

Gamewise

Research-led conservation for a thriving countryside

Autumn/winter 2020

Alive with pollinators

Why both cultivated and floristic margins are important for pollinators

From rags to plentiful riches

Reaping rewards at our Scottish Demonstration farm

A lasting legacy

Professor Nick Sotherton retires after 44 years but his innovative work transformed cereal production and wildlife conservation

WHAT THE SCIENCE SAYS

The importance of challenging misinformation with tried and tested science

A question of balance

The ecological consequences of releasing for shooting





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**Game & Wildlife
CONSERVATION TRUST**

We had hoped that the postponed GWCT Scottish Game Fair would take place in early October. Sadly, the continuing uncertainty over large, outdoor events has meant we have had to postpone it to next year (see page 37). A huge disappointment for the team who worked so hard to make a later date possible, and to all those members, supporters, trade stands and sponsors who make it such a special occasion each year.

Members have been incredibly supportive in the last few months responding with exceptional generosity to our Covid-19 appeal. We are very grateful and all the more determined to get through this difficult time.

We seem to be living in a slightly eerie half-light where on one hand it is very difficult to carry on as normal – witness our Game Fair. Yet for great chunks of our work there is a lot happening. The Agriculture Bill is going through Westminster. Alastair Leake, our director of policy and public affairs, has been approached by MPs and Peers to share the wisdom learnt from our Allerton Project at Loddington (see page 17).

The farm epitomises the holistic blend of sustainable farming, nature conservation and good environmental outcomes that policymakers wish to achieve from future Environmental Land Management Schemes.

We have launched two new websites. Firstly, 'Working for Wildlife' celebrates Allerton's fellow 'Working Conservationists' who combine economic land management (food, forestry, fisheries and sporting) with excellent nature conservation (see page 8). Secondly, 'What The Science Says' is a fact checking website for ecological science (see page 29). The GWCT is

resolutely researched, yet often scientific facts are neither accessible nor 'checked'. We hope this will help everyone gain access to key ecological science.

This summer we said goodbye to two people who have contributed hugely to our work over many years. First, Professor Nick Sotherton, our director of research, who retired this summer after 44 years.

Anyone traversing farmland will see Nick's legacy to game and wildlife conservation. His research invented beetle banks, conservation headlands and managed field margins, and under his leadership the GWCT has

delivered decades of impactful solutions to conservation problems (see page 33).

The second is Hugh Oliver-Bellasis who stepped down at our AGM in July having been a trustee since the early 1980s. Many will remember Hugh as

host of the GWCT's Cereal and Gamebirds Project (with Nick Sotherton), and he has been a trustee, then vice chairman ever since, devoting huge time and energy to this charity, touching every aspect of our work.

We will miss both of them and wish them well in retirement.

CHIEF EXECUTIVE

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How to deal with medicated grit and gritting stations

7

How to encourage rare arable plants and create beetle banks

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Working tirelessly to conserve Scotland's iconic heather moorland and its wildlife

Member offer

Syndicate membership offers groups of eight or more all of the benefits of premium membership, but at a 30% discount. See the form inside this issue or find out more by calling us on 01425 651024. Alternatively become part of our 500 club and receive a specially commissioned GWCT 500 Club badge in recognition of your commitment (see page 9).



On the cover
Solitary bee. © Will George

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STAR
LETTER

Spreading the message

Dear Editor

I have been an active country sports enthusiast for 35 years and employed in this sector as a ghillie on the River Tay for the last six years. From time to time I heard talk of the GWCT, but it took the passion of an existing GWCT member (over a couple of years) to convince me to join. I'm so glad I did.

The magazine is very informative and a great window for sharing the wonderful work the GWCT is carrying out. The reason for my writing though, is how do we pass on the message of the GWCT to the wider audience? It needs the passion and drive of existing members if my experience is anything to go by. If we all just made a concerted effort to share the work of the GWCT with two or three people, it would spread the word far and wide. Maybe that can be a challenge for us as we approach the peak of the game shooting season this autumn. I'm so glad Mr Stead never gave up on me.

Calum McRoberts, Perthshire

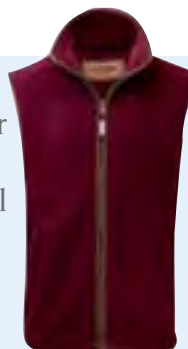
James Swyer replies:

Firstly – welcome to the GWCT. The challenge of getting our work to a wider audience has only been made harder by the difficult year that nobody could have foreseen. With no events for people to bring their friends along to, we have been working hard to find new ways to achieve it. Our 500 Club initiative (see page 9) has seen several prominent figures call on more people to join the GWCT.

*We have been delighted with the response, but also know that we must adapt to get our voice out in different ways. With this in mind we have launched two new websites – our fact-checking service, *What The Science Says*, and *Working for Wildlife*, which showcases the great conservation work that's being done in the British countryside. We've also increased the amount of coverage we receive in the press, radio and TV in the past five years and continue to strive for more.*

We are now talking to more than 50,000 people, the majority of whom are not members, through our weekly email newsletter. We're seeing more of these sign up once

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Email: editor@gwct.org.uk

* We reserve the right to edit letters for inclusion. The editor reserves the right to select the star letter. Letters are the opinion of the writer and are not necessarily the views of the Trust.

they see the work we do. There's a good chance they'll be in a beating line, at a neighbouring peg or sharing a drink with a GWCT member, so we're always grateful for the Mr Steads in this world who work hard to convince their friends to join. To make this easier for some of you, we've launched syndicate membership gwct.org.uk/syndicate – there's a form in this issue if you'd like to ask your friends.



Capercaillie questions and a history lesson

THANK YOU to the many of you who wrote in with your thoughts about our capercaillie feature in the summer edition of *Gamewise*.

Your local insights into predation pressure, habitat management and potential for pine marten removal were incredibly insightful and have been passed on to our upland research team.

Readers might also want to look into the life of Thomas Fowell Buxton, the abolitionist who brought capercaillie from Sweden to Breadalbane in the Scottish Highlands in the 1830s in an attempt to reverse declines. We're grateful to John Clements for writing in to share his story.

GIVE US YOUR VIEWS

Email: editor@gwct.org.uk
Write to: Editor, GWCT,
Burgate Manor, Fordingbridge,
Hants, SP6 1EF

Don't forget your GWCT reading

IN THE summer issue of *Gamewise*, we highlighted that members can get hold of a range of our publications, including the latest *Review of 2019* online at www.gwct.org.uk/read.

There is plenty to catch up on including our fisheries report, news from Auchnerran, our Scottish Demonstration farm, and summaries of our two important GWCT projects – the

LIFE Waders For Real project in the Avon Valley and the long-running Langholm Moor Demonstration Project. You can also read a series of case studies in our Working Conservationist series, including *Moorland Conservationists*, highlighting the work undertaken in the uplands.

If you'd like a paper copy of the *Review*, please contact us on 01425 651024 or hacors@gwct.org.uk.



In focus

Conservation



Graham Denny (right) recently featured on 'Jimmy's Big Bee Rescue' on Channel 5 with Jimmy Doherty (left); (top right) Kate Faulkner has a healthy population of harvest mice in her hedgerows.

Showcasing the men and women working for wildlife

The unsung heroes of conservation are being celebrated by a new website, Working for Wildlife, launched by the GWCT. Since 1932 we have championed the idea of 'Working Conservation', wanting to find practical solutions to reversing the decline of farmland biodiversity. We recognised that success depended on developing measures that fitted into farming regimes.

The website features more than 20 profiles of Working Conservationists, from Graham Denny, who has made his 200-acre Suffolk farm an oasis for one of our most threatened birds, the turtle dove, to Kate Faulkner, who has been planting and maintaining hedgerows to provide habitats for harvest mice at Norton Farm near Selborne, Hampshire. The passion and positive action of individuals like these are key to conservation success at a local level.

Roger Draycott, our director of advisory and education, said: "It's common to think of nature reserves when thinking of wildlife but, in fact, the majority of our wildlife lives on farmland, moorland, in woodland and in rivers outside nature reserves. The aim of the Working for Wildlife website is to highlight where nature is thriving thanks to the efforts of the farmers and land managers who work in the countryside."

The website also invites supporters to sign a pledge supporting the GWCT's demand for a more positive approach to conservation, which empowers those working on the land and embraces the views of local communities for a thriving countryside.

You can view the full collection of Working Conservationists and sign the pledge by visiting workingforwildlife.co.uk.

The 500 Club

"THE TRUTH IS,
WE NEED THE
GWCT NOW MORE
THAN EVER."

RACHEL CARRIE
WRITER, CAMPAIGNER
& COUNTRYWOMAN



Rachel Carrie is one of several people to support our latest membership campaign.

Strong support for the GWCT in difficult times

The GWCT 500 Club is calling for 500 passionate conservationists, farmers, countryfolk or keen members of the public to join thousands of others in supporting our work as members. Those that join over the next six months, will receive a specially commissioned GWCT 500 Club badge in recognition of their commitment and they will be invited to a celebratory welcome drinks party to meet existing members in 2021 (subject to Covid-19 restrictions).

Environmental consultant, author and campaigner, Rachel Carrie, was one of several public figures to give her support. Ms Carrie said: "It was the time I spent outdoors as a child learning about the rich tapestry of nature and the biodiversity that exists in the British countryside, that eventually led me to join the shooting community. Shooting and wildlife conservation go hand in hand and it is impossible to care about one without caring deeply about the other. A reality unfortunately that the wider public become increasingly disconnected from with each generation, a message which becomes increasingly difficult to convey.

"The GWCT not only helps us to monitor the species and habitats that

we care so deeply for and secure them for future generations to enjoy, it ensures that our investment and caretaking is evidenced with sound independent science. Science that can be relied upon whenever our community is unfairly challenged by those who misunderstand and therefore oppose shooting. Earlier this year, anti-shooting activists launched three new legal challenges against the shooting community. Past challenges of this kind have always relied upon the GWCT to stand in our corner and lend its armoury of wildlife and habitat studies."

Others to offer their support include chefs Michel Roux Jr and Jose Souto, conservationist and author Mary Colwell, wildlife artist Rodger McPhail, hedgelayer and writer Richard Negus, and gamekeepers Adam Steed and Alex Keeble.

With fundraising a challenge this year, the Trust has forecast a shortfall in income of upwards of £1 million. Your membership helps us to plan for the future with certainty. If you know anyone you think might like to support our research, please talk to them about our work. They can sign up online at gwct.org.uk/500club or can speak to one of our membership team on 01425 651024.

Thank you

to all our members who kindly donated to our latest fundraising appeal. More than 1,200 of you donated a total of over £120,000 and this has helped us to plan for what is likely to be a difficult period for some time. Throughout the impact of Covid-19, while we have been unable to attend events or recruit members in public, our research has largely continued (see page 20) and we remain committed to fighting misinformation (see page 29).



To do this autumn

1 Start a sweepstake

Running a shoot sweepstake is a fun way for shoots of any size to raise funds for the GWCT. It only takes a few moments to get the guns involved and helps create a lively sense of competition, while supporting our important work. The free GWCT sweepstake package contains everything necessary to help run a successful shoot day and for every £100 raised, shoots will receive a bottle of sloe gin. For more information, call Heather Acors on 01425 651024.



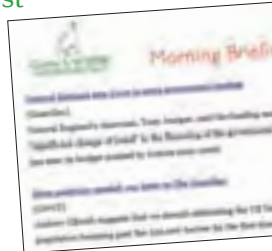
2 Get ready for next year's bird count

The 2020 Big Farmland Bird Count was a record-breaker, with more farmers taking part than ever before. We want next year's to be even bigger. Before next February, why not brush up on your bird ID skills or learn some more birdsong? Sign up at bfbc.org.uk for more information and to avoid missing out.



3 Get the latest news every weekday morning

Sign up for our free Morning Briefing email at gwct.org.uk/morningbriefing.



TIME FOR REINTRODUCTION?

Following a successful trial on the River Otter, more than 1,500 people completed our survey on beavers.

Do you think beavers should be reintroduced in England?

Yes 70%

No 30%

Have your voice heard by signing up for our weekly email newsletter at gwct.org.uk/newsletter.

GWCT in numbers

26

lapwing nests were monitored via cameras at our Auchnerran farm, of which three were lost to predators: one hedgehog and two common gulls. You can read more on page 38.

250

species of wild bees are found in the UK, of which 90% are solitary bees. Our research found that 66% of foraging solitary bees were found in cultivated margins compared with 24% in floristic margins (see page 25).



37,000

pairs of grey partridges are in the UK, according to the Avian Population Estimates Panel. The BBC reported it was just 100. See more on page 29.

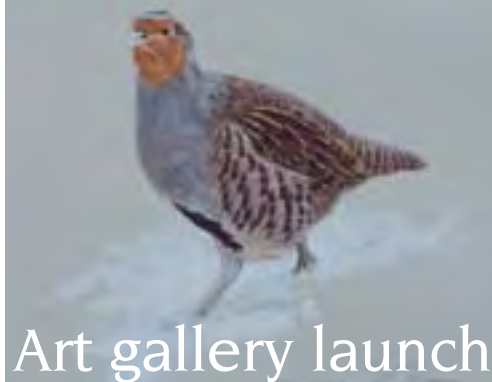
1,100

people responded to our survey on mountain hare distribution. This allowed us to produce the most extensive mapping of this species so far. See page 30.

52,339

supporters now receive our weekly email newsletter. Be sure not to miss out on the latest news by signing up today at gwct.org.uk/newsletter.

Art Gallery



Art gallery launch

Our new art gallery features original art to suit all budgets with 25% of all sales donated to the GWCT. © Ashley Boon

We have teamed up with a trio of leading wildlife artists to create an online charity art gallery. The

GWCT Wildlife Art Gallery launched in July at gwctgallery.org.uk features work from Ashley Boon, Rodger McPhail and Ian Greensitt. The premise is simple – original art to suit all budgets, from £50 to £11,000, with 25% of all sales supporting the vital conservation work undertaken by the GWCT.

Throughout the lockdown period, artists have struggled to exhibit their work, with galleries closed and many events cancelled. The Game Fair, a key event for wildlife artists to reach a wider audience, will not take place this year despite efforts to reschedule it.

This prompted Ashley Boon, wildlife artist and long-time supporter of the GWCT to turn a longstanding idea into a reality. He notes: "I'm delighted that the Trust has embraced this idea so enthusiastically, and I'm pleased to be able to support its work."

Obituary

Celebrating David Kjaer

We were very sad to hear of the passing of wildlife photographer David Kjaer in June. Dave was incredibly generous with his support for the Trust through his wonderful photos, and his passion for birdlife and nature were evident in all of his work. Dave's photos can be found throughout *Gamewise* and our *Review* over many years and his iconic covers, particularly black grouse, brought our research to life.

Austin Weldon, our regional advisor, first worked with Dave

at the Great Bustard Project and said: "I was deeply saddened to hear of Dave's passing. He was a wonderful person, always cheerful and a pleasure to work with. Dave had an exceptional knowledge of natural history and was so very generous with letting the Trust use his images to illustrate our work. My thoughts go out to Carol and his family, he will be dearly missed by all who knew him."

Members will have enjoyed Dave's excellent photography throughout many of our publications. © Dave Kjaer



In brief

Have your say and win a shooting lesson

THE WEST London Shooting School are kindly offering a GWCT member a one hour clay shooting lesson worth £135. All you have to do is complete the survey that came with this magazine – either by posting it back to us or online at gwct.org.uk/2020survey – by 31 December and one lucky respondent will be chosen at random.



Lasting legacies that make a real difference

SINCE THE last issue of *Gamewise* we have received notifications of three legacies that members and supporters have left in their Wills, of which we are very grateful. Last month we received a £2,000 legacy that will help to support our science and enable us to plan future work.

If you are interested in leaving a gift to the GWCT in your Will or finding out more about the process, you can visit gwct.org.uk/legacy or speak to James Swyer on 01425 651021.

Research



A lasting legacy

From beetle banks to breeding woodcock, Nick's legacy can be seen across the British countryside. © Peter Thompson

After 44 years with the GWCT, our director of research, advisory and education, Professor Nick Sotherton, retired at the end of June. Nick has been with the Trust since joining in 1976 to study for his PhD. He has been director of research since 1998 and

in 2015 he took on the additional role of director of advisory and education.

Following Professor Sotherton's retirement, Andrew Hoodless will become interim director of research. Andrew has been the GWCT's head of wetland research since 2010. He joined in the early 1990s, when the Trust sponsored his PhD on woodcock. Since then he has worked in the upland and lowland research teams, on black grouse and capercaillie projects in Scotland, the Upland Predation Experiment in Northumberland, and work to quantify the effects of gamebird releasing on woodland wildlife. He initiated the first national survey of breeding woodcock in 2003 and has worked on woodcock migration, assessing the effectiveness of agri-environment measures for lapwings and worked on reversing wader declines in the Avon Valley.

Roger Draycott will take on the role of interim director of advisory and education. From a farming background and with a PhD in pheasant ecology, Roger has worked at the GWCT since 1993 and has recently been working with farmers and game managers to maximise the conservation benefits that good game and wildlife management can deliver.

You can read more about Nick's remarkable time at the Trust on page 33.

Successes



AROUND 84% of the 80 or so lapwing first clutches produced chicks at our Auchnerran farm, and all nine of the curlew nests were successful too (see page 38).



CREATING clean-water ponds in the farmed countryside can dramatically increase levels of freshwater biodiversity and treble the number of rare plant species (see page 18).



Setbacks



DESPITE the compelling GWCT evidence that shows grouse moor management benefits mountain hares, the Scottish Parliament voted to give hares greater protection in June (see page 30).



NUMBERS of young salmon in Wales are lower following warmer winters and wetter springs (see page 42).

New GWCT report gives insight into fish declines

Declines in adult salmon on the River Frome witnessed in recent years show no sign of abating, according to the latest figures in our new report. The *Fisheries Research Review*, published in August, identifies that a disappointing number of adult fish returned to the river last year. It was hoped that a good number of smolts (young salmon leaving the river for their marine journey) in 2018 would boost these numbers, but far fewer returned to the river than expected.

One factor that might have contributed to this is size. Smolts leaving the river in 2018 were the smallest ever recorded by the Trust – 4% smaller than the 10-year average. Previous research by the GWCT has shown that larger smolts are more than three times more likely to return from the sea than smaller ones. The worryingly low number of smolts that left the river in 2017 will also have had a major impact.



Social distancing in action in our fisheries department. © GWCT

Despite the impact of Covid-19, the fisheries team enlisted their families to ensure that the Frome was perhaps the only river in Britain to have full monitoring through lockdown. This dedication avoids a two-year gap in the data, as this year's smolts will be monitored when they return as adults over the next two years. The *Fisheries Review* can be downloaded at gwct.org.uk/fisheriesreport.



© Bayer

These boots were made for learning

Bayer Crop Science UK's new Head of Business, Marion McPherson, kindly handed over 80 pairs of children's wellington boots to our Allerton Project this summer. The wellington boots, of various sizes, will be used when parties of schoolchildren visit the farm at Loddington.

Alastair Leake, head of the Allerton Project, also showed Marion around the farm, highlighting the research projects that are carried out, both to increase biodiversity on the farm but also to reduce the carbon emissions and the environmental footprint of the farming.

