

Technical Assessment of 2017-28602-SCI-SCI Hen Harrier (*Circus cyaneus*) Brood Management Trial application

Assessor name: [REDACTED]

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## 1. Overview of application and assessment

### 1.1 Application:

On 13<sup>th</sup> March 2017 [REDACTED]

[REDACTED] submitted a licence application to Natural England for the purpose of science, research and education licence under Section 16(1)(a) of the Wildlife and Countryside Act 1981 (as amended). The application proposes to undertake a five year hen harrier (*Circus cyaneus*) brood management trial in the uplands of England and was submitted on behalf of Brood Management Project Board. This comprises representatives from the partners to the Hen Harrier Joint Action Plan and includes members of NE staff. It is chaired by Rob Cooke (Director, Strategy and Reform, Natural England) with support from Adrian Jowitt (Principal Adviser, Natural England).

The following documents were supplied with the original application email:

- licence application form “to take or kill wild birds for the purposes of science, research, education and conservation” ( Form A33);
- reference in support of the licence applicant from [REDACTED]
- Disease Risk Assessment;
- suggested Habitats Regulations Assessment (HRA) drafted by the Brood Management Trial Project Manager, Adrian Jowitt, to show how the project might comply with the Habitats Regulations.

The original application was received by the [REDACTED] Area Team on 17th March 2017. Further information and supporting documents were supplied by both the applicant directly and the Brood Management Project Manager, on behalf of the applicant, following requests by Natural England for further information to enable determination of the licence application.

Further information was requested from the applicant by Natural England on 21/04/17 and 11/05/17. Supplementary information was received by email from the applicant on 26/04/2017, 29/04/17 and 11/05/17.

No project plan was supplied with the initial application, so Natural England provided the applicant with guidance and directed the applicant towards IUCN Guidance for Introductions and Translocations. A project plan was received on 13/07/17; this was reviewed, and further request was made at a meeting on 04/09/17 in Birmingham between Natural England and the Project Manager for further information to be included in the project plan. The final project plan was received by Natural England on 15/09/17.

All documents received have been fully reviewed and the following assessment is based upon information given within the application documents and the further information supplied.

### 1.2 Assessment:

The application is high risk as a considerable proportion of the English hen harrier population could be subject to brood management; based on the English population's productivity in recent years, even the death of a single chick could represent a significant proportion of that season's productivity.

Further, the application is complex and a range of specialised knowledge and specific skill was required to undertake a robust assessment. Therefore, the assessment has been undertaken by a Technical Assessment Task and Finish Group, led by the [REDACTED] Area Team, consisting of the following:

- [REDACTED] Area Team (Senior Responsible Officer for the assessment of this application)
- [REDACTED] Lead Wildlife Management Adviser, [REDACTED] Area Team
- [REDACTED] Lead Wildlife Management Adviser, [REDACTED] Area Team
- [REDACTED] Ornithologist, [REDACTED] Area Team
- [REDACTED] Senior Ornithologist, Specialist Services Team (advisory capacity)

The Project Group has received specialist advice from relevant Natural England specialist staff or groups as appropriate. These included:

- [REDACTED] Adviser: Species licensing issues
- [REDACTED] Senior Adviser: Species licensing issues
- [REDACTED] Senior Adviser: Species licensing issues
- [REDACTED] Senior Adviser: Habitats Regulations and SSSI Legislation
- [REDACTED] Senior Adviser: SSSI Legislation
- Stephen Murphy, Lead Adviser: Ornithology
- [REDACTED] Principal Adviser: Legal advice
- Pete Brotherton, Deputy Chief Scientist: Evidence, modelling and uncertainty

The members of Natural England Staff on the Brood Management Project Board have not been involved in the licence assessment; Natural England's role as the licensing authority has been independent of its role as project partner.

## 2. Background

A Joint Hen Harrier Action Plan<sup>1</sup> has been developed by a Department for Environment, Food and Rural Affairs (DEFRA) led sub-group of the Upland Stakeholder Forum. This plan aims to increase the English hen harrier population and the action plan outlines six complementary actions. Trialling a Brood Management Scheme is listed as Action 6 of this plan. Natural England's Science Advisory Group (NESAC) has endorsed the use of trial to strengthen the evidence for informing a future decision about the use of brood management as a conservation tool (NESAC advice to Natural England Board, 30 September 2015).

The proposed Brood Management Trial has two main aims:

- exploring whether brood management could reduce the perceived conflict between hen harriers and grouse management and lead to a cessation in illegal persecution (the social science element of the project)
- assessing the effectiveness of brood management as conservation tool in the English uplands.

The application proposes the removal of complete clutches of part-incubated hen harrier eggs and/or full broods of young chicks from the northern uplands of England when hen harrier nests exceed a pre-determined density. Removing broods during the breeding season would reduce the predation pressure on grouse by adult hen harriers provisioning their broods and it is theorised that this should allow hen harrier conservation and grouse shooting to coexist.

The entire clutch would be removed as close to hatching as possible to minimise the likelihood of the adults re-laying a second clutch. The applicant wishes to retain the ability to take chicks as well as eggs, but late-stage eggs are the preference. The removed eggs and/or chicks would then be transferred to indoor, bio-secure facilities [REDACTED] to allow artificial incubation and/or rearing. The building and equipment to be used for incubation and brooding are pre-existing, whereas the aviaries [REDACTED] will be new and situated away from other bird collections [REDACTED]. All aviaries would be disinfected between broods/years.

Once they are able to pull food for themselves and they have been health checked, the chicks would be transferred into specially constructed, new release pens located within suitable habitat within the general moorland area from where the individuals were originally collected (see project plan Appendix 5). The fledged birds would all be fitted with satellite tags and released from these pens

following a health check. The satellite tag data will be used to monitor dispersal, survival and productivity.

Responsibility for the conduct of the trial rests with the Project Board, who have responsibility for decisions on which broods are managed and reviewing progress and improving operations where necessary. The Project Board also have responsibility for receiving information on the social science element of the project, the analysis of satellite data and using the results to inform decisions about the trial outcome.

Natural England reports annually to the Upland Stakeholder Forum on progress with all aspects of the plan, including the Brood Management Trial. The Project Board undertake the necessary reporting to the Upland Stakeholder Forum and Defra at least on an annual basis.

The trial is proposed to take place in the northern uplands of England within the area defined by the moorland line (shown on Map 1 within the project plan) where owner-occupier permission is gained. Currently no details have been provided regarding participating estates, so the mapped trial area is non-specific. It is not possible for the project to give specific details of locations where the trial may occur as this is dependent on numerous factors including the nesting behaviour of harriers, nests exceeding the trial density threshold and the location meeting other trial criteria.

In addition to considering the necessary licensing criteria, the trial could be undertaken on or adjacent to a number of protected sites (SSSI and SPA). As part of its role as the statutory body/competent authority for these sites, potential impacts arising from the trial, such as taking birds and release pen construction on these sites must be, and have been, considered as part of this assessment.

Hen harriers are protected under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended). As a result of this legal protection, a licence for this trial would be required for the following activities:

- Disturbance of adults and/or dependent young by observation or nest examination
- The taking of eggs for incubation and/or chicks by hand for the purposes of rearing in captivity and releasing as juvenile harriers
- Disturbance of nesting adults for the purpose of removing eggs
- Disturbance of adults in or near a nest that contains their young for the purpose of removing chicks

Licences may be granted by Natural England (the body with the statutory role to do so) for these activities, in accordance with licensing purposes and an assessment of the evidence provided by the application to satisfy the requirements of Government Policy.

As the application considered is for a trial and to establish evidence where this currently does not exist, then the application can be considered under the licensing purpose for science, research and education (Section 16(1)(a) of the WCA). Although the wider and longer term intention is to improve the conservation status of the species, so the ‘conserving wild birds’ purpose (Section 16(1)(c)) has also been considered. However, this application is for a trial to deliver data and evidence against narrow objectives and as such, in itself, will not deliver the wider benefit to the species that would be required of a ‘conserving wild birds’ application. Therefore whilst the ultimate aim of the project is to conserve the species, this application has been considered on its merits against the science and research purpose. It is not possible to totally disconnect the two aspects (the current trial and future application of lessons learned from the trial), therefore, where appropriate, comment has been made with regard to how this project can best deliver outcomes for any next stage of the project.

