Habitats Regulations Assessment (HRA)
Regulations 21 and 61 of the
Habitats Regulations 2010 (as amended)

Casework Tracker/ Application reference	
Case/Application title	Proposed application for a licence under section 16(1)(a) of the Wildlife and Countryside Act (as amended) to take hen harriers for research purposes and as part of a trial brood management scheme forming part of the Joint Hen Harrier Action Plan (January 2016)
Assessment made by	Natural England **Date:**

European Site(s): **Bowland Fells SPA; North Pennines SPA; North Pennines SAC, Moorhouse – Upper Teesdale SAC**

Component SSSI(s):

- -

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Assessment Summary

[*Optional, delete this page if not appropriate; adviser to insert text – see User Notes for an example*]

PART A:
Introduction and Information about the plan or project and an initial assessment of credible risk to European Sites

A1. Introduction

This is a record of the Habitats Regulations Assessment ('HRA') undertaken by Natural England in its role as competent authority and in accordance with the assessment and review provisions of the Conservation of Habitats and Species Regulations 2010 (as amended) ('the Habitats Regulations').

The plan/project requires Natural England as a statutory regulator to make a decision as to whether to permit, assent, license or authorise an operation or operations contained within it (hereby referred to as 'the plan' or 'the project') to be carried out, caused or permitted to be carried out.

Where such a proposal might affect a European Site, **Regulation 61** of the Habitats Regulations requires an assessment to be made of such proposals by a competent authority.

In making this HRA as the competent authority in this case, Natural England may only undertake or give its consent, permission, assent or authorisation to the plan or project where it is able to ascertain *either*:

a) that it will not have a likely significant effect on a European site (either alone or in-combination with other plans and projects), or;
b) that it will have no adverse effect on the integrity of a European Site following an appropriate assessment.

If such effects cannot be ruled out, the proposal cannot proceed unless the further tests given in Regulations 62 and 66 of the Habitats Regulations can be satisfied.

A2. Details of the plan or project

Location (including grid references):

The trial brood management scheme will take place in the uplands of England within the area defined by the moorland line the map at Appendix 6 shows this area. The project plan supplied separately provides details of the conditions that must be met before brood management is undertaken within this area.

Because of the nature of the trial (see description at appendix 1) it is not possible to describe the exact location from which eggs will be collected or where fledged birds will be released back into the wild.

Nesting attempts and nests will be monitored each year and their distribution assessed. Brood management will only take place with the permission of the landowner. All nests in the trial area are capable of contributing to the density threshold. If the decision is made to take eggs Natural England will be informed before the work commences.

Although it is impossible to predict the exact location of Hen Harrier nests during the trial there are general regions within the trial area that have hosted nesting attempts in the past. It is therefore prudent to identify release sites in the same general vicinity as these known sites (defined by normal dispersal/fledgling ecology for hen harriers) for captive reared birds to be returned to the wild. More sites may be identified and agreed in due course as the trial progresses.

All sites are chosen primarily for suitable habitat but also fulfil further logistical characteristics described in Appendix 5. Flexibility on release sites is required on an annual basis as it is not thought helpful to release chicks in close proximity to nests being left to fledge their own young. We may also need to consider implications/restrictions due to ongoing bird flu restrictions i.e. releasing birds in a restriction zone will not be permitted and flexibility to use alternate sites should be available.

Prior to setting up release pens where the need arises, suitable prey surveys will be undertaken to ensure enough prey is available for fledged juveniles even in a poor vole year.

Release sites identified for the start of the trial that fit the criteria and have landowner and manager agreement are:

Site	Owner/manager	Grid Ref/Post Code
[redacted]		

Name of applicant: [redacted]

Description of the plan or project and its constituent elements:

As one of a number of measures designated to promote the increase of the English hen harrier population, action 6 of the Joint Hen Harrier Action Plan (Defra, 2016) recommended the development of a hen harrier brood management scheme, the aim of which would be '*to remove harrier broods from driven grouse moors once breeding numbers had reached a density at which they would impact significantly on [red] grouse numbers*' (page 11).

To inform the development of such a scheme, a trial would first be operated for a limited period only (5 years). The objective of this trial would be to test and assess whether hen harrier brood management, as an intervention, would be likely to increase the numbers of hen harriers present in the uplands of England whilst also protecting the economic viability of grouse moors.

A trial scheme of hen harrier brood management would need to be licensed under section 16(1)(a) of the 1981 Wildlife and Countryside Act (as amended) for scientific, research or educational purposes.

In broad terms, the proposed trial of a brood management scheme would consist of;

- The collection and removal of hen harrier eggs and/or broods and their transfer to a rearing facility if nests go above a pre-determined density
- The hatching of eggs and/or (hand) rearing of chicks in captivity away from the protected sites
- The transfer and release of fledged birds using specially-constructed pens (within heather habitat) back to into the general area where the eggs were collected from
- The fitting of satellite tags to young hen harriers to measure subsequent movement and survival

Further details are included at:

Appendix 1: Description of Brood Management Scheme
Appendix 2: Disease Risk Assessment
Appendix 3: Release protocol
Appendix 5: Ecological requirements and suitability of release sites

Has the plan or project, or any aspect of it, already been subject to assessment under the Habitats Regulations by another competent authority?

No

A.3 Initial assessment of risks to European Sites

This section sets out the *potential* ways in which the plan or project might credibly affect European Site(s) based on a rapid assessment of location, proximity, type, scale, extent, duration, frequency and timing of the operations / activities which might take place if implemented.

The available advice provided by Natural England's Impact Risk Zones and /or statutory Advice on Operations for European Marine Sites should be considered as appropriate to inform this risk assessment.

A rapid assessment of risk suggests;

- The location of the proposal is directly within the following European Sites in England; Bowland Fells SPA, North Pennines SPA, Moorhouse – Upper Teesdale SAC and North Pennines SAC.

- The proposal is not capable of generating any credible risks to SPAS in Wales or Scotland. The trail will not reduce the number of birds fledged and may in fact increase the number. There is some winter dispersal of birds from Scotland to England but most return to their natal area to breed (S. Murphy *pers com,* Watson 1977*)*. There is little if any recruitment into the Scottish and or Welsh populations from England particularly given the very low English population .

- A disease risk assessment has been undertaken and a protocol put in place to guard against any disease risks.

- The nature of the proposal – the physical movement of hen harrier eggs and/or chicks during the bird breeding season to a rearing facility away from their moorland habitat and the construction of temporary release pens - might credibly affect (either directly or indirectly) some of the qualifying features of these sites.

- The proposal may potentially affect individual hen harriers by introducing a risk of deterioration in their fitness and survival whilst in captivity and during their integration back into the wild. .

- There are potentially indirect risks to other SPA features (incidental disturbance arising from the collection of harrier eggs/chicks) and to SAC habitat features (the construction of release pens on SAC habitat, the movement of vehicles across habitats).

On further examination, and based on the precise details of the proposal as submitted, it is considered that there is or may be credible risks to only certain qualifying features of these sites, which are therefore within scope of this HRA.

