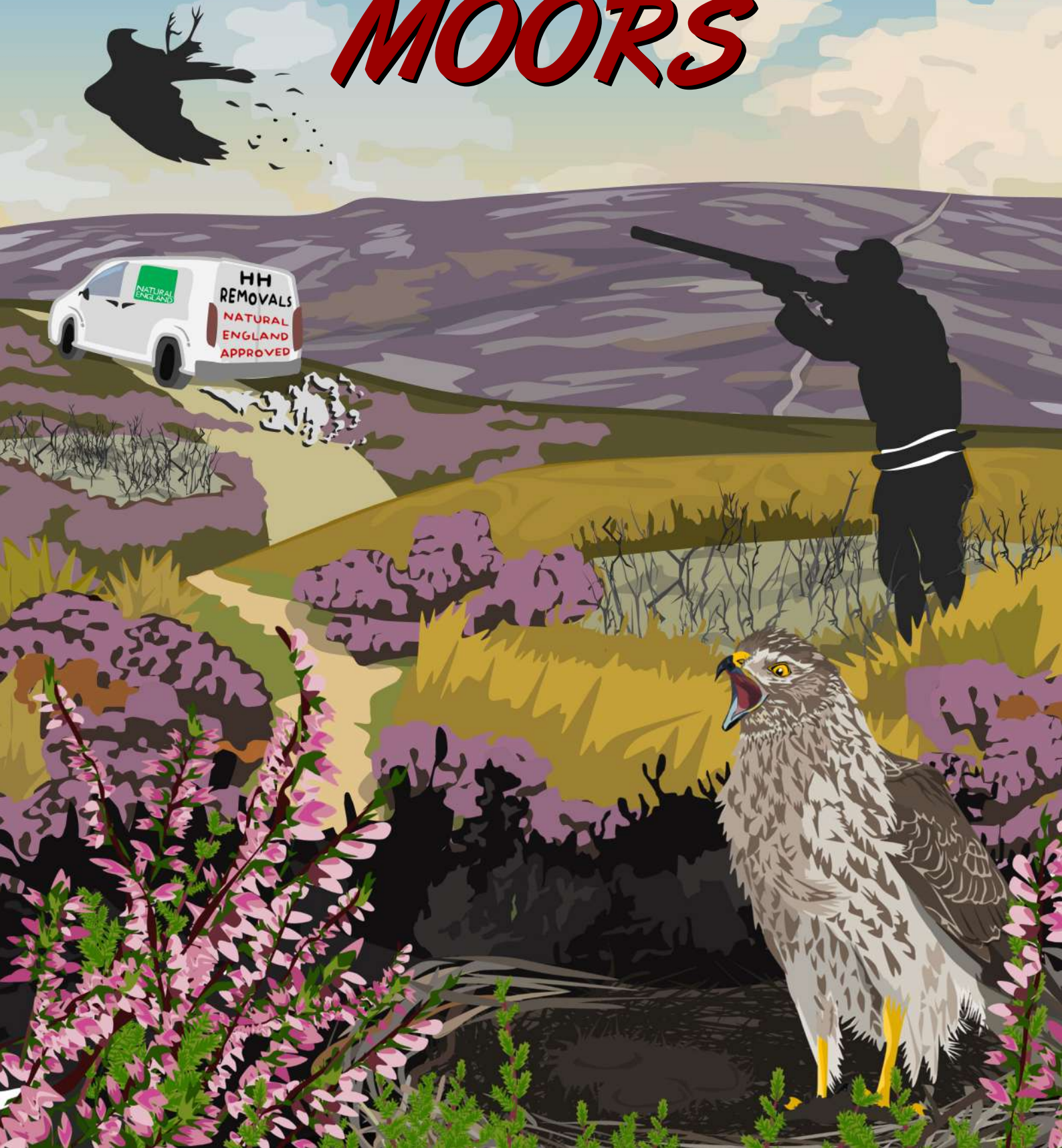


MEDDLING ON THE MOORS



CONTENTS



What is driven grouse shooting?	3
About the Hen Harrier	4
What is brood meddling?	5
Is brood meddling illegal?	7
Does brood meddling work in practice?	8
Are the results being manipulated?	15
Is the brood meddling trial good science?	17
Conclusions	20
Wild Justice's thoughts	21
References	22
Further Reading	23



MEDDLING ON THE MOORS

On the grouse moors of northern England a controversial management trial of Hen Harriers has been under way for five years. Some call it brood management, we call it brood meddling. In this report we look at the background to the controversy and assess whether brood meddling is living up to the claims of its supporters.

WHAT IS DRIVEN GROUSE SHOOTING?

Grouse shooting is recreational shooting of wild Red Grouse – a bird which inhabits the British and Irish uplands, parts of northern Europe, north Asia and northern USA and Canada. Red Grouse in the UK and Ireland form a distinct race of the Willow Grouse/ Willow Ptarmigan. This is the bird depicted on the label of *Famous Grouse* whisky.

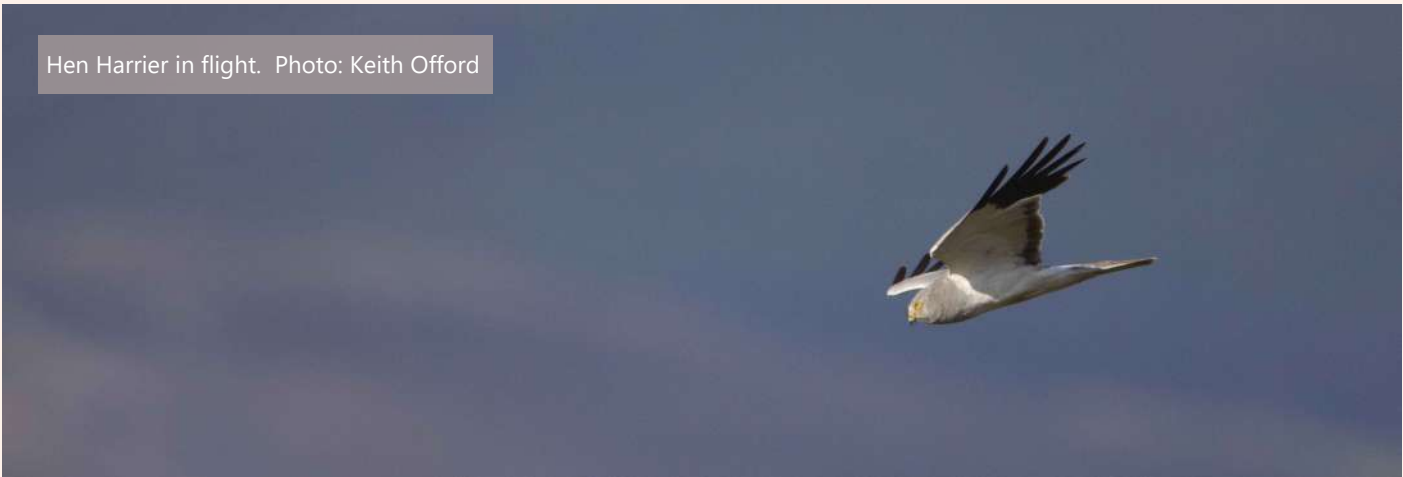
Red Grouse depend largely on heather for their food and well-being. They eat heather, nest in heather and are found in open, upland landscapes including in parts of several UK National Parks such as the Peak District, Yorkshire Dales, Eryri and the Cairngorms.

