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This document was published as part of Defra's decision to issue the gamebird release general licence for 2021 to 2022.

Read about Defra's [decision to issue the gamebird release general licence for 2023 to 2025](#).

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**‘Shadow’ assessment of a plan or project under  
regulation 63 of the Conservation of Habitats and Species  
Regulations 2017 as amended  
(‘Habitats Regulations Assessment (HRA)’)**

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**Case/application:** Proposed Defra General Licence permitting the release of non-native gamebirds (pheasant and red-legged partridge): Part 2 of 2

**Assessment made by:** Natural England

**Date completed:** January 2021

**Sites considered:** SACs and non-bird Ramsar sites in England

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**Shadow Assessment Contents**

Part A – Introduction and information about the plan or project  
Part B – Information about the European Site(s) which could be affected  
Part C - Screening of the plan or project for appropriate assessment  
Part D – Appropriate assessment and conclusions on site integrity  
References to Science/Evidence  
Appendices



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**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 shadow Habitats Regulations Assessment (‘HRA’) undertaken by Natural England to assist the Department for Environment Food and Rural Affairs (‘Defra’), who will be the competent authority for this project in accordance with the assessment provisions set out in the Conservation of Habitats and Species Regulations 2017 as amended (‘the Habitats Regulations 2017’).

This project is a proposed Game Bird General Licence (the GBGL) that would constitute an authorisation from Defra, as the statutory regulator, to allow persons to conduct specified operations (this is also referred to hereafter as ‘the project’).

Where the project may affect European Sites, regulation 63 of the Habitats Regulations 2017 requires a prior assessment to be made by the relevant competent authority of such proposals, and as the competent authority, Defra may only undertake or give its authorisation to a plan or project where it is able to ascertain either:

- a) that it will not have a likely significant effect on a European Site; 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 64 and 68 of the Habitats Regulations 2017 can be satisfied.

As the competent authority for this project, it will be a matter for Defra and the Secretary of State to consider the extent to which he should rely on the information, reasoning and conclusions reached in this document when making its own assessment under regulation 63.

## **A2. Details of the plan or project**

**Location:** Special Areas of Conservation (SACs) and Ramsar sites (with classified features other than birds) landward of mean low water mark

### **Background to the plan or project:**

Section 14 (‘Introduction of new species etc.’) of the Wildlife and Countryside Act 1981), [hereafter referred to as the ‘1981 Act’], currently makes it an offence for any person to release or allow to escape into the wild any animal which -

- *“is of a kind which is not ordinarily resident in and is not a regular visitor to Great Britain in a wild state; or*
- *is included in Part I of Schedule 9”* [of the ‘1981 Act’]

The Government proposes to add two non-native bird species to Schedule 9 – Common Pheasant *Phasianus colchicus* [hereafter referred to as ‘Pheasant’] and Red-legged Partridge *Alectoris rufa*; inclusive of all sub-species and varieties. However, unlike (to date) any other listed species, it is assumed that this will be spatially limited to designated European Sites and Ramsar sites and this Schedule 9 listing will also apply to all areas within 500 metres of each of these designated site boundaries. Thus, subject to provisions of Part 1 of the ‘1981 Act’, this would make it an offence for any person to release or allow to escape from captivity any Pheasant and Red-legged Partridge into the wild within or adjacent to any European Site located in England, above mean low water mark. The release into the wild of these two species elsewhere in England is, legally, unaffected by this proposed addition to Schedule 9.

A number of pheasant and partridge (Family *Phasianidae* spp.) are already listed in Part I of Schedule 9. To avoid possible confusion, the project only relates to Pheasant and Red-legged Partridge. Proposed release into the wild of all other pheasant and partridge species will remain subject to other licensing arrangements, which at present is through Individual Licences.