Hen Harrier	Bowland SPA & North Pennine Moors SPA
European Dry Heath	North Pennine Moors SAC
Blanket Bog	North Pennine Moors SAC & Upper Teesdale – Moorhouse SAC
Alpine and Boral Heaths	Upper Teesdale – Moorhouse SAC

All other qualifying features of these three sites are not considered capable of being conceivably affected by the project and so have been eliminated from further consideration in this HRA.

With reference to the information above and before undertaking a more detailed screening assessment, **on the basis of professional judgment;** Natural England has concluded;

- ☐ There is or may be a credible risk that the plan or project subject to an assessment might undermine the conservation objectives of a European Site. Further Habitats Regulations assessment is therefore necessary [***continue to Part B***]

PART B:
Information about the European Site(s) which could be affected

B1. Brief description of the European Sites(s) and their Qualifying Features

There is or may be a credible risk that the plan or project subject to an assessment might undermine the conservation objectives of the following European Sites;

- Bowland Fells SPA
- North Pennine Moors SPA
- North Pennines SAC
- Moorhouse – Upper Teesdale SAC

B2. European Site Conservation Objectives (including supplementary advice)

Natural England provides advice about the Conservation Objectives for European Sites in England in its role as the statutory nature conservation body. According to the Habitats Regulations, a site's Conservation Objectives (including any Supplementary Advice which may be available) provides the necessary context for all HRAs.

The overarching Conservation Objectives for every European Site in England are to ensure that the integrity of each site is maintained or restored as appropriate, and that each site contributes to achieving the aims of the Habitats and/or Wild Birds Directive, by either maintaining or restoring (as appropriate):

- The extent and distribution of their qualifying natural habitats,
- The structure and function (including typical species) of their qualifying natural habitats,
- The supporting processes on which their qualifying natural habitats rely,
- The supporting processes on which the habitats of their qualifying features rely,
- The population of each of their qualifying features, and
- The distribution of their qualifying features within the site.

Where Conservation Objectives Supplementary Advice is available, which provides further detail about the site's' structure, function and supporting processes mentioned above, the implications of the plan or project on the specific attributes and targets listed in the advice will be taken into particular account in this assessment.

In light of the European Sites which could be affected by the plan or project, this assessment will be informed by the following site-specific Conservation Objectives, including any available supplementary advice;

Bowland Fells SPA Conservation Objectives and Citation at
http://publications.naturalengland.org.uk/publication/5922368258048000?category=4582026845880320

North Pennines SPA Conservation Objectives and Citation at
http://publications.naturalengland.org.uk/publication/6079716435951616?category=4582026845880320

North Pennines SAC Conservation Objectives and Citation at
http://publications.naturalengland.org.uk/publication/6361191412662272

Moorhouse – Upper Teesdale SAC Conservation Objectives and Citation at
http://publications.naturalengland.org.uk/publication/5889740972752896

No Supplementary advice is currently published to support the Conservation Objectives for these European Sites. However, Appendix 4 sets out the attributes are considered by Natural England to be integral factors contributing to the necessary structure, function and supporting processes (and therefore the overall integrity) of those European Sites classified for breeding hen harriers (and will subsequently inform Natural England's supplementary advice to the sites' Conservation Objectives in the future (see Natural England, 2014). These attributes have been used when considering the potential impacts of this project.

The SPA's that are the Subject of this HRA qualified under **Article 4.1** of the Directive (79/409/EEC) by supporting the following populations of Hen Harriers:

- North Pennine Moors SPA = 11 breeding pairs or 2.3% of GB population (data 1993 and 1994)
- Bowland Fells SPA = 12 breeding pairs or 2.3% of GB population (data 1986-90)

PART C: Screening of the plan or project

To check whether a detailed appropriate assessment is necessary, there are two screening tests required by the assessment provisions of the Habitats Regulations;

C1. Is the plan or project directly connected with or necessary to the (conservation) management (of the European Site's qualifying features)?

SPA feature: Hen Harrier

The project is directly connected with the conservation of the Hen Harrier.

The proposed Brood Management trial is one of 6 actions in the Joint Hen Harrier recovery plan (Defra 2016). It will test whether a brood management scheme will give confidence for grouse moor managers to allow birds to settle in the knowledge that impacts can be managed. In doing so the expectation is that the perceived conflict between Hen Harriers and Grouse management will be reduced leading to a reduction in illegal persecution and an improvement in the conservation status of the Hen harrier.

The trial brood management is being formally proposed for "scientific, research or educational purposes" and is being determined as such.

SAC features:

European Dry Heath; Blanket Bog

This trial is specifically aimed at Hen Harriers. It is not directly connected to or necessary for the conservation management of these other SAC features.

Conclusion:

- ☐ As the plan or project is directly connected with or necessary to the management of all of the European site(s)'s qualifying features, it is considered to be exempt from further Habitats Regulations assessment **[go to C3]**
- ☐ As the plan or project is not directly connected or necessary to the management of all of the European site(s)'s qualifying features, further Habitats Regulations assessment is required **[continue to C2]**

C2. Is there a likelihood [or risk] of significant [adverse] effects ('LSE')?

This section details whether those constituent elements of the plan or project which are (a) not directly connected with or necessary to the management of the European Site(s) features and (b) could conceivably adversely affect a European site, would have a **likely**

significant effect, either alone or in combination with other plans and projects, upon the European sites.

In accordance with case law, this HRA has considered an effect to be 'likely' if it '*cannot be excluded on the basis of objective information'* and to be 'significant' if it *'undermines the conservation objectives'*. In accordance with recent Defra guidance on the approach to be taken to this decision, in plain English, the test asks whether the plan or project '*may'* have a significant effect (i.e. that there is a risk or a possibility of such an effect) which could undermine the achievement of the site's conservation objectives.

Each of the project elements has been tested against each of the relevant European site qualifying features. An assessment of potential effects using best available evidence and information has been made in the following sections below.

Measures that would avoid or reduce the risk or likelihood of significant effects arising and which are already integral to the nature of the plan or project as submitted have been taken into account at this stage.

C2.1 Risk of Significant Effects Alone

The first step is to consider whether any elements of the project are likely to have a significant effect upon a European site 'alone' (that is when considered in the context of the prevailing environmental conditions at the site but in isolation of the combined effects of any other 'plans and projects'). Such effects do not include those deemed to be so insignificant as to be trivial or inconsequential.