Driven grouse shooting involves a line of 'beaters' walking across the open moorland

driving the Red Grouse in front of them and over a line of 'guns' waiting for the chance to shoot at the birds as they fly overhead. A day's shooting will comprise several drives with maybe 6-9 shooters involved each time. Bags (total birds killed) vary from year to year, site to site, and through the season (12 August – 10 December). The record day's Red Grouse bag is a long time ago but gives an indication of the scale of the killing: 2,929 Red Grouse on 12 August 1915 in the Forest of Bowland in Lancashire. To reach bags of hundreds of birds in a day the moors are managed intensively with burning, draining, and intensive control of predators which might eat Red Grouse.



Hen Harrier in flight. Photo: Keith Offord



ABOUT THE HEN HARRIER

Hen Harriers are predatory birds which nest on upland moors as well as a range of other habitats. On heather moorland sites, they eat a wide variety of small birds such as larks and pipits and small mammals such as voles, but also Red Grouse adults and chicks. Grouse-eating brings them into conflict with recreational and commercial grouse shooting. Hen Harriers nesting on a moor in spring and summer will eat Red Grouse which are thus removed from the potential population available for shooting in late summer and autumn. For this reason, and despite it being illegal since 1954, many Hen Harriers are killed by grouse shooting interests.

Hen Harriers are killed illegally in many different ways. While breeding, nests with eggs or chicks are stamped on, adult females are shot at the nest and adult males are shot

when hunting away from nests for food to provision the female and chicks. In winter, Hen Harriers often roost communally and traditional winter roosts have been targeted too.

The high intensity of wildlife crime against protected birds of prey, including Hen Harriers on grouse moors is not, these days, disputed seriously by grouse shooting interests. In any case, wildlife crime on grouse moors is recognised as a serious conservation issue by governments in England and Scotland.

Wildlife crime is the problem, but is brood-meddling the solution?



THE BROOD MEDDLING DEBATE

WHAT IS BROOD MEDDLING?

brood meddling [*brood med-ling*] **gerund.**

Brood meddling (called brood management by its supporters) consists of removing young Hen Harriers from their nests, rearing them in captivity and then releasing them several weeks later in the general vicinity of where they were originally found, or other suitable habitat.

HOW DID IT COME ABOUT?

Brood meddling was a wheeze dreamed up by grouse shooting interests and their supporters, although a very different version of such a scheme was proposed by the late Dick Potts, CEO of the Game Conservancy Trust (now known as Game and Wildlife Conservation Trust) back in the late 1990s.¹

The process involves removing entire clutches of eggs or broods of chicks from Hen Harrier nests and rearing them in captivity before releasing them on other suitable habitat nearby. The idea is that by removing the brood, the parents will catch and kill fewer Red Grouse which might persuade grouse moor managers greatly to reduce their levels of unlawful killing.

This idea formed part of a six-point plan agreed by an unrepresentative group of stakeholders and the Department for Environment, Food and Rural Affairs (Defra) back in 2016. The group included the Royal

Society for the Protection of Birds (RSPB) but the RSPB subsequently withdrew its support for brood meddling in summer 2016².

WHAT'S HAPPENED SO FAR?

The five year 'trial' of Hen Harrier brood meddling commenced in 2018. In the first year, no nests were suitable for meddling, so only the years 2019-2022 involved the removal, captive rearing and release of young Hen Harriers.

WHERE DOES IT HAPPEN?

Brood meddling is only possible under licences issued by Natural England (NE). Interestingly, there have been no moves to introduce brood meddling in Scotland (nor Wales nor Northern Ireland) so we assume that neither grouse moor managers nor the Scottish (Welsh or Northern Irish) authorities see much merit in it.

Brood meddling is sometimes portrayed as a technique that is frequently used in nature conservation but this is untrue. Yes, chicks are rescued from farmland in a few cases such as where harvesting activities put them in danger but are released once the danger has passed. We can't think of another situation where the solution for criminal activity is to give the criminals the outcome they seek through a licensed activity. It seems to us to be akin to bribing bank robbers not to rob banks – they get given the money so they don't have to steal it, but the public loses out anyway.

Brood meddling has been criticised by ourselves, and many others, on a wide range of grounds, including the following:

- It's giving in to criminals - a reward for past crimes against Hen Harriers
- It's a waste of money that could be better spent on other aspects of Hen Harrier conservation or elsewhere in nature

conservation – the initial estimate for the five-year trial was £875,000²

- It's a delaying tactic to put off more effective and stringent measures against criminality – all Hen Harriers need is the illegal killing to stop
- It's the thin edge of a wedge that will lead to lethal control of Hen Harriers and brood meddling of other species
- It's not a long-term sustainable solution – how feasible, and how expensive, would brood meddling be if Hen Harriers reached much higher population levels?
- It's irrelevant because it only addresses one tiny aspect of the problems with driven grouse shooting

Those criticisms are still strongly held, but brood meddling has been authorised for five years and is planned to continue as a further licence was issued in May 2023. For the rest of this report, we address four other questions:

- 1. IS BROOD MEDDLING ILLEGAL?**
- 2. DOES BROOD MEDDLING WORK IN PRACTICE?**
- 3. ARE THE RESULTS BEING MANIPULATED?**
- 4. IS THE BROOD MEDDLING TRIAL GOOD SCIENCE?**



Young Hen Harrier. Photo: Keith Offord

IS BROOD MEDDLING ILLEGAL?