Section 27(1) ‘Interpretation of Part I’ of the ‘Act’ alludes to wild state but provides no legal definition of releasing into “the wild”, which instead is interpreted to mean – “...the diverse range of ‘natural’ habitats and their associated wild native flora and fauna in the rural and urban environments in general. This can also be broadly described as the general open environment”.<sup>1</sup>

For the project subject to this assessment this means -

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<sup>1</sup> Taken from ‘Supplementary Note 1 to the Policy Statement – Licensing Introduction of animals and plants into the wild (Section 14 and 16(4)(c) of the Wildlife and Countryside Act 1981’ Wildlife Species Conservation Division, Defra (August 2008)

- gamebirds that are released into enclosures or pens that are situated in the wild, regardless of, either at that time or at a later point in time; and,
- gamebirds that are released, or allowed to escape into the general countryside, including rural and urban areas.

By stating, “Subject to provisions of this Part [1]...”, Section 14 allows for those actions that would otherwise constitute offences to be permitted, and this is made possible through licensing provisions in Section 16.

Since the project concerns licensing the release of gamebirds, it is worth summarising the legal complexities of this issue. The definition of ‘wild bird’ in Section 27, includes game birds that are ordinarily resident for the purposes of Section 16. Both Pheasant and Red-legged Partridge are established with self-sustaining populations, therefore are ordinarily resident and thus are ‘wild birds’. Licensing the release of species listing on Schedule 9 (relevant to section 14) is made possible by section 16(4)(c) of the 1981 Act.

Gamebirds are also defined and legally protected by the Game Act 1831, which has no exceptions and no licensing provisions. Since this Act has not been repealed and exists as extant legislation, the 1981 Act cannot effectively license the taking or killing of game birds during the close season, or on prohibited days (on [Sundays and on Christmas Day](#)). The nearest equivalent are Orders issued under Section 98 of the Agriculture Act 1947 that legally can permit the taking of game in certain situations involving agricultural damage.

### **Description of the plan or project and its constituent elements:**

Defra’s proposal is to issue a new General Licence that would authorise the releasing of these two species, subject to certain conditions and restrictions. Since this ‘project’ does not involve the taking or killing of those species, the aforementioned legal complications do not directly affect the project.

This proposed Non-Native Gamebird General Licence (hereafter ‘GBGL’) is the subject project of this assessment.

Section 16 of the ‘Act’ creates a power to issue licences to, “persons of a class or to a particular person” (section 16(5)(b)) [class does not mean social class in this context]. It is not, therefore, necessary for every individual to apply for a separate licence on every occasion that it is may be required. As a result, a number of licence types have been developed by Natural England and Defra, including General Licences and Individual Licences.

Section 16(4)(c) disapplies offences under Section 14 ‘if done under and in accordance with the terms of a licence granted by the appropriate authority’. Unlike



**‘Shadow’ assessment of a plan or project under  
regulation 63 of the Conservation of Habitats and Species  
Regulations 2017 as amended  
(‘Habitats Regulations Assessment (HRA)’)**

other sub-sections of Section 16, there are no stated licensable purpose in Section 16(4) and the precise ‘purpose’ of the GBGL that is subject to this assessment is unrestricted. The ‘purpose’ wording used in the GBGL does not affect the outcome of this assessment.

It is assumed that the GBGL will extend throughout England to the mean low water mark and therefore this assessment will only examine European Sites that are entirely or are partially above mean low water mark. Entirely pelagic SPAs are scoped out of this assessment.

It is also assumed that ‘European Site’, i.e. Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) will refer to those sites as defined in regulation 8 of the Habitats Regulations. At this time and subject to further consideration by Defra, designated Wetlands of International Importance (known as ‘Ramsar’ sites) are also considered to be within scope because, although these sites are not afforded any explicit statutory protection under the Habitats Regulations, it is government policy that they are given the same protection as European Sites and are subject to them.

### **The proposed Non-Native Gamebird General Licence (‘GBGL’)**

This shadow HRA relates to a proposed GBGL that would permit the release of Pheasant and Red-legged Partridge within the boundaries of terrestrial European Sites and within a 500-metre zone of land (‘buffer’) around them. Informed by Natural England’s (NE) ‘Rapid Evidence Assessment’<sup>2</sup>, it is proposed by Defra that this buffer zone would extend up to 500 metres from the designated boundary of a site and that the GBGL could include the following terms and conditions: -