The results of this screening assessment for each qualifying feature within the scope of this HRA are as follows:

European Sites: Bowland Fells and North Pennine Moors SPAs				
Qualifying feature: Hen Harrier (Breeding)				
SPA Conservation Objective attribute(s)	**Project element**	**Risk and the mechanism/ pathway**	**Does the project include measures which would mitigate the potential effects? (Y/N) If Yes provide details**	**Likely Significant Effect alone (LSE)? (Yes/No/ Uncertain)**
Population abundance; disturbance from human activity	collection and temporary removal of hen harrier eggs/chicks from the SPA	Disturbance to adult birds at the nest during collection caused by associated people/vehicles	Yes – time at nest will be limited to time take to remove eggs, "candle" them to check health and carefully place in mobile incubator. Staff visiting the nest will be experienced in working with raptors and their numbers will be	No

			kept to a minimum.	
		Risk that loss of nest reduces adults birds ability to breed in future years	No	Uncertain Although the ecological impact of the intervention would be no different to a natural nest failure due to, for example, predation, there may be an issue if a pair lost its chicks on a number of breeding attempts/breeding seasons at a single location .
		Loss or damage to eggs during handling and transfer from natal moor to rearing facility	Yes - Egg removal will be carried out by experienced staff from the [redacted] following very strict protocol set out in the Disease risk assessment	No
		Disruption of annual population growth in already low population	Yes - Reintroduction of fledged birds back into or adjacent to natal SPA/moorland area	No - improved productivity and survival is predicted with a positive effect on population abundance
	Rearing of eggs/chicks in captivity until fledging	Loss or deterioration in fitness of eggs/chicks whilst in captivity	Yes - A specially designed release pen will be used and strict Disease Risk Management practices followed.	Uncertain
		Loss or deterioration in fitness of eggs/chicks through disease	Yes - Strict Disease Risk Management practices will be followed	Uncertain
	Release of fledglings back into SPA	Poor survival of released fledglings	Yes - The Release Protocol and Disease Risk Management documents detail approach taken	Uncertain

		Loss of supporting habitat through construction of temporary release pens on site	Yes - Release pens will be temporary structures and there is discretion on exactly where they are placed so that they can be positioned to avoid sensitive habitats.	No
		Introduction of disease from captive bred birds into wild population	Yes - Detailed in Disease Risk Management document	No
		Disturbance to adult birds during release	No There is discretion on exact location of release pens so they can be positioned away from other nesting Harriers. Hen Harriers are semi colonial nesters and the arrival of other fledglings would not be unusual in a natural population	No
		Harm to young birds from satellite tagging	Yes - The tagging process is well tested and has been used on many birds without any issues.	No
		Disruption of annual site population growth though poor fitness and low survival of reintroduced birds	No It is likely that the growth rates of fledging's will be on average greater than wild birds. It is likely that the number of birds fledged will on average be greater than the number that would have fledged naturally due to removal of risks such as predation and poor food provision	No

Other SPA Bird features				
	Collection and removal of hen harrier eggs/chicks from the SPA	Disturbance to other breeding birds during collection of chicks caused by associated people/vehicles	Yes - Time at nest/ on moorland will be limited kept to a minimum and numbers of staff will be limited to those necessary to the undertake the task .	No
	Release of fledglings back into SPA	Disturbance to breeding birds caused by release pens and associated activity	Yes - There is discretion on exact location of release pens so they can be positioned away from other nesting Bird features	No
	Release of fledglings back into SPA	Disturbance to breeding harriers being released back into SPA	Yes timing of release will be post wader breeding season. Hen Harriers are part of natural moorland bird community	No
European Site: North Pennines SAC **Qualifying features:** Dry Heath; Blanket Bog				
	Collection and removal of hen harrier eggs/chicks from the SPA	Damage by trampling/vehicles	Yes - Visit to nests will be carried out either via existing tracks or on foot. If this is not practicable only low ground pressure vehicles will be used.	No
	Release back into SPA	Loss of habitat through construction of release pens and accessing pens whilst in use	Yes – Release pens will be temporary structures and there is discretion on exactly where they are placed so that they can be positioned to avoid sensitive habitats.	No

Conclusion:

☐ The plan or project alone is likely to have a significant effect (or *may* have a

significant effect) on the following qualifying features of the European Site(s); *[List Features and then **go to C.3**]*

☐ The plan or project alone is unlikely to have a significant effect on the following qualifying features of the European Site(s); Hen Harrier, European Dry Heath, Blanket Bog

C2.2 Risk of Significant Effects in-combination with effects from other plans and projects

From the section above, if there are no likely significant effects 'alone' upon a qualifying feature, any elements of the project deemed to have an effect(s) but which is/are **not significant on their own** must now be considered for their potential to have an effect in-combination with other effects. Such effects do ***not*** include those deemed to be so insignificant as to be trivial or inconsequential.

The effects of this plan/project not considered to be significant alone have therefore been considered alongside any similar effects of other currently live plans and projects to check whether these can add up to a significant effect 'in-combination'.

The results of this assessment for each qualifying feature are as follows:

We have been unable to identify any plans or projects that might have any in combination effects. Natural England teams in the north of England were asked if there were any and none were identified. We have discussed the proposals with the Golden Eagle project in Southern Scotland and have concluded that there is no mechanism by which an in combination effect could arise.

Conclusion:

☐ The plan or project, in combination with other plans and projects, is likely to have a significant effect (or *may* have a significant effect) on the following qualifying features of the European Site(s); **Hen Harriers** *[go to C.3]*

☐ The plan or project, in combination with other plans and projects, is unlikely to have a significant effect on the following qualifying features of the European Site(s); [*List sites and features*]

C3. Overall Screening Decision for the Plan/Project

On the basis of the details submitted, Natural England has considered the plan or project under Regulation 61(1)(a) of the Habitats Regulations and made an assessment of whether it will have a likely significant effect on a European site, either alone or in combination with other plans and projects.

In light of sections C1 and C2 of this assessment above, Natural England has concluded:

☐ As the plan or project is directly connected with or necessary to the management of all the qualifying features of the European Site(s), no further Habitats Regulations assessment is required [***delete Part D and go to Part E***]

OR

☐ As the plan or project is unlikely to have significant effects (either alone or in combination with other plans or projects) on any Qualifying Features of the European Site(s), no further Habitats Regulations assessment is required **[*delete Part D and go to Part E*]**

OR

☐ As the plan or project is likely to have significant effects (or *may* have significant effects) on some or all of the Qualifying Features of the European Site(s) either alone or in-combination, further Habitats Regulations assessment of the project is required **[*go to Part D*]**.

PART D:
Appropriate Assessment and Conclusions on Site Integrity

D1. Scope of Appropriate Assessment

In light of the screening decision above in section C3, this section contains the appropriate assessment of the implications of the plan or project in view of the conservation objectives for the European Site(s) at risk.

The Sites and the Qualifying Feature for which significant effects (whether 'alone' or 'in combination') are likely or cannot be ruled out and which are initially relevant to this appropriate assessment are; **Hen Harriers**.

Where likely significant effects have been identified 'alone' the appropriate assessment will initially be undertaken 'alone' (**Go to D.2**). Any residual effects might *subsequently* need to be considered in combination.

Where the screening decision relates to effects 'in combination', the appropriate assessment should consider in combination effects from the beginning (**Go to D.3**).

D.1.1 Contextual statement on the current status, influences, management and condition of the European Site and those Qualifying features affected by the plan or project

[Adviser to insert relevant text and any supporting science/evidence throughout – see user Notes]

D2 Assessment of potential adverse effects considering the plan or project 'alone'

[This section should only be completed where section C3 concluded likely significant effects from the project 'alone' - otherwise section D3 should be completed].