The first of these arguments was tested in the High Court with two legal challenges, by Mark Avery (in the days before Wild Justice existed) and by the RSPB. Both challenges failed, both were taken to appeal and both appeals were unsuccessful. So, the courts were persuaded that brood meddling was lawful (although that doesn't mean that it passes any other tests). The legal judgment hinged on NE's argument that this was a scientific trial and that other considerations might legitimately apply after the science was done. This has repercussions for how we should look at the

implementation of the five years of the Hen Harrier Brood Meddling trial. Wild Justice has considered a further legal challenge of the legality of brood meddling but in the end judged that the chances of success would be too low and that the time taken to get a legal decision would be too long to make a difference. We have informed NE that we will not carry forward a legal challenge now. Wild Justice reserves the right to make further challenges on this matter but for now our focus in this report is on what the five-year trial shows.



Young Hen Harriers. Photo: Keith Offord

DOES BROOD MEDDLING WORK IN PRACTICE?

We have taken a hard look at the data using published sources and information provided to us by NE as responses to Environmental Information Regulations requests. The main source of NE information [is this blog](#)³.

CAN HEN HARRIERS BE REARED IN CAPTIVITY AND RELEASED?

Yes, this aspect of the trial has worked well and that comes as no great surprise - see Figure 1.

	Broods	Chicks collected	Chicks Released	Chicks tagged*
2018	0	0	0	0
2019	1	5	5	5
2020	2	9	8	8
2021	2	8	8	7
2022	4	13	13	12
TOTAL	9	35	34	32

Figure 1: Number of Hen Harrier chicks managed during the brood trial.

*On occasion, chicks are released untagged for welfare reasons, for example if they are particularly light.

Also, we note that the original aim was to remove eggs as well as chicks and no eggs have been removed because of fears of damage in transit so it appears that the lesson here is that meddling is only feasible for chicks. Also, the original plan was to rear Hen

Harrier chicks near the moorlands, in heathery sites, but in fact the young Hen Harrier chicks have been reared in facilities in Gloucestershire and then brought back to the moors for release. We also note that there has been some concern expressed over unusually high uric acid levels in the captive birds.

Although the concept of captive rearing and release has been validated as a practical measure on a very small scale, only nine broods have been involved over the five years with a maximum of four broods in 2022. Scaling up of this scheme would be logistically very difficult and very expensive. Little thought seems to have been given to this.

DO RELEASED CAPTIVE-REARED AND RELEASED HEN HARRIERS SURVIVE IN THE WILD?

Yes, but about as badly as do wild Hen Harriers (wHH).

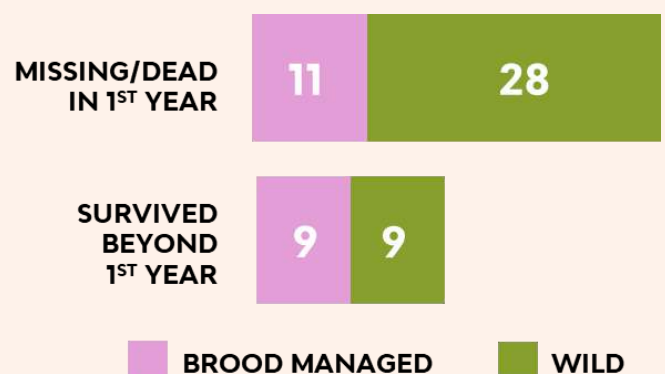


Figure 2.1: First year survival rate of satellite tagged Hen Harriers during trial.

There is an indication that captive-reared and released Hen Harriers (crrHH in the Figures, henceforth 'released' in text) survive better than wild Hen Harriers. However, let's look at this in detail.

NE suggest the survival in year 1 of released Hen Harriers and wild Hen Harriers, over the period 2018-2022, is:

	ALIVE	DEAD/MISSING	TOTAL	% ALIVE
crrHH	9	11	20	45
wHH	9	28	37	24

Figure 2.2: Natural England's record of survival in first year of life, from 2018-2022.

Our inspection of NE's published data⁴ suggests to us that the real figures probably are:

	ALIVE	DEAD/MISSING	TOTAL	% ALIVE
crrHH	9	11	20	45
wHH	10	27	37	27

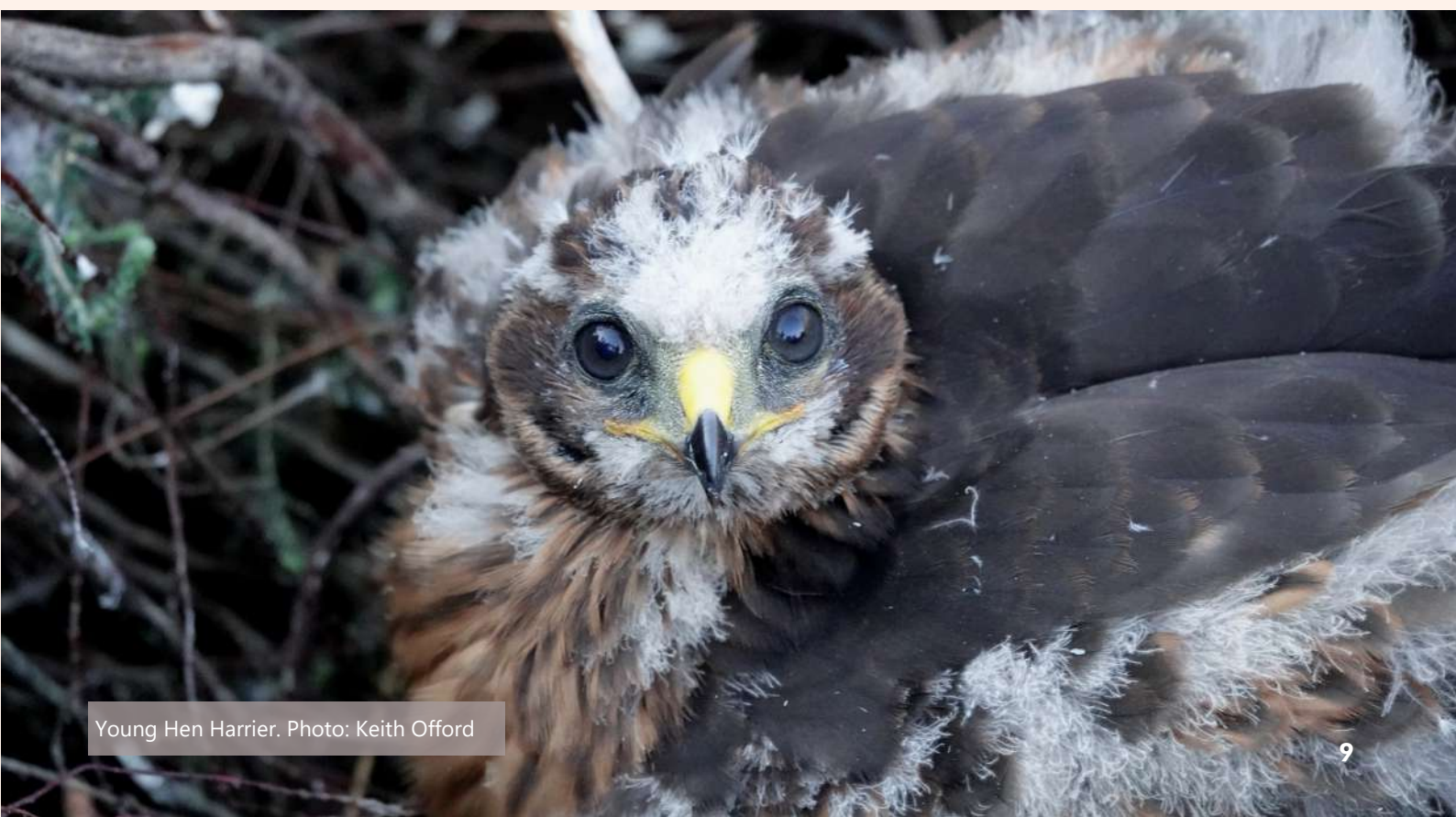
Figure 2.3: Survival in first year of life, from 2018-2022, adjusted to include additional female bird.