<b>Proposed Terms and Conditions of the GBGL</b>	
<b>Term<sup>3</sup></b>	For the purposes of the licence releasing into ‘the wild’ includes: <ul style="list-style-type: none"><li>• Releases into enclosures or pens from which birds can exit or from which birds will be released at a later point in time<sup>4</sup>, and</li><li>• Releases into the general countryside, including rural and urban areas.</li></ul>
<b>Term</b>	The licence is not a consent under SSSI legislation and anyone relying on the licence may need to have (or to obtain) a consent to permit releasing (and any related activities) on a SSSI and would need

<sup>2</sup> Summary of Findings and Conclusions on the Rapid Evidence Assessment (REA) “Ecological Consequences of Gamebird Releasing and Management on Lowland Shoots in England”, NE (12 Oct 2020)

<sup>3</sup> Terms are statements about the extent, definitions and application of the licence

<sup>4</sup> The definition encompasses pens that are kept closed for a period before birds are released (a common practice for red-legged partridges)

	to comply with the conditions of that consent.
<b>Condition<sup>5</sup></b>	The licence user must register all released game birds on the APHA Poultry Register
<b>Condition</b>	The licence user must comply with the ‘ <i>Code of Practice for the Welfare of Gamebirds Reared for Sporting Purposes</i> ’ in so far as it is relevant and other provisions in the Animal Welfare Act 2006. <sup>6</sup>
<b>Condition</b>	The density of Pheasant released must not exceed 1,000 birds per hectare of pen area
<b>Condition</b>	The total area of pens must not exceed one-third of the area of woodland or be located on semi-natural or unimproved grassland sites within the buffer zone. The ‘total woodland area’ used in this calculation includes scrub patches, substantial hedgerows with trees, shelter belts and new woodland plantings.

The draft terms and conditions described above represent the totality of the controls on releasing under the proposed GBGL. In other words, the GBGL (the ‘project’ under assessment) does not describe all aspects precisely about the nature, scale, intensity or location of releasing that is to be permitted; and neither do they describe related activities (such as supplementary feeding and the provision of artificial shelter for released birds).

This assessment is required to take a ‘precautionary’ stance and therefore assumes that actions permitted under the proposed GBGL could take place to the maximum extent allowed and reasonably expected according to current game releasing practice. This includes an assumption that ordinarily related activities will also occur.

Where it is possible for this assessment to rule out impact through implementation of the set of ‘Proposed Terms and Conditions’ and any additional measures that transpire as a result of recommendations at Appropriate Assessment, it is assumed that any persons seeking to release game birds and whom are unable to comply with the terms and conditions of the GBGL, will be permitted to instead apply for an Individual Licence. In those situations, the site-specific circumstances of the case will be considered further by an individual HRA. This two-tiered or multi-staged approach to the HRA process is common and may allow gamebird releasing to occur in a wider range of circumstances and / or subject to less restrictive terms and conditions

<sup>5</sup> Conditions indicate what users must do (these are enforceable)

<sup>6</sup>

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/69379/pb1335\\_6-game-birds-100720.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69379/pb1335_6-game-birds-100720.pdf)



than just a general licence could permit, because the specific circumstances of each site and the intensity, scale and location of releasing can be considered in more detail.

The GBGL would be established for an interim period only and be valid from 31<sup>st</sup> May 2021 to 1<sup>st</sup> February 2022, inclusive. This period commences before gamebird poults are typically released into pens and the expiry date is the final day of the ‘open season’ for gamebirds.

### **Further background related to the project**

Release into the wild of non-native gamebirds for recreational and commercial shooting interests, most commonly Pheasant and Red-legged Partridge, has increased sharply since the 1960s, particularly in lowland England, and it is currently estimated that between 39 - 57 million Pheasant and 8.1 - 13 million Red-legged Partridge are released in the UK, with 85% of these in England. By comparison, only approximately 0.2 – 0.3 million Grey Partridge, a rapidly declining native gamebird species, are released (Madden & Sage, 2020). The scale and intensity of gamebird releasing has increased significantly across the country in recent decades (Avery, 2019).

Pheasants and partridges that are bred in captivity or held in release pens are considered ‘livestock’ and are subject to animal husbandry and welfare regulations. Once released into the countryside, they become wild birds<sup>7</sup>.