D2.1 Assessment of potentially adverse effects without additional mitigation measures

European Sites: Bowland Fells and North Pennine Moors SPAs			
Qualifying feature: Hen Harrier (Breeding)			
SPA Conservation Objective attribute(s)	**Project element**	**Risk and the mechanism/ pathway**	**Assessment of potentially adverse effects**
Population abundance; disturbance from human activity	Collection and temporary removal of hen harrier eggs/ from the SPA	Risk that loss of nest reduces adults birds ability to breed in future years	Although the ecological impact of the intervention would be no different to a natural nest failure due to, for example, predation, there may be an issue if a pair lost its chicks repeatedly at a single location. It can be mitigated for by undertaking brood management on another nest in the local population that has contributed to the density threshold, therefore allowing a pair that had previously had their eggs removed to attempt to rear their chicks naturally.
	Rearing of eggs/chicks in captivity until fledging	Loss or deterioration in fitness of eggs/chicks whilst in captivity	By following the practices set out in the Disease Risk Management document any impact will be reduced to negligible. The expectation is that average survival through to fledging should be higher for chicks subject to brood management than in broods left in the wild. This forms part of one of the questions the trial will seek to address; the ability to take eggs from the wild and rear the chicks in captivity and release them successfully.
		Loss or deterioration in fitness of eggs/chicks through disease	By following the practices set out in the Disease Risk Management document any impact will be reduced to negligible. The expectation is that survival through to fledging should be higher chicks subject to brood management that in broods left in the wild. This forms part of one of the questions the trial will seek to address; the ability to take eggs from the wild and rear the chicks in captivity and release them successfully.

	Release of fledglings back into SPA	Poor survival of released fledglings	Other birds (Red Kites) have been introduced into the wild in England using similar methods. The methodology has also been used for Hen Harriers in France where chicks have been rescued from harvested crops. Testing the survival of the chicks once they have fledged and been released back into the wild is one of the trial aims.

D2.2 Where necessary, assessment of potentially adverse effects with additional mitigation measures underpinned by legally enforceable conditions/restrictions

[Adviser to insert text relevant to each European site and each of the qualifying features subject to assessment - it is recommended you insert the table included within the User Notes especially where the assessment involves sites with multiple features and/or complex cases]

Following D.2.1 - D.2.2, where a conclusion of no adverse effect on integrity 'alone' can be ascertained, any residual effects from the project (those which are 'likely' but which are not 'significant' alone will need to be considered 'in combination' with other plans and projects (**Go to D.3**).

Where it is not possible to ascertain no adverse effect on the integrity 'alone' **Go to D.4** to record the conclusion on site integrity. Section **D3** is not applicable.

D3 Assessment of potentially adverse effects considering the project 'in combination' with other plans and projects [*complete only where applicable*]

D3.1 Assessment of potentially adverse effects without additional mitigation measures

[*Adviser to insert text characterising in detail the impacts of the plan/project and explaining their likely ecological effects as relevant to each European site and each of the qualifying features subject to assessment - it is recommended you insert the table included within the User Notes especially where the assessment involves sites with multiple features and/or complex cases*]

D3.2 Where necessary, assessment of potentially adverse effects with additional mitigation measures underpinned by legally enforceable conditions/restrictions

[*Adviser to insert text relevant to each European site and each of the qualifying features subject to assessment - it is recommended you insert the table included within the User Notes especially where the assessment involves sites with multiple features and/or complex cases*]

D4. Conclusions on site Integrity

Because the plan/project is not wholly directly connected with or necessary to the management of the European site and is likely to have a significant effect on that site (either alone or in combination with other plans or projects), Natural England carried out an Appropriate Assessment as required under Regulation 21 or 61 of the Habitats Regulations 2010 to ascertain whether or not it is possible to conclude that there would be no adverse effect on the integrity of a European Site(s).

Natural England has concluded that:

☐ It **can be ascertained** that the plan or project will not have an adverse effect on the integrity of the following site(s), either alone or in combination with other plans and projects; *a permission can be given without conditions*

[*Adviser to insert site(s) as appropriate*]

☐ It **can be ascertained** that the plan or project will not have an adverse effect on the integrity of the following site(s), either alone or in combination with other plans and projects, subject to restrictions and/or conditions *a permission can be given with conditions*

[*Adviser to insert site(s) as appropriate*]

☐ It **cannot be ascertained** that the plan or project will not have an adverse effect on the integrity of the following site(s) for the following reasons; *a permission cannot be given at this stage*

[*Adviser to insert site(s) as appropriate*]

[*Adviser to select by striking through the irrelevant text above as appropriate*]

PART E:

Permission decision with respect to European Sites

As the relevant competent authority, Natural England has carried out a HRA of the submitted plan or project as required by Regulation 21 or 61 of the Habitats Regulations 2010 and has decided that, with regard to European Sites and their qualifying features;

- ☐ **Consent/Permission/Assent/Authorisation may be given***
- ☐ **Consent/Permission/Assent/Authorisation Consent may be given but only subject to the strict implementation of the following conditions or restrictions***:*

  [Adviser to insert text]
- ☐ **Consent/Permission/Assent/Authorisation may <u>not</u> be given** (subject to regulation 62 ('consideration of imperative reasons of overriding public interest')

[*Adviser to select by striking through irrelevant text above as appropriate; please refer to the User Notes to check whether sign-off is required for the HRA*]

The reasons for this decision are as follows:

[Adviser to insert text clearly summarising the reasons why we have come to the conclusion above]

* Where it has been concluded that a permission may be given, the Habitats Regulations Assessment of the implications of this plan or project on European Sites has been completed. **<u>Written permission should not be issued by Natural England until there has been a separate and additional consideration of the plan or project's likely impacts on those features of special interest for which the relevant SSSI(s) has been notified.</u>**

References to Evidence

Elston, D.A., Luigi, S., Baines, D & Redpath, S.M. (2014) Working with stakeholders to reduce conflict–modelling the impact of varying Hen Harrier *Circus cyaneus* densities on red grouse *Lagopus lagopus* populations. *Journal of Applied Ecology* 51: 1236-1245.