During her visit Marion said: "We are delighted to make this contribution towards successful farm visits at the Allerton Project. It forms part of our commitment to improving the understanding of how our food is grown, especially to school-age children. The farm is an excellent example of how to produce high-quality, affordable food in a way that enhances the environment in which it is grown."

Appeal update: your support matters



Supporting working conservation: our response to Government consultations on peatland and environmental policy

THIS JULY our policy team submitted responses to two important Defra consultations. In responding to the England Peat Strategy, we stressed the crucial need for collaboration while also recognising a series of knowledge gaps, particularly on the impact of vegetation burning on upland peat. The GWCT fears that without furthering our understanding, we risk relying on 'old truths' and compromising a plan for healthily functioning uplands before we even begin. Discussion on upland management often oversimplifies the debate into what is 'good' and what is 'bad', but to succeed we must go beyond this and consider both the aforementioned gaps in understanding, but also the complexity of the subject we are dealing with. Any strategy must be flexible enough to evolve with the current understanding and work with, rather than against, those able to enact it on the ground.

As for any future environmental land management policy, many members gave us vital feedback to inform our submission. Importantly, we reiterated the need for any policy to engage with the farming and landowning community. Participation must be encouraged with appropriate financial reward and adequate funding, flexibility, simplicity and trust.

More insight from our woodcock tags

THE STORY of Holkham, one of our tagged woodcock, has taken a strange turn recently. She was the only bird we tagged in 2018. She migrated to a slightly unusual site to spend the summer: a series of small islands clustered in the mouth of the Oslofjord, Norway. She returned to the same location in 2019, tending to favour one of the larger islands, known as Midtre Bolaerne. Then, towards the end of the summer, she disappeared. Our last communication was received in early September.

In February this year, however, we received an email to say a woodcock that we had ringed had been recovered. We were slightly surprised to see that it was a record of a bird that had been captured and released by another ringer back in August 2019. Checking the ring number, we discovered the bird was Holkham.

One of the islands close to where Holkham spent the summer, Store Faerder, is a bird observatory where birds of all species are caught and ringed. Such observatories are an important source of bird migration data and a network of similar observatories exists around the UK. It was on Store Faerder that Holkham was caught, but the capture details that we were supplied contained no information about her tag.

And until recently, that's where the story went cold. Then, on 20 March 2020, Holkham's tag started transmitting again. She was no longer on Store Faerder but back on Bolaerne where she had spent most of spring 2019. We received no transmissions to show whether she was back in Norfolk over the winter, but this new evidence shows without doubt that she is still alive and still tagged. She's moving on a regular basis and behaving in much the same way as she did in spring 2019.

You can support our latest appeal by visiting www.gwct.org.uk/fund



I can think of no better way to demonstrate a true respect for the British countryside and its wildlife than to say "I am a supporter of the GWCT."

Richard Negus – hedgelay, writer and passionate GWCT member



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How others see us

What do other organisations think of our work? This column offers an opportunity to hear their views and helps offer insight into our relationship with them. Here, Tim Furbank, director of Oakbank Game & Conservation Ltd, gives his opinion



Writing this at the beginning of June it seems incredible that, with everything else going on in the world, people and organisations are still trying to besmirch shooting. For many it is an underhand way to try to generate funds for their 'cause' and with millions of people stuck at home spending hours on social media, they have a captive audience. Mark Avery made a snide comment on social media to the effect that he hopes the GWCT goes bust. Which, aside from making my blood boil, really got me thinking about why the GWCT has never been more relevant or important. And the answer is simple – without the GWCT the British countryside and endangered wildlife would be in a far more perilous position than it is now and a future without the GWCT, would almost certainly see the extinction of many species. Why? Because the GWCT undertakes scientific studies that are unpalatable to other 'conservation' charities, but which prove the importance of targeted predator control to conserve threatened species.

Studies into lapwing nesting success in the Avon Valley and the 50 year-long Sussex Study on grey partridges (the longest running monitoring project in the world) have shown the importance of predator control to survival of these species. And many other GWCT studies show the wide-ranging positive effects that well-managed shoots have on a whole host of farmland wildlife including waders, songbirds and insects. GWCT work is also supported by many true 'conservationists', such as Mary Colwell, who may not be pro-shooting but understand the crucial role that gamekeepers play in the conservation of many of our threatened species.

As a fisherman, I am also highly appreciative of the GWCT research into river restoration. Its salmon tagging and monitoring work on the River Frome provides one of the most comprehensive records of salmon movements in Europe. If this can help us better understand the causes of the decline in Atlantic salmon

“without the GWCT the British countryside and endangered wildlife would be in a far more perilous position than it is now”

numbers, then we are nearer to finding a way to help reverse the decline.

The GWCT was also instrumental in developing the Farmer Cluster approach to landscape-scale conservation; it 'invented' the mink raft, a product that revolutionised the ability of conservation groups to remove mink from huge areas to help the endangered water vole; it created the first beetle banks and conservation headlands and is continually working with seed companies such as Oakbank to develop wildlife friendly habitats. The Oakbank GWCT mixes, developed with partridge biologist Francis Buner at Rotherfield Park, are not only making a difference for wildlife on farms across the UK and mainland Europe, but are also contributing to essential fundraising as £20 is donated to the Trust for every hectare pack that is bought.

If you are not a member of the GWCT then please join and find out more about its work. If you are a member please try and help with fundraising efforts and spread the word about why we should all support its important research. 🐦

Tim Furbank
Director, Oakbank Game & Conservation Ltd



Oakbank are specialists in the supply of seeds, plants and advice for the creation of wildlife habitat on farmland, particularly for game. We have a team of experienced and skilled advisors that can help you to develop and execute projects on both your farmland and woodland. www.oakbankgc.co.uk



GWCT wild bird seed mix. © Oakbank

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News



Due to the wet weather this winter we have sown green or flowering mixes on the headlands.

Going green with headlands

The endless wet winter of 2019-20 meant almost all our cropping is spring sown this year. From the historic records at this site we know that spring-sown crops tend to produce lower yields and from our yield mapping system on the combine harvester, coupled with some research carried out by Phil Jarvis as part of his MSc thesis, we know that the headlands produce lower still. To maximise the output of the limited spring

seed supply we have not sown crops on the headlands this year, but instead sown either green or flowering headland mixes, or left the ground to natural regeneration. Thanks to Kings Crops for providing the seed and through some generous funding from Asda and Syngenta, we will be recording the impacts of the different treatments on soil health, structure and fertility in these areas.

Research

Climate change mitigation

Monitoring of greenhouse gas flux in compacted soils as part of our contribution to the EU-funded SoilCare project, reveals that carbon dioxide flux is higher in ploughed plots than in direct drilled plots. In compacted conditions, nitrous oxide flux is higher in direct drilled plots. The amounts involved are very low, but because nitrous oxide has a global warming potential that is nearly 300 times that of carbon dioxide, the implications for climate change are that much greater. Looked at together, the global warming potential of greenhouse gases associated with ploughed and direct drilled plots is roughly equivalent. The additional emissions associated with multiple field operations in the ploughed plots mean that direct drilling overall had less impact.

Reduced soil disturbance, whether through direct drilling or other practices such as incorporation of leys into the rotation, also has the potential to increase soil organic carbon. Data from local fields in the Water Friendly Farming project study area reveal that this

is currently around 3%, and typically, declines with soil depth. Increasing soil carbon helps to improve soil moisture retention during drought. It also has the potential to deliver public benefits such as improved water infiltration during storms, resulting in better water quality and ecology, and reduced downstream flood risk. At depth, stable forms of carbon represent an important potential carbon store, contributing to climate change mitigation.

Incorporating grass leys into the rotation has the potential to increase soil organic carbon.



To learn more visit gwct.org.uk/allerton

It is estimated that **90%** of water infiltration is due to **earthworm** activity

Earthworms have been found to improve crop yields by up to **25%**

More than **16 worms** per spade-full is linked with improved crop yields

At the Allerton Project we've found **earthworm** numbers nearly doubled in our direct drilled trials

Earthworms enrich the soil with **soil microbial organisms**, as more are found in the soil that has passed through their gut, than in the soil they eat

Earthworms have three function groups:

- Surface dwellers**, called **Epigeic**, which eat organic matter on the surface of soil, and don't form burrows
- Soil dwellers**, called **Endogeic**, which make horizontal burrows and eat soil
- Deep burrowers**, called **Anecic**, which make deep vertical burrows and drag litter down into them

DID YOU KNOW?

OUR TRAINING COURSES are relevant to agronomists, farmers, land agents, estate owners and conservation advisors. See www.gwct.org.uk/beta.

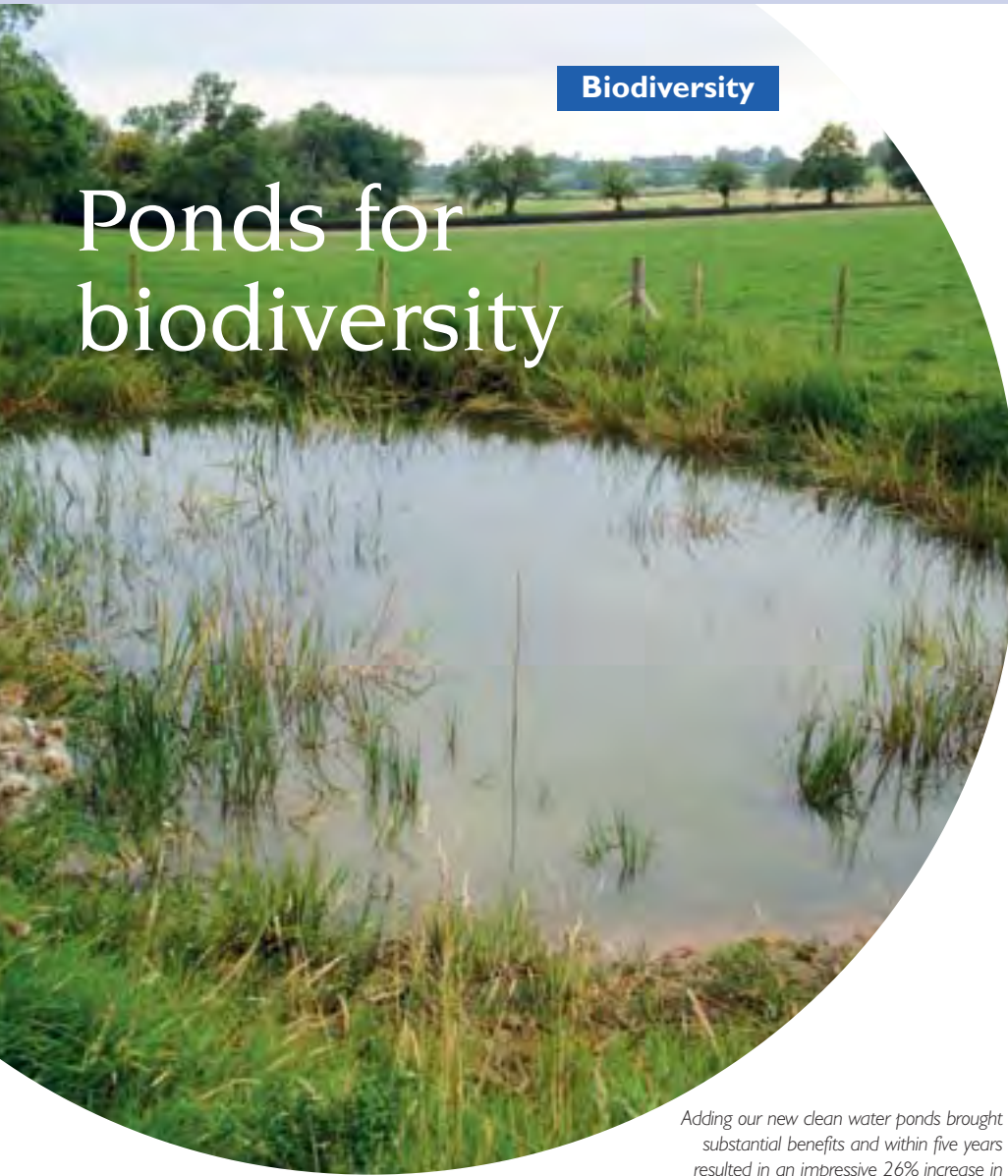


FIFTY PERCENT OF ponds were lost in the 20th century but they are important habitats as they support two-thirds of all freshwater species.



Biodiversity

Ponds for biodiversity



30km². After a two-year baseline period, we introduced changes in two of these catchments, while the third remained as our 'control' catchment where we simply monitor any background changes from year to year.

Freshwater Habitats Trust researchers have carried out a comprehensive census of aquatic plants in wetland habitats (ponds, ditches and streams) across the three headwater catchments each year. Whereas a representative survey would be necessary for most terrestrial habitats, the restricted distribution and coverage of these small wetland habitats makes a census of entire plant populations feasible. One hundred and six aquatic plant species were recorded across the landscape. Ponds were the richest habitat, supporting 85 species, with ditches and streams each supporting around half that number. Most of the rarest species also occurred in ponds.

After the two-year baseline period, we created 20 clean water ponds specifically for wildlife in one of the two treatment catchments. We selected sites carefully so that the new ponds were in low input pasture or open areas of woodland where runoff into them was not affected by

Adding our new clean water ponds brought substantial benefits and within five years resulted in an impressive 26% increase in species richness. © Freshwater Habitats Trust

Creating new habitats on your farm and witnessing the benefits to wildlife can be enormously rewarding. But, as the GWCT's hugely successful 'Farmer Cluster' initiative acknowledges, a landscape scale approach makes all the difference when it comes to the resilience of wildlife populations to local changes, or indeed to global ones such as climate change.

Our research at and around Loddington has identified the high concentrations of phosphorus in small wetland habitats such as ponds, ditches and streams, and the negative impact this has on aquatic plant and animal diversity. Phosphorus comes from

both agricultural sources through runoff from farmland, and from domestic sources such as septic tanks and sewage treatment works. Concentrations vary across the landscape, and through the year, with highest concentrations in the summer when there is least dilution. We can expect climate change to accentuate this trend.

In partnership with the Freshwater Habitats Trust, we have applied a rigorous experimental approach to explore how to improve conditions for aquatic biodiversity in our landscape scale Water Friendly Farming project in the headwaters of the River Welland. The project is based on three headwater catchments totalling around



NUMBERS OF EARTHWORMS that live near the soil surface were 2.3 times higher after stopping cultivation, but deep burrowing worms were only 1.4 times higher.



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domestic or agricultural sources of nutrients. In my discussions with landowners, I found that the selection of these non-productive areas also made the ponds acceptable to them; in fact, the introduction of ponds onto their farms was regarded as improving the landscape and creating additional interest. An additional attraction was that these new ponds occupied just 0.24-ha of the 9.4km² catchment.

Within five years, adding our new clean water ponds brought substantial benefits in landscape scale biodiversity. They resulted in an impressive 26% increase in species richness. The number of rare plant species associated with them increased by an amazing 181%. In the catchment with the new ponds, there was a slight increase in plant species in pre-existing ponds in the wider landscape, whereas the number of plant species declined in the other two catchments. It seems that the new ponds were providing opportunities for initial colonisation, and that at least some species

“creating pockets of high quality habitat and increasing landscape scale connectivity applies equally well to terrestrial wildlife”

were then able to spread to other ponds in the area. This is no doubt largely because introducing new ponds into the landscape reduced the average distance between ponds from 255 metres to 92 metres.

Our work shows that creating new carefully sited and designed habitat can not only bring benefits in terms of biodiversity at specific sites, but can make an important contribution to biodiversity at the landscape scale. This principle of creating pockets of high quality habitat and increasing landscape scale connectivity is one that applies equally well to terrestrial wildlife.



Chris Stoate is head of research at our Allerton Project research and demonstration farm. He is keen to share our research results and show how everyone can help, not just farmers.

Ponds at the Allerton Project help lots of wildlife including (L-R) damselflies, toads, swallows, bees and newts.



THIS WORK ALSO BENEFITS:

LATEST DEMONSTRATION FARM ADVICE



COVER CROP CORNER

Throughout the summer, the spring wild bird seed plots have been delivering seed-rich habitat and are now set to provide valuable food through the winter months. Green headlands (above) that were introduced into unplanted arable land are now back into cereals, having done a magnificent job of mopping up nutrients, improving soil structure and delivering an abundance of nectar for a wide range of pollinators and beneficial insects.

The autumn-sown Interreg plots are now planted and will provide important brood-rearing cover next spring, serving as a valuable piece in the wild game and wider farmland bird production jigsaw. Although these crops can appear somewhat underwhelming to look at through the autumn and winter months, they always impress when they start to flourish in April and May.

We are preparing for the deployment of the new Countryside Stewardship agreement which commences in January. There is much to do across options previously used, such as winter bird food and supplementary feeding, and there are some new options including our Autumn-Sown Bumblebird Mix, which will be a great asset to the heavy soils across much of the farm. Establishing plots in August/September in these areas will be much simpler and more sustainable than spring-sown options.

Richard Barnes

Kings Crops provide agronomy advice and supply seed for the Allerton Project farm's game cover, stewardship and green cover crops. kingscrops.co.uk





Research in numbers

- 768 crop pest surveys
- 60 farmland bird surveys
- 1,344 hours of remote bat surveying
- 600 D-vac samples
- 2,887 pollinators recorded
- 1,080 field beans hand-pollinated

Keeping our research on track

Kate Williams shows the resilience and resourcefulness of our dedicated researchers over the summer where research has continued against the odds

As GWCT post-doctoral ecologist Niamh McHugh says: “Ecologists always have a plan B,” usually in readiness for weather-related disruption, but 2020 has stretched even their resourcefulness and, Niamh says: “a plan C or D were sometimes required.”

Many conservation organisations had to suspend research or cancel vital environmental programmes due to the Covid-19 lockdown restrictions. Missing a year’s monitoring can cause frustrating gaps in a data set, or even prevent scientists from drawing reliable conclusions from a long-term study. Faced with this threat our scientists, and their families, have gone to extraordinary lengths to continue with their work.

Senior conservation scientist and head of the PARTRIDGE project, Francis Buner, walked 130 kilometres of songbird transects at Rotherfield and Cheriton, to ensure that the annual songbird monitoring took place. He also conducted lapwing and barn owl nest box monitoring at Rotherfield and its surrounding farms, as well as working with three students on insect sampling.

Our Scottish demonstration farm Auchnerran felt the impact of the virus as one of the three research staff was furloughed. “Some sampling activities have been reduced,” says Dave Parish, our head of Scottish lowland research, but, “the vast majority of our monitoring work has continued thanks to our students, Max Wright and Elizabeth Ogilvie.” The students were living on the farm during their placements so were not subject to lockdown travel restrictions.

Auchnerran’s annual monitoring focuses on key species such as soil invertebrates, game species, farmland birds, raptors, waders, thrushes, rabbits, some mammals like red squirrels and foxes, and mud snails (see page 38).

Dave Parish said: “Thanks to Elizabeth and Max’s hard work and dedication we have managed to collect a huge amount of valuable data. These data are used to help inform farm-management decisions and contribute to long-term datasets of various kinds. Thankfully, most of these datasets will not now have lots of blanks for 2020.”