This is a small difference, and is based on the assumption that a female Hen Harrier seen alive in both 2021 and 2022 with a Lotek satellite transmitter was almost certainly either 'Kelly' or 'Harriet' but must have been a bird from this study and was certainly alive.

Building on that minor change we have added in more recent data published by NE in their update of May 2023. This includes the status of Hen Harriers tagged in 2022 and whether they have survived. This update does not extend past May 2023 but the additional 18 birds, (12 released and 6 wild) add to the picture as follows:

	ALIVE	DEAD/MISSING	TOTAL	% ALIVE
crrHH	14	18	32	44
wHH	13	30	43	30

Figure 2.4: Survival in first year of life, using the most up-to-date data available, from 2018 - May 2023.



Young Hen Harrier. Photo: Keith Offord

Although the apparent difference in survival between released and wild Hen Harriers is interesting it is also rather odd and unexpected. On the face of it, it suggests that released birds survive better in the wild than wild ones. There are four important caveats to this apparent difference that are not made clear in the NE blog update. First, the median release date of released Hen Harriers is 14 July whereas the median tagging dates of wild Hen Harriers is 4 July, a difference of 10 days in which wild birds are at risk whereas released ones are not. Future analysis of this dataset should take into account days at risk in comparing survival of both classes of bird. Second, it is clear that NE avoided releasing Hen Harriers in some areas where they perceived a danger of predation by Goshawks. We can understand this as a means of increasing the contribution of

released birds to the eventual wild population but it reduces the validity of comparisons of survival with wild Hen Harriers. Third, the selection of release sites was influenced by grouse moor owners and we speculate that this would result in a biased sample of sites – maybe towards moors with less active grouse shoots. This could affect the comparative risk experienced by released and wild Hen Harriers. Last, but not unimportantly, there is the possibility of direct manipulation of these survival rates by interested parties in the grouse shooting industry. The close involvement of moorland managers with the project makes it feasible that those in the know could spare released Hen Harriers and target wild ones to some extent. For all these reasons we believe that interpretation of the survival data is fraught with uncertainty.

Hen Harrier euthanised after caught in illegal trap, leg almost severed. Photo: Ruth Tingay



98

**UK HEN HARRIERS
HAVE BEEN
CONFIRMED AS
MISSING OR ARE
KNOWN TO HAVE
BEEN ILLEGALLY
KILLED SINCE 2018.**

HAS HEN HARRIER SURVIVAL INCREASED DURING THE BROOD MEDDLING TRIAL PERIOD, AND IS IT HIGH ENOUGH TO ALLOW POPULATION INCREASE?

Since the start of brood meddling in 2018, 98 UK Hen Harriers have been confirmed as 'missing' in suspicious circumstances or are known to have been illegally killed, many of them on or close to English grouse moors. With cases in the pipeline that total will soon pass 100⁵. The cases we know about are mostly from the small proportion of birds that have been satellite-tagged so their fate can be followed. The scale of Hen Harrier killing on English grouse moors is still massive and unacceptable. Whilst a few grouse shooting estates get what they want, the removal of Hen Harriers, through a state-licensed brood meddling project, others stick to the traditional method of criminality. Hen Harrier persecution is still rife on grouse moors and no amount of brood meddling rhetoric can cover that up.

Hen Harriers tagged by NE are not immune from horrific deaths on grouse moors. A young male called Free died on a grouse moor in Yorkshire and the post-mortem examination concluded that Free's leg had been torn off while he was alive, and that the cause of death was the head being twisted and pulled off while the body was held tightly^{6,7}.

High levels of wildlife crime are the background to the now extended brood meddling trial. Some would say that the evidence is already clear that brood meddling has not brought about a significant change in attitude on English grouse moors. Have

survival rates of Hen Harriers changed at all? NE recognises this as an important question but after the five years of the 'trial' they provide no answer, not even an interim answer, and are extending the trial in the absence of that answer. We are sceptical that this question can be satisfactorily answered using NE's current approach.

NE has a dataset of satellite-tagged Hen Harriers from before brood meddling started which they could analyse to provide 'before' survival rates to compare with those 'after' brood meddling was introduced. Inspection of the 'before' dataset⁸ which formed the basis of an excellent scientific analysis of Hen Harrier survival generally⁹ (see [here](#) and [here](#)) shows that it comes from a very different geographic area including many Hen Harriers tagged at Langholm Moor in south Scotland and in the Isle of Man. Such birds are absent from the 'after' dataset making comparisons unreliable. Also, many of the 'before' data come from the Forest of Bowland whereas few if any of the 'after' dataset are from that site.

Although eyeballing the 'before' dataset suggests that survival rates may have been lower than in recent years a scientific assessment of this difference appears extremely problematical.

The key question, however, is not whether the very low survival rates of English Hen Harriers have increased but whether they have increased sufficiently to secure a sustainable and lasting increase in the English Hen Harrier breeding population. This requires some sort of a population model to exist, and be populated with data. NE is far from that position and it is unclear to us that a further five years of brood meddling will provide those answers.

HAS BROOD MEDDLING FUELLED THE INCREASE IN HH NUMBERS IN ENGLAND?

There have been some extravagant claims, from those in the grouse shooting industry, that brood meddling has led to the increase in Hen Harrier breeding numbers and birds fledged. Let's look at the data in more detail.

