a dramatic decline over the past 20 years. The species is red-listed as a bird of conservation concern in the UK and conservationists believe that as well as habitat loss, predation of nests by foxes and crows is a major factor limiting lapwing recovery.

The project, which involves 35 farmers, is being managed by the Game & Wildlife Conservation Trust (GWCT), in partnership with the Hampshire & Isle of Wight Wildlife Trust and Planning for Real.

The Avon Valley has historically supported nationally important populations of breeding waders, including lapwing, redshank, and common snipe. In the 1980s, the valley was one of the top eight lowland wet grassland sites for breeding waders in the UK. However, despite habitat improvements aimed at waders, populations of lapwing have fallen from 260 breeding pairs in the 1980s to about 90 last year.

The key aim of the four-year 'Waders for Real' project is to increase the breeding success of lapwings and redshank, so that more young are fledged and numbers of breeding pairs start to increase.

Currently in lowland England, breeding wader populations are only being maintained on nature reserves. This project aims to demonstrate the feasibility of restoring wader populations in the wider countryside by implementing a combination of habitat improvements and measures to reduce nest and chick predation. It is hoped that the experience gained will feed into future Government agri-environment schemes.

Dr Andrew Hoodless, Head of Wetland Research with the Game & Wildlife Conservation Trust, has been monitoring the plight of waders in the Valley and explains the urgency of this project. "In common with other wetland areas, the numbers of breeding waders in the Avon Valley has declined dramatically since the early 1980s. Monitoring has recorded lapwing declines of 64%, redshank of 79% and snipe of 97%. Despite the farmers in the valley carrying out a variety of habitat restoration measures over the last 20 years, there has been no reversal of these declines."

Monitoring of lapwing nests using temperature loggers indicates that in the Avon Valley 61% of nesting attempts fail and that 82% of nest failure is caused by predation, particularly by foxes at night and crows and gulls during the day.

Dr Hoodless explains: "The project is challenging because we are working across such a large area. Our data on lapwing breeding success, collected on 15 farms within the Avon Valley, clearly shows that poor breeding success is driving the decline. Lapwing productivity here has averaged just 0.41 fledged young per pair and this is well below the threshold average of 0.70 fledged young per pair needed to maintain a stable population."

Initially, the GWCT and the Hampshire and Isle of Wight Wildlife Trust will be working intensively with farmers to create four 'hot spot' areas for re-colonization and will be providing comprehensive advice to the remaining farmers within the Avon Valley. Within the 'hot spot' areas, farmers will implement habitat management to improve brood rearing areas, but also to minimise predator access. Monitoring of predator numbers will help identify habitat manipulation on a site specific basis and non-lethal measures, such as nest cages to protect eggs from foxes and crows, will be deployed. In addition to these measures, two areas will also carry out predator control and the GWCT will be providing advice and training with the aim of assessing its effect. The Life+ funding does not cover this element of the project.

Dr Hoodless explains the significance of this innovative four-year project: "There is no doubt that lapwings and other waders are in serious trouble. We have mostly identified the causes, but we need to work more closely with farmers to come up with practical and effective solutions for farmland outside of nature reserves. Guidance that can be tailored to individual circumstances as well as the commitment of farmers to reversing declines, will be crucial to securing the future of these wonderful birds."

June 2016 – A better year for lapwings in the Avon Valley

A better year for lapwings in the Avon Valley

14 June 2016

Despite the rain, hail and cool temperatures in late April and early May, survival of lapwing chicks in the Avon Valley has been higher than average this year.

Read more »

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A BETTER YEAR FOR LAPWINGS IN THE AVON VALLEY

Despite the rain, hail and cool temperatures in late April and early May, survival of lapwing chicks in the Avon Valley has been higher than average this year, reports the Game & Wildlife Conservation Trust. (GWCT). The lapwing is red-listed as a bird of conservation concern, with lapwing numbers across the UK in sharp decline, so this positive result is important for the local population in the Avon Valley.