At our Allerton Project at Loddington, annual monitoring had already been delayed due to the exceptionally wet winter preventing the planting of winter crops. The team was determined not to let lockdown restrictions cause them to miss a year’s measurements. Soil scientist, Jenny Bussell, explains: “We have several long-term experimental fields where we look at a range of issues including revealing compaction and improving soil health. Many of the measurements we take are time and weather dependent, so waiting until lockdown was eased would mean missing the opportunity. It is vital to monitor these experiments every year, as the changes we see are often gradual and fluctuate between years.”

Remarkably, through adaptability and hard work, the Allerton team managed to continue with all their annual monitoring. Field assistant Gemma Fox even drafted in daughters Alice and Lauren, to ensure that the labour-intensive task of measuring water infiltration continued.

It was also a family affair at East Stoke, in Dorset, as our fisheries team managed to monitor the six-week smolt run, with two staff members and a PhD student joined by their partners who volunteered to help during night shifts to reduce potential risk. Fisheries ecologist, Luke Scott, manned all the day shifts (usually run by two staff) and ensured that East Stoke was one of very few salmonid research centres able to operate during lockdown.

Matthew Beedle and Jemma Gibson made sure that the annual D-vac insect sampling could go ahead, ably assisted by Lucy Robertson.



Kate Williams is our communications officer who is keen to share how hard our researchers have worked despite the challenges they have faced this year.

“It was also a family affair for our fisheries team”

DID YOU KNOW?

Red grouse counts using pointing dogs were started almost 40 years ago and form one of our most important long-term datasets. Grouse are counted pre-breeding in early spring and repeated post-breeding in July, when adults and young can still be distinguished. In 2020, our uplands team conducted 26 counts in Scotland and grouse were counted at 50 sites in northern England.

'Significant others' also saved the day for the farmland ecology team's monitoring. "Our biggest challenge," says post-doctoral ecologist Niamh McHugh, "was finding a way to conduct fieldwork which required pairs of researchers working in close proximity." Monitoring work was able to go ahead when partners of staff and students volunteered to help. The hard work of staff and volunteers ensured that since the start of 'lockdown' the team has completed an impressive 768 crop pest surveys, 60 farmland bird surveys, 1,344 hours of remote bat surveying, 600 D-vac samples, as well as recording 2,887 pollinators and hand-pollinating 1,080 field beans.

Placement students Jemma Gibson and Matthew Beedle stepped up to make sure that the annual D-vac insect sampling at our long-term study areas was able to go ahead. The completion of this unglamorous but vital job appeared to be threatened by Covid-19 too. By luck, Matthew and Jemma were already trained to use the veteran D-vac machine and were sharing accommodation, so they were able to work together, travelling to sites across the country to complete samples.

The coronavirus restrictions forced the suspension of our wetland team's early fieldwork, but it wasn't long before ecologists Lizzie Grayshon and Lucy Capstick had recruited farmers, keepers and landowners to conduct

lapwing monitoring alongside their day jobs. When restrictions began to ease, Lizzie returned to the Avon Valley in Hampshire, to record fledged juvenile redshank and lapwing, including setting up trail cameras to estimate the ages of several redshank and lapwing broods.

In 2019 the team successfully tagged 20 breeding lapwing in the Avon Valley, on the Norfolk Estate and at Auchnerran, with the aim of understanding where breeding birds spend the winter. The lapwings' diminutive size means that GPS tags must be very light and a mobile basestation is needed to download the data when the birds return to breed. Despite the restrictions, with the support of gamekeepers, farmers and students the team was again able to deploy basestations to gather data at all locations, as well as tagging a new lapwing in the Avon Valley.

Early roding woodcock surveys were also disrupted but as restrictions were lifted volunteers could resume monitoring. Despite significant disruption to early fieldwork on the breeding curlew project, new wetland PhD student, Elli Rivers, received a boost when she was able to help tag another breeding curlew. This bird should transmit fascinating data for two to three years, helping to shape our recommendations for curlew conservation. 🦉

(Clockwise from top) Gemma Fox drafted in daughters Alice and Lauren, to ensure that the labour-intensive task of measuring water infiltration continued at the Allerton Project; Elizabeth Ogilvie and Max Wright undertook the monitoring work at Auchnerran; Alex Donovan carried out moorland vegetation surveys in the uplands; work continued for Jessica Marsh and our fisheries team; Lizzie Grayshon recorded fledged juvenile redshank and lapwing in the Avon Valley once restrictions were lifted.



A question of balance

Rufus Sage reports on the ecological consequences of releasing for gamebird shooting

The release of pheasants and red-legged partridges is undertaken in woodlands and on farmland to support driven game shooting throughout the UK, especially in the south and north-east of England. It has been estimated that between 35 and 48 million pheasants and between seven and 14 million partridges are released each year; 85% of these in England.

These released gamebirds and their management have a range of potential effects on lowland habitats and other wildlife, many of which have been looked at scientifically by the GWCT and others. GWCT research has recently systematically accessed and reviewed this literature and produced two review documents in 2020. The first, jointly with Joah Madden of Exeter University, is a comprehensive report commissioned by Natural England (NE) and BASC. The second is a recently published paper in the scientific journal *Wildlife Biology* which provides a synthesis of effects, defined as negative, neutral or positive. The paper provides policy makers, land managers and others with an accessible introduction to this subject and a thorough overview. The report for NE and BASC is largely based on the same literature sources (but includes mallard releasing), but provides a lot more context and detail.

In general, negative effects are caused by the birds themselves while positive effects are usually a consequence of management activities. The paper identifies 25 distinct

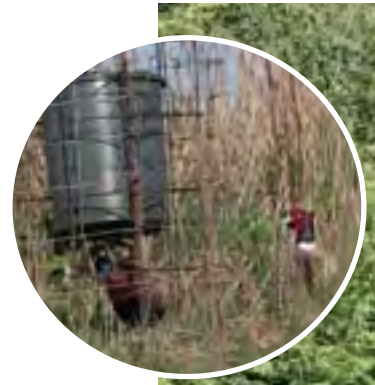
effects, 10 positive, 12 negative and three neutral (see Figure 1). Some of the negative effects such as damage to woodland floras or insects are spatially confined, usually at the release site or feed point while others, in particular disease issues and the effect of releasing on generalist predators, may occur at a landscape scale. Many of the positive effects of woodland management or of game crops occur at the scale of a whole woodland or across an estate or farm. There is evidence that some positive management activities such as game crop plantings or predator control are more effectively implemented at larger releases. Because pheasants are usually released into

a more sensitive habitat type, they can have more negative effects than partridge releasing.

Many of the negative effects of releasing cannot be eliminated but they can be significantly reduced. The context for this is that all economic land use activities have negative ecological effects. Some negative effects have relatively straightforward management solutions. Working within the

normal range of releases (a few hundred to a few thousand birds in any one pen), the studies indicate most negative effects increase with higher densities of birds at release sites. There is also scope for shoots to reduce or eliminate local- or patch-related negative effects (see Figure 1) by identifying particularly sensitive sites and avoiding conflicts, for example, with reptile colonies or

“scope for shoots to reduce or eliminate local- or patch-related negative effects by identifying sensitive sites and avoiding conflicts”



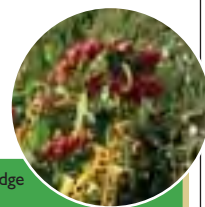
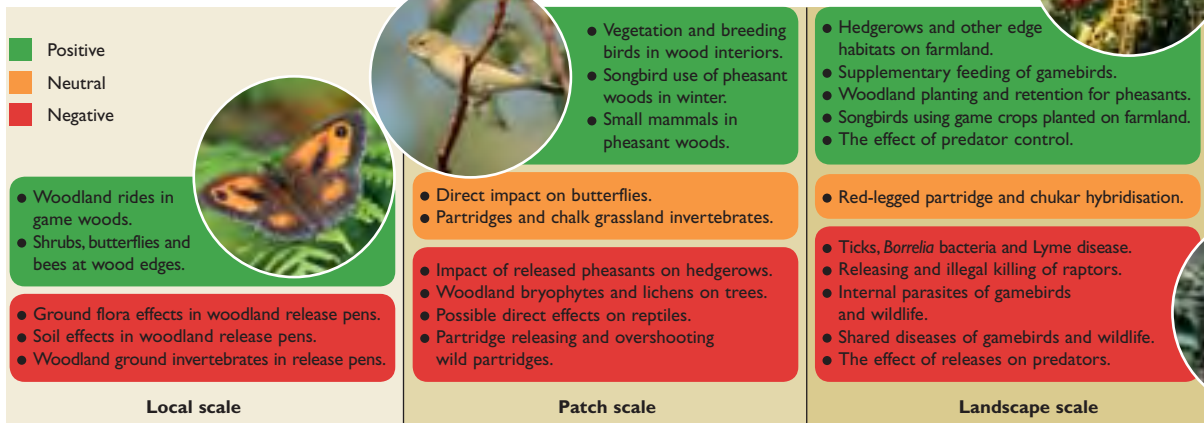
90% of released birds travel no more than about one kilometre



Rufus Sage is our head of lowland gamebird research and has been evaluating the effects of gamebird releasing on the wider countryside.

Figure 1

Twenty-five ecological consequences of gamebird releasing for shooting as identified by the scientific literature in the reviews. There are 10 potentially positive, three neutral and 12 potentially negative effects that occur at one of three spatial scales as indicated. Neutral effects are where negative effects were suggested but not found or no longer occur. Patch scale is whole woodland or farm.



(Far left clockwise) Gatekeeper butterflies and chiffchaff benefit from shrubby-edged woodlands; game crops such as quinoa support songbirds; illegal killing of raptors, such as sparrowhawks, should be eliminated. © Peter Thompson





SHOWING YOU HAVE THE KNOWLEDGE

The new reviews on the impacts of releasing demonstrate why an awareness of best practice in game management and understanding of the law relating to shooting are more important than ever. *The Knowledge* guidebook and Accredited Game Shot Test were created to ensure that all those involved in wild and released game management understand best practice. If Guns are ignorant of environmental impacts and legal requirements it can tip the balance into the negative. However, when high standards are maintained by everyone from the Guns to the beating team to the gamekeeper and land manager, released-based shooting can deliver a net benefit to habitats and wildlife, as well as local communities.

More than 10,000 people have taken the test which is a fantastic achievement, but to demonstrate the shooting community's commitment to raising standards we need many more Guns at released-based shoots to become Accredited Game Shots. Go to gwctknowledge.com. To buy the book please visit gwctshop.org.uk.



(Main) A good shrub layer in a well managed woodland for pheasants. (Inset) Supplementary feeding for released gamebirds benefits a whole host of other farmland bird species. Released game shoots need to carry on feeding into the early summer as required by the Code of Good Shooting Practice.

DID YOU KNOW?

Songbird numbers on our Allerton Project farm at Loddington in 2020, where we have a released pheasant shoot, are 85% higher than in 1992 at the start of the Project. This is due to a combination of supplementary feeding, predation control and habitat management.

woodland areas with valuable ground floras. However, the illegal killing of raptors is a landscape scale negative effect that should and could be eliminated with no detriment to released game management interests.

On average a release-based shoot will release 10 or 20 birds per hectare of land occupied by the shoot as a whole, while in some situations 100 birds per hectare are released. The dispersal of these birds into the surrounding countryside is a key part of an overall assessment of the likely impacts of releasing. It has been suggested by Wild Justice and others that a significant portion of the released birds travel to colonise and affect areas, including conservation sites, many kilometres away from the shoots themselves. However, the reviews indicate that around 90% of released birds travel no more than about one kilometre.

Another finding from the reviews is that more work is needed. For example, the effect of releases on predator populations has not been properly explored and there will be other specific conflicts between gamebirds, other animals and plants. The broad conclusion from the work is that there is an approximate balance of positive/neutral and negative effects of releasing. The positive effects tend to occur at the patch/landscape scale, whereas the negative effects tend to occur at a local level, but adhering to our published best practice guidelines reduces or removes several of the potential negatives and helps a released pheasant or partridge shoot fulfil its potential to deliver ecological benefits.

A key aim of GWCT research is to further investigate and write more about the mixture of benefits and negative effects of releasing in the UK. In particular, we want to

GWCT PRINCIPLES OF GAME MANAGEMENT

Released game management can be a significant force for good for nature conservation. It can help improve farmland and woodland, and when best practice is followed, the net biodiversity gain from game management can be huge. The GWCT principles focus on maximising nature's gain from the active management of the countryside to support gamebirds, as well as ensuring that shoots are run sustainably. Many of the principles are relevant to released game management and we hope that they will be widely adopted to ensure the best environmental gain. We also aim to foster greater understanding across the wider community of the role that good game management can play in biodiversity conservation.

The principles align with Defra's 25 Year Environment Plan, and with international agreements on hunting and biodiversity which are supported by the IUCN.

Principles relevant to released game

- (1) Maximise nature's gain: Habitats created and managed to support released gamebirds, alongside predation control and supplementary feeding, are important aspects of game management that benefit a wide range of other wildlife.
- (2) Minimising impact: Through the active management of the countryside, avoid released gamebird population levels that could damage other land uses.
- (3) Gamebird releasing numbers: Gamebirds should only be released and managed at densities appropriate to the local circumstances, so that there is a net environmental gain from undertaking such activity.

(4) Releasing habitat: Gamebirds should only be released in habitats that enable them to acclimatise quickly to life in the wild and support their year-round needs.

(5) Habitat creation: Appropriate habitat creation and management is needed for all released gamebirds. Maintaining this critical and appropriate diversity of habitats is essential.

We presented these principles at 20 shoot briefing meetings and the vast majority of shoots represented, supported and welcomed the principles. We also received 340 responses to our online consultation which ended in June. Ninety four per cent of respondents were of the view that these principles could help achieve widespread promotion of best practice released game management and net biodiversity gain to wildlife. The principles are also supported by all the major shooting and rural land management organisations.

See gwct.org.uk/principles for the complete list of principles of gamebird management.

look at areas where gains can be made and to encourage practices that enhance the benefits, reduce the negatives and hence further improve the overall balance of effects.

The full paper is: Sage RB, Hoodless AN, Woodburn MIA, Draycott RAH, Madden JR, Sotherton NW (2020). Summary review and synthesis – Effects on habitats and wildlife of the release and management of pheasants and red-legged partridges on UK lowland shoots. *Wildlife Biology*.

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TUITION

Fields alive with pollinators



John Holland is head of farmland ecology and he and his team have been looking at different habitats to benefit pollinators.



Niamh McHugh is interested in how agri-environment scheme habitats can be best implemented to benefit farmland wildlife.

Floristic margins were much more attractive to bumblebees (above), but solitary bees preferred cultivated margins (see below), so it is important to have both habitats on farms. (Inset below) Poecilus cupreus is a species of ground beetle that we surveyed using pitfall traps. © Will George

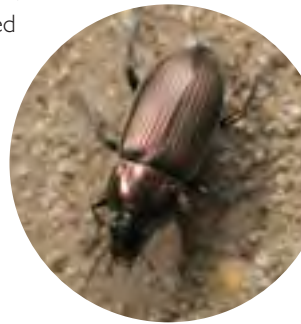
John Holland and Niamh McHugh explain why both cultivated and floristic margins are important for pollinators

The GWCT was the first organisation to identify the importance of annual arable plants in supporting farmland invertebrates back in the days of the Cereal and Gamebirds project (1984-1987). Since then an option for their conservation has been part of agri-environment schemes, but uptake from farmers has always been relatively low. However, there is now increasing interest in the resources that arable plants provide for natural enemies and pollinators. In 2018 we started a two-year project to evaluate the plant community of

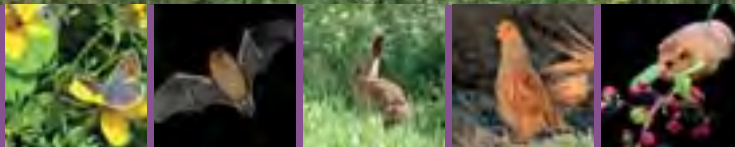
cultivated margins and floristically enhanced grass margins and their subsequent value for these two groups of invertebrates. We surveyed 30 strips of each margin type for use by pollinating insects and sampled natural enemies using suction sampling and pitfall traps. Detailed botanical surveys were also conducted by Dr Phil Wilson and we collected information on their management to see if this was linked to the invertebrate diversity and abundance.

Encouragingly, 25 of the cultivated margins had rare arable plant species that

are used to define and evaluate 'Important Arable Plant Areas.' In total we found 183 species of broad-leaved plants and grasses in cultivated margins and 194 in the floristically enhanced margins. The plant community on the cultivated margins was most affected by the soil type, and type and time of cultivation. Two pernicious grass weeds



MARGINS ALSO BENEFIT:



DID YOU KNOW?

Good cultivated margins (left) had rare arable plant species that are used to define and evaluate 'Important Arable Plant Areas'. In total 183 species of broad-leaved plants and grasses were found in cultivated margins and 194 in floristically enhanced margins.

This project was funded by Defra. Thanks to Emily Swan from Natural England, to all the farmers for allowing access to the study sites and the farmland ecology team of Belinda Bown, Roseanne Powell, Adam McVeigh, Jade Hemsley, Amy Corrin, Ellen Knight, Susan Hammond, Jayna Connelly, Ellie Jackson-Smith and John Sczur.

(L-R) Butterflies, bats, brown hares, grey partridges and small mammals such as dormice. © Laurie Campbell, Dave Kajer, Peter Thompson



250
species of wild bee
in the UK, of which
90% are solitary
bees



In the survey we found examples of correct management (left) but also poor management where less desirable weed species such as docks had become dominant (right).

(blackgrass and sterile brome) were more likely to occur if cultivations were conducted in autumn, although this did encourage three broad-leaved species useful for pollinators. Those created by ploughing had less grass cover and more bare ground compared with those created using minimum tillage. However, there were also fewer pollinators, solitary bees and natural enemies. Perennial plants were also more common where minimum tillage was used and although some were frequently visited by pollinators (dandelions), the primary aim of the margins is to encourage annual species.

“95% of invertebrates collected in suction samples were pest natural enemies”

Agri-environment scheme rules can allow cultivated margins to be rotated around the farm, however, we found that where margins were rotated these had lower broad-leaved species cover and lower vegetation heights which in turn reduced wild bee abundance. We therefore recommend not to rotate them unless heavily invaded by pernicious weeds.

For the floristically enhanced margins the main factor influencing the plant community was their age. As expected, newer margins had more annual species while older ones became dominated by grasses, with fewer broad-leaved species and subsequently fewer hoverflies. Establishing these margins using a seed mix led to a more diverse plant community attracting a greater number of pollinators than those created from natural regeneration. We recommend sowing more diverse seed mixes, but also allowing some less noxious weed species to survive

as these were also highly attractive to pollinators, especially spear thistles.

Both habitats supported a high number of pest natural enemies: 95% of invertebrates collected in suction samples were pest natural enemies and we found approximately 50 carabid species, which is roughly twice as many species as we might expect to find in arable crops. Hoverfly larvae are also important natural enemies, the larvae of

almost 130 hoverfly species in the UK feed on aphids, and they were found in both habitats, foraging especially on hawk’s-beard species and cow parsley. The cultivated margins were much more attractive to solitary bees forming 66% of the wild bee community, with the remainder bumblebees. However, the opposite was found with the floristic margins, where 76% were bumblebees. This showed the importance of having both habitats on farms, especially where flowering crops are present. The long-tongued bumblebees are the main pollinators of field beans, while solitary bees are important pollinators of oilseed rape.