The red-legged Partridge shooting season starts on 1<sup>st</sup> September each year and the Pheasant season on 1<sup>st</sup> October, with the season finishing on 1<sup>st</sup> February for both species. Shooting of these birds usually takes one of two forms: ‘rough’ (or walked-up) shooting or, more commonly, ‘driven’ shooting. The former involves individuals simply walking and flushing their intended quarry as they go, whilst the latter consists of an organised group of ‘guns’ being strategically positioned as gamekeepers or a line of ‘beaters’ actively flush birds towards and over the stationary guns.

The majority of released gamebirds derive from eggs hatched in mechanical incubators and then reared in closed pens (i.e. with roof), often on grass and with night huts, without the presence of adult birds. After 6-8 weeks, the young poults are transferred from rearing pens to release pens. This usually occurs between late June and early August.

### **Releasing Pheasants**

Pheasant poults are transferred from rearing pens to large open-topped release pens, usually situated in stands of woodland and the woodland edge, but sometimes on other habitats such as grassland or on cover crops. Pheasant release pens can

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<sup>7</sup> ‘Definition of livestock’ (NE, 4<sup>th</sup> May 2016)



range from as little as 0.1 hectares to several or even 10 hectares in size and can be stocked with birds at densities ranging from several hundred to several thousand individual birds (Madden & Sage, 2020). The pens provide a secure environment within which the young birds can acclimatise to their new habitat and adapt to roosting in the lower branches of trees away from ground predators, such as foxes. The timing of the release is aimed at ensuring that birds are mature and fully adapted to their environment by the time shooting commences in late October or early November.

Following release, a keeper typically supplies food, water, and a level of predator control, to retain released birds close to the release site and to minimise their dispersal into the wider countryside away from shooting grounds. Habitat management, such as the planting of cover crops, may also take place. Pheasants are omnivorous and will take seeds, grains leaves, berries and insects, particularly when they are chicks.

### **Releasing Red-legged Partridges**

In general Red-legged Partridge are usually released into much smaller and discrete units compared to those for Pheasants, to create coveys. According to GCWT, a medium to large shoot may use 20 or more closed-top release pens containing 50 - 300+ birds per pen. On larger shoots, typically 250 birds will go into a pen of about 10 x 10 metres. Both approaches result in much higher stocking density than for Pheasant. As with Pheasant, the timing of the release is aimed at ensuring that birds are mature and fully adapted to their environment by the time shooting commences in late September or early October.

Each pen is usually associated with a specific block of dedicated game cover in otherwise open country, usually arable farmland but also grassland.

Typically, birds are placed in pens at around 8 weeks of age where they are held for 2 to 4 weeks before release. Birds are then progressively released whereby a small quantity of birds are released at any one time while retaining a successively smaller number of birds in the pen. The birds remaining in the pen call to the released birds which helps prevent the released birds wandering off. Food is provided close to the pen to hold released birds in the vicinity. The alternative approach is to release all the birds from a pen at the same time.

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

No.



**‘Shadow’ assessment of a plan or project under  
regulation 63 of the Conservation of Habitats and Species  
Regulations 2017 as amended  
(‘Habitats Regulations Assessment (HRA)’)**

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### **A.3 Initial assessment of risks to Special Areas of Conservation (SACs) and Ramsar sites with non-bird features.**

This section sets out the potential ways in which the plan or project might credibly pose a risk to European Site(s), based on an early and rapid assessment of the location of European Sites, their proximity to the plan or project in question and the nature, type and scale of the plan or project in question.

The proposed activity in the GBGL could, if the licence was issued, be undertaken within SACs and Ramsar sites and/or within 500 metres of them. No information is available for this strategic assessment about which specific sites this may apply to. This assessment therefore makes an assumption that the proposed activities could take place on or close to all sites at least once during the lifetime of the project as stated above.

Given the nature of what is being proposed and the possibility that persons could propose to carry out the release of these non-native gamebirds on or in proximity to protected sites, there is or may be a credible risk, based on the conclusions of the Rapid Evidence Assessment, that releases conducted under the authority of the GBGL subject to this assessment *might* undermine the conservation objectives of the following European Sites insofar that they occur landward of the mean low water mark;

- Special Protection Areas (SPAs)
- Wetlands of International Importance (‘Ramsar sites’)
- Special Areas of Conservation (SAC)

This shadow assessment relates only to the impacts on SACs and the non-bird features of Ramsar sites. The shadow assessment of potential effects on SPAs and the bird features of Ramsar sites is recorded in the accompanying Part 1 of this HRA.