Appendices

Appendix 1: Description of Brood Management Trial
Appendix 2: Disease Risk Assessment.
Appendix 3: Brood management Release Protocol
Appendix 4: Objectives for European Sites
Appendix 5. Ecological requirements and suitability of release sites and specification for release pen and management.
Appendix 6: Map of trial area

Document Control

Assessment prepared and completed by		*Insert role / job title and team*
Date		
Peer-reviewed by	*Where relevant*	*Insert role / job title and team*
Date		
FOR HIGH-RISK CASES AND/OR REFUSED OR CONDITIONED SSSI CONSENTS ONLY [see User Notes]		
HRA checked and referred to Protected Sites Team by:	*Insert name*	Team Leader
Date		
Advice given by Protected Sites Team:	*Insert name*	Protected Sites Team, Terrestrial Biodiversity
Date		
Case referred to High Risk Casework Panel by	*If necessary*	*Insert role / job title and Team*
Date		
Consent/Assent/ Permission/ Authorisation issued by:	*Insert name*	*Insert role / job title and Team*
Date		

APPENDIX 1: Description of Brood Management Trial

Reason for the trial:

The Brood Management trial is one of 6 actions in the Governments Joint Hen Harrier recovery plan (Defra 2016). The trial will look to see if a scheme of this type would be likely to increase the numbers of hen harriers present in the uplands of England whilst also protecting the economic viability of grouse moors. In doing so the expectation is that the perceived conflict between Hen Harriers and Grouse management will be reduced leading to a cessation of illegal persecution and an improvement in the conservation status of the Hen harrier. Natural England's Science Advisory Group has endorsed the use of a trail to strengthen the evidence for informing a future decision about brood management. .

The trial will test:

- the ability to take eggs from the wild and rear the chicks in captivity;
- the survival of those chicks once they had fledged and are released back into the wild;
- the impact of brood management on perceptions and behaviour of the moorland community.

Location of Trial:

The brood management trial will take place in the areas identified in Section A2 of the HRA.

What action will be undertaken:

- If Harrier nests go above a density of 0.0125 nests/km (or 10km between nests)(see Note below) in England, in an area where high densities of Hen Harriers might have an have an impact on Grouse numbers available for driven shooting and where the landowner wishes the intervention to happen, the eggs or chicks from one of the nests at that site will be removed and reared *ex situ*. This would have the effect of reducing the density to below that which has been shown to impact upon the numbers of grouse chicks surviving to allow driven shooting (Elston 2014). Landowners may choose not to brood manage and to leave the broods to develop naturally or to undertake diversionary feeding.

- The density figure used as a trigger for intervention in the trial is 0.0125 nests/km^2. Elston 2014 showed that at harrier densities of or below 0.025 harrier impacts were predicted to reduce autumn grouse densities by <10%, suggesting that a quota scheme could theoretically support coexistence between grouse shooting and harrier conservation. The paper goes on to say that stakeholders will also need to recognize that a number of uncertainties remain about the impact of harriers on grouse and the design of a quota scheme. Because of those uncertainties the paper suggests it may be advisable initially to take a precautionary approach, as grouse managers are more likely

to favour building up from low densities of harriers. For this reason the lower figure used in the model (0.0125) has been used as the basis for the trial.

- Eggs will be hatched and chicks reared in aviaries before being released back onto the moorland. The chicks would be managed under very strict biosecurity and husbandry conditions as set out in the Disease Risk Management document in Appendix 2 of the HRA.

- All chicks will be satellite tagged before being released.

- In parallel to the actual brood management work a social science study will be undertaken by Kent University in collaboration with Prof Steve Redpath from Aberdeen University to investigate the prevailing perceptions of English grouse keepers, grouse moor owners and conservationists towards 1) hen harriers and their presence as a breeding bird in the English uplands, 2) preference for alternative hen harrier management strategies in the DEFRA action plan (BMS / feeding / reintroduction / enforcement alone or in combination) in addition to a do nothing scenario, and 3) relationships between different groups of stakeholders.

Location of release sites

The release sites will be in the same general area, within or as close to as possible the SPA, from which the eggs were collected but for practical reasons will not be at the exact same location. These reasons include the need for easy access, security and avoidance of disturbance to shooting interests. The identified release sites are described at section A2 of this form.

Release protocol

A detailed description of the release process provided in Appendix 3 to this form

Appendix 2: Disease Risk Assessment.

Appendix 2 is contained in a separate document supplied as part of application

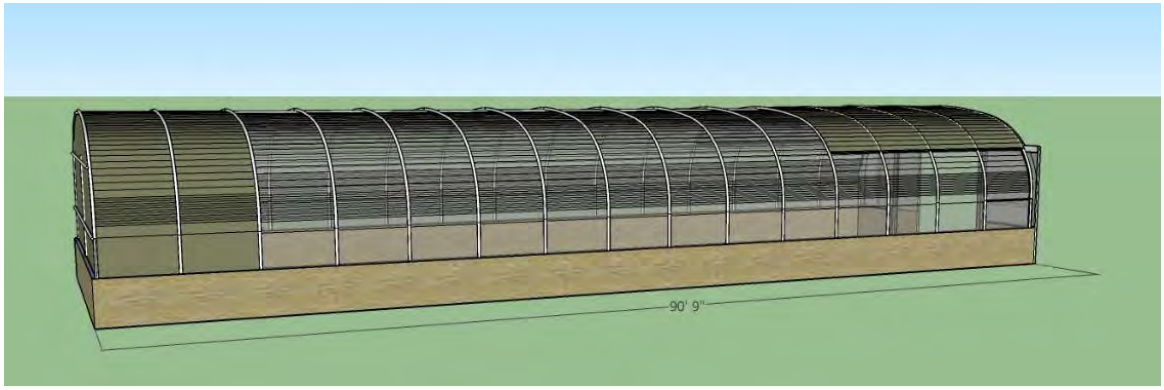
APPENDIX 3: Brood management Release Protocol

The following is a description of the prelease protocol provided by the [redacted]

Release Enclosures

We have endeavoured to design something that is easy to erect, can be moved at a later date, is easy to manage and will suit the birds. It is really important to remember that fitness in terms of flying is crucial for the survival of predatory raptors (as opposed to scavenging raptors) so the size given here will give enough room to gain and maintain fitness. Poly Tunnels are very easy to move in kit form and can be put in the back of a pickup truck, they erect quickly and as a good part of the structure is going to be covered in netting, wind is less of a problem than if all covered in plastic. Please ignore the measurements, it will be a little smaller.

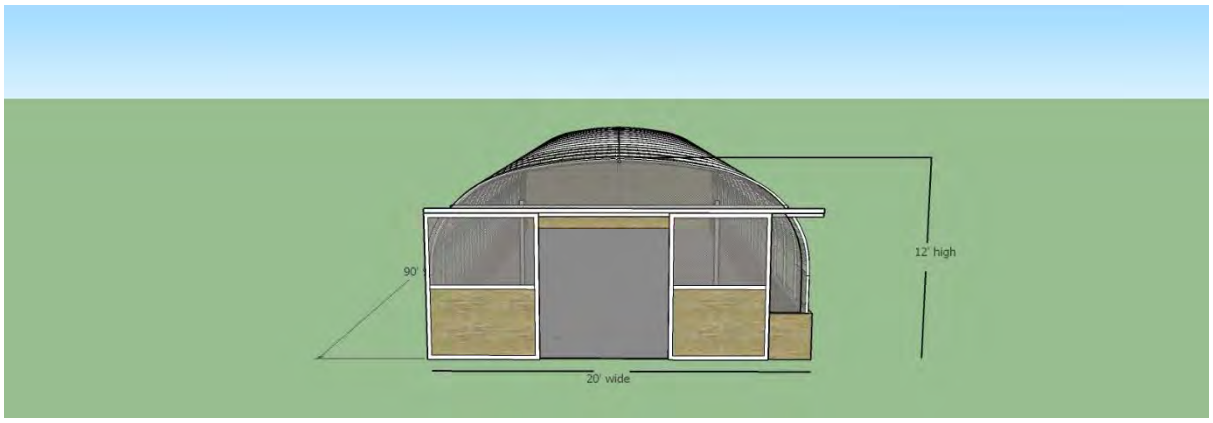
We use a soft terylene mesh – hole diameter of 1 inch (2.54 cms) which is small enough to keep most predators out, or Hen Harriers getting their heads through, the material is quite thick as fine mesh can injure birds. The end away from the door would be covered back and