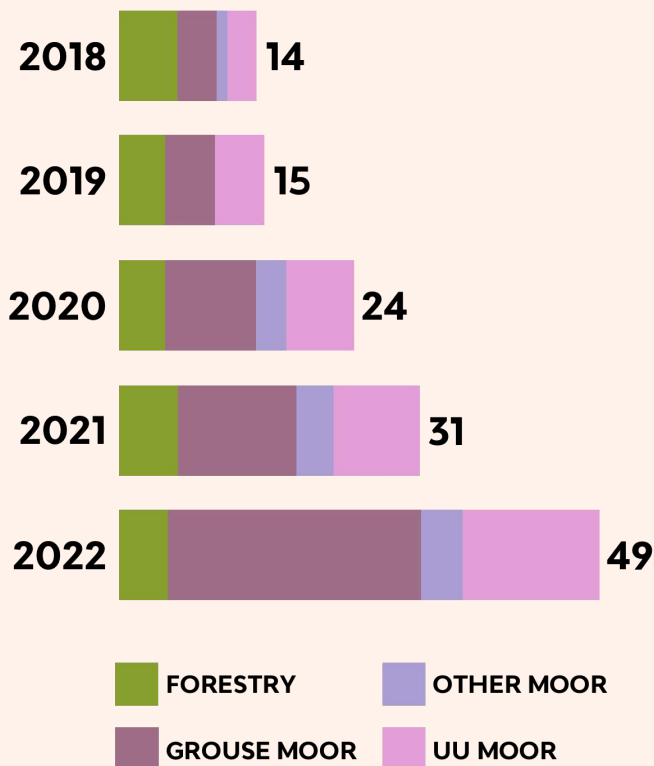


Figure 3: Hen Harrier nesting attempts by habitat category, during the brood meddling trial period, 2018-2022.

Obviously there are more nesting attempts, rising year on year, during the brood meddling period. But is that by chance, or because of brood meddling, or perhaps because of some other factor? The work to date by NE has shone little light on the likelihood of those different reasons.

A cursory glance at the data reveals that the increase in nesting numbers cannot be directly due to the release of captive-reared Hen Harriers to the wild. After all, there were no brood-meddled nests at all in 2018 and yet the population rose slightly in 2019. And the

2019 brood meddling returned five young to the moors but all were dead or missing by the 2020 nesting season, and yet the population increased again and was already 10 pairs higher than in 2018. The two brood meddled nests in 2020 returned 8 young Hen Harriers to the wild but we know (this is discussed later) that nests on grouse moors, on average, produce 2.5 fledged chicks and so the number of extra birds is just 3, some of which will not survive to see their first birthday. Thus, the potential contribution of the brood-meddled youngsters themselves to the increase in nesting pairs from 14 pairs in 2018 to 31 pairs in 2020 must have been tiny (especially since although some Hen Harriers nest at one year old, many first breed at two years (if they survive that long)). So, it's clear that the increase in Hen Harrier numbers cannot have been directly caused by the release of 'extra' Hen Harriers into the wild.

However, it is perfectly possible that other mechanisms might be in play. Perhaps moorland managers were previously preventing pairs of Hen Harriers from nesting and if they did nest, preventing them from nesting very successfully, are now allowing Hen Harriers on their land to nest successfully.

The breakdown of habitat types in Figure 3 is interesting but requires some context to be understood better. The Moorland Association says¹⁰ its members manage over 1 million acres of upland which include 860,000 acres of heather moorland. In comparison, United Utilities (UU, which we believe is a member of the Moorland Association) manages 25,000 acres in the Forest of Bowland¹¹ as a water catchment and for some low intensity grouse shooting (but UU has recently announced that it will end all Red Grouse, Pheasant and partridge shooting on its land by 2027).

So, that’s 860,000 acres in the heather purple part of the column and 25,000 acres in the pale pink. It’s clear where most of the action is. The grouse moor part of the column would have to be about 20 times bigger to equal the *per area* contribution of the UU Bowland estate. In fact, driven grouse moors in the Forest of Bowland, neighbouring the UU land, owned by the likes of the Duke of Westminster, have been curiously lacking in Hen Harriers for most of the last two decades.

Overall, numbers of Hen Harriers fledged have rocketed in recent years.

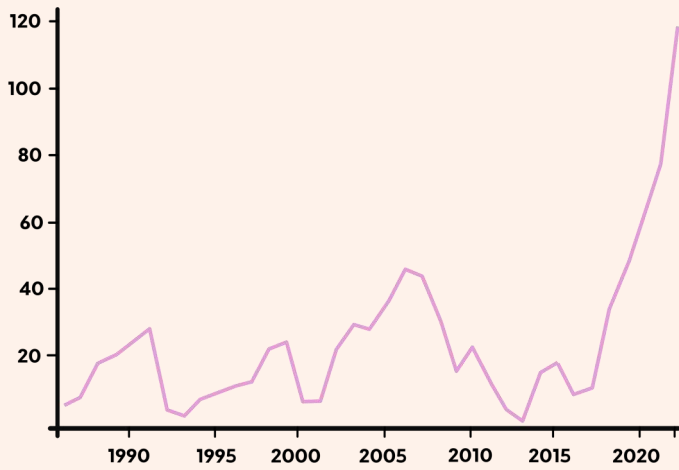
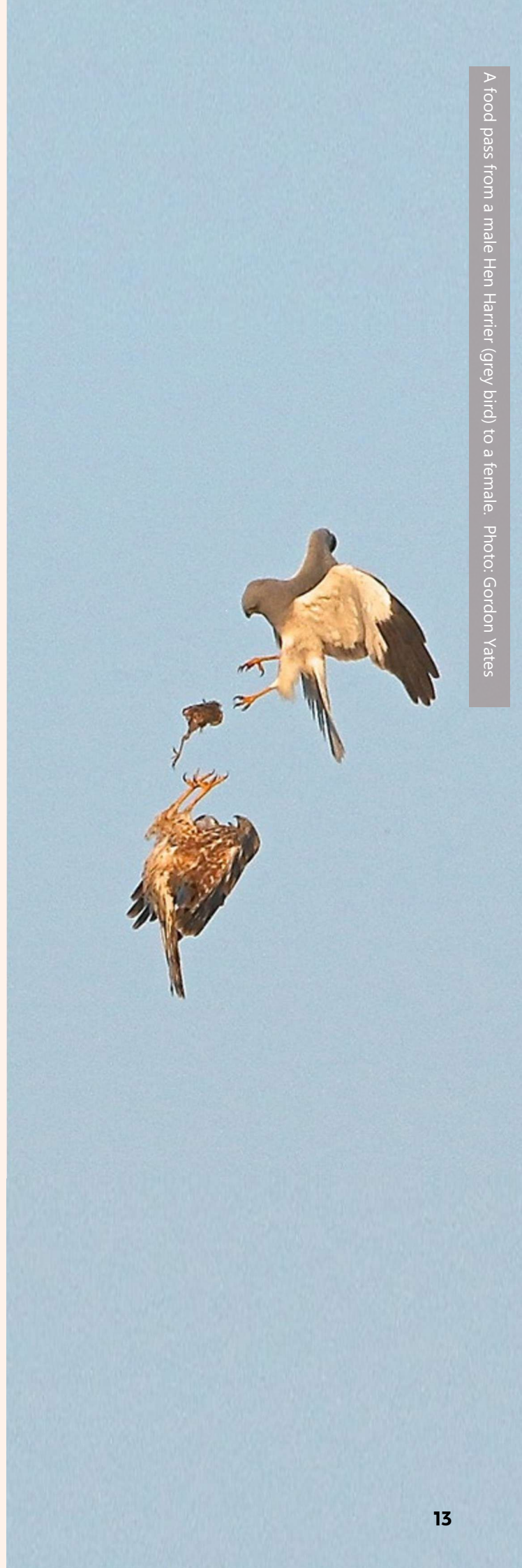