Cultivated margins may not always appear the most attractive habitat, but our study showed that they function as originally conceived, providing space for rare arable plants on farmland and an alternative habitat for invertebrates. They supported a diverse community of natural enemies and pollinating insects, especially solitary bees which make up 90% of wild bee species in the UK and complement floristically enhanced grass and wildflower habitats.

WILDLIFE HIGHLIGHTS



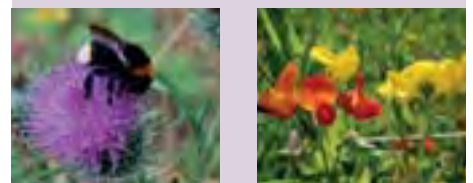
66% of foraging solitary bees were found in the cultivated margins compared with 24% in the floristic margins



95% of invertebrates collected in D-vac samples in both habitat types were pest natural enemies



Hoverflies were most commonly found foraging on hawk’s-beard and cow parsley



Bumblebees foraged mostly on spear thistles and bird’s-foot trefoil

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What the Science Says

In a world where opinions and fact are easily confused, a new GWCT website aims to provide clarity. James Swyer explains the importance of challenging misinformation

As a GWCT member, you will already appreciate the importance of science. In the world of research, the truth matters. However, the way facts are reported (or misreported) can have a real impact on how the public perceive issues. We hear a lot about 'fake news' and the world of conservation is no exception.

This March, the BBC Radio 4 show Short Cuts claimed there were just 100 grey partridges left in the UK. The correct figure – as calculated by the Avian Population Estimates Panel – is 37,700 pairs (more than 70,000 individuals). We know this because the GWCT is represented on the panel.

We put in a complaint, offering our expertise highlighting the inaccuracy. In their apology, the BBC Complaints Team stated that: "The producers were using figures from the Zoological Society of London and realise that they misread the units column of the spreadsheet – reading 'number of individuals' instead of 'index' and were keen to: "reassure that it was due to human error and absolutely not intended to undermine or misrepresent their conservation efforts, or those of the farmers and gamekeepers they work with."

This raises two important issues.

1. Once aired, the 'fact' is available to the wider public. Our complaint prompted the removal of this 'fact' from the version available on catch-up, but for all those listening live, the figure remains a fact.
2. If this isn't a lack of impartiality, it's a lack of specialist knowledge. Despite misreading the data provided by a factor of more than 700, nobody at the BBC spotted the error, which could have been checked with the GWCT or a search online.

This is not a one-off. You might have read that moor owners are draining the

moors for grouse or that there are only 100 harvests left on British farms. Both claims were reported in the media and by

“you might have read that there are only 100 harvests left on British farms”

politicians, but neither has evidence that they're true.

We challenged the claims at the time and have posted a detailed explanation of these and other fact-checks on our new website, whatthesciencesays.org.

A central place for challenging misinformation

What the Science Says is an online resource which is intended to challenge misinformation by exploring and presenting the scientific facts behind claims made in the press and on social media. We will examine relevant claims from the media, reports or manifestos; look into the evidence; and support, explain or correct them. We aim to assess the science behind these various claims to understand how well supported they are.



Our new fact checking website challenges misinformation by exploring and presenting the scientific facts behind the claims made in the press and social media.

What the Science Says is committed to the principles of the International Fact-Checking Network (IFCN), and run in accordance with them as follows:

1. A commitment to non-partisanship and fairness.
2. A commitment to transparency of sources.
3. A commitment to transparency of funding and organisation.
4. A commitment to transparency of methodology.
5. A commitment to open and honest corrections.

As a scientific organisation, our role is not just to research problems and provide solutions, but to ensure the accurate representation of science in the public interest. We want to correct bad information in the media, highlighting where claims have no basis in scientific evidence, because bad information can easily creep into policy and lead to bad decisions.

Last year, we had 37 letters published in the national and regional press, many correcting inaccuracies or unbalanced reporting. We will continue to work hard to challenge misinformation when it appears in the media. 📧

Has the number of mountain hares fallen on grouse moors? See page 30.



WHAT IS PEER REVIEW?

When you read our published scientific work, it is peer-reviewed. That means it has been appraised and approved by an editor and reviewed by a panel of appropriate reviewers, who read the paper several times. These reviews are evaluated by the editor and the article is accepted, rejected or sent back for revision. Any published paper has been through this process and accepted by the journal.



Nick Hesford is our Scottish advisor who previously worked in the uplands as a research assistant and has been working on mountain hares for the past three years.

A receding hare line?

Nick Hesford explains about the changes in mountain hare range over the last two decades

In early 2018, the GWCT, supported by the Scottish Gamekeepers Association and Scottish Land & Estates, asked their Scottish members to complete a questionnaire survey about mountain hare distribution (see spring 2018 *Gamewise*). A fantastic response from more than 1,100 members allowed us to create the most up-to-date map of mountain hare range in Scotland (see Figure 1). The map, published in *Wildlife Biology* earlier this summer, represents the most extensive mapping of this species yet and has enabled us to assess changes in the species' range over the last 20 years.

Almost all of the British population of mountain hares is found in Scotland, though mountain hares have been reintroduced in the Peak District in England. In Scotland, our research shows higher numbers of mountain hares are linked to sites with grouse shooting, where they

benefit from the heather management and predator control carried out by gamekeepers. Mountain hares have been sustainably hunted on moorland for sport and food for many years, with National Gamebag Census records extending back more than 100 years.

More recently mountain hare numbers have been reduced in some local areas for two reasons. The first is to protect habitat including young woodlands. The second reason evolved over the last 20 years after research into tick-borne disease. Following this work, hare shooting has been used to control numbers on some grouse moors to limit the spread of louping ill virus and its transmission to red grouse. This local management of population size, combined with real concerns about population extinction, from habitat loss and predation, has caused concerns about the potential impact on hare populations.

(Above) Throughout their European range, mountain hares are under threat from climate change and competition with brown hares. In Scotland, mountain hares occur at greater densities than anywhere else in Europe.
© Laurie Campbell

Research in action... Why it is important to monitor hares

1 Scottish Parliament vote

The findings of this research were published in June, the day before the Scottish Parliament voted on a last-minute amendment to the Animals & Wildlife (Penalties, Protection and Powers) (Scotland) Bill to protect mountain hares. Despite the compelling evidence from GWCT science which shows grouse moor management benefits mountain hares, the parliament voted to give hares greater protection. You can read more about the vote and what this means for mountain hare management on page 31.

2 Understanding the counts

Producing robust estimates for mountain hares across the whole of Scotland remains difficult because there is, as yet, no conclusion about how to count hares in areas outside of managed moorland where rugged terrain makes it challenging and dangerous to do so at night. Lamping at night remains the only reliable count method, particularly on moorland, where the terrain is more suitable. The Scottish Natural Heritage (SNH)-approved night-time counting methodology has been rolled out by the GWCT to moorland managers so they can record their hare populations. We have

now trained more than 100 land managers and have helped establish more than 80 counts sites across upland Scotland. The decision of the Scottish Parliament to give greater protection for mountain hares means that it is essential, now more than ever, for keepers to continue monitoring their hare populations. We applaud them for their conservation management and ongoing support with monitoring efforts.



DID YOU KNOW?

Densities of mountain hares on Scottish grouse moors are up to 35 times greater than moorland with no management for grouse shooting.

Our interest in managing these pressures has driven survey work on hares over the last 25 years. Our latest work, based on data from 2016/17, builds on our previous surveys carried out in 2006/07 and 1995/96. We can now identify where mountain hare range has expanded or contracted over the last two decades in relation to management for grouse shooting, as well as examine the relationship between mountain hare culling and changes in range.

We found no overall change in the area occupied by mountain hares over the 20 year period, but tracked changes in range between regions and across sites of differing grouse management intensity. Range contracted in southern Scotland and this contrasted with no range change in north-east Scotland. In north-west Scotland range expanded by 61% where there was driven

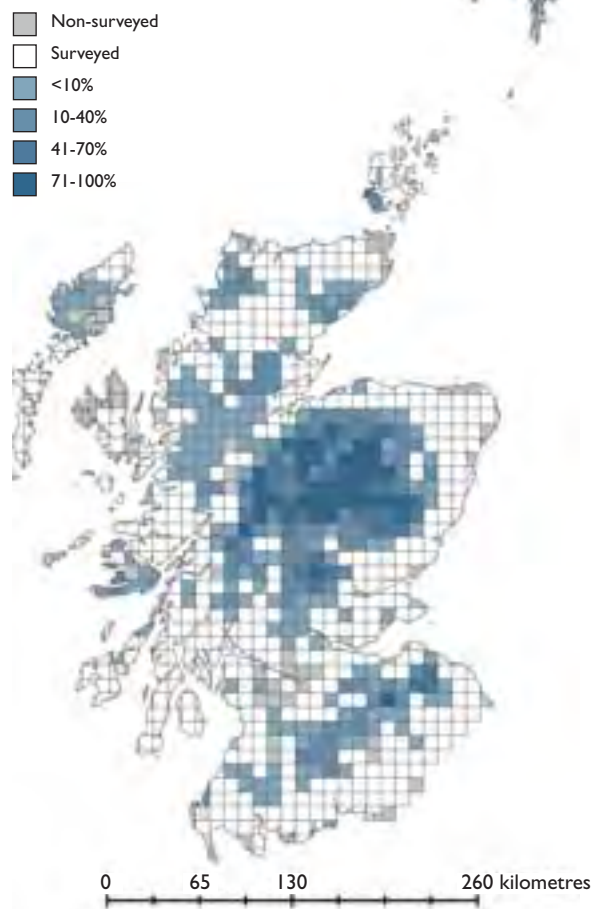
“We found no overall change in the area occupied by mountain hares over the 20 year period”

grouse shooting, declined by 57% in areas of walked up grouse shooting and remained low but stable in areas with no grouse shooting interest. Importantly, we found no relationship between culling of mountain hares and contractions in their range. Instead, changes in range seem more closely linked to other factors such as moorland habitat loss, as a result of afforestation or overgrazing by sheep, as well as changes to predator management. This is the subject of further study.

WHAT ARE YOUR VIEWS?

What do you think about the extra protection given to mountain hares? Email us at editor@gwct.org.uk

Figure 1 Latest mountain hare distribution map showing the percentage of each 10km² area with hares reported to be present from our most recent survey



MOUNTAIN HARE CULLING ILLEGAL EXCEPT UNDER LICENCE

In the last edition of *Gamewise*, we reported that more attention was being paid to what’s happening beyond grouse moors in respect of mountain hare conservation. What we had not foreseen was the intervention of MSPs in the Scottish Parliament in June voting through an amendment at the third reading in the Animals and Wildlife (Penalties, Protection and Powers) (Scotland) Bill to protect mountain hares.

Recommendations on mountain hares are contained in the Grouse Moor Management Group Report, led by Professor Alan Werritty and to which the Scottish Government has yet to respond.

This group reviewed mountain hare management and made recommendations for future policy and practice concluding that grouse moor management benefits mountain hares; that light touch regulation was needed to ensure better monitoring of hare

populations; and that the evidence for the need to cull hares for disease control is limited and needs further research. The great majority of researched knowledge leading to this balanced finding was presented by the GWCT.

However, the Scottish Parliament’s blow to ‘evidence-led policy’, a combination of party politics and parliamentary process, has led to protection of the mountain hare far beyond what was called for by the ‘Werritty Review’. It is likely that from spring next year, mountain hares in Scotland will become non-quarry species for the first time ever, protected under Schedule 5 of the Wildlife & Countryside Act (1981) as amended. The terms of any licensed control are now a matter of policy consultation with SNH and Scottish Government. This change of status is a real disincentive to our working moorland conservationists to keep managing for and monitoring mountain hares.

The Minister acknowledged the GWCT’s

important work on mountain hares to date, so it is now crucial that a licensing framework, not just for grouse moors, is developed that allows for evidence-based management of mountain hares. We have already rolled out a standard counting and recording methodology but that needs hard work on the ground, done by gamekeepers and land managers, to deliver it. The greatest risk is that this comes to a standstill given the disappointment and frustration of this latest set-back. That must not be allowed to happen.

Irrespective of the outcome, we must now place even more emphasis on ensuring that counts are undertaken – both on managed and unmanaged moorland and elsewhere. Training for the new night-time counting methodology and providing the incentive for keepers to continue surveying are essential if we are to properly understand the conservation status of mountain hares in Scotland.

Over 80 years of leading the way

The fields and moors of Britain might be quieter than normal this year, but our research can help them to thrive for years to come

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Legacies allow us to build on that success at Auchnerran, our Scottish demonstration farm, which is tackling the real-life problems of running a profitable wildlife-friendly farm in a completely different and challenging setting. Legacies also support our education programme, not only going into universities and colleges, but hiring undergraduate, masters and PhD students who then go on to become experts in their field.

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To find out more please contact James Swyer on 01425 651021 or jswyer@gwct.org.uk



Game & Wildlife
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Professor Nick Sotherton - a lasting legacy



Passionate about the research on the ground, Nick regularly helped out the GWCT's research teams including electric-fishing for salmon parr. (Inset) As well as receiving the Royal Agricultural Society of England (RASE) Research Medal in 2005, Nick also received a further accolade from the British Crop Production Council (BCPC) in recognition of his outstanding contribution to crop protection, presented to him by Hugh Oliver-Bellasis.

A fascination for shiny black beetles at an early age turned into a successful research career for Nick Sotherton, who retired this summer. Kate Williams celebrates his extraordinary achievements spanning 44 years

After 44 years with the GWCT, Professor Nick Sotherton, our director of research, advisory and education, retired at the end of June. Nick joined the GWCT in 1976 to study for his PhD and has been director of research since 1998. Always keen to encourage the next generation of conservationists, he leaves behind a tremendous legacy of research.

Teresa Dent, our chief executive, said: "We will miss Nick enormously and the GWCT owes him a great deal. Nick has been a driving force at the Trust and in the field of agricultural science, especially on lowland farmland, throughout his career. Many of

“the organisation was about ‘turning words into birds’, and 40 years on, this motto is still the driving force behind who we are and what we do. Our research needs to have an impact on the ground”

his innovations have been agri-environment options from the start of those schemes, such as beetle banks, and are now seen across the country. This is the end of an era for us.”

Reflecting on his time with the GWCT, Nick Sotherton said: “Almost from day one, I was told that the organisation was about ‘turning words into birds’, and 40 years on, this motto is still the driving force behind who we are and what we do. Our research needs to have an impact on the ground. On the back of quality research, we provide an evidence base for those making management decisions over large tracts of land, be they farmers or policy makers. I have been proud



Nick, pictured here with field ecologist Mike Short, was always keen to point out the huge team effort saying he was proud to lead a team of talented scientists and advisors, committed to wildlife conservation in our countryside.

to lead a team of talented scientists and advisors, committed to wildlife conservation in our countryside."

A lasting legacy across Britain's countryside

An early interest in zoology, fostered through family trips to the Natural History Museum, led London-born Nick to pursue his instinctive leaning towards applied science. Nick said: "As a child I was fascinated by the shiny black beetles in our suburban garden. As this interest developed, I knew I wanted to do applied science: work with a useful end point rather than only academically useful."

A first-class honours degree in Agricultural Zoology at Newcastle University followed and, in 1976, Nick joined the GWCT, or The Game Conservancy Trust (GCT) as it was then, as its very first PhD student. Under the mentorship of the director of research, Dr Dick Potts, Nick studied the ecology of beetles in cereal fields and the effects of agricultural practices on their population dynamics. His PhD from the University of Southampton was awarded in 1980.

After post-doctoral research into cereal aphids at Reading University, Nick returned to the Trust to work with Dick Potts on

establishing the value of hedgerows and field margins as habitats for overwintering predatory insects and spiders.

In the mid-1980s, Nick began work on the increasing problem of poor survival rates of gamebird chicks. Dick Potts believed the decline was associated with the intensification of agricultural practices, particularly the spraying of herbicides that killed off the weeds which were home to the insects that gamebird chicks fed on. This work became the GCT's highly influential Cereals and Gamebirds Research Project (CGRP). During the project Nick, along with



BEETLE BANKS

Given the right conditions, predatory insects and spiders can overwinter in field boundaries and in spring move into the crop, reducing pest numbers significantly. By providing places for them to spend the winter you can encourage winter boundary densities of more than 1,000 per square metre.

We now have fewer hedgerows and less of the dense grass cover provided at their base by species such as cock's-foot, Yorkshire fog and red fescue which can shelter and support beneficial insects and spiders.

A simple way to encourage these predatory insects and spiders without interfering with your farm management is to create mid-field refuges where predators can overwinter and from where they can spread across the crop in spring. The banks are easy to establish and are positioned so that normal cultivation can continue. The numbers of insects and spiders which inhabit such ridges can be even higher than in traditional/existing field boundaries. See page 53 on how to create the ultimate beetle bank.

Beetle banks, when combined with good brood-rearing cover, can help you achieve the recovery of farmland wildlife such as grey partridges. This has been demonstrated by George Ponsonby and Frank Snudden, two-time winners of the Cotswolds Grey Partridge trophy.



About Nick



Sotherton's highlights

- **Years at the GWCT:** 44.
- **First pay:** A grant from the Research Council of £5,000 for the year.
- **Papers published:** More than 131.
- **Countries visited for work:** 13 in total – 11 in Europe, plus Canada and the USA.
- **Famous media:** When we launched the CGRP, Hugh Oliver-Bellasis and I appeared on all the farming programmes that used to be aired on a Sunday, including the BBC's earlier version of Countryfile and all the ITV's regional farming programmes (Anglia, Southern etc). I also appeared on the BBC six o'clock news interviewed by Eddie Mair on pesticide testing and was the 'expert' on flying ants for BBC Radio Solent.
- **Most inspirational person:** Dick Potts as his enthusiasm was infectious, he did not avoid controversy and was years ahead of the thinking among other conservationists. He was right about pesticides, raptors and predation.
- **Most interesting places:** Estates in the UK where enlightened owners were farming and managing their estates for production and wildlife and were getting it right decades ago. Much of the benign management was for a sustainable harvest of game.
- **Most amusing moment:** As a research student on a hot summer's day, emerging from a cooling dip in the river at Burgate and bumping into our then CEO, Charles Coles, who was showing the Duke of Atholl round the grounds. I was festooned in water-crowfoot and looked like the creature from the black lagoon. Charles took the Duke's arm and steered him firmly in the opposite direction without breaking sentence as if I truly was an apparition. Well done Charles – we never spoke of this again!
- **Proudest moment:** Winning the Royal Agricultural Society of England's Research Award in 2005.

DID YOU KNOW?

Weeds in crops can provide important ecosystem services, by supporting invertebrates that perform pollination and pest control, as well as forming a fundamental part of the food chain that species such as farmland birds rely on.

Nick's ground-breaking work helped invent conservation headlands (the selective spraying of cereal crop edges) and beetle banks (below left) to allow populations of broad-leaved weeds and beneficial insects to develop. This work transformed cereal production and wildlife conservation. © Peter Thompson

the Trust's longstanding vice chairman Hugh Oliver-Bellasis, established a farm-scale trial at the Manydown estate in Hampshire, and raised more than £2.5 million needed to expand the scheme nationally.