top in a weather proof lightweight material as would part of the roof the other end. It is important to give the young birds shelter. There would be two to three feeding stations inside accessible from the outside so that food can be placed without the birds seeing the keeper, with perches around the enclosure. The lower part of the enclosure needs to be clad in a material that discourages any wildlife from the outside. Timber or some other material to make a solid wall before the meshed area starts will work. There would be identical free standing perches and feeding stations outside the enclosure as well so that when the birds leave the release enclosure they have perches that they are used to and comfortable with before getting adventurous and flying further afield.

There would be a bath placed in the pens for the birds to bath and drink, this can be slid out through a small door to be cleaned and refilled.

The two doors at the end would not be opened unless access is required into the aviary. We would plan to have a removable net over the outside of the doors to work as a double door system when access is needed. This would be taken down prior to the actual release. Access should only be needed if a bird is in trouble, or at the time when vetting and harnessing of the birds for health checks and satellite telemetry is to happen, otherwise the less disturbance the better.



The substrate of the release enclosures needs to be natural, rough grass may encourage wild rodents which would be very good for the young harriers. To achieve this erecting the release enclosure well before it is destined to be used would facilitate growth to return after building.

Feeding

Again depending on the age of the chicks when they are put in the release enclosures they will need feeding either once or twice a day. As soon as they are able they will manage to eat enough in a single feed and will reach their target weight. We propose feeding mainly mice – brown mice, and small rats to encourage the Harriers to know what to look for in terms of food and perhaps encourage them away from birds. These are reasonably available, and should this project get to a trial stage, we would suggest stock piling the brown ones so that enough food is available throughout the release to assist the young in the future.

Safety

While in the release enclosure, apart from foxes, badgers, stoats or mink the young should not be in any danger from predators. A fox proof fence will need to be put round the outside of the release enclosures to keep the young birds safe. It should to be 10 feet away from all sides except for the door end which needs to be 30 feet away. There should be an entry gate at both ends and no barbed wire anywhere – this could be an electric fence.
The length of time spent in the release aviary prior to release will depend very much on the age of the birds in the enclosure and the weather which plays a big part in the success of a release. Birds will require veterinary checks prior to release and we will satellite tag the birds to monitor survival rates, locations, winter survival and any potential movements. This should happen at least a week before the release to give the birds time to recover and settle after being caught up and handled. If required this could be a time to allow press coverage, because we strongly recommend that the press are not there when the doors are opened. A soft release relies on the birds returning to the release site to feed and that requires a very quiet release with no one around other than in the hide.

APPENDIX 4:

Conservation Objective Attributes		Generic Objective for breeding Hen harrier	Generic Explanatory Notes	National References
Supporting habitat (both within and outside the SPA): function/ supporting process	Conservation measures	[Maintain OR Restore] management or other measures (whether within and/or outside the site boundary as appropriate) necessary to [Maintain OR Restore] the structure, function and/or the supporting processes associated with the feature and its supporting habitats.	Active and ongoing conservation management is often needed to protect, maintain or restore this feature at this site. Other measures may also be required, and in some cases, these measures may apply to areas outside of the designated site boundary in order to achieve this target. Further details about the necessary conservation measures for this site can be provided by Natural England. This information will typically be found within, where applicable, supporting documents such as Natura 2000 Site Improvement Plan, Site Management Strategies or Plans, the Views about Management Statement for the underpinning SSSI and/or management agreements.	Site Improvement Plans for SACs and SPAs SSSI VAMs
Supporting habitat (both within and outside the SPA): predation	Predation	[Reduce OR restrict] predation and disturbance caused by native and non-native predators.	This will ensure that breeding productivity (number of chicks per pair) and survival are sustained at rates that maintain or restore the abundance of the feature. Impacts to breeding productivity can result directly from predation of eggs, chicks, juveniles and adults, and also from significant disturbance. The presence of predators can influence bird behaviours, such as abandonment of nest sites or reduction of effective feeding. Where evidence suggests predator management is required, measures can include their exclusion through fencing and scaring or by direct control. Any such measures must consider the legal protection of some predators, as well as the likely effects of such control on other qualifying features.	Smith R.K., Pullin A.S., Stewart G.B. & Sutherland W.J. (2010); Smith R.K., Pullin A.S., Stewart G.B. & Sutherland W.J. (2011).
Breeding population	Population abundance	[Maintain OR Restore] the size of the breeding population [at OR to] a level which is above [adviser to insert here either the population-size at SPA classification or an alternative baseline-population previously approved by Natural England Chief Scientist], whilst avoiding deterioration from its current level as indicated by the latest mean peak	This will sustain the site's population and ensures it contributes to a viable local, national and bio-geographic population. Due to the mobility of birds and the dynamic nature of population change, the target-value given for the abundance of this feature is considered to be the minimum standard for conservation/restoration measures to achieve. This minimum-value may be revised where there is evidence to show that a population's size has significantly changed as a result of natural factors or management measures and has been stable at or above a new level over a considerable period. The values given here may also be updated in future to reflect any strategic objectives which may be set at a national level for this feature. Given the likely fluctuations in numbers over time, any impact-assessments should focus on the current abundance of the site's population, as derived from the latest known or	