**Table 1: Final documents assessed for this application, including document contents**

<b>Document title and details</b>	<b>Contents</b>
Application form A33- “Application for a licence to take or kill wild birds for the purposes of science, research, education and conservation”.	Applicant details, communication preferences, previous applications, purpose, justification, site details, conservation considerations, authorisation, application details, authorised individuals, qualifications, supplementary information, declaration.
Hen Harrier Brood Management Trial Project Plan “170914 Hen Harrier Brood Management Project Plan Final- with Appendixes (0004)”.	Context, Aim, Trial area, Timescale, Governance (roles and responsibilities, resources), Brood management process flow chart Exit strategy, Risk Register, Appendixes (as below)
<i>Project Plan Appendix 1:</i> Hen harrier brood management and stakeholder preferences	Proposed study, budget timeline, approach, output, references
<i>Project Plan Appendix 1:</i> Description of the Brood management Trial.	Reason for the trial, what the trial will test, what action will be undertaken, location of release sites, release protocol, references
<i>Map 1:</i> Brood Management Trial Area	GIS map showing trial area as above the moorland line in the north of England
<i>Project Plan Appendix 2:</i> Disease Risk Assessment.	Introduction to Hen Harrier ( <i>Circus cyaneus</i> ) DRA, objectives, considerations of Disease Risk analysis for hen harrier translocations,

Originally supplied as a separate document "Disease Risk Management Hen Harriers Forbes Review Feb 2017" with initial application.	consideration of above disease risk, literature review, hazard prioritisation criteria for each disease risk scenario, references and further reading
<i>Project Plan Appendix 3: Brood management Release Protocol.</i>	Release enclosures, feeding, safety
<i>Project Plan Appendix 5: Ecological requirements and suitability of release sites and specification for release pen and management</i>	Purpose, location and habitat requirements, logistics, release enclosure specification, post fledging
Suggested Habitat Regulations Assessment "170210 BM draft HRA v2"	<p>Part A- Introduction and information about the plan or project. Details of the plan or project- location, description of the plan or project and its constituent elements. Initial assessment of credible risk to sites.</p> <p>Part B- Information about the European Sites likely to be affected.</p> <p>Part C- Screening of the plan or project</p> <p>Part D2.1 Assessment of potentially adverse effects without additional mitigation measures- Appropriate assessment and conclusions on site integrity</p> <p>Appendix 1: Description of Brood Management Trial</p> <p>Appendix 3: Brood management release protocol</p> <p>Appendix 4: Objectives for European sites- conservation objective attributes, generic objective for breeding hen harrier, generic explanatory notes and national references.</p> <p>Appendix 5: Ecological requirements and suitability of release sites and specification for release pen and management</p> <p>Appendix 6: Brood Management Trial Area</p>
"Document6 AJ clean copy April 26 <sup>th</sup> 17". Applicant's partial response to further information request sent on 21/04/17.	Governance, planning and monitoring. Project aims and objectives. Roles and responsibilities. Monitoring and evaluation. Adaptive management details, intervention density, nest selection details, release site assessment. Capture, care and release of birds. Post-release monitoring and adaptive monitoring.
"2017-28602-SCI-SCI Further information requirements". Email from applicant dated 11/05/2017 following further information request on 10/05/2017.	Further information regarding the local people that will care for the birds at the release site and the facilities currently available at the <span style="background-color: black; color: black;">[REDACTED]</span>



### **3. The format of key documents**

#### **3.1 Project plan**

In an application of this type much of the technical detail is normally supplied in a project plan rather than within the application form itself. It is recommended that applicants follow a format to ensure that applicants have considered and can provide information upon various aspects of the proposal (e.g. objectives, methods, milestones and targets, IUCN compatibility, risk analysis, monitoring and evaluation etc.), and the evidence required to support a proposal should be proportionate to the associated risks.

The expectation of the role and content of a project plan is consistent to that taken with other similar high profile species management projects, including the River Otter beaver trial and the Poole Harbour osprey translocation project. Provision of such a project plan also aids our assessment as all the necessary information is in the 'right place' and the risks of missing information (by the assessor, or applicant) is greatly reduced.

The initial project plan was considered unsatisfactory as it did not contain a sufficient level of detail to allow the project to be fully understood. Following advice from ██████████ Adviser for licensing (via e-mail 21/04/17) a request was made for a further, more detailed version. An updated, final project plan was submitted on 15/09/17.

The final project plan mainly focuses on the governance and decision-making elements of the project and the project plan states that "the project plan is supplementary to the information set out in the rest of the licence application". Technical information, e.g. description of the practicalities aspect of the trial, release protocols, can be found within Appendices to the main Project Plan. Information relevant to the project plan is also contained within other documents (e.g. the suggested HRA and email correspondence with the applicant); for example, detailed information regarding the methodologies for the transfer of eggs and/or chicks into captivity and their subsequent rearing is contained within the disease risk assessment and 'Document6 AJ clean copy April 26<sup>th</sup>'.

Despite improvements to the project plan, all the requirements as advised by the ██████████ Licensing Specialist have not been fully met. However, the material supplied with the initial application in combination with other documents and information provided and the final project plan was sufficient to assess the application against wildlife licensing policy.

#### **3.2 Disease Risk Assessment**

The submitted Disease Risk Assessment refers to the IUCN methods, but is not in the IUCN format which Natural England recommends for conservation translocations. However, the format of the document is not a consideration of the licensing tests. Additional information relevant to the disease risk assessment was present within the Project Plan.

Any Disease Risk Analysis (DRA) should identify the risks that should be addressed within the Disease Risk Management plan and the post-release health surveillance protocol. The submitted document does list the disease hazards associated with this project and does set out a risk assessment. It is possible to see the link between the identified hazards and the disease risk management actions in

the project plan. There is some reference to post-release monitoring of birds and post-mortem analysis of any fatalities, but not a comprehensive post-release health surveillance protocol.

#### **4. Assessment of the application against the licensing tests**

There is no specific policy or policy guidance for this type of application, therefore it was assessed under the Defra Wildlife Management Policy (Defra 2011) and the Policy Statement – Species licensing under Part 1 (excluding section 14) Wildlife and Countryside Act 1981 (Defra 2011).

##### **4.1 There is a genuine problem to resolve or need to satisfy for which a licensing purpose is applicable**

Hen harriers were widely distributed across upland and lowland Britain until after 1830 when breeding hen harriers became extremely rare in England. The population continued to decline thereafter with the loss of breeding hen harriers from the British mainland around 1900. The lowest population recorded was in the Orkney Islands, Scotland, between the 1920s and 1940s with 50 to 60 pairs present. Population declines have been attributed to illegal persecution, weather, habitat change and prey abundance (Thom, 1986, RSPB 2016).

A population recovery has been seen since the mid-1900s throughout Scotland, Ireland, Wales and northern England, attributed at least in part to a reduction of gamekeeper activity during the Second World War and an increase in the abundance of young forestry in upland regions (Thom, 1986); however, the range in England has not expanded beyond the northern uplands. Hen harriers utilise southern England in the winter months, but no breeding has been recorded.

More recently, the UK hen harrier population has declined since this population recovery. The majority of breeding hen harriers are still found within Scotland and very few breeding hen harriers remain in England (Hayhow et al. 2013). The latest population survey in 2016 shows that there were only 545 breeding pairs in the UK, a 14% decline since the previous survey in 2010. Only 4 pairs were recorded attempting to breed in England in 2016 (RSPB 2016). Hen harriers are Red Listed in Birds of Conservation Concern 4 (Eaton et al 2015), meaning the species is of the highest conservation priority and requires urgent action.