The scheme provided farmers with practical management plans for conserving gamebirds and other wildlife on arable farms, without compromising standards of cereal grain production, as well as offering alternatives to reliance on pesticides by encouraging valuable predatory insects which can help to prevent aphid pest outbreaks. Nick helped invent both 'beetle banks' (raised strips of perennial grasses, situated strategically across arable fields, where predatory insects and spiders can overwinter before helping to control crop pests in spring) and 'conservation headlands' (the selective spraying of crops). The Cereals and Gamebirds Project is widely acknowledged to have transformed cereal production and wildlife conservation. Integrated pest management, crop and farm management became widespread and the role of beneficial insects was recognised and taken seriously.

In 1990 Nick became head of farmland ecology, where he developed further influential agri-environment measures such as wild bird cover crops to provide winter food for farmland birds. He ran the lowlands team as research director before taking on the role of director of research in 1998, leading a team of 60 scientists. Since 2015 Nick has combined this demanding role with being director of advisory & education. His research interests in recent years have

included farmland ecology, sub-lethal impacts of pesticides on non-target species and the mitigation of the impacts of intensive agriculture on the environment.

Nick's contribution to agricultural science was recognised in 2005 with the award of the RASE Research Medal. In 2010 he was appointed Honorary Visiting Professor in the Centre for Rural Policy Research at the School of Humanities and Social Sciences and the School of Biosciences at the University of Exeter. Since then he has lectured in 20 universities and colleges around the UK, mainly to MSc students studying natural sciences. He is proud of the GWCT's commitment to nurturing scientists and said: "We are about to see the 100th GWCT PhD successfully defended, which is a remarkable milestone from the first GWCT PhD in 1980 by someone called Sotherton."

Nick remains committed to using the conservation science carried out by the GWCT to develop game and wildlife management techniques, and to provide training and advice to land managers to continue to improve the biodiversity of Britain's countryside. 🦋



Kate Williams is our communications officer who is keen to promote the huge achievements of Nick Sotherton and all our scientists who continue to achieve outstanding results that benefit the countryside.



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Although we were very disappointed not to be able to hold the Scottish Game Fair this year, we hope to return next year.

The show will go on in 2021

In August we regrettably announced the cancellation of the 2020 GWCT Scottish Game Fair. Originally postponed until October at the start of the coronavirus crisis, the Fair Committee had worked tirelessly towards holding an autumnal event with all the essential safety measures in place. As time progressed, and the easing of lockdown tapered, the risk of proceeding eventually became one too big to take.

Hugo Straker, chairman of the GWCT Scottish Game Fair, explained the decision to cancel our flagship event: "It has been a major blow to cancel this year's GWCT Scottish Game Fair. The event, which had already been postponed from its original July date, was due to take place on 2-4 October 2020 in the grounds of Scone Palace in Perthshire. Like many in the Scottish events industry we had been watching the Covid-19

situation closely over the summer months as we worked hard towards our new dates, and we had genuinely hoped the easing of restrictions would enable us to proceed. However, the understandable lack of clarity on the easing of restrictions on large events meant it was simply too risky for us to continue with our plans.


"Although we completely appreciate the reasons why the Scottish Government have not been in a position to give us more clarity at the critical stage in planning, it goes without saying that this difficult decision will have a detrimental impact on the events industry in Scotland, an industry already under tremendous financial

strain. Our sympathies are with the great many businesses and individuals who work in sporting goods, land management, as well as the food and drinks industry, for whom the Scottish Game Fair is an important and key part of their calendar. Also, we recognise how much of a disappointment this has been for our many loyal supporters who had been looking forward to something fun

and positive in this strangest of years."

We may be down, but we're certainly not out. We must dust ourselves off and turn our heads

"We must dust ourselves off and turn our heads to preparing for the 2021 GWCT Scottish Game Fair"

to preparing for the 2021 GWCT Scottish Game Fair with tentative dates from 2-4 July at Scone Palace Parklands." 

We look forward to welcoming all our exhibitors and visitors at next year's Scottish Game Fair.



The GWCT Scottish Game Fair Friday 2, Saturday 3 and Sunday 4 July 2021, at Scone Palace Parklands, Perthshire.

Tickets and camping already purchased will be valid for the GWCT Scottish Game Fair 2-4 July. You do not require new tickets for next year.

Thank you for your support and we look forward to seeing you next year.

www.scottishfair.com

From rags to plentiful riches



Dave Parish explains how hard work and a team effort at our Scottish Demonstration Farm Auchnerran, is starting to reap rewards

What a crazy spring/summer we've had this year. Covid-19 has had an impact on most of us to some degree and especially so at Auchnerran where we lost our principal researcher, Marlies Nicolai, to furlough early on, leaving our placement students, Max Wright and Elizabeth Ogilvie, to soldier on without her. But what a sterling job they have done during one of our most productive breeding seasons yet. We took extra precautions to protect the farm manager, Allan Wright, because if he'd fallen ill during lambing there was no-one to replace him.

As many readers will know, Auchnerran supports an unusually high number of breeding waders. Between April and July, we host hundreds of birds and each year the research team put a lot of effort into monitoring the population and the progress of as many breeding attempts as we possibly can. This involves frequent surveys searching for the birds and repeat visits to see if they're nesting and showing any signs of producing chicks. With help from Perdix Wildlife Supplies, we make full use of trail cameras at this time to capture all the nest-side action, which is especially useful if the eggs are lost before they hatch because it usually tells us what happened. At the time of writing we haven't collated all the data, but 2020 looks to have been exceptionally productive, with around 84% of the 80 or so lapwing first clutches producing chicks, and all nine of our curlew nests were successful too. Twenty-six lapwing nests were monitored via cameras, of which three were lost to predators: one hedgehog and two common gulls.

“...with around 84% of the 80 or so lapwing first clutches producing chicks, and all nine of our curlew nests were successful too”

One of the biggest frustrations we have faced was not being able to catch and tag any lapwing or curlew this year due to Covid-19 as travel restrictions meant this wasn't possible. However, this was made up for, to some degree, by the returning lapwings tagged last year. We tagged 13 individuals in 2019 with support from the Working for Waders initiative, using tags that record the birds' movements but don't share that information until they come close to a special receiver unit, so we have been waiting with bated breath since last autumn to learn their fate. Of the 13, nine birds returned to Auchnerran – a very pleasing return-rate – and we could see where they'd been over the intervening period.

One of these birds wintered in Scotland, while the remainder wintered in various parts of Ireland. Interestingly, many returned to Auchnerran this spring after travelling very close to the Trust's uplands headquarters in northern England.

It's not just the waders that have had a good year. Not only were we able to keep Allan healthy, but his herculean efforts during the hectic lambing season paid off with another good year. The

1,185 ewes currently have a total of 1,672 lambs: a lambing rate of 141% (though this won't be the final weaning rate come September). Most of these are now away to their summer grazing on the adjacent hill where they help to manage the vegetation but also act as tick mops. This is where they receive periodic dosing with an acaricide which then kills any ticks which attach when they are on the moor. In this way they can help reduce tick burdens on grouse and wader chicks.

Wader chicks are routinely monitored and nine of 13 adult lapwings tagged in 2019 returned this year giving us vital information about where they had been over the intervening period.



Dave Parish is head of our Scottish lowland research and oversees the monitoring at Auchnerran so that we can record how changes in farm management affect different species.



(Clockwise from top) Auchnerran is a working farm with a herd of 1,185 ewes; Max and Elizabeth in the field – thanks to their hard work we have been able to conduct a near-full programme of fieldwork this year despite Covid-19; all nine curlew nests were successful, but two lapwing nests were predated by common gulls.

DID YOU KNOW?

Our first GPS tagged bird was a male curlew in 2018, caught at the nest in the summer. The tag showed that he spent most of the breeding season on the farm or just over the boundary to our neighbour and then flew to Ireland.

An important development on the farm last year was the implementation of our Agri-Environment and Climate Scheme management plan. This included lots of fencing (which was in a poor state previously), some new hedges, cover crops and various habitat management plans, including 'wader grazed grassland', 'wetland management' and 'habitat mosaic'. We also introduced two wader scrapes in an area where we are trying to encourage more waders. This was monitored, again using trail cameras to see if the birds have been using it, which revealed that waders were indeed to be found there, but so was a lot of other wildlife, including an uncomfortably high number of stoats.

A sad development at Auchnerran this year was the loss of Merlin Becker, our trainee advisor for Scotland and shoot manager. He has moved on to pastures new and we wish him all the best for the future after a fantastic contribution towards getting the Auchnerran shoot up and running. Its popularity to date is due in no small part to Merlin's hospitality and general Irish charm.

An update on the shoot is given on page 51 and we are looking at ways to improve the wild pheasant shoot. We inherited lots of reared birds back in 2014/15 left over from the released shoot previously held on part of the farm, whose descendants now form an important component of the shoot. We monitor our pheasant numbers closely so we can harvest sustainably, which has shown that the population dropped initially as the reared birds dwindled, but has now stabilised and we have a modest wild population that we'd like to nurture. We plan to add more hoppers to the system to feed more birds through the winter, especially the latter period, with a more comprehensive distribution around the farm. Fortunately, our game crops are growing well again this year. We seem to have overcome our soil, weed and rabbit issues that dogged the crops in the first few years of the project, with many thanks due to Allan's efforts and Alan Johnson of Kings Crops for his valuable advice and patience. The forthcoming shooting season will be very interesting, covid permitting. 🇮🇪

The shoot is now made up of a modest wild population of pheasants.



AUCHNERRAN REPORT



We have just produced the first report detailing the overall farm, the research that takes place and the highlights of the last five years. We are keen to point out to our visitors that Auchnerran is a real farm not a nature reserve. It is important to note that the farm is a stand-alone operation. gwct.org.uk/auchnerran.



Enjoy a day's driven grouse shooting in Perthshire.

Grand Grouse Draw

WE ARE delighted to announce that in these challenging times we have secured a day's driven grouse shooting to raffle for the Grand Grouse Draw. Set your sights on the 'King of gamebirds', as an exhilarating day awaits you and seven of your friends (eight guns) in Highland Perthshire, along with a night's luxury accommodation at the Crieff Hydro Hotel for 16. The prize-winning shoot day will be taken during September in the 2021 grouse season, subject to 2021 grouse counts. Tickets cost £40 and the draw closes on 10 December gwct.org.uk/grouse_draw.

Art competition expands

THE GWCT art competition has an exciting new addition this year as we launched into Angus for the first time with the main prize being a drawing session with David Adam, local renowned wildlife artist. We also launched once again in the Marr region this time reaching further afield to those in Kincardine and Mearns, and Garioch, Aberdeenshire. Our usual competition in Perth and Kinross which has been running for the past 15 years will this year be delayed until the spring term, but all school pupils in each area will be invited to submit artwork digitally for the first time. Individual entries are welcome and for further details please contact Rory Donaldson rdonaldson@gwct.org.uk.

Sana Javed, winner from Kilgraston School, with 'swans'.



Research



© Martin Mecnarowski

Discovering the secrets of quail

Quail are very secretive and little is known about them, but a new study has been looking at their habitat use.

THE common quail or European quail is a small, ground-nesting gamebird from the pheasant family with a distinctive call. We know a little bit about this secretive but highly mobile species from research, much of it done in Spain. Quail practice serial polygamy, with males mating with and guarding one female until she lays, and then going in search of another. Abundance estimates are dubious, as they are usually based on the number of calling males heard, as males temporarily cease calling once mated. Quail are scarce, irregular visitors to Scotland and numbers vary greatly from year to year – but there is a great deal of affection for them among farmers.

Because of their secretive nature we know little about their habitat use, but they are reported most often in cereal crops, mainly wheat and barley, leaving crops shortly after harvest. That said, there are few quantitative records on habitat preferences.

We have now analysed a long-term dataset over 33 years from a single farm in Angus where quail were recorded by the

same observer every year and effort was similar across years. From this work we know the time of year when quail were first recorded on the farm, and approximate numbers of adults and broods. There were only three years in the whole period when quail were not encountered at all, with on average 1.8 adults seen each year (taking a very conservative approach).

Comparing with countywide local sources, this often represented up to 40% of all quail seen in Angus, probably reflecting the under-recording of this species.

The data also give us some idea of habitat preferences as we were able to take into account the amount of habitat available. This showed spring barley was strongly selected, but during May and June (before cereals were well established) rough, grassy banks were by far the most preferred habitat.

This latest work tells us a little more about this secretive bird but there is still a great deal that we do not know about quail in Scotland. The full study is published in *Scottish Birds*.

Spring traps

Perdix PX3 awaits approval

WE are hoping that the Scottish Government may be able to update the Spring Traps Approval Order (STAO). This will include the new Perdix PX3 spring trap for stoat, weasel, rat and grey squirrel control by the end of the year to come into line with Defra, although this is dependent on several factors.

Adding a new trap to the STAO requires secondary legislation. This involves the preparation of a Scottish Statutory Instrument (SSI) which is then laid before the Scottish Parliament. Over the next few months there are a large number of SSIs required relating to Covid-19 work and

Brexit, and the Department for Environment and Forestry has to bid for a slot to start the process. This is underway, but it is not known either whether, under EU rules, a 'stand still period' of three months is required to allow other member states time to consider the proposal; clarification is needed on this.

Also, once the Order is laid before Parliament, there is a 40-day period before it comes into force to allow MSPs time to consider it. So, frustratingly for the many trappers who eagerly await opportunities to deploy this new humane trap, there is a way to go – but the process has begun. Keep an eye on gwct.org.uk for more information.



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Welsh salmon in trouble

Stephen Gregory looks at the worrying evidence that Welsh juvenile salmon numbers are lower following warmer winters and wetter springs

DID YOU KNOW?

2019 was the warmest winter on record, and climate change threatens to bring worse over-winter conditions for salmon in the future.

Although salmon stocks have declined across southern European rivers for some time, a recent crash in juvenile salmon numbers was reported widely around southern Europe, including England and Wales. This '2016 recruitment crash' led to a sharpened focus into what might be driving annual changes in juvenile salmon numbers and so might have caused the crash. This is particularly important because we know low numbers of juvenile salmon, as seen in 2016, can have a knock-on effect on the numbers of adults returning to our rivers in future years.

Concerned about its impact on the status and vulnerability of already depleted salmon stocks, Natural Resources Wales (NRW) commissioned the WRc Plc and the GWCT to analyse data collected on seven Welsh rivers (the Clwyd, Conwy, Dee, Teifi, Tywi, Usk and Wye) between 2001 and 2017, with a particular focus on 2016. The analysis included historic time-series of electro-fishing survey data and egg deposition estimates,

along with associated river flow and temperature data.

Visual exploration of the electro-fishing data revealed some clear patterns in numbers of juveniles (see Figure 1). The numbers in 2016 were the lowest on record in all catchments except the Dee and Wye, which were among the lowest. Using advanced statistical models, the team confirmed these findings and showed that juvenile salmon – and to a lesser extent trout – numbers were lower following warm winters and wet springs, and that the 2016 salmon crash coincided with extreme winter and spring weather conditions.

Warm winters and wet springs are challenges to salmon and trout, with increased temperatures negatively impacting both spawning behaviour and egg survival. The 2015-16 winter was exceptionally warm around the time of salmon spawning, leading to speculation that conditions interfered with normal salmon spawning behaviour. Spring floods, like those in 2016, can cause

'egg washout' whereby eggs are washed out of the spawning nests, known as redds, into unsuitable habitat where they are likely to die. These washouts are more severe in steep rivers susceptible to flooding, as is common across Wales.

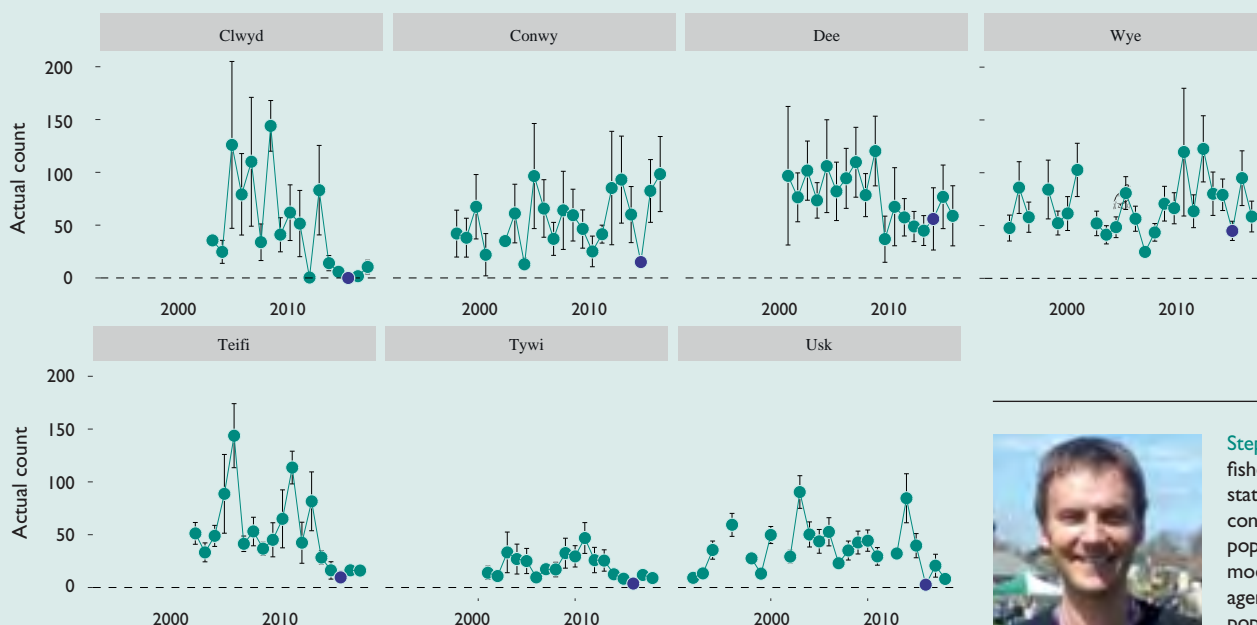
So, it seems that already weakened salmon populations might be sensitive to extreme

“2015-16 winter was exceptionally warm around the time of salmon spawning”

weather events that are forecast to become more frequent and intense under future climate change scenarios. If so, then capturing the effects of extreme weather events in models used to assess annual changes in salmon stocks deserves more attention. This is a key objective of project SAMARCH.

Figure 1

A line plot showing the mean (with standard error) of juvenile salmon counts over all sites in each catchment. The blue point shows the 2016 sampling year.



Stephen Gregory is our fisheries ecologist and statistician. He is a keen conservationist who uses population dynamics and modelling to inform management of endangered populations and species.

The threat to shooting in Wales

Despite the GWCT being commended by Natural Resources Wales (NRW) in its independent review of shooting, 2018 saw shooting banned on public owned land with the Minister deciding to go against NRW to retain the leasing of land to shoots following its call for evidence.