		count or equivalent.	estimated level established using the best available data. This advice accords with the obligation to avoid deterioration of the site or significant disturbance of the species for which the site is classified, and seeks to avoid plans or projects that may affect the site giving rise to the risk of deterioration. Similarly, where there is evidence to show that a feature has historically been more abundant than the stated minimum target and its current level, the ongoing capacity of the site to accommodate the feature at such higher levels in future should also be taken into account. Maintaining or restoring bird abundance depends on the suitability of the site. However, factors affecting suitability can also determine other demographic rates of birds using the site including survival (dependent on factors such as body condition which influences the ability to breed or make foraging and / or migration movements) and breeding productivity. Adverse anthropogenic impacts on either of these rates may precede changes in population abundance (e.g. by changing proportions of birds of different ages) but eventually may negatively affect abundance. These rates can be measured/estimated to inform judgements of likely impacts on abundance targets. Unless otherwise stated, the population size will be that measured using standard methods such as peak mean counts or breeding surveys. This value is also provided recognising there will be inherent variability as a result of natural fluctuations and margins of error during data collection. Whilst we will endeavour to keep these values as up to date as possible, local Natural England staff can advise on whether the figures stated are the best available.	
Supporting habitat (both within and outside the SPA): extent and distribution	Extent and distribution of supporting breeding habitat	[Maintain OR Restore] the extent, distribution and availability of suitable breeding habitat which supports the feature for all necessary stages of its breeding cycle (courtship, nesting, feeding)	Conserving or restoring the extent of supporting habitats and their range will be key to maintaining the site's ability and capacity to support the SPA population. The information available on the extent and distribution of supporting habitat used by the feature may be approximate depending to the nature, age and accuracy of data collection. This will apply to any supporting habitat which is known to occur outside the site boundary [give details if relevant].	
Supporting habitat (both within and outside the SPA): structure	Vegetation characteristics	[Maintain OR Restore] optimal mix of vegetation to provide sufficient cover for nesting and more open, prey rich, areas for hunting.	The height, cover, variation and composition of vegetation are often important characteristics of habitats supporting this feature which enable successful nesting/rearing/concealment/roosting. Many bird species will have specific requirements that conservation measures will aim to maintain, for others such requirements will be less clear. Activities that may directly or indirectly affect the vegetation of supporting habitats and modify these characteristics may adversely affect the feature.	Watson 1977; Cadbury 1992; 1993; Redpath & Thirgood 1997; Redpath et al. 1998; Potts

				1998; Madders 2000, 2003
Supporting habitat (both within and outside the SPA): structure	Vegetation characteristics	[Maintain OR Restore] an optimal mix of vegetation (flat or gently sloping areas with wet rush, heather, cotton grass,rushes or other wetland vegetation) in areas used for roosting.	The height, cover, variation and composition of vegetation are often important characteristics of habitats supporting this feature which enable successful nesting/rearing/concealment/roosting. Many bird species will have specific requirements that conservation measures will aim to maintain, for others such requirements will be less clear. Activities that may directly or indirectly affect the vegetation of supporting habitats and modify these characteristics may adversely affect the feature.	Middleton 2010
Supporting habitat (both within and outside the SPA): minimising disturbance	Minimising disturbance caused by human activity	[Restrict OR Reduce] the frequency, duration and/or intensity of disturbance affecting nesting, roosting, foraging, feeding, birds so that the feature is not significantly disturbed	The nature, scale, timing and duration of some human activities can result in the disturbance of birds at a level that may substantially affect their behaviour, and consequently affect the long-term viability of the population. Disturbing effects can for example result in changes to feeding or roosting behaviour, increases in energy expenditure due to increased flight, abandonment of nest sites and desertion of supporting habitat (both within or outside the designated site boundary where appropriate). This may undermine successful nesting, rearing, feeding and/or roosting, and/or may reduce the availability of suitable habitat as birds are displaced and their distribution within the site contracts. Disturbance associated with human activity may take a variety of forms including noise, light, sound, vibration, trampling, presence of people, animals and structures.	Pearce-Higgins et al. 2009 (specific to wind farms in upland habitats).
Supporting habitat (both within and outside the SPA): structure	Landscape	[Maintain OR Restore] the amount of open and unobstructed terrain, with short vegetation, within areas used for nesting and hunting.	This feature is known to favour large areas of open terrain, largely free of obstructions, in and around its nesting, roosting and feeding areas. Often there is a need to maintain an unobstructed line of sight within nesting, feeding or roosting habitat to detect approaching predators, or to ensure visibility of displaying behaviour. An open landscape may also be required to facilitate movement of birds between the SPA and any off-site supporting habitat. Hen Harriers are birds of open landscapes, usually avoiding closed-canopy woodland, conurbations and high mountain tops.	Snow & Perrins 1998; Amar et al. 2008; Madders 2003
Supporting habitat (both within and outside the SPA): function/supporting process	Connectivity with supporting habitats	[Maintain OR Restore] the safe passage of birds moving between nesting, feeding and/or roosting areas	The ability of the feature to safely and successfully move to and from nesting, feeding and roosting areas is critical to their breeding success and to the adult fitness and survival. This target will apply within the site boundary and where birds regularly move to and from off-site habitat where this is relevant. The home range of hen harriers can extend several kilometres from their nesting territory.	Underhill-Day, 1985.

Supporting habitat (both within and outside the SPA): function/supporting process	Food availability within supporting habitat	[Maintain OR Restore] the distribution, abundance and availability of key prey items at preferred prey sizes (pipits to gamebirds; voles to young rabbit size).	The availability of an abundant food supply is critically important for successful breeding, adult fitness and survival and the overall sustainability of the population. As a result, inappropriate management and direct or indirect impacts which may affect the distribution, abundance and availability of prey may adversely affect the population.	Watson 1977; Cramp & Simmons 1980; Cadbury 1992; 1993; Clarke et al. 1997; Redpath & Thirgood 1997; Redpath et al. 2002

APPENDIX 5.

Ecological requirements and suitability of release sites and specification for release pen and management.

Purpose:

This short note describes the ecological requirements and criteria of sites required by young hen harriers in the English uplands. This is to help identify suitable and acceptable release sites for chicks raised in captivity as part of the trial brood management scheme.

NB: It is important to note that we are concerned with the landscape within which birds are released – rather than a site, which perhaps implies a more restricted area.

Location and habitat requirements:

The release sites will be in the same general area and habitat as that from which the eggs were collected in the uplands of northern England, but for practical reasons and for reasons of reducing conflict, may not be at the exact same location. 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.

A balance between easy access for construction of release pen and bird management and security as well as a site suitable for the species is important.

Availability of natural food is a vital consideration. In the English uplands important prey species include meadow pipits, sky larks, small mammals and grouse. The proportion of different prey in the diet is linked to availability. However most upland landscapes described below are likely to contain sufficient densities of the key prey species.

Stephen Murphy's work on tagged birds in the English uplands highlights the following requirements/habitats used:

Heather grass mosaic for hunting

Rushy (*Juncus sp*.) wet fields at lower altitude (150-250m contour) for roosting

Range of habitats and ecotones, transitional zones between open areas and forestry, physical structures and varied topography e.g. drystone walls, ridges, and gullies.

These habitats are typical of the semi natural habitats found within the SPAs and are loosely made up of the following NVC categories: H9 *Calluna vulgaris – Deschampsia flexuosa* heath; H12 *Calluna vulgaris – Vaccinium myrtillus* heath; M19 *Calluna vulgaris – Eriophorum*

vaginatum blanket mire; M20 *Eriophorum vaginatum* blanket and raised mire and the species poor acid grasslands that border them.

Because female hen harriers can display natal philopatry, i.e. they imprint on the area where they fledge and can return to the same vicinity to nest, the immediate area of the release site should where possible contain suitable nesting habitat.

Stephen Murphy's research has shown that most birds in the English uplands nest in heather, only two of 133 recorded nests nest being in other habitat. The area around the nests is normally made up of a mix of heather and grass generally with heather making up 60-70% of the vegetation.

In the English uplands most Harrier nests are found at an altitude of between 350 & 450m and on slopes with a Northerly aspect.

Sites with a low risk of predation would be preferable.