Many factors have been suggested as affecting productivity, including prey availability (Amar et al. 2005), but research suggests that illegal persecution is the main factor limiting the recovery of the English population, especially in heather moorland areas managed for red grouse (*Lagopus lagopus*) shooting (Anderson et al. 2009, Fielding et al. 2011). The Joint Nature Conservation Committee (JNCC) looked at the available habitat in England and concluded that England has the potential habitat to support at least 300 pairs of hen harrier (Fielding et al. 2011).

A priority action within the government's *Biodiversity 2020: A strategy for England's wildlife and ecosystem services* is to "Take targeted action for the recovery of priority species, whose conservation is not delivered through wider habitat based- and ecosystem measures". As a result of concerns for the conservation status of the hen harrier and its continued lack of recovery, one of these actions was the creation of a sub-group within the government's Upland Stakeholder Forum to address issues affecting the English hen harrier population. This sub-group drafted the *Joint action plan to increase the English hen harrier population* (Defra, 2016) that details six actions that the group agreed could contribute to the recovery of the English population.

Action six of the Action Plan is a trial Brood Management Scheme through which young hen harriers would be removed from grouse moors and re-released elsewhere in the uplands. As stated in the Action Plan: “Research has shown that high densities of breeding harriers can threaten the viability of grouse moors; the aim of a Brood Management Scheme would be to remove harrier broods from driven grouse moors once they had reached a density at which they would significantly impact on grouse numbers”(Defra, 2016). Although there is evidence for the success of brood management for raptors in some circumstances (e.g. Montagu’s harriers nesting in crops in Europe), there is no evidence available where hen harriers are subject to persecution following release. There is also no evidence available on the effects of hen harrier brood management on levels of persecution. Therefore, a trial to test the practicalities and the success of the scheme is proposed to inform the use of Brood Management as a potential conservation tool to be used on grouse moors. Evidence would be required in support of a conservation licence to demonstrate that Brood Management would succeed in improving the conservation status of hen harriers, and this evidence is currently unavailable.

**Conclusion:** The existence of the Joint Action Plan, and the inclusion of a Brood Management trial as a sub-action, emphasises that there is a genuine problem to resolve. There is a lack of existing information available on brood management as the techniques are untested and their effects are not yet known. There is, therefore, a need to satisfy to gather this evidence to increase our knowledge of brood management and inform a decision on the possible future use of brood management as a management tool to conserve hen harrier populations. It is therefore concluded that there is a genuine problem to resolve or need to satisfy.

#### **4.2 No satisfactory alternative to the proposed action**

Interventions on small populations of species carry a very high degree of risk and alternatives to the proposed actions require careful consideration with regard to other options possible or available. Whilst interventions to increase recruitment are generally advised against, recent work (although for different reasons compared with the situation impacting hen harrier in English uplands) with spoon billed sandpiper recovery, great bustard re-introduction and black tailed godwit have shown that ‘headstarting’ (a very similar technique to brood management) can increase annual productivity significantly.

##### **4.2.1 ‘Do nothing’ approach**

The need for a brood management trial in the English uplands is outlined as an action within the Joint Action Plan as a possible tool to improve the hen harrier conservation status. There have been no previous trials of brood management in England to inform the use of this technique as a conservation tool to address illegal persecution.

In recent years other methods, not involving direct intervention of this nature, have failed to improve the status of the species. This effectively shows that the ‘do nothing’ approach is not feasible as this has been tried and there have been no positive results.

Evidence cannot be obtained about the effectiveness of brood management of hen harriers where they are affected by illegal persecution without trialling the practicalities and assessing the ecological outcomes through a trial; therefore, there is no satisfactory alternative to undertaking a research trial to address the proposed questions.

#### **4.2.2 Undertaking the trial on other (e.g. Scottish) hen harrier populations**

An alternative option to the proposed practicalities of a trial would be to test brood management on Scottish hen harrier populations as the population is larger and more resilient to any possible failures during the trial. Furthermore, the intervention density to trigger the trial is more likely to be reached to allow the trial to be successfully undertaken.

However, the aims of the trial are to test if brood management influences the perception of the species, and thus levels of illegal persecution in the English uplands, and also whether this increases hen harrier numbers in the English uplands. Undertaking a trial in Scotland would not inform us about the effect on human attitudes and behaviour, nor the influences on the harrier population as the population density is already high. The aim of the trial is to assess this in the English uplands due to the threatened status of the population in this specific, and this was the population identified for the trial in the Joint Action Plan.

A trial undertaken in Scotland would only test the practicalities of captive rearing and release success, which does not address all of the actions necessary to inform the possible use of brood management as a conservation tool or the social science aspect of the trial. Therefore, undertaking the trial on Scottish populations is not considered to be a satisfactory alternative.

#### **4.2.3 Conducting a trial in England when the English population has recovered to higher numbers**

The current breeding population in England is very small and thus very vulnerable (see section 4.1). An alternative to the proposed timing of the trial would be to only conduct a brood management trial once the English hen harrier population has recovered to higher numbers than currently recorded. This may increase the resilience of the population and increase the likelihood of intervention being triggered. However this this would require some further intervention to address the causes of population decline, particularly illegal persecution, to attempt to increase hen harrier numbers.

Alternative techniques to attempt to address illegal persecution and increase hen harrier numbers are available, such as diversionary feeding. Diversionary feeding has been available as a technique in England under Class Licence, since 2011. The technique in itself is known to be successful in reducing predation on grouse, but there has been very low uptake of the diversionary feeding Class Licence with only single figures of registrations each year.

It is important to address the perceptions and behaviour of those that illegally persecute hen harriers, and attempts are being made to do this through points one to four of the Joint Action Plan; however, the success of less interventionist techniques are dependent on the perceptions of, and uptake by, grouse owners and managers.

Support has been exhibited by some grouse estate owners and managers for a brood management trial. Given the continued declines, there is an unknown likelihood of population recovery with a risk that the population may not recover without further intervention. Therefore, waiting to conduct the research trial is not considered to be a satisfactory alternative.

There is currently no evidence to indicate that hen harrier numbers will recover to a higher level without further intervention and a continued decline has been recorded by past population surveys;

therefore, it is not considered a satisfactory alternative to wait for a population recovery prior to trialling brood management.

#### **Conclusion with regard to satisfying the No Satisfactory Alternative test:**

It is considered that there is no satisfactory alternative to undertaking a scientific trial to investigate the effects of brood management on hen harrier numbers in the English uplands. The need for such a trial is outlined in the Hen Harrier Joint Action Plan, and research is required to investigate the suitability of a brood management scheme as a conservation tool. The trial must be carried out in the English uplands to be able to determine the effect on human perceptions and behaviour within the area it is intended to have a beneficial impact, and the impact on the English hen harrier population.

#### **4.3 The licensed action will contribute to resolving the problem or meeting the need**

The activities proposed in this licence application must be capable of achieving the objectives of the project and of making a sufficient contribution to creating the knowledge necessary to inform the development of a brood management scheme.

If the trial is to inform future application of the technique then the trial should also sufficiently contribute to providing the evidence/ knowledge required to underpin a future brood management scheme for the purpose of conserving hen harriers.

##### **4.3.1 Assessment of the aims and objectives of the proposed trial**

The trial has the following main aims/ sub-projects:

- 1) to investigate the effect of brood management on the perceptions and behaviour of the moorland community (the social science aspect)
- 2) to test the practicalities of brood management to investigate whether it can rear hen harriers in captivity and release them to become successful breeding adults in the English uplands (the practicality aspect).

The social study to fulfil the first aim (the social science aspect) will be undertaken by the University of Kent in association with Professor Steve Redpath of the University of Aberdeen. This will investigate the impact of brood management on the behaviour of the moorland community and study the perceptions of conservationists and those involved with grouse management towards the following: the presence of hen harriers in the uplands, stakeholder relationships and support for the DEFRA Action Plan management options, including brood management (Appendix 1 of the Project Plan). No licence is required for the activities in the social science element of the trial and, as such, this element of the trial does not require further technical assessment; however, the acquisition and analysis of information on the effects of the trial on social attitudes is key to making an assessment of whether a full brood management scheme could be effective. Therefore, confidence in this aspect of the trial is needed to conclude that the licensable actions will make a contribution to the need for a brood management trial. The project on *Hen harrier brood management* and stakeholder preferences is clearly described in Appendix 1 to the project plan. The primary investigators appear

to be suitably qualified and experienced and the research aims are underpinned by a coherent explanation of the underpinning social theory that will be used in the approach to the research.