Figure 4.1: Numbers of fledged Hen Harriers in England between 1986 - 2022.

This must be good news, and we welcome it. However, we asked NE for more detail of the breakdown of numbers of where the birds came from. Here is what we gleaned from what they told us. The combined data for productivity per nesting attempt for the period 2018-2022 are:

FORESTRY	26 NESTS	54 CHICKS	2.1 CHICKS/ NEST
GROUSE MOOR	57 NESTS	153 CHICKS	2.7 CHICKS/ NEST
UU MOORS	38 NESTS	115 CHICKS	3.0 CHICKS/ NEST
OTHER MOOR	12 NESTS	19 CHICKS	1.6 CHICKS/ NEST

Figure 4.2: Numbers of fledged Hen Harriers in England between 1986 - 2022.



A food pass from a male Hen Harrier (grey bird) to a female. Photo: Gordon Yates

However, we learned that the released Hen Harrier chicks have been included in these totals as if they were wild Hen Harriers – that doesn't seem right to us. We should look at what is happening on grouse moors with wild Hen Harriers nesting on them. Here are the corrected figures:

FORESTRY	26 NESTS	54 CHICKS	2.1 CHICKS/NEST
GROUSE MOOR*	48 NESTS	121 CHICKS	2.5 CHICKS/NEST
UU MOORS	38 NESTS	115 CHICKS	3.0 CHICKS/NEST
OTHER MOOR	12 NESTS	19 CHICKS	1.6 CHICKS/NEST

Figure 4.3: Numbers of fledged Hen Harriers in England between 1986 - 2022, adjusted to remove released birds.

*On occasion, chicks are released untagged for welfare reasons, for example if they are particularly light.

the brood meddling trial, UU land has produced almost as many Hen Harrier chicks as all the rest of the English grouse moors combined. In 2022, the UU land in Bowland fledged 39 chicks from 14 nesting attempts (2.8 chicks/nest) over an area of c25,000 acres (0.56 nests/1000acres) whereas all the grouse moors in England, 860,000 acres, produced 59 chicks from 26 nesting attempts (2.3 chicks/nest and 0.03 nests/1000acres). This comes as no surprise since Bowland has long been a stronghold for the Hen Harrier in England (despite some periods of low numbers) and was designated as a Special Protection Area for birds in a large part because of its breeding Hen Harriers. What remains very surprising, ecologically, is the poor performance in terms of nesting Hen Harriers on large intensive grouse moors in the Bowland area.

It is very clear that the UU land is, despite its relatively small area, a major source of wild Hen Harrier chicks (Figure 4). In the years of

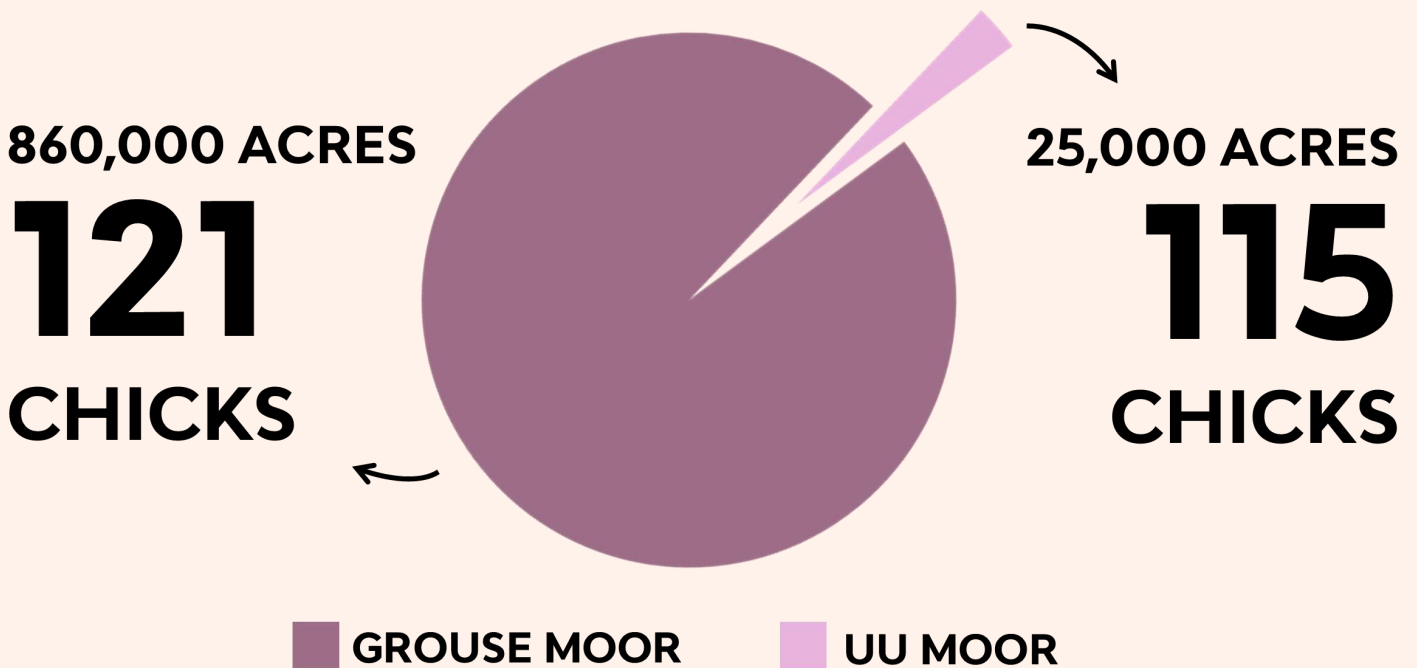


Figure 4.4: Land area (acres) of Grouse Moor and United Utilities (UU) Moor in Bowland, versus number of Hen Harrier chicks fledged.