With approximately 75 breeding pairs in the Avon Valley this spring, many of the early nests were situated on ground high enough to survive the rising water levels, and a reasonable proportion of clutches survived to hatching. Now many broods are close to fledging.

Lizzie Grayshon, GWCT Waders for Real Project Ecologist, explains: "We are encouraged to see the chicks surviving so well this year and believe that they have been helped by damper conditions in fields this spring and lower rates of predation. We estimate that we have had 75 pairs of lapwing with at least 30 broods across 15 farms this year; several of these have now fledged. We have fitted a sample of chicks with very small radio-tags shortly after hatching to track their movements and survival on the meadows. To date we have radio-tagged chicks from 20 different broods and survival is looking much better than in 2015. It will be another three or four weeks before we can produce final figures but the indication is that more chicks will fledge this year."

The GWCT has monitored breeding waders in the Avon Valley for over 20 years and recording of lapwing breeding success over the last eight years has shown that numbers of chicks fledging are too low to support a stable breeding population. The EU LIFE-funded 'Waders for Real' project was launched in 2015 with the aim of reversing the decline of breeding waders in the Avon Valley. The GWCT and students from Sparsholt College have been working with farmers and landowners to improve habitat for these birds and reduce predation of nests and chicks by crows and foxes.

For more information on the LIFE Waders for Real project, see www.wadersforreal.eu

August 2016 – GWCT reports success for lapwings breeding in the Avon Valley

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24 August 2016

GWCT reports success for lapwing breeding in the Avon Valley

Due in part to a very wet Spring, the Game & Wildlife Conservation Trust (GWCT) has reported a rise in the number of lapwing chicks that fledged across its field sites in the Avon Valley, Hampshire. As lapwing is a species of conservation concern, this is a very positive result for the local population.

"Spring this year was exceptionally wet in the Avon Valley," explains Lizzie Grayshon, GWCT Waders for Real Project Ecologist. "with the river breaking its banks several times over the spring months. These high water levels can have mixed effects on breeding waders. During the nesting period they are particularly vulnerable to rising water levels, as they nest on the ground with little nesting material. However, if the eggs survive long enough to hatch, the chicks can benefit from the damp conditions, as the ditches and scrapes stay wet for much longer into the spring.

This year there were around 80 pairs of lapwing across the field sites in the Avon Valley, an increase of 20 pairs from 2015. The majority of the pairs nested on two of the four hotspot sites. These two sites offer large grazed fields with optimum sward height for nesting and re-nesting opportunities.

It is known that for a lapwing population to remain stable, productivity (number of chicks fledged per pair per year) needs to be at 0.7. Unfortunately, in most years the lapwing do not reach this level in the Avon Valley, and consequently their numbers have been declining.

This year, the productivity across the whole of the Avon Valley reached 0.6 chicks per pair. However, on the two hot-spot sites where we had 37 pairs of lapwing the productivity reached 1.1, which is very promising.

Lizzie concludes, "We believe that the success this year has come from a number of contributing factors, including an increased management effort at the sites, including an altered grazing regime and more targeted predator control. Also, the higher water levels allowed the ditches and scrapes to remain wet for a longer period of time, creating ideal foraging areas with increased insect abundance."

The GWCT has monitored breeding waders in the Avon Valley for over 20 years and recording of lapwing breeding success over the last eight years has shown that numbers of chicks fledging are too low to support a stable breeding population.

The EU LIFE-funded 'Waders for Real' project was launched in 2015 with the aim of reversing the decline of breeding waders in the Avon Valley. The GWCT and students from Sparsholt College have been working with farmers and landowners to improve habitat for these birds and reduce predation of nests and chicks by crows and foxes.

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June 2017 – Conservation success in the Avon Valley

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20 June 2017

Conservation success in the Avon Valley

An example of different groups working closely together to conserve declining birds is being led by a Fordingbridge-based charity.