The objectives that the 'practicalities' section of the trial will test are as follows: the ability to take eggs and/or chicks from the wild and rear them in captivity, whether brood-managed chicks can be successfully released back into the wild and the implications for productivity and survival of the brood-managed harriers once they are back in the wild. All brood-managed birds will be satellite tagged to monitor their dispersal, survival and productivity. A test of these practicalities will be achieved by undertaking a five-year field trial in the uplands of England.

The trial is more than a limited test of the practical techniques involved in brood management as the proposals include the monitoring of dispersal, survival and productivity. Chick and fledgling survival will be tested by comparing survival rates from the trial with those from literature and the Hen Harrier Project. Natural England will continue their monitoring of hen harriers through the Hen Harrier Project, including the satellite tagging of two chicks from non-intervention nests, and this may provide additional data to allow for comparison between brood-managed and non-brood managed individuals (e.g. survival, productivity etc.). However, this wider hen harrier monitoring is limited and a comprehensive monitoring and evaluation plan for the brood management trial has not been provided.

The research objectives set out in the application are of relevance to a full brood management scheme (under a conserving wild birds licence), but the trial is only a limited trial of brood management. The overall purpose of brood management is hen harrier conservation, but the trial currently does not include the monitoring of many of the ecological elements that would be required to test conservation success and be sufficient to inform the possible wider implementation of a full Brood Management Scheme as a conservation tool.

The following limitations of the trial have been identified:

#### **Limited scientific resources and limited detail provided in the supporting documents**

The Brood Management Trial would be the largest piece of ornithological research that Natural England would be engaged in, with a cost of £875k estimated by the DEFRA Joint Action Plan. However, there is no technical/scientific advisory group including specialist ornithologists, to oversee and steer the trial. The final documents provide limited details about monitoring methodologies and how the data would be analysed and evaluated, and by whom. As a result of these limitations, there is no certainty that ecological knowledge of the effects of brood management on the England hen harrier population through the trial will be derived from this project as proposed.

The NESAC paper states "the aim of brood management is to reduce existing levels of persecution and monitoring should be sufficient to determine whether this is the case." All brood managed chicks will be satellite tagged, but there is little information provided regarding how the satellite data would be collected, analysed and evaluated. For example, the NESAC paper states that an important success factor in the trial would be the extent to which the numbers of young birds overflying grouse moors post-release is reduced; the dispersal of brood managed individuals will be

monitored as part of the trial via satellite tags, but no information on the analysis of this data has been provided.

██████████ Licensing Specialist, advised that the project would benefit from a scientific steering group to provide more certainty about the scientific outcomes of the project (email dated 21/07/17). ██████████ made this further information request to the Project Manager and the Chair of the Steering Group, but the final project plan does not show that there is scientific oversight of the project; the project plan merely states that the Project Manager holds responsibility for the analysis of the satellite tag data, and that this will be undertaken “by Natural England either in house or in partnership with academic bodies”.

A scientific advisory group to oversee the research and a plan of the research aims, methods, monitoring and evaluation of the project would be required to provide confidence that the objectives of the trial will be met. Natural England would need the applicant to submit the details of any scientific advisory group, eg. membership, qualifications, terms of reference. A plan of the research aims, methods, monitoring and evaluation of the project would also need to be approved by Natural England before the proposed trial could commence.

#### **4.3.2 Advice on limitations of the proposed Brood Management trial from ██████████ Senior Ornithologist**

##### **Limited wider monitoring of breeding hen harriers**

The evidence provided by the trial would be limited without adequate monitoring of the attempts of settling by breeding pairs. There is only one paid fieldworker to monitor hen harriers across the North of England with only 0.25 full time equivalent (FTE) stated as being available for work on this trial. This will limit the ability to resource the proposed elements of the trial, such as tracking juveniles from intervention nests. With only one 0.25 FTE being responsible for monitoring the trial area, this will also result in very limited monitoring of settling attempts as the trial area is the northern uplands of England (hundreds of thousands of hectares). Previous experience has shown that more nesting attempts were located when more monitoring staff were employed, and attempts to dissuade hen harriers from settling were recorded. If hen harrier numbers failed to increase during the trial, the lack of these data would make it difficult to determine whether the lack of success was due to the failure of the breeding population to settle and breed, or due to insufficient arrival of breeding birds in the spring.

There is no systematic monitoring of nesting attempts proposed as part of the trial, so there is no control group to allow comparison with brood managed nests. Monitoring of nesting attempts will be limited as only 0.25 FTE will be responsible for the monitoring, which will be insufficient if hen harrier numbers increase (which is the aim of the trial). This may limit the ability to determine whether non-intervention nests are still active and there will be limited “business as usual” monitoring of birds from non-intervention nests with two fledglings tagged from each nest. This means that there will be limited data available to determine whether there is a difference between the productivity, persecution and survival of managed and unmanaged broods. It will not be possible to determine if brood management affects non-intervention harriers without sufficient monitoring.

The tracking of juveniles from non-intervention nests will only be undertaken if the individuals are

tagged as part of the ongoing “business-as-usual” Natural England work. This will not be specifically undertaken as part of the trial. This work is dependent on continued funding to maintain this work, and the funding is not assured which adds uncertainty around the continued availability of data; the resources needed for this work would also increase if the trial aims are met and the number of harriers increases.

A condition should be added to ensure all brood managed individuals are satellite tagged to provide certainty that this will occur; this would also reduce the risk that birds cannot be tagged because sufficient tags are not available or they have not been delivered by the manufacturer.

### **No monitoring of intervention nests prior to clutch removal and tracking of adults from intervention nests**

Monitoring of intervention nests prior to clutch removal will not be undertaken given the limited resources available for the trial. If a nest is identified for brood management and subsequently nest failure occurs, it will not be possible to determine the potential causes of nest failure (e.g. natural or anthropogenic causes).

There will be no tracking of adult birds associated with intervention nests, unless these are already tagged due to previous “business-as-usual” monitoring. This monitoring would be important to allow the analysis of the impact of brood management on adult birds. Tagging would be required to understand the response of adults to brood management. The response would need to be investigated by assessing the post-intervention dispersal of adult birds, including whether these individuals return to breed in the years following intervention, and the survival of such birds. The trial does not propose to analyse any information gained from previously tagged individuals to determine this effect. This information would be required to determine the conservation success of the trial, and inform the possible use of brood management as a conservation tool.

### **No ability to differentiate between estates participating in the trial and those not participating**

The project plan at Map 1 shows the trial area as the northern uplands of England above the moorland line. Map 1, titled “Brood Management Trial Area”, does not accurately show the areas where the licence is likely to be used. From the accompanying documents it can be gathered that the map does not only show areas where landowner permission has been granted (stated on the application form to have been received), and thus where the trial could take place. The text does not highlight that the mapped boundary also shows land where it is very likely that landowner permission will not be granted, including an RSPB reserve. The map and accompanying documents also do not explicitly state that the area includes unsuitable breeding habitat, including large areas of non-grouse moor, where no intervention could occur.

It is much more difficult to evaluate the success of the trial without knowledge of which land is suitable and where consent for the trial has been granted (i.e. where the owner is supportive of the brood management trial). Attribution of breeding success/ failure or survival/mortality to brood management or background levels would be limited without this information. Should any hen harriers be killed through illegal persecution during the trial, it will not be possible to know whether the bird was killed within or outside of areas managed by landowners supportive of brood



management. This will constrain the ability to conclude that brood management will be effective at reducing illegal persecution.