An anti-group are also pursuing a Judicial Review on NRW's new General Licences, which have already made protecting conservation species harder in Wales. Further reviews are being undertaken this year on: wild bird control; regulation of Schedule 2 birds; Larsen traps (following a petition in May 2018 by Against Corvid Traps); The Code of Practice for the Welfare of Gamebirds Reared for Sporting Purposes; and on the impacts of predation by fish-eating birds on fisheries in Wales, illustrating that there is still much work to be done.

Therefore, GWCT Wales is now looking to social science to highlight how shooting is good for society and for the mental and physical well-being of those who are involved. We launched a survey in June asking why shooting



Our survey looked at the value that shooting provides to society and well-being.

is important to you. We sought the views of keepers, beaters and pickers up, as well as those who shoot, and received nearly 500 responses in just two weeks. All the comments will be incorporated into a report which will be sent out to Ministers, Assembly Members and others who influence future policy and regulation to inform them of the value that shooting provides to society and well-being.



In brief

A new study is looking at trout in metal-impacted rivers of mid and north Wales.

Life in metal-polluted environments

THE QUESTION of how brown trout can live in waterways polluted by toxic metals is being tackled by PhD student, Daniel Osmond, in a new collaboration between the GWCT and Exeter and Cardiff Universities. Daniel has joined Dylan Roberts, our head of fisheries, sampling trout living within the metal-impacted rivers of mid and north Wales. A history of mining for metals in this region of Wales, evident from as early as the Bronze Age, has left a persistent legacy of highly toxic metals such as arsenic and lead. Populations of resident trout continue to survive in these heavily impacted metal rivers, such as the Rheidol, Teifi and Ystwyth, raising questions as to the genetic mechanisms responsible for adaption.

Sustainable farming scheme for Wales

WELSH GOVERNMENT (WG) has been carrying out farmer surveys over the summer to help develop proposals on the new scheme which is to replace the Basic Payment Scheme and Glastir. Many of you have fed into this co-design phase process, but please see gwct.org.uk/wales to read about our approach to a more effective future scheme before you attend WG workshops and meetings in the autumn.

A new sustainable farming scheme is being developed to replace the Basic Payment Scheme and Glastir.



Local volunteers carried out the breeding bird surveys during lockdown. © Owen Williams

Covid-19 brought difficulties to the Cors Caron Sustainable Management Scheme, involving a cluster of eight farms. As lockdown hit, the team were planning a breeding bird survey on the farms to establish their baseline data against which to measure future biodiversity improvements. Fortunately, they were able to organise a local team equipped with the necessary skills to conduct the survey. One of the surveyors Ceredigion chairman, Owen Williams, explained: "We were able to establish a protocol with the farmers including sanitising gate handles to avoid contamination. The survey team all live locally and walking 10, 200-metre transects on each farm in both May and June certainly fulfilled our daily exercise."

Making inroads

As the three-year Sustainable Management Scheme project ended in March, we have evaluated the success of the project for the Welsh Government. Lee Oliver said: "The Powys Moorland Partnership made great inroads into landowner/grazier relationships and the buy-in from the surrounding communities was overwhelming. Sadly, bird recovery was not as hoped because of the short period of the project and the weather patterns experienced. However, for the first time in a generation one of the moors saw the return of at least one pair of breeding hen harrier."

Improved habitat including ponds and heather as part of the Powys Moorland Partnership.



MORE INFORMATION

GWCT Director Wales: Sue Evans. Email: sevans@gwct.org.uk or call 07767 019305. GWCT Wales, E Tyndall St, Cardiff, CF24 5EA.



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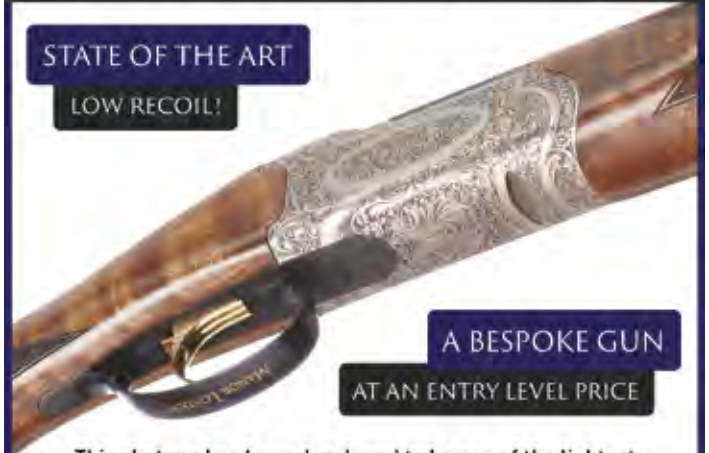
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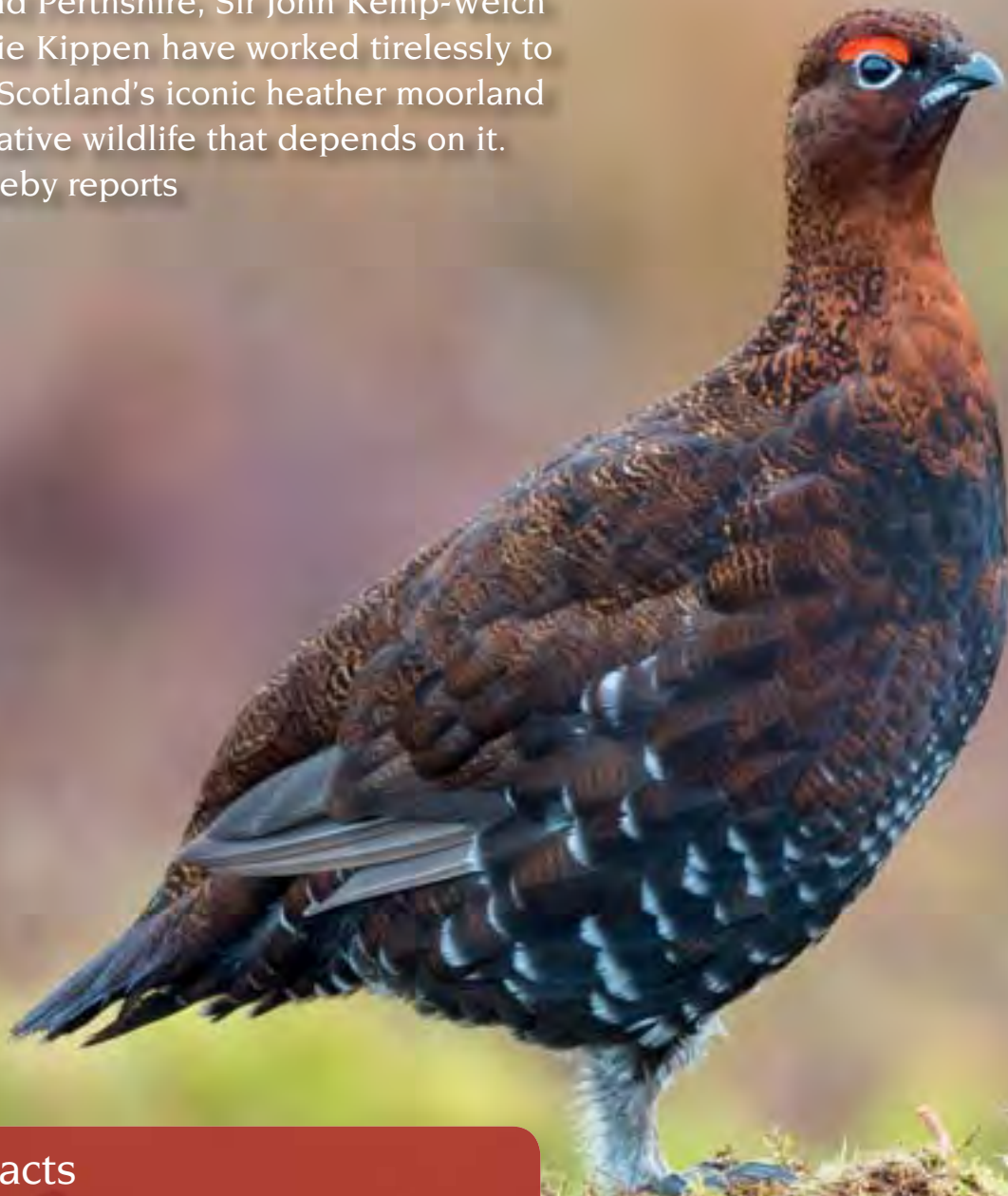


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Famous grouse

In Highland Perthshire, Sir John Kemp-Welch and Ronnie Kippen have worked tirelessly to conserve Scotland's iconic heather moorland and the native wildlife that depends on it. Joe Dimbleby reports



Estate facts

Location: Perthshire

Type of farming: Sheep

Acreage: 5,000

Funding Grants: SRDP Moorland Management Scheme

Conservation measures: Fencing, extensive grazing, muirburn, predator control, tree planting, cover crops

Conservation in numbers

3 average number of curlew chicks fledged

8 new black grouse leks

1,000 acres of bracken cleared

14 miles of fencing installed



Conservation work on Garrows and neighbouring estates ensures suitable and varied habitat for a range of wildlife on a landscape scale.

The picturesque 5,000-acre Garrows Estate near Loch Tay in the Perthshire Highlands is a magnet for bird photographers. Ronnie Kippen, who retired as headkeeper in 2018 after almost 40 years, remains employed by the estate. He said: “A photographer recently stopped me to say he’d just seen a golden eagle sitting on the cairn; it’s fantastic. I told him to tell his friends that he was in the heart of driven grouse country and was able to photograph an eagle.”

But there wasn’t always the abundance of wildlife that thrives on Garrows today. Gamebooks dating back to 1887 show that historically there were good numbers of grouse. When the current owner Sir John Kemp-Welch’s family bought it in 1929, the population was healthy, as it was in the 1960s and 1970s. However, a decline began in the early 1990s and by 2009, numbers had dropped dangerously low to less than 10% of previous figures.

Determined to reverse the decline, the estate took several radical measures to try to improve the habitat, including dramatically reducing the number of sheep.

Like most Scottish farms in the post-war period, the push for greater agricultural output had increased the size of the flock and allowed them to inhabit every area of the estate, which resulted in overgrazing, particularly of the moorland. Sir John asked GWCT advisor Adam Smith to suggest a plan for habitat improvement. He said: “Over many years, we have received excellent advice from Peter Hudson, Dick Potts and Adam Smith of the GWCT and none of the actions to improve habitats would have happened without their guidance.” As well as recommending a reduction in sheep numbers, Adam advocated taking the flock off the hill completely in the winter to allow the heather to recover and returning them to the moor in spring. The plan was carried out to the letter and the results

“Native plants that hadn’t been seen for decades began to reappear along with insect and birdlife”

were spectacular. Native plants that hadn’t been seen for decades began to reappear along with insect and birdlife.

Although heather cover improved, the grouse did not show the same recovery as other wildlife. The number of ticks had greatly increased in the region and the impact on grouse, particularly the chicks, became a concern. As it was likely that sheep were one of the main carriers, Adam Smith recommended greater discipline in treating the flock with acaricide every six to eight weeks, and they were also treated for the tick-borne disease louping ill. Sir John said: “Our shepherd began to notice symptoms in some of the lambs and at that point we had sheep and grouse tested for the louping ill virus. The tests proved 84% positive and the vet said it was the worst case he’d seen. After better treatment, there was a great improvement in the flock’s general condition.”

By reducing the disease in the sheep, the flock became part of the solution to the tick problem. Sir John said: “Currently good sheep management is about the only thing being done to counter the countrywide rise in tick numbers. This is a real concern particularly in light of the increasing cases of Lyme disease, which is transmitted by the parasites and is a very unpleasant illness for humans.” In spite of successfully tackling the problem in the sheep, after several years, the grouse had still not recovered and Ronnie and Sir John began to suspect that a large increase in the number of deer, which also carry ticks, might be part of the reason.

Deer numbers grew rapidly in Scotland after the war, likely due to warmer winters and the expansion of commercial woodland. Sir John said: “During the war,



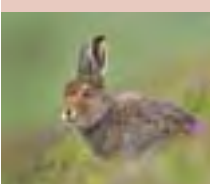
(Above) Ronnie Kippen describes the change in bird numbers as ‘night and day’.



Joe Dimpleby is our specialist writer working in the communications team.

© Tarquin Milington-Drake, Laurie Campbell

Wildlife Highlights



- Oystercatcher
- Curlew
- Golden eagle
- Merlin
- Cotton grass
- Mountain hare

virtually all the deer in the area were shot for food, and when I started stalking here in the 1950s it was quite rare to see a stag, but by the 1980s there had been a huge explosion in numbers." Sir John and Ronnie had always wanted to achieve a diversity of wildlife on the moor with a stable grouse population, a healthy herd of deer, plenty of mountain hares and a well-managed sheep flock, and in the 1970s this was broadly achieved.

In later years, however, it became increasingly apparent that tick were becoming more prevalent due to high deer numbers. Therefore, the estate looked at the possibility of turning the deer into tick mops as opposed to carriers by treating them with acaricide. Ronnie researched this technique, which is used successfully in Africa and America. He said: "Unfortunately, our efforts were thwarted by the authorities who refused to give permission for a trial. If deer were seen as part of the solution to the tick problem there would be less likelihood of them being eradicated, as has happened in some parts of Scotland. In our efforts we went right to the top of the then Deer Commission to try to persuade them to take this approach, but to no avail."

By 2009, the grouse had reached their lowest level since 1887 and deer numbers remained high. Ronnie said: "I shot a July stag in one of the corries and I stopped counting ticks after 300. They were just like chain mail on him. At that point I thought we are not going to beat this with the sheep treatment alone; we will have to do something about the deer." Three neighbours had already taken the decision to exclude deer and, in 2010, having exhausted all alternatives, it was decided to follow suit. Sir John said: "When our grouse numbers hit an all-time low in 2009, we felt that action had to be taken, which led to the very difficult decision to fence out the deer."

After three years, grouse numbers began to recover as they have done on the three nearby moors, and this recovery has continued strongly since. There have also been benefits to waders and other wildlife. Ronnie said: "Previously I would see a line of curlew chicks and the one at the end would start to stumble, and when

“After three years, grouse numbers began to recover and this recovery has continued strongly since”

I looked closer he would have 10-15 tick round each eye. Well, that chick was as good as dead." Excluding the deer and changing the sheep management has had the effect of further reducing grazing pressure on the moorland vegetation, allowing plants to return. Ronnie said: "When I arrived here in 1980 the west side of the corries had been grazed very hard; now they have beautiful ridges of heather and blaeberry and

we have grouse where we did not previously have them. The GWCT's Peter Hudson explained the importance of cotton grass in nourishing the hen grouse in preparation for the breeding season. In the past, having deer and sheep on the hill in winter meant there was virtually no cotton grass, whereas now if you lie in the corries it is so prolific, its white tips look like driven snow."

Two further important elements of grouse moor management have helped ensure both plant and bird species recovery. The first is heather burning, which involves lighting small, tightly controlled fires in the autumn, when possible, and spring. It rejuvenates rank heather, reduces the risk of wildfire and creates a mosaic of different heights of vegetation with taller heather to provide cover from predators and young growth as a nearby food source. The second is predation management, which increases the productivity of grouse, waders and other birds by protecting their eggs and young. As well as foxes, stoats and weasels, ground-nesting birds like curlew are highly vulnerable to avian predators including birds of prey and corvids. In the glen as a whole, one of the greatest threats comes from the growing population of jackdaws, which rob the nests of eggs in the breeding season. For this reason, they need to be controlled in the spring to give the waders a chance.

Heather burning maintains the unique habitat tourists come to see.

Like other native plants, mountain willow benefits from reduced grazing.





Management for black grouse preserves birch trees and meadow on the glen.

Another major predator of curlew and other waders are ravens, whose numbers have also increased in recent years. As part of a conservation project supported by Scottish Natural Heritage (SNH), in 2018 the local community was encouraged to apply for a licence to control a limited number of ravens to help the waders in the Strathbraan area. They asked local grouse keepers to carry out the control, which was targeted at the large flocks of juveniles, which congregate in the spring and can quickly strip a hill or field of eggs or chicks. This programme was carried out and the positive impact on waders and curlew in particular was instant. Ronnie explained: "Previously we used to see curlews with one or two chicks and thought that was the norm, but in the first year of the raven licence we went from averaging 1.5 chicks per pair to more than three." In spite of this success, after a campaign of intimidation, SNH asked the local community to withdraw its licence application and it is still waiting for guidance for the future from the licensing authority.

Conservation efforts on the moorland go hand-in-hand with the huge amount of work done to improve habitat on the lower 'in-bye' land at Garrows. Large areas of bracken, which harbour tick in the dead litter underneath, were almost completely cleared over a 35-year period. In addition, there was an investment in fencing. This made it possible to keep the sheep out of watercourses, woodland and meadows in spring and summer, allowing red-listed waders to nest on the grass undisturbed. Ronnie said: "When we fenced and changed the grazing, the difference in bird numbers was night and day. Having had almost none, we are now a nationally important area for curlews, oystercatchers and peewits." Black grouse, which have all but disappeared from southern Scotland after the abandonment of

“Having had almost none, we are now a nationally important area for curlews, oystercatchers and peewits”

grouse moors, have also gained from such changes on the lower ground. Twenty five years ago they had nearly vanished from Garrows, but after habitat measures recommended by the GWCT were put in place, there is now a healthy population. The fact that many of the nearby estates are also conservation minded has created the landscape-scale habitat required by black grouse and many other endangered species. Sir John said: "Lots of our neighbours have done and are doing valuable work for wildlife, from which we all benefit. Wild pheasants are another bird to benefit with a big rise from low numbers."

Sir John and Ronnie are instinctive conservationists and thanks to many years of dedication, investment and hard work, Garrows exemplifies the strong recovery of habitats,

wildlife and grouse that has occurred on well-managed moors in recent years. It is also an excellent example of how driven grouse shooting drives the enhancement of Scotland's unique heather moorland and its biodiversity. Ronnie said: "It is grouse moor management, which is protecting this remaining historic landscape from over-grazing or forestry. Heather moorland is what the tourists come to Scotland to see. Abandoning it or covering it in trees would be like destroying the Taj Mahal." 🦋



(Inset) Twenty five years ago black grouse had nearly vanished from Garrows, but after habitat measures recommended by the GWCT were put in place, there is now a healthy population. © Laurie Campbell

Sir John Kemp-Welch is committed to conservation.



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Shooting and conservation

The latest news, advice and events

News

New
Muirburn
Advisory
Service

Muirburn Advisory Service launched

The temporary suspension of the muirburn season in Scotland earlier this year, following the implementation of the Coronavirus (Scotland) Bill, means that many estates will be hoping to get back on top of their muirburn programmes.

Though frustrating, the suspension has been an excellent opportunity for estates to evaluate their muirburn practices. This is particularly important in light of the recent Scottish Government Review of Grouse Moor Management which made recommendations for increased regulation of muirburn activities.

It seems likely that estates will be required to monitor their muirburn activities within a muirburn plan. These plans should detail why, when and how you will conduct your

muirburn. Plans should also include maps which document and monitor muirburn activities (eg. locations of ignition points) and illustrate high-risk areas and no-burn zones.

We recognise the importance of muirburn as a land management and conservation tool and have recently launched a new Muirburn Advisory Service to support estates in developing and monitoring simple and user-friendly muirburn plans. The new service offers a number of options, from providing mapping and monitoring services to developing more comprehensive muirburn plans.