European Sites that are wholly seaward of the mean low water mark are considered to be outside of the scope of the GBGL project and are not capable of being affected in any way. These sites are:

Bristol Channel Approaches SAC  
Haisborough, Hammond and Winterton SAC  
Inner Dowsing, Race Bank and North Ridge SAC  
Lands End and Cape Bank SAC  
Lizard Point SAC  
Lundy SAC  
Lyme Bay and Torbay SAC  
Margate and Long Sands SAC



**'Shadow' assessment of a plan or project under regulation 63 of the Conservation of Habitats and Species Regulations 2017 as amended ('Habitats Regulations Assessment (HRA)')**

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Shell Flat and Lune Deep SAC  
Start Point to Plymouth Sound and Eddystone SAC  
Southern North Sea SAC  
Thanet Coast SAC

It is considered that these sites can be **eliminated** from any further assessment in this HRA.

**With reference to the information above and before undertaking a more detailed screening assessment, Natural England has concluded, on the basis of its professional judgment, that there is or may be a credible risk that the plan or project subject to assessment might undermine the conservation objectives of a European Site.**

**Further Habitats Regulations assessment is therefore necessary.**



**‘Shadow’ assessment of a plan or project under  
regulation 63 of the Conservation of Habitats and Species  
Regulations 2017 as amended  
(‘Habitats Regulations Assessment (HRA)’)**

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**PART B:  
Information about the Special Areas of Conservation (SACs) and  
Ramsar sites which could be affected**

**B1. Brief description of the SACs their Qualifying Features**

The qualifying features of SACs (i.e. the features for which the site has been officially selected for designation) comprise a selection of the natural habitats and/or species listed on Annexes I and II of the EU Habitats Directive. These include a range of specific habitat types and named species including invertebrates (molluscs and arthropods), vertebrates (fish, amphibians and mammals), higher plant species and lower plant species.

Wetlands of International Importance (Ramsar sites) are selected on internationally agreed criteria including flora or fauna associated with wetland habitats. Ramsar sites may be declared with criteria that are waterbirds and so many overlap SACs ([JNCC online](#), updated 13<sup>th</sup> Jan 2020). This part of the assessment considers only the features of Ramsar sites which are not birds.

A list of qualifying features of SACs and Ramsar sites is appended to this HRA.

**B2. European Site Conservation Objectives**

Natural England provides formal advice about the Conservation Objectives for European Sites in England in its role as the statutory nature conservation body. These Objectives (including any Supplementary Advice which may be available) are 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.



**'Shadow' assessment of a plan or project under  
regulation 63 of the Conservation of Habitats and Species  
Regulations 2017 as amended  
(‘Habitats Regulations Assessment (HRA)’)**

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Where Conservation Objectives Supplementary Advice is available, which provides further detail about the features' 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 account in this assessment.

Natural England's advice about SAC Conservation Objectives is published at <http://publications.naturalengland.org.uk>

Advice about Ramsar Site Conservation Objectives is not currently available. Further general information about these sites is published by JNCC at <https://rsis.ramsar.org/ris/926>

## **PART C: Screening of the plan or project for appropriate assessment**

To check whether a more 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)?**

Plans or projects that, in their entirety, are either directly connected with or necessary to the conservation management of a European Site’s qualifying features, can be screened out from any further stages of an HRA.

The operations which Defra proposes to permit by way of the proposed GBGL are the release of these two non-native bird species. As the purpose of releasing these species is for recreational or commercial shooting, the release of birds (and related management activities) will not be directly connected with or form a necessary part of the management required to conserve or restore the qualifying features of European Site(s), so the assessed activity does not satisfy this test.