A lack of knowledge of participating estates could also influence the way in which the exit strategy is implemented as this states that the trial will be stopped if levels of persecution are not reduced within the trial area. If persecution occurred, the knowledge of participating land would be required to be able to attribute this to the success or failure of brood management, and thus decide whether to stop the trial. For example, with the current map if dispersing juveniles or parent birds were repeatedly discovered shot on land shown as the “trial area” then the trial might be halted. In these circumstances, the trial could be shown to be successful and be used as evidence for a trial extension if a more accurate map showed that the land where mortality occurred had not chosen to participate in the trial in advance.

NE [REDACTED] Specialist for licensing advised that provision of a full list of participating estate names in advance of the licence being used would be highly desirable, but that a licence could be issued without this condition. It is recommended that the location of participating estates be included in a monitoring and evaluation plan to allow for fuller evaluation of the outcomes of the trial and more robust knowledge to be gained from the trial. A condition should be applied that Natural England are notified of the locations of the intervention nest and release site, with details of landowners and their consent, before any brood management takes place. Once any brood management takes place, the names of relevant landowners will be required to allow for checking of compliance with licence conditions.

#### **Conclusion with regard to satisfying the “licensed action will contribute to resolving the problem or meeting the need” test**

Although the trial has limitations, the proposals would contribute towards the knowledge of brood management and deliver evidence related to the practicalities and social science aims of the projects. Suitable conditions may be applied to resolve outstanding issues or concerns.

However, there is significant residual concern that the proposals would not make a *sufficient* contribution to the knowledge required to underpin a future full brood management scheme for the purpose of conserving wild birds (hen harriers). For this test to be passed, the following would be required:

- The details of scientific advisory group to oversee the research undertaken as part of the project to be submitted to Natural England for approval in advance of the trial.
- A detailed plan of the research aims, methods, monitoring and evaluation to be submitted to Natural England for approval in advance of the trial.

#### **4.4 The action to be licensed is proportionate to the scale of the problem or the need**

The English hen harrier population has declined considerably with only 4 breeding pairs recorded in England in 2016 (see section 4.1). The English population is considered to be of highest conservation priority and requires urgent action to prevent local extinction. Other measures have been implemented (see the Hen Harrier Joint Action Plan), but the population has continued to decline.

The trial is time-limited and will only include the taking of a limited number of hen harrier eggs and chicks, followed by re-release at the same site later in the same year, to analyse whether brood management is successful in the English uplands. Therefore, a brood management trial is considered to be proportionate to the need to gain knowledge to possibly employ the technique as a conservation tool for English hen harriers. The existence of the Hen Harrier Joint Action Plan is considered to demonstrate sufficient rationale that conducting a brood management trial is proportionate to the problem.

#### **4.4.1 Brood Management intervention threshold**

The main published evidence base for the development of a brood management scheme is *Elston et al.* (2014). This analysis, based on modelled effect of breeding hen harrier densities on productivity of grouse on managed moors, found that nesting hen harriers are likely to have a variable impact on the viability of a grouse shoot depending on their nesting density. Using the *Elston et al.* (2014) findings, the modelled reduction of autumn grouse densities at a harrier nesting density of 0.0125 nests/ km<sup>2</sup> is approximately 3-5%; the reduction at a density of 0.025 nests/ km<sup>2</sup> is approximately 9%.

Nearest nest distance has been used as a proxy for density in the project plan supporting the application. The plan proposes that brood management would be triggered at a nearest nest distance of 10km between nests (approximately equivalent to a hen harrier density of 0.0125 nests/ km<sup>2</sup>), which is the lowest figure used for impact modelling in the *Elston et al* paper.

Action 6 of the Joint Hen Harrier Action Plan states the aim of a brood management scheme would be “to remove harrier broods from driven grouse moors once breeding numbers had reached a density at which they would impact significantly on grouse numbers”. When considering other licence applications where an assessment of damage is needed for licensing purposes, the legislation provides for action to be taken when serious damage is occurring, not damage. There are no set levels of damage and each situation is relative, however normally damage (impacts) reaching 10% or more are taken to be serious damage, those normally below 5% are not considered serious and are not licensable. This proposed trial would test a brood management scheme at a density with an impact of 3-5% reduction of grouse, an impact that is unlikely to be considered significant. The Assessment group, in a further information request, raised this with the applicant and Project Board who reasserted that they wished to use the lower intervention density. The rationale within the application supporting this proposed density threshold is that uncertainties in the research make it advisable to assume that economic impacts on the grouse shoot may occur below a nest density of 0.025 nests/km<sup>2</sup>, so a lower figure should be used. The use of this lower nesting density threshold also relies on the recommendation in Elston et al that “it may be advisable to initially take a precautionary approach, as grouse managers are more likely to favour building up from low densities of harriers.”

The use of the lower intervention density threshold has the advantage that the trial of brood management is more likely to commence within the licence period, but the disadvantage that the trial is taking place at a density that is less consistent with the stated aims of a full brood management scheme and the thresholds used in damage-related licensing.

As this application is for a science licence, not a licence to avoid damage, the damage threshold does not strictly to apply in the determination of this licence. Provided the project does generate knowledge useful to the further development of a brood management scheme, the activity would be proportionate to the need. As for the conclusion at 4.3 above, the submission of an appropriate monitoring and evaluation plan will ensure that the proportionality test is passed.

It is recommended the Project Board is advised that using an intervention density of 0.0125 nests/km<sup>2</sup> in the brood management trial could not be taken, in itself, as support for the use of this threshold in any future brood management scheme licensed for the purpose of conserving hen harriers in England.

**Conclusion with regard to satisfying the “The action to be licensed is proportionate to the scale of the problem or the need” test:**

The English hen harrier conservation status and existence of the Hen Harrier Joint Action Plan are considered to provide the context in which conducting a brood management trial is proportionate to the need. The scientific purpose of the trial, with the condition recommended at 4.3, and the time-limited nature of the trial make the proposed activities proportionate to the need.

**5. Assessment of the application against other licensing considerations:**

**The implicit licensing test: Implications for the conservation of the species (No adverse effect on the conservation status of any species or habitat)**

**5.1 Disease Risk**

**5.1.1 Disease Risk Assessment peer-review advice**

A Disease Risk Analysis (DRA)/ Disease Risk Management Plan (DRMP) (titled Disease Risk Assessment) was produced by the applicant in combination with [REDACTED] a qualified veterinarian and a European Union Recognised Specialist in Avian Medicine, and then quality assessed by staff from the International Zoo Veterinary Group prior to submission of the application.

The Zoological Society of London reviewed a draft of the Disease Risk Assessment at the request of the Brood Management Project Group and provided advice to the Project Group in Feb 2017, copied to NE Senior Ornithologist. This advice was provided on a previous version of the Disease Risk Assessment prior to the version submitted to Natural England with the licence application. The advice provided by ZSL was as follows:

- The draft DRA did not set out an evidence-based [Disease Risk Analysis] according to an acceptable format, the IUCN method being referred to but not used. Hazards were not considered in detail and no disease risk assessment was carried out
- The actions set out in the disease risk management plan were not linked to the preceding DRA. It is usual practice to set out disease risk management plans according to the evidence in the DRA
- The greatest risk from a translocation is the release of an alien (non-native) parasite into an immunologically naïve population and birds in contact with exotic species in captive collections, as brood managed hen harriers might be, can contract non-native parasites

- There were no detailed protocols for post-release health surveillance (PRHS) in the draft DRA.

### 5.1.2 DRA assessment

Although Natural England did not receive a copy of the initial disease risk assessment that ZSL commented on, these comments are still relevant to the DRA supplied to Natural England with the application.

The greatest risk identified by ZSL has been properly assessed and addressed in the project application. The project plan explicitly states that the hatched harriers will be barrier nursed throughout the time from hatching to removal from [REDACTED] and the rearing aviaries at the [REDACTED] will be unused prior to first use for brood managed chicks and subsequently cleaned and disinfected.