To book an initial consultation or for any questions please contact Hugo Straker on 01620 830230 mobile: 07713 074147 or Nick Hesford on 07896 006322.

Recording proof of best practice

GWCT Scotland first started using Epicollect, a data collection app, at our Auchnerran demonstration farm to maintain predator control information, giving us insight into the relationship between good habitat management and consistent predator control. It also enabled us to consider how the app might be used to demonstrate evidence of best practice. Epicollect can record locations on- and off-line, which makes it particularly useful for species reporting.

We adapted the app in 2019 to provide an alternative to completing a paper-based count card for mountain hare recording. We have now also added a raptor recording facility, which provides the ability to log the three species that the Werritty Grouse Moor Management Review wished to see monitored for evidence of improvement in conservation status (golden eagle, peregrine falcon and hen harrier).

The facility to record muirburn and other moorland management as evidence of planning and best practice is also in development. Our aim is to provide moorland managers with a simple means to demonstrate proof of best practice.

Around the shoots



GWCT shoots

GWSDF Auchnerran Shoot

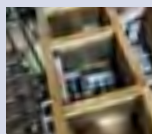
At the time of writing in July, preparations for the forthcoming shooting season are well underway. We are hoping to host two mixed-species days and eight rabbit days, with perhaps more in early 2021 if possible. Our game crops are growing well, thanks to the help from Alan Johnson of Kings Crops. We will be boosting our feeding regime to support our wild pheasant population, and feeders will be deployed in late August. An important part of Auchnerran – and any wild shoot – is monitoring the stock to ensure a sustainable harvest is taken in the shooting season. We will shortly begin our pheasant counts which include a whole-farm survey plus flush counts in our game cover and thick undergrowth. Encouragingly, several broods have been spotted around the farm. Likewise, we will start woodcock counts later in the autumn to monitor the annual influx of migrants.

Allerton Project Shoot, Loddington

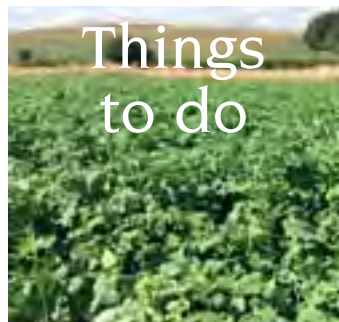
Matt Coupe has been working hard trapping over the spring and summer and now his attention has turned to getting the pens in to serviceable condition. We are continuing with our normal release of 2,600 birds and are monitoring Government guidelines to ensure we maintain social distancing, which will no doubt affect how we run our days (see page 55). It may mean more walking and a review of how we transport people, but we hope to make the most of the season and support the additional businesses and people who make our shoot happen in a normal year. The woodland thinning work is starting to look good and our once dark, uninviting pens, will be much more suited to giving the poults a strong start to life. We are waiting for the planned changes to the Spring Trap Approval Order this autumn which will see the addition of the PX3 trap and we plan to use these next spring and add them to our existing collection of DOC and Tully traps. This winter we will create suitable boxes to house them and ensure they work efficiently, while minimising the risk to non-targets. 🦉

OUT AND ABOUT... this autumn

BUILD HOUSINGS for the new trap models you have chosen for the coming spring. gwct.org.uk/doc.



EVALUATE YOUR woodlands – are they warm enough, is there sufficient ground cover?



© Kings Seeds

FOR GAME COVERS that have failed or not grown well, hand broadcasting mustard will provide early season cover. If time allows, fast growing rescue mixes containing utopia and fodder radish can be established.

HOW YOU MANAGE your feed hoppers will have a strong bearing on how well your gamebirds hold on your ground. Linking the pens up to the cover crops with connecting cover is important. Hoppers should be run in a line alongside this cover and on a weekly basis the hopper nearest the pen taken to the front of the line (nearest the drive). Continue leading the birds up to the drives so they get accustomed to making this daily journey.

ALTHOUGH THE NUMBER of birds being released this year is expected to be less than normal, there is concern that the outlet opportunities will also be restricted. Contact your game dealer to confirm that they are happy to receive your birds.

OUR ONSITE ADVISORY visits give you the chance to review your management practices and explore ways to boost biodiversity alongside the management of your shoot. Consider booking a GWCT Shoot Biodiversity Assessment to learn more. gwct.org.uk/shootbiodiversity.

Grit station hygiene

How to deal with medicated grit

Strongylosis disease is caused by a parasitic strongyle threadworm which lives inside the caeca gut of red grouse. Early GWCT research showed that heavy worm burdens can cause cyclical grouse population crashes. However, the development of medicated quartz grit coated with fat containing an anthelmintic drug, has resulted in greater stabilisation of grouse numbers and therefore increasing the likelihood of shooting in a given season. Medicated grit is delivered to grouse via grit stations which should be placed in a lattice across the moor to reflect grouse spring pair density, while keeping the stations at least five metres away from running and open water. To comply with the law, medicated grit must be withdrawn from grouse at least 28 days before shooting. We recommend that medicated grit is placed in a box with a lid which can be closed to prevent access by grouse before and during the shooting season. Though effective, the use of medicated grit may be related to the emergence of further grouse diseases, such as respiratory cryptosporidiosis (bulgy-eye), which may be spread via contamination of grit stations. Therefore, hygiene and maintenance is very important when using medicated grit.



Nick Hesford is our Scottish advisor who previously worked in the uplands as a research assistant and has been working closely with moor owners to improve hygiene at medicated grit stations.

DID YOU KNOW

Grit stations should be placed in a lattice across the moor with one station per pair of red grouse.



1 Cryptosporidiosis can potentially be spread through grouse faecal droppings so regularly remove any faecal matter from grit boxes. Using small (20x15cm), well-drained trays, that grouse cannot easily sit in can also help to reduce contamination.



Changing gritting station positions by two to three metres each year may reduce accumulation

2 of infected faeces near the tray. This may also fit with the changing availability of shorter vegetation created by burning/cutting.



3 Preventing grit stations retaining moisture is essential as the infective stages of cryptosporidia (oocysts) require moist environments to survive. Raising boxes slightly off the ground will aid drainage.



Only use fresh medicated grit each year. Do not place

4 new medicated grit on the top of old. Not only might this increase the risk of infection from cryptosporidia, but failure to dispose of old grit may contravene legally binding label instructions on the medicated grit bag.



5 Remove unused medicated grit at the end of June/early July and dispose of it responsibly. Remove trays and power wash before re-using.



6 When medicated grit is not being used, plain quartz grit should be made available instead. Retention of grit keeps grouse habituated to those sites.

FIND OUT MORE

For more advice ring 01738 551511 (Scotland) or 01425 651013 (England/Wales) gwct.org.uk/gts

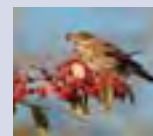
IF DEER species are damaging habitats, work collaboratively with neighbouring estates to control deer numbers.



UNDERTAKE POND work as they can provide excellent shooting opportunities and significantly boost biodiversity.



LOOK OUT for redwings and fieldfares which will be feeding on the fruits and berries in hedgerows.



© Peter Thompson

Conservation



Francis Buner is our senior conservation scientist and is keen to share the benefits of establishing beetle banks.

Creating the ultimate... beetle bank

DID YOU KNOW?

By providing places for predatory insects to spend the winter you can encourage winter boundary densities of more than 1,000 per square metre.

Beetle banks were invented in the 1980s by the GWCT and Southampton University with the aim of providing suitable overwinter habitat for predatory insects (such as Carabidae beetles and spiders). A beetle bank is a c. 0.4 metre (m) high and 3m wide earth bank built across the middle of arable fields. The idea is to split bigger fields into two halves making them more wildlife friendly. But why? Winter insect densities were shown to reach more than 1,000 individuals/m² in tussocky beetle banks. In spring, they move into the neighbouring crops and reduce pest species significantly. Banks that contain native flowers also provide nectar for pollinators such as bees and butterflies. Other farmland wildlife also benefit such as grey partridges and harvest mice which use them as nest sites, or hares for shelter.

However, beetle banks are narrow linear features and can therefore act as a predator trap, especially in areas where no predation management takes place. By planting a minimum 15m wide, suitably designed wild bird seed mix or flower block along at least one side of a beetle bank, the chance of a nesting partridge hen being detected and killed by a fox is significantly reduced.



Establishment: During autumn or spring cultivation, create a 3m-wide and minimum 0.4m high bank (after establishment the bank usually settles and often 'shrinks'), by careful two-directional ploughing. Plough the width of approximately eight metres of bare ground into a bank. Using a six-furrow reversible plough, the equivalent of three plough-widths to build the bank is needed. This requires eight passes, four on each side. Allow a working gap of one sprayer width at each end, so that you can continue to work the field as a single unit.

Sowing

- Wait for the soil to settle before sowing with a suitable grass mix containing at least cock's-foot grass and timothy grass. Add some native flowers that can compete alongside the grasses as the vegetation on the bank should not be mown. Together with Oakbank Game & Conservation we have designed a suitable mix of flowers (see page 15).
- Make sure the seed bed is as clean as possible to help avoid



weed problems, then sow by hand, shortly before a forecast of rain. After sowing, the seeds should ideally be slightly compacted either with a hand roller or by simple rain power.

- Mow twice during the first year to allow for dense establishment of the mix and to stop problematic weeds such as thistle producing seed heads. After the first year, the bank normally does not require any further management and the best beetle banks are those that are left alone.
- To improve the wildlife value, plant clumps of bushes every 100-200m along the bank to create extra nesting habitat and escape cover for birds, winter food for thrushes and nectar for pollinators.
- Plant a mix of hawthorn, spindle, privet, dog rose or field rose (two plants each). These bushes will be used by bird species of conservation concern such as yellowhammers, whitethroats, dunnocks, grey partridges, kestrels and corn buntings. Enjoy watching your beetle bank mature and serve as a wildlife haven.



Arable flowers



Jess Brooks is our farmland biodiversity advisor and has an in-depth knowledge of farmland wildlife and habitats.

Focusing on rare arable plants

Rare arable plants are now the most threatened group of plants in the UK.

Pheasant's eye – plants can grow up to 50cm tall and are mainly found in Wiltshire and Hampshire.

A rich community of arable flora is an asset to be proud of. Not only are they a part of our agricultural heritage and important in their own right, but they also play a critical role in the arable farmland food chain and are often very attractive to look at. Most of our 120+ arable specialist plants depend on

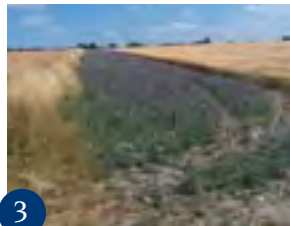
disturbance to germinate and complete their life cycle, which is how they became so successful once the plough was invented. However, more recently seed cleaning, competitive crops, min-till and use of pesticides has threatened their survival and they are now the most threatened group of plants in the UK.



1 Annually cultivate a 2-3m strip at the edge of the crop to turn up buried seeds in spring or autumn. Rotate it to find the most species of interest and prevent weed build up. Countryside Stewardship funding – (AB11).



2 Lapwing or stone curlew plot. Cultivate a one hectare plus sized plot in early spring. These often grow up with good populations of arable flora during the summer. Countryside Stewardship funding – (AB5).



3 One or two year wild bird seed mix crops are good sites for arable flora because they receive little or no fertiliser or herbicide, and plants can set seed within the duration of the crop. Countryside Stewardship funding – (AB9).



4 Leave awkward areas of fields unsprayed. Arable plants can thrive in areas that are difficult to reach with sprays, such as under telegraph poles and at field edges.



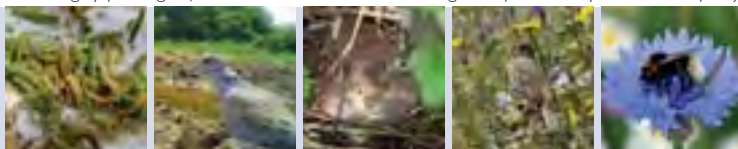
5 Establish a cereal crop but leave the outermost boom-width unsprayed. Harvest or leave standing to allow later-flowering plants to set seed. Rotate to avoid weed build-up. Countryside Stewardship funding – (AB10/14).

DID YOU KNOW?

Pheasant's eye (main picture) is one of our rarest and most beautiful flowers and is classified as endangered in Britain. Its seeds can lie dormant for many years and they need to be baked in the sun to germinate.

(L-R) Chick-food insects, turtle doves, grey partridges, farmland birds such as corn buntings and pollinators. (© Peter Thompson).

THIS WORK ALSO BENEFITS:



BFBC

GWCT BIG FARMLAND BIRD COUNT

SAVE THE DATE 5-14 FEBRUARY 2021



© Laurie Campbell

Linnets

Habitat: Linnets use a varied habitat including areas of scrub, wasteland, heath and urban areas. On farmland, linnets can be found wherever there is a plentiful supply of seeds.

Food: Linnets and their chicks rely almost entirely on seeds throughout the year. During the winter, adults will favour stubbles and field margins where weed seed and split grains are abundant. Dandelion seeds in pasture are particularly important. Chicks feed on weed seeds and unripe oilseed rape grains.

Nesting: Linnets typically nest in thorn hedges. They are usually 0-2 metres up in thick, well-maintained thorn hedges, bramble patches and areas of scrub. Gorse bushes are a favoured nesting site.

Song/call: 'Tett-ett-ett'. Their song is a mixture of short rattling syllables and their call is bouncing and nasal.

Beneficial management

- Wild bird seed crops are extremely beneficial.
- Where possible, tolerate a few weeds such as dandelion in improved pastures and aim to maintain all areas of unimproved grassland.
- Allow a naturally regenerated green cover to develop on overwintered stubbles. Leave destruction of the green cover as late as possible in the summer.
- Retain areas of rough grass and bramble around the farm. Avoid being 'over tidy', as this will reduce feeding and nesting opportunities.
- Establish extended field margins in arable and grassland fields and manage these with a rotational cut to allow grasses and broadleaves to set seed and carry them through the winter.

MORE INFORMATION

Farmers and gamekeepers are vital in helping to ensure the future survival of many of our most cherished farmland bird species, but frequently their efforts to reverse bird declines are largely unrecorded. We believe our Big Farmland Bird Count will help remedy this. www.bfbc.org.uk

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Covid-19
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Rats and rodenticides

Rodenticide rules



Only rodenticides labelled for burrow baiting can be used in this way.

Rat control is a crucial part of gamekeeping, whether it is about protecting nesting game from predation by rats, or preventing damage to and scavenging from feeders. Over the last few years most gamekeepers will have had training to meet their legal obligation to be proficient users if they need to poison rats. This has all been part of the rodenticide stewardship scheme which aims to minimise the amount of anticoagulant rodenticide

which finds its way into non-target wildlife.

For the sort of 'open area' use that gamekeepers need to carry out, placing bait direct into active burrows, and under cover in 'natural' situations where rats are present, is the best way to ensure that they take the bait and non-targets do not. However, new labelling rules meant that the default position is that tamper resistant bait boxes are used whenever bait is put out. Both 'burrow baiting' and use in 'covered and protected bait points' are now non-standard uses, and to be legal they must be specifically mentioned on the product label.

Alongside this, and to reflect other changes, the Campaign for Responsible Rodenticide Use (CRRU) is in the late stages of revising its code of practice. Since compliance with the code is crucial and it is also mentioned on many container labels, users should look out for the new code when it is published.

General licence update

Defra has announced that six general licences for the control of wild birds will be reissued on a temporary basis ahead of new licences coming into force on 1 January 2021. The current licences GL26, GL28, GL31, GL34, GL35 and GL36 will be reissued from 1 August to 31 December. No action is required by licence users, beyond the ongoing requirement to act in accordance with the licence conditions. See gwct.org.uk/glireissue for more details.



Safe principles for game shoots during Covid-19

Covid-19

Together with other rural interest organisations we have put together a brief outlining the principles for the safe conduct of game shooting in England during the Covid-19 pandemic; referencing relevant Government guidance and regulation. It has been produced to assist those managing game shoots to reduce the risk posed by the virus. It is not exhaustive, and each shoot will need to evaluate its own operations.

The Government has outlined five practical actions for managing the risk of Covid-19. The actions that can readily be applied to shoots currently include:

1. Carrying out a Covid-19 risk assessment.
2. Developing cleaning, hand washing and hygiene procedures.
3. Maintaining two metre social distancing.
4. Where people cannot be two metres apart, managing the transmission risk.

Assessing the risk of Covid-19 on shoots is essential for the safety of all participants. How risk is managed must take into account the regulations and Government guidance in force on the day of the shoot. For more information see gwct.org.uk/covidshooting or for specific advice please contact our advisory team advisory@gwct.org.uk or 01425 651013.

Training

Online courses

Perhaps now more than ever, there is a need for gamekeepers, land managers and farmers to be kept fully briefed on how laws on predator management have changed and we have developed new online courses, the first of which is corvid control in Scotland.

For more details visit gwctlearning.com or ring 01425 651013.

GAME 2020

2 Oct' • Online conference • £45

Our GAME conference showcases the latest research and advice relevant to lowland game shooting, as well as promoting good practice in the game and wildlife management sector.

gwct.org.uk/game2020.

NEW - BASIS Certificate in Game Management - Lowland

10-12 Nov', 9-11 Feb' 2021

• Allerton Project, Loddington, Leicestershire • £685

This new certificate is designed to encourage best practice across the game management sector, while providing qualified individuals with a professional accreditation that demonstrates assurance of high standards of practice to employers, customers and the general public. Aimed at everyone running a shoot, the three-day training course will include various modules covering predation control, gamebird releasing, shoot and land management, game crops and industry regulation. (The days can be spread across separate courses as long as the whole course is completed in 12 months). gwct.org.uk/basisgm 01425 651013.

Bespoke courses to suit your needs

Topics on request

Please contact our advisory team to arrange advisory@gwct.org.uk or 01425 651013.

Face to face advice

Our team of well-respected regional advisors can provide a one-to-one visit to your farm or estate to advise you on any game and wildlife issues that are specific to you and your land. Our advisors have a wealth of experience having surveyed millions of hectares and their advice is based on the GWCT's renowned research. advisory@gwct.org.uk or 01425 651013.

Reviews

Farming with Nature by GWCT

Farming with Nature provides a practical guide to how conservation efforts aimed at the grey partridge can benefit farmland biodiversity. The grey partridge is one of the fastest declining farmland birds in Europe – by more than 90% since the 1970s. Its presence is an indicator of arable farmland ecosystem health: where partridges thrive, other farmland wildlife will follow.



Set to become an invaluable tool for farmers, shoot managers, hunters and agri-environment policy makers, the book summarises the leading peer-reviewed research into grey partridge conservation and sets the context of partridge decline and the farmland biodiversity crisis across Europe. It describes techniques developed to reverse that decline and illustrates how they benefit other farmland wildlife. The book details measures, such as planting wildflower mixes, managing hedgerows, maintaining grass margins and conservation headlands, all of which can be integrated into modern farming systems for a viable farming business.

Readers will also learn more about the cornerstones of partridge conservation: looking at the habitats that partridges need for nesting, raising their young, winter cover and food; and how to manage predation pressures. Written by two of the GWCT's leading conservation scientists, Julie Ewald and Francis Buner, with science writer, Jen Brewin, the book features wonderful illustrations and includes a lay-flat binding for easier reading.