Logistics:

Sites need full co-operation from landowner, tenants and immediate neighbours

Young chicks are planned to be brought to the release site by [redacted] or an experienced animal carrier with [redacted] staff at approximately three weeks old. (21 days). Timing will depend on the growth rate of the young birds. They should be able to 'pull' food for themselves but are unable to fly.

A pre-erected polytunnel type construction and fox proof fence are both required with a hide to watch progress. The birds should be checked twice a day.

Feeding will happen daily, early in the morning using suitable food for example dark coloured mice or small dark rats. The enclosure should be approached quietly from the sheltered end by one person only and food dropped through a shoot onto a food platform. An identical food platform will be erected outside the enclosure for feeding after the release.

The person feeding should then move back away from the enclosure and sit quietly with binoculars in a hide monitoring the birds for up to an hour after feeding and if possible another hour in the evening. Written records of the monitoring and behaviour should be taken.

Up to 8 mice per bird per day will be needed, depending on the size of the mice. Approx. 6 weeks feeding is required during the pre-release period and for a period of time after release until the birds either disperse or stop coming to the feeding platform. It is not possible to give an exact time frame as it will also depend on weather conditions and food availability in the wild.

Max 10 birds per enclosure/release site. All chicks will be satellite tagged at the outset of the trial. This may change with experience, and also advise from the releases in France.

Chicks should fledge and learn to fly in the enclosure between day 30 and 35 with the pen opened for release approximately two weeks after full fledging and a vets check one week prior to release.

About one week before release into the wild the birds should all be caught up, given a thorough veterinary check-up, and fitted with a Satellite Telemetry Tag for monitoring after the release. This could provide a publicity opportunity if wanted using an in-house photographer with stringent regulations applied.

On release, the door will be opened very early in the day and the enclosure be monitored by binoculars from a good distance in the hide and should not be on a cold, wet or windy day.

Initially continued daily feeding and monitoring, reducing to feeding every other day, until such point as the birds are rarely returning to the feed site, or have dispersed.

Release Enclosure Specification:

Release Enclosures should be easy to transport to release sites and assemble and consist of a polytunnel metal hooped frame of approximately least 5m wide x 20m long and 4m high at the highest point and covered by 2.5cm square soft thick terylene mesh (Bridport Gundry make suitable nets to order).

One end of the enclosure will be well sheltered with dense windbreak type material to protect the young from the elements, and to allow the person feeding the birds to approach without being seen.

Perching would be placed within and outside the enclosure at the release end, so that the birds can come back to feed until they can hunt for themselves. A food shelve should be placed outside the pen.

A bath should be placed at the release door end, and filled regularly from the outside.

A fox/badger proof fence surrounding the polytunnel at a distance of at least 3m around three of the sides and 10m at the end where the release door is situated is important.

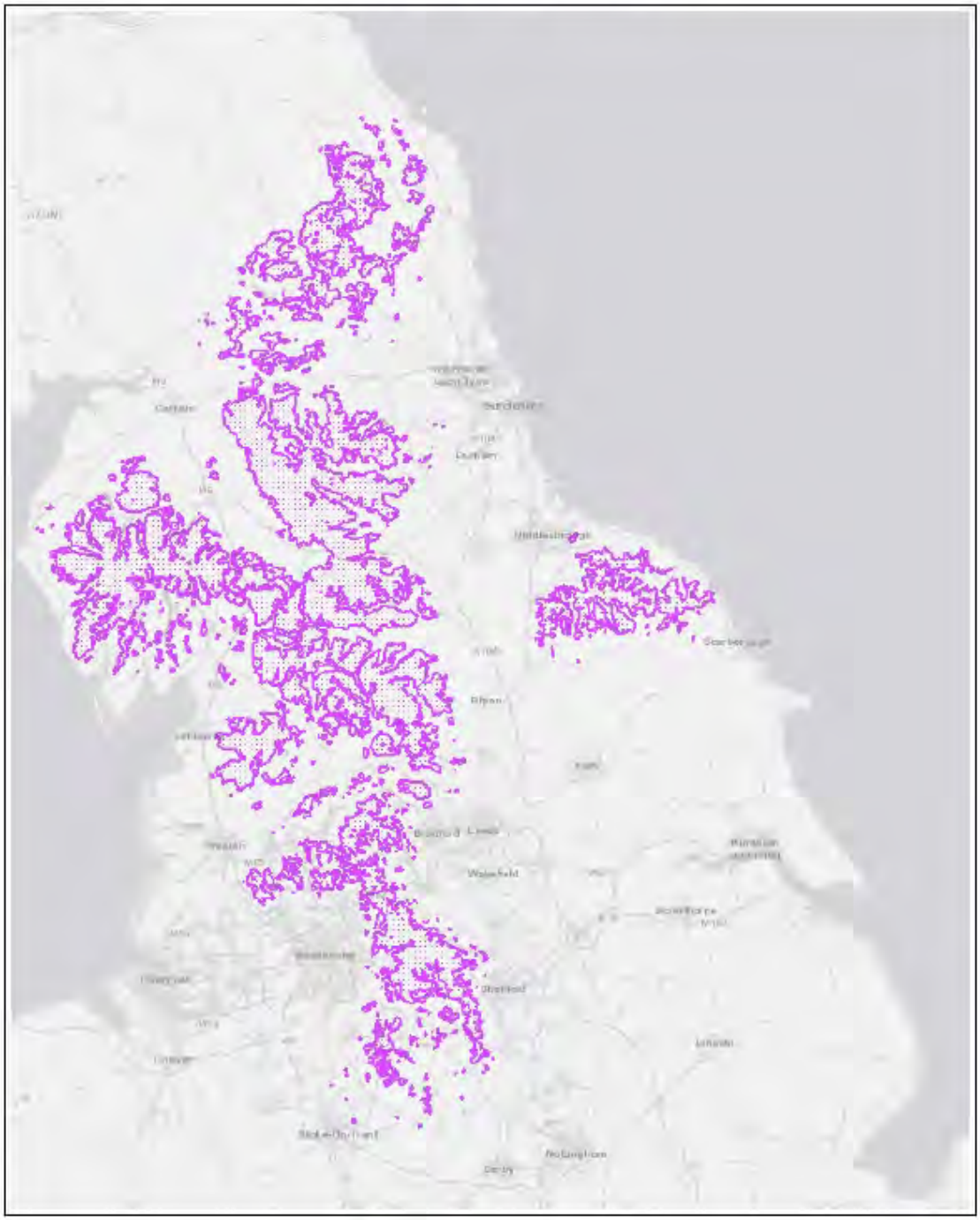
Post fledging:

It is accepted that not all the birds will survive. Previous releases of Harriers in Europe have proved to be successful in terms of acceptable initial survival rates of young.

Tagged and monitored birds that appear to fail and be found still alive will be collected and rehabilitate prior to re-release.

APPENDIX 6

Brood Management Trial Area



Map Produced from WebMap on 29/08/17 | Map Projection: British National Grid | Map Scale at A4: 1:1,500,000