ZSL advice to Project Group identified the main disease risk arising from brood managed harriers being translocated to a facility which houses exotic bird species. If pre-existing facilities are to be used this poses a risk to both the brood managed individual, and free-living populations if an infected individual is subsequently released. The aviaries to be used [REDACTED] and on moorland (release pens) will be new, exclusively used for the brood-managed hen harriers and will be disinfected before subsequent use. The aviaries [REDACTED] will also be stand-alone and situated away from other bird collections. However, all rearing stages prior to the harriers being put into aviaries will still be undertaken in a pre-existing building/rooms (stated as being “about three years old”) using pre-existing equipment (i.e. incubators, brooders) that has been used for other species and subsequently disinfected. The facilities will be disinfected prior to use and will be exclusively used by the brood managed harriers, and harriers will be barrier nursed from hatching.

The Disease Risk Assessment acknowledges that placing harriers [REDACTED] may increase the disease risk, but states that highly skilled staff are available to manage the part-incubated eggs. It also states that such staffing is available [REDACTED] an [REDACTED]  
[REDACTED]  
[REDACTED] Health checks and an exit strategy would be in place as mitigation for the disease risk; this includes the completion of a further risk assessment.

[REDACTED] NE Senior Ornithologist, raised concerns that [REDACTED] facilities may be used as a quarantine facility for the separate hen harrier lowland reintroduction project. This would involve the quarantine of hen harriers taken from France at the facility within the same timeframe that brood-managed harriers may be present. NE Senior Ornithologist advised that there would be concerns about the ability of a single rearing facility to meet expected standards should they be involved simultaneously with both a Brood Management Scheme and a lowland reintroduction. It is essential that the disease risks are managed according to the application protocols (i.e. that facilities are exclusively used by brood-managed harriers).

The disease risk management strategy does leave some residual risk; for example, the risk and management arising from Avian Influenza outbreaks in the trial area and the associated protection and surveillance zones that would arise from such an outbreak are not discussed.

Some post-release health surveillance (PRHS) requirements, such as information on release, satellite tagging and post-mortems, are addressed in the project plan and other documents provided. Detailed protocols for PRHS are not included, but the intention for post-release monitoring and testing for endoparasites is stated in the DRA.

██████████ NE Senior Ornithologist, advised that:

1. If the threshold to exclude adverse effect as part of the Habitat Regulations Assessment in relation to disease risks was to maintain productivity at or above natural fledging rates within the SPAs concerned, he did not think DRA related elements of the work posed a significant risk in this context.
2. ██████████ are experts at rearing birds of prey, the chicks of which are pretty resilient compared to other taxa, such that ██████████ should be capable of releasing captive-reared well-fed juvenile hen harriers at or above fledging rates from nests not exposed to Brood Management techniques.

██████████ NE ██████████ Licensing Adviser, recommended that to manage any residual disease risks an inspection of the facilities ██████████ and in the field should be undertaken if a licence is issued. This compliance visit would need to be undertaken in the first season when brood managed eggs are taken to check that the application protocols are being followed to a high standard.

We recommend that details of the PRHS protocols should be seen and approved by Natural England prior to the commencement of a trial. This could be addressed through a condition of the licence that would not allow any licensable actions prior to this being approved. This would be in line with the expectations of other conservation translocations projects and the work of the Disease Risk Analysis and Health Surveillance for Interventions (DRAHS) project.

## **Conclusion**

The project plan and DRA adequately assess the significant disease risks associated with this project. Provided residual risks are addressed through licence conditions, disease risks are unlikely to compromise the favourable conservation status of the species.

To manage any residual risk Natural England will:

- Require further details on post-release health surveillance to be provided as part of the monitoring and evaluation plan for the project
- Arrange compliance visits ██████████ and release sites to provide confidence that the expected hygiene and barrier nursing standards are being met.

## **5.2 Release site suitability**

The release pens within the English uplands will be situated in suitable habitat near to where the eggs and/or chicks were taken and where landowner consent has been gained (as per appendix 5 of the project plan). The IUCN guidelines states that release sites should be located to allow the birds to exploit the surrounding habitat quickly and in an area that meets the species requirements. The proposals meet these requirements in line with the IUCN guidelines and would not pose an adverse risk to the conservation status.

Advice received from Stephen Murphy, Lead Adviser responsible for monitoring on the Hen Harrier Recovery Project, on 14/08/17 stated that “apart from access and security it would be better (in my opinion) for the birds to be released near bracken/rush and not in sight of strip burnt heather grass mosaics. I think this would make them lean towards this type of habitat/vegetation cover when they reach sexual maturity and are about to breed.” The release site proposals satisfy the habitat requirements of the species, but consideration should be given to this expert opinion as this may benefit the species recovery in the long-term. Failure to alter the release site locations would not adversely affect the conservation status, and thus fail the implicit test; however, this recommendation should be discussed with the applicant/project team and should be included as a recommendation on the licence to encourage this.

### **5.3 The risk of vandalism, illegal persecution and predation of birds in release pens**

The release pens in the English uplands will be more visible and contain more birds than a typical hen harrier nest. Therefore, there is a risk that the pens and/or birds may be targeted by those opposed to the trial, vandals or those who may wish to illegally persecute the birds. The birds within the release pens will be protected under Animal Welfare Act 2006 as they will be “under the control of man”, even though they are technically wild birds.

The risk of “vandalism of release aviaries” is included in the Risk Register within the project plan (risk number 3). The risk register assesses the risk of this activity as high without mitigation with a residual medium risk if it is sufficiently mitigated. The mitigation proposed is as follows:

“Put security measures in place. These could include the following:

- Keep the location confidential, but notify the police
- Ensure the location is not in an area visited by the public and where possible vehicle access is through private land.
- Ensure the estate’s staffs are alert to the risk
- Identify back up release sites
- Use of trail cameras at and on routes to the site”.

Stephen Murphy, a NE experienced field worker for hen harriers was consulted for his opinion on release site security on 11/08/17 and advised the following on 14/08/17:

- “I agree that local WCO’s should be made aware of the location/access points etc
- I suggest trailcameras and small information panels stating words to the effect “CCTV cameras are fitted in this area to monitor Schedule 1 Breeding birds”
- Some trailcameras (c£300) can instantly send a text message with attachment video/stills if an area is visited by a human/large mammal.
- I do not think there are many untrodden places left, especially since the advent of open access. Therefore, finding a remote privately owned site with no public vehicular access might be difficult; if there are landrover tracks, which I assume there will have to be, they often act as thoroughfares for walkers wherever you go in England.

- I think a bigger concern is that foxes and badgers will be attracted to the release sites, so good to make provisions for keeping them out”

The project plan appendices confirm that a fox/badger proof fence will be installed surrounding the release pens. The Brood Management Release Protocol (Appendix 3 to project plan) states that stoats or mink would also pose a danger to the juvenile harriers in the pens, but this risk is not explicitly addressed in the documents provided.

Deliberate acts of wildlife crime are not specifically addressed within the risk register, although under vandalism it does state that release pens may be targeted by “those opposed to the trial”. The risk of targeted wildlife crime in addition to vandalism would increase the overall risk posed at release pens.

Due to the release pen locations, the likelihood of opportunistic vandalism is considered less of a risk than targeted wildlife crime. Members of the public are less likely to become aware of pen locations through any land management community networks, but there are risks of finding pens in areas of open access. It is considered that such vandalism is more likely to be to the release pens prior to hen harrier occupation as the public are often strong advocates of animal welfare. Regular inspections of pens would be required to allow for repairs and adaptations to security measures where necessary.

There is a risk of interference with release pens by those who are unsupportive of brood management. This risk is partly mitigated through keeping the release site location confidential and in areas of limited public access. There is a risk that the location could be disseminated through land management community networks. Hen harrier nests have also previously been destroyed on estates where landowners have welcomed nests and there is also no assurance that the neighbouring estates are willing to cooperate.

Overall, it is considered that there is a high risk to hen harriers in the release pens. There have been no previous trials to inform the suitability of security measures and the species are known to be illegally persecuted. The species is of high conservation concern, illustrated by the inclusion on the red list in Birds of Conservation Concern 4 (Eaton et al 2015). Further, the security measures proposed are options that would be considered by the Head of Bird Management, but there is no detail provided on specific security measures to be installed at the release pens (Appendix 3 of the project plan). Therefore, it is concluded that the proposed mitigation does not sufficiently address the security risks, and this could adversely affect the conservation status.