Over the past 25 years, the Game & Wildlife Conservation Trust (GWCT) has documented a 70 per cent decline in numbers of breeding lapwings and an 83 per cent fall in breeding redshank (wader birds) in the Avon Valley.

Launched in 2014, The EU LIFE+ 'Waders for Real' project aims to halt and reverse these declines in a time of increased threat to wildlife.

Establishing an environment to aid wader recovery has included plenty of habitat work, which involved manipulating the landscape by removing old fence lines and willow scrub as well as re-profiling 2.9 km of ditches, digging 1.6 km of new ditches and creating 23 scrapes to create more chick foraging habitat.

The project also involves monitoring the outcome of these works, from radio-tracking lapwing chicks to better understand the fine-scale habitat structures that ensure increased chick survival.

So far, the project has seen increases in these endangered birds in the Avon Valley, with lapwing pairs increasing from 62 in 2015 to 81 in 2016 and a jump in redshank pairs from 19 in 2015 to 28 in 2016.

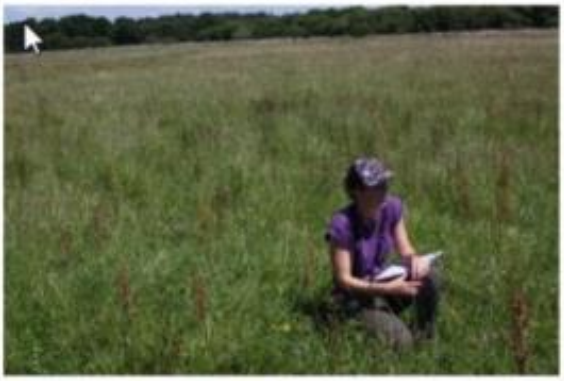
The scientists at GWCT are starting to better understand which techniques are most effective in increasing breeding success of the waders and hope to record further successes with bird numbers, but also want to look at the possible benefits to the wider ecosystem.

Lizzie Grayshon, the project officer and a wetlands research assistant at GWCT, pictured below, said: "The Waders for Real project has given us the opportunity to work closely with a whole network of farmers, land owners and keepers to target lapwing conservation.

"Being able to see some positive results after the first two years is really encouraging and really good to give feedback to everyone putting in the hard work to make it happen."

Together in the Avon Valley, scientists and farmers are working together to reverse declining wildlife numbers, which is a promising development in the fight to protect Britains wildlife alongside maintaining economically sensible agricultural practices.

To find out more information about the project, visit https://www.gwct.org.uk/research/species/birds/lapwing-and-other-waders/waders-for-real/



April 2018 – Endangered birds to benefit from project extension

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13 April 2018

Endangered birds to benefit from project extension

WADERS for Real, a project seeking to aid declining wader birds in the Avon Valley, has received a one-year extension.

Ecologists at the Game & Wildlife Conservation Trust (GWCT) began work on the EU LIFE+ funded project in 2014 in a river floodplain of high biodiversity interest.

The primary purpose of the project extension is to expand the project work to further key sites within the Avon Valley and enable more time for distribution of results to a wide audience. One of the main species of interest is the lapwing, a red-listed bird.

Helping with the work are two new field assistants - Ryan Burrell and Jodie Case.

Ryan, who has spent the past four years with the geographical information systems department at GWCT, will be monitoring lapwing movements between the damp grassland of the Avon Valley and arable fields adjoining the valley, as well as measuring habitat improvements.

Jodie, a former volunteer at the Trust, will be implementing measures to reduce predation of wader nests and chicks on hotspot sites to see which are the most efficient.

Ryan and Jodie will be joining project officer Lizzie Grayshon, who has worked on the project since early 2015, overseeing the day-to-day running of the project including farmer liaison and monitoring of project actions. Lizzie believes the extra year will enable the project to leave a better legacy.

"We are extremely grateful to have this extra year," she said.