Whilst there is some evidence of associated beneficial effects on biodiversity from woodland management associated with gamebird releasing and management (see Madden & Sage, 2020), these benefits, where they apply, are a consequence of the management required to benefit the released gamebirds and shooting activities. Whilst such management might in theory benefit some of the designated features of some sites, and may in some cases be broadly compatible with a site’s conservation objectives, such benefits would apply to only a sub-set of sites where the proposed GBGL would be used so, notwithstanding the fact they are not directly connected with or necessary to the conservation of sites, they would fail to meet this test.

It is assumed, for the purposes of this assessment, that habitat management associated with released gamebirds within a Protected Site would not be directly authorised by way of the proposed GBGL. Any such proposals within a designated site would need to be notified, assessed and consented separately by Natural England under section 28E of the 1981 Wildlife and Countryside Act (the SSSI consenting provisions) and in accordance with regulation 24 of the Habitats Regulations.

**For the reasons stated above, the conclusion is that the project is not wholly directly connected with or necessary to the management of European Site(s)’s qualifying features, and therefore further Habitats Regulations assessment is required.**

## **C2. Is there a likelihood or a risk of significant adverse effects (‘LSE’)?**

This section details whether those constituent elements of the project which are (a) not directly connected with or necessary to the management of the European and Ramsar Site(s) features and (b) could conceivably adversely affect a European or Ramsar Site. It checks whether these elements of the project 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 shadow HRA considers an effect to be ‘likely’ if it *‘cannot be excluded on the basis of objective information’* and ‘significant’ if it *‘undermines the conservation objectives concerned’* (Case C127/02 Waddenzee (paras 45 & 47)). In addition, a plan or project is ‘likely’ to have a significant effect where a risk or a possibility of such an effect cannot be excluded.

This assessment of risk takes into account the precautionary principle. It also excludes, at this stage, any measures that are specifically intended to avoid or reduce harmful effects on the European or Ramsar Site(s). Any such measures are considered further in section D.

Whilst the proposed GBGL has the potential to affect all European sites and Ramsar sites in England, not all individual site-specifics can be considered and therefore this assessment is, technically, a shadow ‘strategic’ HRA. Since this attempts to collectively and simultaneously examine all SACs and Ramsar sites in England that are entirely or at least partially terrestrial and intertidal, the approach adopted by this assessment is to examine themed potential risk pathways against categories of activities that would be directly permitted by the project, or that would be expected to occur as a direct consequence. It then considers how each combination could logically manifest as a risk to any one or more of these European sites and Ramsar sites.

This judgment of ecological risks that might arise through the permitting of operations by the GBGL reflects the permissive nature of the licence. It is necessarily general and precautionary because the proposed GBGL is also general in nature and does not stipulate the exact characteristics of the releasing activity that would be permitted (e.g. their intended location, proximity, type, scale, extent, duration, frequency or timing).

### **C2.1 Risk of Significant Effects Alone**

The first step of a HRA is to consider whether any elements of the projects are likely to have a significant effect upon a SAC or Ramsar Site ‘alone’ (that is when



considered in the context of the prevailing environmental conditions at the sites but in isolation of the combined effects of any other ‘plans and projects’).

For the purposes of this assessment, and given the general nature of the project, the potential for significant effects on SAC and Ramsar Site qualifying features are considered collectively in feature-groups (see Annex 1) and through broad categories of activities, presented in the table below.

To expedite the screening process, the designated features have been grouped together as;

- ‘vertebrate features’ - the animal species or assemblages of species for which a SAC and/or Ramsar site have been specifically designated,
- ‘invertebrate features’ - the invertebrate species for which a SAC and/or Ramsar have been specifically designated
- ‘habitats and flora features’ - those habitat types, supporting habitat types and/or specific species of higher and lower plants for which a SAC or Ramsar site have been specifically designated

### **Risk-pathways associated with non-native gamebird releasing**

In this context a risk-pathway is a link or a causal connection between the elements of a proposed project and the protected site and its designated features. These represent the potential ways in which the plan or project might credibly affect European Site(s) based on a rapid assessment of likely location, proximity, type, scale, extent, duration, frequency and timing of the operations / activities which might take place if implemented.