██████████ NE Senior Ornithologist, outlined his concerns in the document “Further ornithological advice requested following hen harrier BMS trial licensing call on 30<sup>th</sup> August 2017: The proposed lack of protection at release pens”. Given the ecological risk and risk to Natural England should anything go wrong, ██████████ suggested the presence of full-time security at the release pen “at the very least for the trial’s first few years when levels of uncertainty are greater”. This protection would be required for approximately three weeks and would require suitable associated accommodation to be constructed. It is not considered that this would be unreasonable or impracticable as care staff would be present daily to feed birds and the estimated DEFRA budget (£875K) would be sufficient to cover the protection. Although such security is not always associated with other releases, Richard highlights that no other species releases have “been so high profile,

involving a species so at risk, located on areas with public access and highly visible amongst open terrain”.

It is considered that full-time security would be required to sufficiently address the risk, at least for the first few nests to allow information to be gained on the sufficiency of security measures (16/10/17). Therefore, we are satisfied that this can be mitigated adequately with the addition of a condition to ensure that full-time release pen security is implemented and that any outstanding risks from stoats and mink are also addressed.

#### **5.4 Release site team responsible for caring for birds have not been identified**

The release site team (i.e. that will care for the harriers within aviaries on moorland) are stated to be “local people” and not pre-existing, trained staff. [REDACTED] so it would not be feasible for them to undertake this release site care. The suitable persons will be identified dependent on release site location and local staffing availability, so the assessment of staff availability will be included in the release site assessment. [REDACTED] will train the staff which provides confidence in the ability and knowledge of individuals to be able to care for individuals in release pens, including being able to identify health and behavioural problems. However, there is a risk to the harriers associated with not using pre-existing, trained staff to undertake release site care. Natural England would need to know further details of site care and handling team prior to the removal of eggs and/or chicks to ensure that this risk is sufficiently addressed, and for this test to be satisfied. Accountability will remain with the [REDACTED] until the day after the release of fledglings.

#### **5.5 Transport between the northern uplands and captive facilities at the [REDACTED]**

Detailed procedures for the movement of eggs and/or chicks between the uplands and [REDACTED] [REDACTED] have not been described by the applicant in the provided documentation (e.g. travel time, procedures). The facility is some distance from all potential trial sites. The Head of Bird Management [REDACTED] has the “responsibility for ensuring all aspects of bird husbandry, from the point eggs are removed from the nest to release back into fledging area, are in place and undertaken to the necessary standards”. Appendix 5 states that chicks will be brought to the release site [REDACTED] or an experienced animal carrier with [REDACTED]

The Welfare of Animals (Transport) (England) Order 2006 is not applicable to the transport of animals in this instance as the trial is not an economic activity. However, best practice guidelines must be followed, including ensuring the animals are fit to travel, to minimise the risk to animals through transport. Given the experience of the [REDACTED] in such transport, including that of exotic species from abroad, it is concluded that the risks posed by transport to be low. Health checks are in place prior to transport, and an exit strategy is in place to stop the trial if higher mortality in transport is experienced than that normally expected for captive reared birds.

#### **5.6 Exit strategy/ adaptive management**

There is an expectation that there will not be 100% survival of brood managed individuals, as this is not experienced in wild reared broods, and a low level of mortality would not have an adverse effect on the conservation status of hen harrier. Mitigation has been put in place to address identified risks. However, there could be a risk of an adverse effect on the conservation status of hen harriers if the following issues are not suitably addressed when they become apparent: high mortality at any



stage of the trial, imprinting of birds or poorly adapted juveniles that fail to recognise conspecifics or fail to breed successfully.

NESAC (2015) recommended that an exit strategy should be in place in case the trial was unsuccessful and failed to meet its aims; the provision of an exit strategy is also in line with the IUCN Guidelines on Translocations and Reintroductions. An exit strategy has been provided within the final project plan which describes under which circumstances the trial will be stopped. This adaptive management of the trial provides certainty that the trial would be stopped at any stage (incubation, rearing, transport, release pens and post-release) if it was not meeting its aim or was putting the conservation status of hen harrier at risk. This decision would be the responsibility of the Project Board and would be informed by expert opinion, and use data from the Natural England Hen Harrier study and literature for comparison. It is concluded that the exit strategy addresses the main risks and would address potential issues prior to it affecting the hen harrier conservation status.

### **5.7 'In combination' effects with other hen harrier licences**

To satisfy this test, Natural England must be confident that the proposed licensed action in combination with other licensed action will not result in the deterioration of the conservation status of the hen harrier. Within the trial area Class Licence CL25 can be used as a tool to reduce the predation of red grouse by providing substitute foods ("diversionary feeding"). There are also two licences within the trial area that allow supplementary feeding of chicks at the nest if the nests are abandoned by male harriers to reduce the chance of nest failure. There are also likely to be licences that permit disturbance within the trial area for various purposes, such as photography and monitoring. Given the nature of the other licences, it is not considered that these would collectively lead to an adverse effect on the conservation status of hen harriers.

#### **The implicit licensing test conclusion:**

The addition of conditions to any licence issued can be applied to address the concerns expressed above:

- There must be full-time security at release pens, and no eggs/chicks should be taken until this is in place.
- No eggs/chicks may be taken until details of the release site care and handling team are provided and approved by Natural England.
- Details of PRHS protocols should be submitted and approved by NE in advance of eggs/chicks being taken.

Based upon expert advice, a further recommendation is that a note is added to the licence for birds to be released near bracken/rush and not in sight of burnt heather grass mosaics to try to encourage the future use of these vegetation types for breeding.

### **6. Possible impact on features of designated sites**

Under the provisions of the Wildlife and Countryside Act 1981 (as amended), Natural England must not consent operations that may damage the special interest of the site under Section 28E. Consent could be required for the removal of hen harrier eggs and/or chicks and the construction/removal of release aviaries from SSSIs. A consent may only be issued to the landowner of the SSSI land where

the licensable activities are to be undertaken; the licence would not form a consent to permit activities on the SSSI as the licence holder will not be the SSSI owner-occupier. Owner-occupiers would have to independently submit a notice and have NE's consent to permit the licensable activities on their land. The location of the Brood Management Trial is dependent on the distribution and density of nesting hen harriers, so, although the SSSIs are specifically named, it is impossible at present to determine which landowners will require consent.

The trial area includes land within 16 European protected sites, and their component Sites of Special Scientific Interest (SSSIs), including Bowland Fells Special Protection Area (SPA), North Pennine Moors SPA, North Pennine Moors Special Area of Conservation (SAC) and Moorhouse-Upper Teesdale SAC. Hen harriers feature in two breeding bird assemblages: upland moorland and grassland with waterbodies, and upland moorland and grassland without waterbodies. At least some of the SSSIs potentially affected by this proposal, including Moorhouse and Cross Fell SSSI, Appleby Fells SSSI and Geltsdale & Glunedale Fells SSSI, have breeding bird assemblages in one of these two categories. Other sites potentially affected by this proposal include National Nature Reserves (NNR), for example Moor House- Upper Teesdale NNR.

Given that the proposals will only allow for breeding pairs to be subjected to brood management on every other breeding attempt, that juveniles will be released close to the area from where they were taken and that the trial will be time limited, it is not considered that the proposed trial would result in the breeding bird assemblages of these SSSIs falling below their favourable condition score. Accordingly, SSSI consent for the taking of hen harrier under this licence could be given on receipt of a suitable notice.