"Bird numbers do not respond instantly to management changes and the extra time will better enable us to fully evaluate the most effective strategies for these nationally-important species.

"If, as appears to be the case from our initial data, lapwings demonstrate flexibility in their choice of breeding site between years, we need to better understand which factors influence their decision to change site."

Over the past 25 years, GWCT has documented a 70 per cent decline in numbers of breeding lapwings and an 83 per cent fall in breeding redshank in the Avon Valley.

But since the project commenced, GWCT ecologists have seen increases in these nationally-declining birds in the Avon Valley, with lapwing pairs increasing from 62 in 2015 to 81 in 2016 and then 69 in 2017.

The project has involved establishing an environment to aid wader recovery, including plenty of habitat work which involved manipulating the landscape by removing old fence lines and willow scrub as well as re-profiling 2.9 km of ditches, digging 1.6 km of new ditches and creating 23 scrapes to create more chick foraging habitat, along with the use of temporary electric fencing to reduce mammalian predation.

To find out more information about the project, visit gwct.org.uk/wadersforreal

April 2019 – Waders making a comeback in the Avon Valley

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01 April 2019

Waders making a comeback in the Avon Valley

WADERS in the Avon Valley are making a comeback, according to scientists at a leading wildlife charity.

The EU LIFE+ Waders for Real project, run by the Game & Wildlife Conservation Trust, has seen an increase in the number of breeding lapwing and redshank following years of ailing numbers.

Recent results show breeding redshank have increased from 19 pairs in 2015 to 33 pairs in 2018 and the lapwing population has stabilised at 70 to 80 pairs. Snipe, a species which historically bred in the river valley but dropped in numbers since the early 1990s, have been heard again in the water meadows.

Ecologists working on the project, which launched in 2014 to reverse a 70 per cent decline in lapwing and 83 per cent fall in breeding redshank, have been working closely with landowners, farmers and gamekeepers to achieve these results.

Establishing an environment to aid wader recovery has focused on the creation of wader hotspots, where a combination of intensive habitat improvements and management of wader nest and chick predators has been conducted.

In-field wet features provide optimum conditions for foraging breeding wader chicks, providing a rich source of invertebrates to eat and soft soil to facilitate probing. These mini-wetlands also host dragonflies, damselflies, molluscs and important wetland plants, as well as overwintering waders and waterfowl. So far, the project has created or restored 7.3km of wet ditches and added 33 shallow scrapes, alongside providing advice to their farmers on grazing and cutting to create optimum wader breeding habitat.

Waders select open landscapes, avoiding places where predators perch and hide. With the help of students from Sparsholt College, over 2km of old fence lines and willow scrub have been removed and 125 885m^2 of wader breeding habitat protected from terrestrial predators by electric fencing. In addition, intensive camera trap monitoring has improved the efficiency of legal predator control already conducted on parts of the study area by private landowners to assist wader recovery.

Lizzie Grayshon, LIFE Waders for Real project ecologist at GWCT said: "Starting to see recovering numbers of lapwing and redshank is a fantastic achievement for the project and testament to the hard work of our team and our network of landowners, gamekeepers and farmers."

"Excellent work to help these birds is done on nature reserves throughout the UK, but to combat national declines, conservation needs to work in the wider landscape alongside economic farming. This work demonstrates what can be achieved when conservation organisations work closely with land managers. The combined knowledge and resources gained can have huge conservation benefit, be that for waders as in our case or any other farmland wildlife in decline."

The scientists at GWCT are starting to better understand which techniques are most effective in increasing breeding success of waders on their sites and hope to record further successes in 2019, the final year of their project.