The recent evidence review by Madden and Sage 2020 reviews the likely ecological effects of released gamebirds and management associated with releasing. It excluded other potential effects related specifically to shooting activities, such as welfare of shot birds, noise disturbance or lead shot deposition. Other reviews such as Mason *et al.* 2020 go further and include socio-economic impacts for example. Both are broad in scope and are not necessarily limited to the specific implications of gamebird releasing on protected sites.

For the purposes of assessing the likely effects of gamebird releasing projects on European Sites that would be permitted by the GBGL, the most relevant risk-pathways are considered further here. This is also consistent with the approach also taken to screening for the risk of significant effects advised by NE for the wild bird control licences (Natural England, 2020b).

Acknowledging that the HRA process can be iterative where a project is still in design and development stage, Natural England has made a number of assumptions

**‘Shadow’ assessment of a plan or project under regulation 63 of the Conservation of Habitats and Species Regulations 2017 as amended  
(‘Habitats Regulations Assessment (HRA)’)**

and considered not only the releasing of birds, but also the foreseeable consequential activity closely associated with the releasing, as part of the GBGL project.

For the purposes of this shadow HRA, and as far as it is necessary to assess any likely negative effects of the proposed GBGL, the key risk-pathways are identified in the table below. This briefly considers how each combination could logically manifest as an effect on any one of the designated sites. These assessments combine expert judgement and information from Madden & Sage (2020)<sup>8</sup> and Mason et al (2020)<sup>9</sup>:

This LSE assessment is presented as a simple risk pathway/activity matrix. This is consistent with the approach also taken to screen for the risk of significant effects in other strategic level HRAs, e.g. for the wild bird control licences (Natural England, 2020).

<b>Activity</b>	<b>Shooting of released gamebirds and control of their predators</b>	<b>Keeping and feeding of game birds in pens within sites</b>	<b>Dispersal of gamebirds into sites from pens located within 500m of them</b>	<b>Associated human presence and access to manage released birds</b>	<b>Management of habitat for released gamebirds</b>
<b>Potential impact</b>					
<b>Kill/ injure (vertebrate features)</b>	✓	x	x	✓	x
<b>Visual and/ or audible disturbance (vertebrate features)</b>	✓	x	x	✓	x
<b>Kill/ injure (invertebrate features)</b>	x	✓	x	✓	x
<b>Visual and/ or audible disturbance</b>	x	x	x	x	x

<sup>8</sup> Madden J.R. & Sage, R.B. 2020. Ecological Consequences of Gamebird Releasing and Management on Lowland Shoots in England: A Review by Rapid Evidence Assessment for Natural England and the British Association of Shooting and Conservation. *Natural England Evidence Review NEER016*. Peterborough: Natural England. <http://publications.naturalengland.org.uk/publication/5078605686374400>

<sup>9</sup> Mason, L.R., Bicknell, J.E., Smart, J. & Peach, W.J. (2020) The impacts of non-native gamebird release in the UK: an updated evidence review. *RSPB Research Report No. 66*. RSPB Centre for Conservation Science, Sandy, UK. <https://www.rspb.org.uk/globalassets/mason-et-al-2020-rspb-gamebird-review-1-compressed.pdf>

(invertebrate features)					
Physical damage, deterioration or destruction (habitat/ flora features)	x	✓	✓	✓	✓

**Key to the table**

‘x’ means no LSE and rationale for this is given below within this section. This list includes possible effects deemed to be so insignificant as to be trivial or inconsequential.

‘✓’ means LSE cannot be excluded and therefore the ‘activity vs. effect’ combination is subject to Appropriate Assessment in Section D below.

<sup>5</sup> to undertake proposed activities within and adjacent to protected sites, access is assumed to involve off-road walking and vehicle use. Potential mechanisms of impact are trampling and crushing.

Each of these potential risks is considered in turn below, with a view to screening out those where an appropriate assessment is unnecessary.

**Vertebrate features**

**Killing or injury by shooting released gamebirds and undertaking predator control**

The potential releasing of gamebirds within and around European sites is ultimately driven by the associated activity of shooting. Shooting of gamebirds is most likely to take place from within the open landscape around release areas, which may be within site boundaries or outside of them. The main risk pathway is through the collateral disturbance to other animals and trampling of vegetation where there are large numbers of people or vehicle movements involved (such as during driven shoots on more intensively managed land).