£12 gwctshop.org.uk. ISBN: 978-1-901369-38-0

James Swyer, Press & Publications Manager

Woodland Flowers by Keith Kirby

Woodlands are among Britain's most treasured places for wildlife and people, steeped in human history, and Keith Kirby's *Woodland Flowers* is a wholesome introduction. The book is essentially an account of the history and character of our woodlands, the species within them and the various issues that affect them.

Woodland is a hot topic within our future environmental land management system so the book would give useful context and background to those involved with, or interested in, the national push for woodland restoration and planting. As ever, there are many challenges woodland species face – from climate change and weather extremes, to invasive species, diseases and development – but the author gives a balanced and unemotive view of these issues, which is welcome, and it concludes on an optimistic note.

The book has a commentary style, combining the textbook factuality and scientific references with the tones and passion of a memoir. I particularly enjoyed

the species highlights, featured in purple boxes throughout the book. It goes into quite some detail with many individual case studies, so there is ample opportunity for detailed follow-up learning.



Woodland Flowers is worth a place on your bookshelf because it tells the story of the wood beneath and within the trees, and plenty more besides. I've learned a great deal from this book, in particular about ancient woodland indicator plants, the role of grazing animals and the changing vegetation of Britain's landscape since the Ice Age. I would recommend it to anyone with an appetite to discover more about woodland ecosystems, and their value, in every sense of the word.

£35 gwctshop.org.uk. ISBN: 978-1-472949-07-3

Jess Brooks, Farmland Biodiversity Advisor

Greener shotgun cartridges

The move towards greener shotgun cartridges has taken big steps over the last year. Eley led the way with its water soluble PVA wad and steel shot and it has recently launched a 2.5-inch cartridge which it is marketing as suitable for older guns. Gamebore and Jocker have followed suit with Gamebore soon to release its Dark Storm Precision Steel cartridge, building upon its existing non-lead range, and Jocker is now using cardboard wads in its Bio ISO steel shells.



Eley's Pro eco wad dissolves in 24 hours in water.

This season will be my second using steel shot and I have been pleasantly surprised by how well standard loads perform on live quarry such as decoyed corvids, pigeons and driven game. The increasing range of environmentally friendly options, charge weights and pellet sizes is giving our community the opportunity to find

a product that best suits our wide range of needs. Yes, we may need to rethink how we select cartridges for given applications, such as dropping a shot size or two, but there really is an exciting horizon of greener

shotgun shooting just around the corner. Before using steel ammunition, you should get a gunsmith to confirm that steel is safe to fire in your gun. I would also advocate getting your barrels bore scoped and measured so you can monitor the condition of your barrels when using new steel cartridges.

- Join our GAME 2020 conference on the 2 October where we have three fascinating talks on non-lead ammunition gwct.org.uk/GAME2020.
- For more information about moving away from lead shot gwct.org.uk/leadshot.

Austin Weldon, Regional Advisor

GWCT Shop Bestsellers

Here are our bestselling shop items

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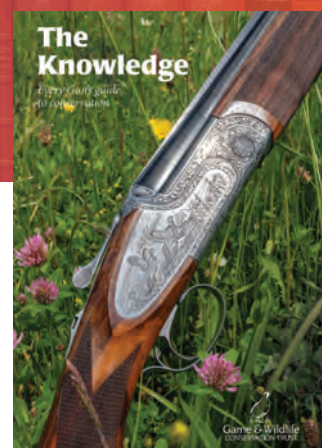
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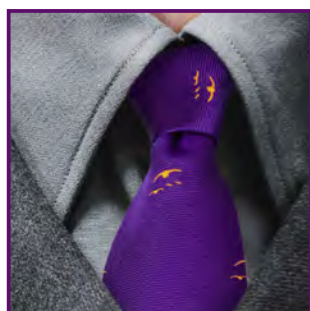
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Countywise

Your update on county events and fundraising

Englefield virtual tour

Annual lecture



Guests enjoyed a virtual tour of the Englefield Estate, as enjoyed in previous years by the Cotswolds Grey Partridge Group (above).

The GWCT annual lecture, normally held at Christie's in London, took full advantage of modern technology and attendees were invited to a webinar on 1 July.

Teresa Dent, CEO introduced Richard Benyon (inset), GWCT trustee and former Defra Minister, to more than 100 guests who had each contributed £50 to the work of the Trust. Guests were treated to a virtual tour of the beautiful Englefield Estate in Berkshire and started to understand the passion with which Richard approaches conservation.

In a wide-ranging discussion, Richard cited the ideas and influence of Aldo Leopold, cult comedy programme The Fast Show and the

Duke of Norfolk's success with grey partridges at Peppering Estate.

But his message was serious and although recognising the problems farming and conservation face, Richard expressed optimism that the landowning community knows what to do to restore the countryside and said: "Nature can recover astonishingly quickly if the right things are done, but the Government needs to find new ways of financing nature conservation and reward those who do it. Richard finished by saying: "The power is in our hands if we are prepared to do what is right."



FUNDRAISING CALENDAR

It is still unclear how far the Covid-19 outbreak might affect future GWCT fundraising events, but please visit our online events calendar gwct.org.uk/events for regular updates.

Our events are organised by county committees, made up of hard-working volunteers to help raise vital funds for the Trust. The GWCT would like to thank the committees for all of their efforts in maintaining an exciting schedule of future events during these uncertain and testing times.

Buckinghamshire



Buckinghamshire's Justin Farrington-Smith receiving a cheque from Claire Boardman, who donated profits from the sale of her book of photographs taken at Claydon Manor. We apologise for misspelling Claire's surname in the summer Gamewise.

Nationwide we have **42** committees led by men and women of all ages who are passionate about the countryside



The normal calendar includes:

24 farm and shoot walks covering rivers, woodlands, conservation and habitat management



3 dog days



24 clay days



4 raffles and High Fours



4 quizzes



4 balls



7 drinks parties



10 dinners



23 auctions



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Thank you for all your support

GCUSA

Auction set to return

Game Conservancy **USA's 34th auction** to benefit the GWCT will be held on a November/December date to be confirmed. At the time of writing, hosting the auction as a virtual event is being considered if gathering in person this year remains impractical.

The Trustees are pleased to announce the election of David M Findlay of Greenwich Connecticut to the Board of GCUSA. David has been an enthusiastic participant and generous supporter for many years.

For more information or to register for the auction, please contact Robyn Hatch, Director, via email info@gcusa.org or by phone (203) 661-5959 gcusa.org.

Northumberland

Species raffle winner

Many congratulations to Stuart Hutchings, the lucky winner of the Northumberland & County

Durham **species raffle** which includes grouse, pheasant, roe stalking, duck and salmon fishing on the North Tyne and an overnight stay in the Lord Crewe Arms in October. Kindly donated by the Wanwood Shooting Syndicate, Willy Browne-Swinburne, Lady Cowie, Edwin Taylor, Jeremy Herrmann and the Lord Crewe Arms and sponsored by Womble Bond Dickinson and GSC Grays, all 500 tickets were sold raising £10,000. We are extremely grateful to everyone who supported the raffle.

The Duke and Duchess of Northumberland have kindly allowed the GWCT to hold a **charity clay shoot** at Hulne Priory, Hulne Park, Alnwick next year on Thursday 27 May after it was postponed this year. Teams of four guns and four loaders are invited to shoot six varied drives across the estate which will be organised by EJ Churchill. Price per team is £1,600 to include breakfast and lunch. See gwct.org.uk/alnwick for further information.

East Yorkshire

Bang Bang Ball

Subject to Covid-19 the **Bang Bang Ball** will take place at Cave Castle Hotel, South Cave on Saturday 6 February. For further details please contact Sophie Dingwall sdingwall@gwct.org.uk.

Scotland

The Scottish super auction success

As our last edition went to press, the combined Grampian, Highland and Scottish Auctions was underway in our online **Scottish super auction**. The bidding was steady throughout, but in the last few days it really took off, with the totaliser hardly able to keep up with the pace on the final evening. In the end an incredible total of more than £150,000 was raised.

Huge thanks are due to our generous donors, enthusiastic bidders, loyal sponsors, advertisers and the volunteer committees who worked tirelessly to put the auction together. In the absence of so much of the fundraising activity originally planned this year, the fact that we have been able to run this auction has made a hugely important contribution to the gaping hole in 2020 funding.

We are immensely grateful to everyone who took part and we look forward to

seeing many of you in person when our auction dinners return. Thank you to our generous sponsors Saffery Champness, Rathbones Investment Management, Pentland Land Rover and RK Harrison.

We were delighted that some guests who had been set to come to the dinner donned their black tie and had virtual parties.



Edinburgh & South East

Drinks at Crookston

Fortunately most of the events fall towards the end of the year so we are still hopeful of holding them. The committee will host a **drinks party** at Crookston House on Wednesday 26 November. There is no ticket cost but a donation of £10 upon entry is suggested. Complimentary drinks and nibbles will be available and a small raffle and auction will be held on the evening. To confirm attendance, please email rdonaldson@gwct.org.uk.

North Yorkshire

Gourmet dinner

Subject to Covid-19 the **Game Gourmet Dinner** will take place at Swinton Park Hotel, near Masham on Thursday 26 November. Sponsored by Saffery Champness, Lycetts, Withers, Carter Jonas, the Biker Group and Canaccord Genuity Wealth Management, guests will enjoy a drinks reception, exceptional food prepared by the hotel's award-winning chef and wine provided by Bon Coeur Fine Wines, plus a dazzling auction. Tickets are £110 each and for further information please contact Sophie Dingwall sdingwall@gwct.org.uk.

Teresa Dent and Oliver Leatham at a previous dinner.



West Tayside



The inaugural Fairways & Flushes **golf and clay day** at The Gleneagles Hotel in October, promises to be a spectacular day at one of the most iconic golf courses in Scotland. The teams will need to be on their game to win some fantastic prizes on the course and in the magnificent shooting school. Thanks go to event sponsor Gillespie MacAndrew and to Campbell Pitt Joinery and RK Harrison who are sponsoring the clay pigeon competition and longest drive respectively.

Derbyshire & S Yorkshire

Really Wild dinner

The Really Wild Dinner and auction is set to return on Friday 5 February 2021 at Thornbridge Hall, Ashford in the Water, Derbyshire, DE45 1NZ. For further details and to book please contact Lottie Meeson cmeeson@gwct.org.uk 07976 207113.

Shropshire

Tanners wine tasting

We are looking forward to a walk-round wine tasting evening on Friday 27 November, including a winemakers supper in the historic Tanners Wyle Cop premises in Shrewsbury. For more details please contact Charlotte Marrison c.marrison@camlandandproperty.co.uk.

DIARY OF EVENTS

It is still unclear how far the Covid-19 outbreak might affect future GWCT fundraising events, but please keep an eye on our online events calendar gwct.org.uk/events for regular updates.

The Donside Big Four

A draw to win a unique day's shooting across four outstanding estates

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The Donside Big Four Enter our draw to win a magnificent day's shooting for eight guns.

The winner will enjoy drives across four outstanding estates in beautiful Donside on the 20 November 2020, with an expected bag of 200.

The prize includes luxurious overnight accommodation, dinner, drinks and breakfast for eight guns on 19 November at the picturesque Castle Forbes overlooking the River Don, by kind permission of Lord and Lady Forbes.



Castle Forbes

The prize includes four signature drives at the following estates:

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The draw is limited to 250 tickets and is in aid of the Game & Wildlife Conservation Trust Scotland Research.

If GWCT has to cancel the day due to Government restrictions, the winner will be offered the prize on a similar date during the 2021 season.

If you have any queries please contact **Rory Donaldson** via rdonaldson@gwct.org.uk or 07718 780700.

Tickets £150 each. To enter visit
www.gwct.org.uk/donside

No ticket may be sold or bought by any person under 16 years of age. Prize draw produced by the Game & Wildlife Conservation Trust. Promotor: T. Dent. 100% of the profit made will go towards our research. Game & Wildlife Conservation Trust, formerly The Game Conservancy Trust, is a charitable company limited by guarantee registered in England and Wales under number 05579632, registered charity no. 1112023 (England & Wales) and SC038868 (Scotland). Registered office: Burgate Manor, Fordingbridge, Hampshire, SP6 1EF. Registered with the Gambling Commission – www.gamblingcommission.gov.uk.



Hare ragout with tagliatelle

Mike Short shares his passion for wild and home-grown food

Like so much farmland wildlife, brown hares have suffered from agricultural intensification. In Britain, their numbers have now stabilised, probably due to beneficial agri-environment schemes. Where farming practices are favourable, and foxes are rigorously controlled, hares can multiply very quickly and locally they can be regarded as pests. As such, late winter driven hare shoots are common in some areas and carefully positioned gunlines often include continental visitors.

Hares are renowned for their rich, strongly flavoured meat, which has rather fallen out of fashion in Britain. But on mainland Europe, hares are still regarded as a valuable game species and I daresay that gamekeepers and hunters abroad probably savour their hares more than they do pheasants. Several times, I've been lucky enough to be invited to shoot on a marvellous wild game estate in north-west Hungary, and as long as it's safe to do so, shots at hares coming racing across the frosted stubbles are taken just as keenly as shots at cock pheasants coming sailing over the line.

Although it's unusual to hear the words 'please shoot a hare if you would like to' on a typical driven shoot day in Britain, for pot-hunters like me, they remain a noble and treasured quarry

species that make a rare treat in the kitchen.

For the marinade

- 1 hare, skinned and jointed
- ½ bottle red wine
- 2 garlic cloves, crushed
- 2 bay leaves
- 2 sprigs fresh rosemary
- 2 sprigs fresh sage
- 2 sprigs fresh thyme

For the ragout

- 1 large white onion, chopped
- 2 sticks celery, chopped
- 2 carrots, chopped
- 2 garlic cloves, chopped
- 10 smoked streaky bacon rashers, chopped
- 400g tin chopped tomatoes
- 1 tbsp tomato puree
- 600ml game stock
- Olive oil
- Salt and pepper

- 250g fresh tagliatelle pasta
- Fresh parmesan to serve

Method

1. Place the jointed hare and herbs in a shallow dish. Season with salt and pepper and pour over the wine. Cover and

refrigerate for a day, turning everything once.

2. Heat a splash of olive oil in a large casserole dish. Remove the hare from the marinade and fry each piece on both sides until browned. Then remove and set aside.

3. Add the chopped bacon and fry until the fat starts to run. Add the celery, carrot and garlic and fry until soft. Return the hare to the pan, along with the herbs from the marinade. Add the tomato puree and tinned tomatoes. Give everything a good stir and cook for about a minute. Turn up the heat, add the wine from the marinade and let everything bubble away for 5-10 minutes.

4. Add the game stock. Stir well, return to the boil, put the casserole lid on and oven cook on a low heat for about two hours, or until the meat starts falling from the bones.

5. Carefully remove the hare pieces and discard all the bones. Return the meat to the ragout and oven cook for another 20 minutes. Remove from the oven and discard the herbs.

6. Bring a pan of salted water to the boil and cook the pasta for 3-4 minutes.

7. Spoon the hare ragout over the pasta on a platter and bring it to the table. I like to serve this with slivers of fresh parmesan. Please raise a glass of something to toast the hare: the best Chianti Classico that you can afford would make the perfect match. 🍷



A delicious hare ragout with fresh tagliatelle is a special treat.



Mike Short is our senior field ecologist specialising in mammal research. He is passionate about wild and home-grown food, and here shares his enthusiasm for tasty ingredients.

DID YOU KNOW?

- After 30 years of decline, brown hare numbers are showing promising signs of recovery.
- Adult doe hares typically produce three to four litters per year, with two to four leverets per litter.
- A code of practice for the management of brown hare sets out legal and best practice guidance for ensuring a balance between the welfare and conservation of brown hares, their status as game, and their ability to cause serious damage to crops. gwct.org.uk/harecop.

Marketplace



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Field & Moor

Field & Moor is a brand new range of hand-crafted boots for gentlemen that launched in mid-September. Produced by British designer Hannah Stiles for those who enjoy an active country life, the firm's Country Boots are made from premium leather and are waterproof with breathable Sympatex linings and Vibram soles. Field & Moor also offer premium



Goodyear welted Chelsea and dealer boots, which combine comfort, styling and character, and are built to last.

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Research in practice

Conservation is not a quick fix according to Roy Burrows, but we should be proud of our work and recognise that if we can make a difference, others might follow

Roy Burrows manages the 1,500-acre Summerstone Estate, including 500 acres of grouse moor in Nidderdale, North Yorkshire. When he took on the role four years ago, it had been grazed intensively and the woodland was largely unmanaged, but there was huge potential to increase biodiversity. Roy and the estate's owners, Steve and Karen Halsall, shared a vision for transforming this lovely corner of the Dales into a wildlife haven including planting 65,000 trees, sowing wildflowers, reseeding hay meadows and restoring heather moorland. As a result, the estate has breeding curlew, lapwing, redshank and pied flycatcher.

About Roy



What motivates you?

To be involved with an exciting project and the chance to work with so many different aspects of estate management. It's also the people I work with, particularly Steve and Karen, and my family. My wife Dawn works in the estate office and on the land and my two daughters regularly help out.

How important is a long-term view of conservation?

Given the pressures the environment is under I think it's extremely important. If we can make a tiny difference, others might follow.

As part of our Working Conservationist series your work has gained a broader audience and other campaigns you have been involved in have hit the headlines. What would you say to other conservationists wary of approaching the media?

Don't be frightened to show off the positive work you do and be proud of it.

What's the best advice you've received?

Enjoy your work.

Burrows in a minute

Favourite food? Grouse (cooked by my wife Dawn).

Last book you read? *Game of Thrones* by George R R Martin.

How do you relax? Skiing.

Favourite place? Summerstone Estate.

Most inspirational person? I have three: my father for his passion for the countryside; Sir Anthony Milbank for his conservation and shooting approach; and Steve Halsall for his vision and pride in Summerstone and his incredible work ethic.

Favourite bird? Lapwing.



What other groups are you working with and do you think collaboration is important?

I am a member of the Nidderdale Moorland Group, which promotes the positive conservation work done by grouse moor managers in Upper Nidderdale. I also work

closely with Nidderdale AONB and have organised events with the local birdwatching clubs. It's very important to build bridges and form partnerships with other organisations.

How do you feel future conservation policy can support private landowners to provide the most for Britain's countryside?

The Government must listen to the people on the ground who are carrying out the work. Rather than imposing legislation that will restrict our work for wildlife, it should help build on the many successes.

How would you answer those who say management for driven grouse damages the environment?

I would invite them to come and see the reality on the ground. We have restored our moor using a range of techniques including heather burning, cutting and blocking old drains. As a result, we are actually increasing peat and with it the moor's capacity to store carbon and prevent flooding. The work has benefited insect life and rare wild birds including curlew and golden plover.

How important is grouse shooting to the local community in Nidderdale?

Shooting and farming have a major social and financial impact within the dale. They not only provide employment, but also have a huge positive impact on community and well-being.

Why should people support the GWCT?

We need people doing the science.

What advice would you give to someone looking to increase biodiversity on their land?

Keep trying and don't give up, it's definitely not a quick fix. 🙌

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