ARE THE RESULTS BEING MANIPULATED?

NE makes much of the partnership working with grouse moor managers on brood meddling but there are obvious potential drawbacks of working with the industry responsible for the problem of wildlife crime against Hen Harriers – they may favour some outcomes from the trial over others. This is not a laboratory experiment where one simply measures what has happened in a test tube – the laboratory is the crime scene of English grouse moors and some of the laboratory technicians may have been active in criminal activity. One might say that there is no alternative to working with the miscreants – although that is rarely the starting point for dealing with criminality.

The relationship between NE and the shooting industry extends to NE accepting large amounts of funding from shooting interests. NE's partnership with grouse shooters over brood meddling extends to the grouse shooters funding some satellite tagging of Hen Harriers, particularly of brood meddled birds and to receiving [£85,000 from the British Association for Shooting and Conservation \(BASC\)](#)¹². This relationship is very close, very tied up with funding and cannot do anything but reduce confidence in the results of the brood meddling trial. After all, the organisations concerned, the Moorland Association, and BASC lack a strong track record of publications in high-quality scientific journals.

In any case, those engaged in assessing the utility of brood meddling should be aware of the possibility of data manipulation by those literally on the ground. While a few NE staff

occasionally visit the c190 grouse moors of northern England, gamekeepers and other grouse moor managers are present on those sites every day.

How might the brood meddling process be manipulated or interfered with by vested interests?

KNOWLEDGE OF TAGGED BIRDS' LOCATIONS:

We know that, strangely, brood meddled satellite-tagged Hen Harriers seem to survive a little better than non-brood-meddled birds. Might this be because persecution of brood-meddled birds is avoided, and persecution of untagged birds is increased by those in the know on the ground? Satellite tagging only gives an unbiased measure of survival if it doesn't increase or decrease survival chances, but simply measures them. In this study grouse moor managers have funded the satellite telemetry, and some are aware of the locations of tagged birds; both where they were tagged, and throughout their lives.

CHOICE OF NESTS:

The very choice of nests to be meddled appears to be in the hands of grouse shooters too. Nests only qualify for meddling activity if there is another active Hen Harrier nest, on a grouse moor, within 10km.

By definition, that means that that there are two potentially meddlable nests and a choice has to be made about which is meddled and which is left alone.



Hen Harrier in flight. Photo: Keith Offord

Natural England have not disclosed to us how these decisions have been made. There is plenty of scope for influencing the overall outcomes through these decisions. In a proper scientific study the choice would be made at random, essentially by the toss of a coin – this does not happen in this ‘scientific trial’.

CHOICE OF RELEASE SITES:

The release sites of captive reared birds are also strongly influenced by the grouse shooting community. No brood meddled birds have been returned to the grouse moors from which they were taken because, as we understand it, none of the participating grouse moors have wanted the birds back. All have been released at other sites, and there has been great reluctance to be an ‘acceptor site’. This inevitably gives the grouse shooting, land owning community the major say in release sites.

FOCUSING PERSECUTION ELSEWHERE:

If we go back to Figure 3 and consider the ‘other moor’ category, and look at the chicks/nest figures that we calculated from NE data, we see a lower success rate for these sites. These include RSPB- and National Trust-owned sites. They don’t seem to do as well in terms of productivity of Hen Harriers, and this apparent difference is often pointed out by the grouse shooting lobby. When you look at the data then one sees that nests in these

categories appear to be much more often subject to the mysterious deaths of the males provisioning the nests. Years ago, NE itself drew attention to the incidence of losses of adults while nesting in their report [A Future for the Hen Harrier in England?](#)¹³ Back then, it was a favoured technique used on some grouse moors, but it appears that this behaviour is now targeted at pairs nesting on moorland owned by wildlife NGOs – see [here](#)¹⁴ and [here](#)¹⁵ for some examples from the 2022 and 2023 nesting season. The chick productivity of ‘other moors’ would be higher if they weren’t being targeted by criminal activity, and it looks to us as though they are being quite specifically targeted.

Wherever you look, be it choice of nests for meddling, release sites, data on breeding success, or survival measures, the vested interests of grouse shooting have access to the decision-making process. This opens the door to the possibility of the results being manipulated.

It seems to us entirely feasible that more Hen Harriers are being allowed to settle on English grouse moors temporarily but that persecution of fledged birds and adults continues at rates high enough to prevent any sustained recovery of the population. Without stringent monitoring, persecution at nests and of flying birds can be turned on and off by criminal elements as they desire.

We asked NE what safeguards were in place to minimise manipulation of the results by vested interests but they had nothing to say on the subject.

IS THE BROOD MEDDLING TRIAL GOOD SCIENCE?

NE went to court to defend the fact that they had not considered alternative measures of Hen Harrier conservation. They claimed that the brood meddling trial was not a conservation intervention but a piece of scientific research which would inform decisions about the merits of alternative conservation interventions. Therefore it is entirely reasonable to hold NE to account for the scientific standards of this trial.

TRANSPARENCY:

This study fails badly in terms of transparency. The identities of the scientists leading this study and those of the Project Scientific Advisory Group members are withheld. Thus, this study is being organised and carried out in secret.

AIMS:

Few of the original actions have been completed in what have now become the first five years of the study. No informed view is available from NE as to whether the current approach can convincingly answer any of the questions about the value of brood meddling. Analyses such as comparisons between 'before' and 'after' the start of brood meddling have not been completed and it is unclear when they might be.

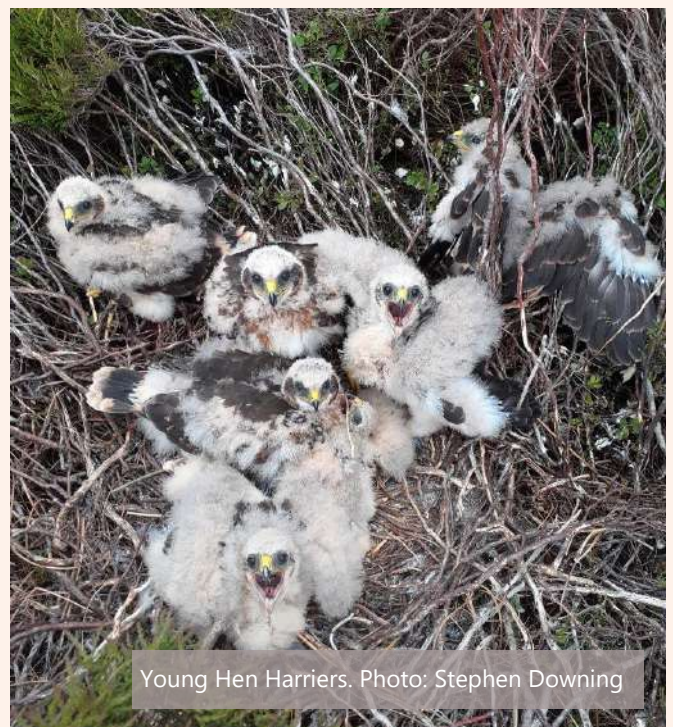
METHODOLOGY:

Information on the protocols and definitions involved in this study have not been provided to us and we question whether they exist.