14.18 Bisterne News 2018 – Teamwork for waders in the Avon Valley

Teamwork for Waders in the Avon Valley

By Lizzie Grayshon, LIFE Waders for Real Project Ecologist

In 2014, I entered the Avon Valley, a river valley of national and international biodiversity value as a fresh-faced ornithologist ready to start a new project, LIFE Waders for Real and hopefully (with a lot of help) to reverse the declining trends of breeding waders there in (see Bisterne News 2015). I still remember walking out onto the meadows around Bisterne for the first time, hearing the evocative pee-wit call of lapwing and sharp-pip of redshank in the distance, seeing the diversity of meadow plants and picking around in the grass for ground beetles (otherwise known as lapwing fodder) then chatting to Martin, Rupert, Paul and Hallam of the Bisterne Estate. If you've walked the Avon Valley footpath yourself in spring and bumped into any of the Estate team you'll know their enthusiasm to restore breeding waders is contagious and I thought to myself, we can all do something great here. Well, we are now 4 years on and I have to say, like mine their enthusiasm has not diminished. But, what has that lead too?

Figure 1: Wet scrapes are important for wader foraging. Three 4-week-old lapwing chicks and an adult redshank can be seen on this photo from a Bisterne scrape.

Figure 2: Electric fences are being used to excluded foxes and badgers to improve nest and chick survival.

The Bisterne meadows now host two of our four wader hotspot sites which demonstrates the value of these fields to our remaining population. From our monitoring prior to the project, we know the declines shown by lapwing and redshank are driven by low breeding success, due to agricultural improvement and high levels of predation by generalist predators, like the Red Fox. Our hotpots are focused on areas holding important numbers of breeding waders and have each received intensive management, advice and monitoring targeted at increasing productivity and breeding densities. We hope this approach will allow lapwing and redshank to recolonise unoccupied sites beyond these areas in the future.

With a great deal of help from the estate, we have now added 15 scrapes to the Bisterne meadows, which cover a combined area of 4810m^2. These shallow depressions of exposed ground, hold on to water and provide a rich source of invertebrates on which wader chicks feed and soft soil to facilitate probing (fig.1). The estate has modified grazing and cutting regimes to help us maintain a short damp sward perfect for lapwing, with scattered tussocks of soft rush, the favoured nesting habitat of redshank. To alleviate predation and improve productivity, the estate has increased its level of legal targeted predator control alongside our trials of non-lethal methods, such as electric exclusion fencing (fig.2). We will compare the effectiveness of the different approaches to predator management and feed this into future conservation policy. The estate has made such an impact on us, that Rupert, the Bisterne keeper was chosen by us for a case-study of a conservation-minded gamekeeper and has featured in a new GWCT book on working conservationists.

This year with additional funding from the EU, we extended our project to monitor lapwing breeding on arable farmland adjacent to the river meadows. As well as wet grassland, lapwing will also nest in spring cereal or fallow fields and from the Bisterne team, we came to understand that there may be an important number of lapwing utilising these areas. For us to achieve recovery it is crucial we understand where our birds are breeding, and in particular the choices made by our returning juveniles. Lapwing in these areas still face many of the same pressures as those on the meadows, but breeding attempts also have the potential to be destroyed through agricultural activity. Enter Martin, the Bisterne farm manager who worked closely with our team to minimise losses through farming, he organised ploughing around marked nests and avoided farm activity when there were very young chicks. This new work is already yielding interesting results with several breeding adults identified as chicks fledged from the wader meadows in previous years of the project.

Figure 3: Adult female lapwing about to sit on her nest in May 2018. This bird was caught and colour-ringed as a recently fledged chick on the Ibsley water meadows in June 2015.

The hard work of the last four years, by our team, the Bisterne estate focused on here and all the other land-managers on our other sites appears to be having the right impact, with stability in number of breeding lapwing pairs and improved productivity giving us all hope for the future. This work clearly demonstrates what can be achieved when conservation organisations work closely with land managers, the combined knowledge and resource gained has huge conservation benefit, be that for waders as in our case or any other farmland wildlife in decline.

If you would like to know more, or to read about our fascinating LIFE Waders for Real fox research:

Email info@gwct.org.uk Visit www.wadersforreal.eu Follow us: @wadersforreal