Natural England typically respond with final decisions on SSSI consent within 28 days, but this can take up to 4 months in exceptional circumstances. Given the timescales involved in the proposed brood management trial, this turnaround time may impede the trial. The project group consulted [REDACTED] (Senior Adviser, Natural England) [REDACTED] (Senior Specialist, Natural England) and it was concluded that Natural England could supply a 'Notice and Consent' pro-forma if a licence is granted; this could be issued to the licensee alongside the licence to be supplied to the relevant owner-occupiers to apply for consent to allow the taking eggs and/or chicks ('taking of wild animals') and construction/removal of release pens ('the erection of temporary structures') on SSSI land. NE would draft a notice/consent for the owner-occupiers once the release pen locations are known. The licence HRA would inform the SSSI consent. This is the option recommended by [REDACTED] (email 28/09/17).

An alternative option advised by [REDACTED] is to "treat the licence as a section 28I permission which effectively doubles up as SSSI consent in relation to specifically named SSSIs". No additional notice and consent would be drafted for owner-occupiers, and only one HRA is undertaken to inform the licensing decision. Release pen construction is not a licensable activity, and would require separate SSSI consent for the relevant owner-occupiers. The licence HRA conclusions could be relied upon as the release pens have been included within the licence application, but technically a second HRA would also be required of the notifiable operations. [REDACTED] advised that this option was more risk-based as failure to submit a SSSI notice would constitute a technical breach of 28E by the owner-occupiers, and the release pens are not licensable and their locations are currently unknown.

The Technical Assessment Group agreed that it would be most appropriate to supply the notice and consent pro-forma with the licence, and to condition that SSSI notices and evidence of landowner consent are supplied to Natural England using the pro-forma prior to action being undertaken.

## **7. Outcome of the Habitats Regulations Assessment (HRA)**

A HRA was completed by [REDACTED] (Ornithologist, [REDACTED] Area Team) to inform the determination of the licence application. It was considered that the project is not wholly directly connected with or necessary for the management of the site and is likely to have a significant effect on the site, so an Appropriate Assessment was undertaken.

As stated in Part E of the HRA 'The licence application as received did not contain enough detail to conclude no impact on integrity of the designated sites involved. However, it is recognised that through improved knowledge and identification of successful approach the proposals could, if successful, contribute towards recovery of hen harrier population on North Pennine Moors SPA and Bowland Fells SPAs. With appropriate conditions in place, to reflect Conservation Objectives for the sites, it is concluded that the trial can be compatible with the conservation interests of the designated sites.

For non-hen harrier features that may be impacted by the proposals. The licence application as received did not contain enough detail to conclude no impact on integrity of the designated sites involved. However, if appropriately managed, trial requirements are not incompatible with SPA and SAC conservation objectives.'

The appropriate conditions referred to are as follows (full reasoning is contained within the HRA):

1. 'A scientific oversight committee is established to ensure that maximum conservation learning on species response ecology is secured as part of this trial and that its conclusions are reported annually (to inform HRA at two year licence review).
2. Restrictions are in place to ensure that pairs are not subject to brood management on successive nesting attempts (to manage risk of site abandonment by adults)
3. Arrangements are in place to ensure security of release site and areas to which harriers are likely to initially disperse (to ensure no elevated risk of illegal persecution)
4. Individuals fitting satellite tags to be appropriately licenced by the BTO (to ensure welfare and fitness of BMS chicks)
5. Natural England is consulted before Release Pen construction takes place (to allow a site-specific Habitats Regulations Assessment to take place.)'

Residual risks to hen harrier populations have been identified due to the uncertainty of the effect of brood management on juvenile harriers and their future ability to successfully breed at their release locations. This could be concluded as having no likely significant effect if the brood management trial was limited to the 5 year project as proposed in the application. However, given the limitations outlined in this assessment, it seems likely that further trials or an extension to this trial would be required to deliver the ecological knowledge required to underpin its use as a conservation tool. To conclude no adverse effect on site integrity, scientific oversight would have to be conditioned to provide certainty that by the end of the trial the approach can be part of a package to enhance populations from current levels to classification levels.

It has been confirmed that the same nests will not be managed the year after an intervention, even if density to trigger brood management is surpassed, to avoid a pair having repeated nest failures.

Appendix 6 of the project plan states that “if harriers are removed from an SPA notified for hen harriers, they will be returned to the same SPA or the immediate vicinity defined by available dispersal data”. The HRA has been based on this proposal and it is recommended that conditions should be added to the licence to ensure SPA birds are returned to the same designated site and that the same nest will not be brood managed on consecutive nesting attempts.

## **8. Final Recommendations**

### **Issue a ‘conditioned’ licence**

The conditions would need to overcome the outstanding issues to allow the licensing tests to be satisfied. The conditions would also need to reflect the Conservation Objectives for the designated sites to allow it to be concluded by the HRA that the trial can be compatible with the conservation interests of the designated sites.

The following licence conditions would be required to overcome the outstanding issues from both a licensing and designated sites perspective and/or to provide certainty with regards to the methodology (especially given that not all of the information is required within the project plan):

1. This licence permits the licensee and authorised individuals to take only hen harrier eggs and unfledged juveniles by hand.
2. No eggs or juvenile hen harriers may be taken into captivity under this licence until Natural England has approved in writing:
  - a. The membership and terms of reference of a scientific advisory group to oversee the research undertaken as part of this project, and
  - b. A plan of the research aims, methods, monitoring and evaluation of the project, and
  - c. Details of the Post-Release Health Surveillance protocols‘a’ and ‘b’ may be amended only with the written approval of Natural England.

Annual reports of the scientific advisory group’s conclusions must be submitted to Natural England.

3. The information required for the giving of approvals (and amendments) in condition 2 must be submitted to Natural England no less than six weeks before the first use of the licence in any calendar year. Consideration of any amendments within a calendar year are at the discretion of Natural England. It is recommended that this information is provided at the earliest opportunity.
4. No eggs or juvenile hen harriers may be taken into captivity under this licence unless the trial intervention threshold of two nests within 10km is surpassed.
5. Full-time/ 24 hour security of release pens must be undertaken when hen harriers are within the pen, and no eggs or juvenile hen harriers may be taken into captivity under this licence until this has been organised.
6. No eggs or juvenile hen harriers may be taken into captivity under this licence until the release site care and handling team have been identified to and approved by Natural England.
7. No eggs or juvenile hen harriers may be taken into captivity under this licence until measures for reducing the risk of predation within the release pens from stoats and mink have been submitted to and approved by Natural England.

8. No eggs or juvenile hen harriers may be taken into captivity under this licence until Natural England are notified of the locations of the intervention nest and release site, with details of landowners and their consent.
9. No eggs or juvenile hen harriers may be taken into captivity under this licence until sufficient satellite tags are in the possession of the [REDACTED] to allow every individual taken to be tagged.
10. No eggs or juvenile hen harriers may be taken into captivity under this licence may be taken until landowner consent to brood management and a notice for Site of Special Scientific Interest (SSSI) consent has been sent to and approved by Natural England (using the pro-forma supplied).
11. No other birds, except from hen harriers from the Northern English Uplands Brood Management Trial, may be simultaneously held in the same facilities as brood managed hen harriers.
12. Hen harriers taken from a Special Protection Area (SPA) must be released back within the boundaries of the same SPA.
13. No hen harrier pair can be subject to brood management on successive nesting attempts, whether in the same year, or from year to year.

It is recommended that the following additional note (not legally binding) is included on any licence issued, based on advice from Stephen Murphy, to attempt to influence breeding habitat preference:

AN01. Brood managed hen harriers should not be released in sight of burnt heather strips where possible.

It is recommended that clear advice is passed to the project team that the current trial is unlikely to provide sufficient knowledge to underpin a conservation licence application for a brood management scheme to conserve hen harrier.

Under Section 16(5A)(c) of the Wildlife and Countryside Act 1981 (as amended), the licence period cannot exceed two years as it authorises actions in respect of wild birds. Following a further internal assessment by NE licensing staff, a licence can be reissued to meet a project of longer duration. As stated as a requirement in the HRA, annual reports should be submitted to Natural England and this has been included as a licence condition to ensure this is undertaken. Compliance visits would need to be scheduled within the first year to ensure that the expected standards are being met at both the [REDACTED] and at the release pens.

## 9. References

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