TIMEFRAME:

Initially, the brood meddling trial was to be a five-year trial. It has now been licensed for

another two years and is being talked of as a 5-10 year trial. It feels like it is morphing into a conservation measure by default, despite NE's evidence to the courts that this was a self-contained piece of science. A date should be set for the end of the trial and the existing data rapidly analysed to produce an overall assessment of whether or not brood meddling has any part to play in Hen Harrier conservation in England. Arguably, the trial should not have been licensed to continue until the first five years' data were fully analysed.



Young Hen Harriers. Photo: Stephen Downing

SAMPLE SIZES:

The data collected are so far not sufficient to make any firm conclusions and the danger is that they never will be. One fairly obvious solution is to work much more closely with other groups of scientists who have expertise, standing in the subject and already have relevant data. The most obvious organisations are the Northern England Raptor Forum (whose members collect many data) and the RSPB (who have their own satellite-tagging programme, are land owners in the study area and who work closely with UU and others). The involvement of these parties would bolster the sample sizes in some areas and instil more confidence in the results because more of the data would have been collected by trusted sources. Wild Justice encourages all parties to broaden the partnership involved in data collection and analysis.

LACK OF A COHERENT QUANTITATIVE APPROACH:

To assess the importance of brood meddling in driving Hen Harrier population changes will require a much more quantitative analysis than that employed so far. Ideally, a population model needs to be created and populated with real data on survival and productivity, ideally broken down by habitat types, in order to understand the impacts, if any, of brood meddling.

LACK OF ASSESSMENT OF COMPETING HYPOTHESES:

There is no doubt that more pairs of Hen Harriers are nesting in England than before brood meddling was introduced, but there is doubt over how much of a role brood meddling has played in this increase.

Pair of Hen Harriers. Photo: Keith Offord





Hen Harrier in flight. Photo: Ian Poxton

The trial is happening in the real world where other things are changing as well as the introduction of small-scale brood meddling. There are other potential explanations for the changes observed so far, which include:

- Manipulation of the results by vested interests (see above).
- The impact of diversionary feeding² in increasing productivity irrespective of brood meddling – this was, after all, another part of the 2016 Defra plan.
- A run of poor years for Red Grouse which have led to many shooting days being cancelled because of the combined impacts of poor weather and diseases of Red Grouse – there is little to be gained risking being caught persecuting Hen Harriers if your grouse shoot has cancelled much of its shooting.
- A move by many private and corporate owners out of grouse shooting (examples include Bradford Council ending shooting on Ilkley Moor, Yorkshire Water reviewing shooting tenancies on its land, UU ending grouse shooting on its land over the next

few years, the National Trust reducing the area of its upland estate where intensive grouse shooting is permitted, NG Bailey changing the management of their moorland). As grouse moors come onto the market they are more and more likely to be taken in hand by those wishing to make money from government grants for carbon storage or from selling carbon credits. Already these changes are afoot and must have implications for current and future persecution levels and nesting pairs of Hen Harriers irrespective of any impacts of brood meddling.

We regard the assessment of the impacts of brood meddling to be a complex problem and that the current NE approach has failed to come up with conclusive results as to the importance of brood meddling over the past five years. We fear that the current approach however extended in time will not be scientifically robust.

CONCLUSIONS

The misgivings about brood meddling listed at the beginning of this report have not been dispelled by the events of the past five years. Worryingly, a five-year trial of brood meddling has reached no firm scientific conclusions but appears to be turning into a perpetual activity despite the lack of scientific evidence for much impact. The science is weak and will remain weak unless the approach changes.

In the meantime, other avenues for progress are still being neglected – brood meddling is being used as a block to other approaches. These include increased enforcement activity, perhaps targeted to particular area (we'd suggest the Forest of Bowland and Yorkshire Dales as a good starting place), licensing of

grouse shooting (as in Scotland), a firm ban on the burning of vegetation on peatlands (as recommended by the UK Committee on Climate Change¹⁴) and an even larger investment in satellite tagging as both a means of research but also as a means of protecting some birds from illegal persecution.

But at the end of the day, brood meddling of Hen Harrier nests may or may not deal with the criminality aimed at one fantastic species of bird, but no-one could claim that it will solve all the other problems associated with intensive grouse shooting such as carbon emissions and landscapes which are not wild but bear the marks of industrial management for a niche form of recreational shooting.

Young Hen Harriers. Photo: Keith Offord



WILD JUSTICE:

Still **OPPOSES** brood meddling but we have decided, on balance, not to take a further legal challenge against its legality this year, although we reserve the right to do so at a future date.

WELCOMES the increase in Hen Harrier numbers in England but we are unconvinced that this is because of the introduction of brood meddling and we have set out further possible contributory factors.

BELIEVES that the investment of time and money in brood meddling has been a distraction from other approaches to Hen Harrier conservation such as enforcement of existing laws, promotion of diversionary feeding and working on the ground in the Forest of Bowland to bring about change.

REMAINS unimpressed by the standard of scientific enquiry that is evident in NE's brood meddling study.

ENCOURAGES NE, the Northern England Raptor Forum and the RSPB to work together on the data collection and

analysis aspects of the brood meddling trial.

NOTES that if the five-year trial was on budget, nearly £900,000 has been spent on a 'trial' that is continuing for a further two years and which may drag on for much longer – a trial which has produced few certain answers.

Is **CONCERNED** at the lack of safeguards against data manipulation by vested interests and NE's inability to provide reassurance on this matter.

REITERATES that there are a wide range of other species, avian and mammalian, illegally persecuted on areas managed for intensive grouse shooting and that Hen Harrier brood meddling will not address those issues.

SEES the regime of driven grouse moor management, both legal and illegal aspects, as being a sub-optimal and unsustainable use of the uplands for a wide range of environmental and social reasons.



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MEDDLING ON THE MOORS

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