It is highly unlikely that other vertebrate fauna features of relevance to this assessment (e.g. reptiles, amphibians, mammals) will be mistaken for the target bird species. Such species will also be subject to other legal protections and it will be unlawful for any person to intentionally shoot such species.

*The risk or possibility of a significant effect on these features through this risk pathway can therefore be excluded and do not require appropriate assessment.*

Gamebird releasing is usually accompanied by the lethal control of predators (such as fox, stoats and mink) to protect the released birds. This may involve snares and traps, and that poses a greater risk to vertebrate features through non-target captures.

However, in respect to species that are designated vertebrate features of a SAC, it is likely that risk of such an effect is limited to populations of otters, particularly where releasing and mink traps may be set in close proximity to river and wetland sites.

*The risk or possibility of a significant effect on sites designated for Otter through this risk pathway cannot be excluded and require appropriate assessment.*

### **Disturbance from firearm report, habitat management, human presence or vehicle use**

To undertake proposed activities within and adjacent to protected sites, access is assumed to involve off-road walking and vehicle use. Potential mechanisms of impact are trampling and crushing.

#### Bats

All species of bats, wherever they occur, are also protected under section 9 of the 1981 Act and by regulation 43 of the Conservation of Habitats and Species Regulations 2017. These provisions provide protection against disturbance, since failure to comply is an offence.

In most instances, bat roosts (hibernation, maternity etc.) occupy enclosed spaces such as tree cavities, caves and inside the fabric of human-built structures such as buildings and underground mine structures. Persons operating under the proposed GBGL will not encounter these bat roosts.

Gunshot discharge can be heard, at least by humans, quite some distance away. Bats, however, communicate and perceive their environment differently to humans. Generally speaking, bat echolocation is typically in the range of 20 – 200 kilohertz, which is beyond almost all humans’ perception. The loudest report of a moderated shotgun, generally speaking, is up to approximately 5 or 6 kilohertz. In an ordinary setting, bats cannot hear gunshot to any extent that would cause disturbance. Shooting of released gamebirds carried out in association with the GBGL will be predominantly a daytime activity, thus further reducing the potential for contact with bats, which are predominately nocturnal.

There is a potential risk that associated habitat management to benefit released gamebirds may affect the habitats supporting bats. The summer breeding roosts of two SAC species – the barbastelle and bechstein’s – are strongly associated with woodland habitat and therefore may be at risk from well-intentioned habitat management activity, such as tree felling to create more open space, designed to benefit gamebirds. It is assumed that this will not be within the scope or be directly permitted by the GBGL and at an individual site level such risks would be subject to further assessment when determining any SSSI application for consent to carry out such management.

*The risk or possibility of a significant effect on sites designated for breeding Barbastelle or Bechsteins through this risk pathway can be excluded and do not require appropriate assessment.*

Otter:

Associated with a number of river SACs, these larger mammals are considered generally sensitive to gunshot report and human activities, including vehicle use. Otters will utilise riverbanks, margins and floodplains during their lifecycle, which in many cases are characterised by riparian woodland habitat which could be subject to gamebird releases.

*The risk or possibility of a significant adverse effect on sites designated through this risk pathway cannot be excluded and do require appropriate assessment;*

Other designated vertebrate features

Other faunal qualifying features associated with SAC and Ramsar sites, e.g. Atlantic salmon and Southern damselfly, cannot realistically be adversely affected at a population-level by disturbance from the occasional sound of a firearm being discharged at non-native gamebirds, especially in some cases as they lack the sensory capabilities to detect this sound.

*The risk or possibility of a significant adverse effect to these groups through this risk pathway can be excluded and do not require appropriate assessment.*

**Kill or injury by predation, human access and vehicle use associated with releasing gamebirds**

*The possibility of a significant effect on the following groups through this risk pathway can be excluded and do not require appropriate assessment;*

- Aquatic features: for instance, SAC species such as otter, fish species and native crayfish will not realistically spatially overlap with persons undertaking this activity, so otter dens and holts (containing dependent cubs), redds (salmonid egg laying beds) and spawn will be very unlikely to be harmed or damaged. Fords and most navigated shallows that could be used by vehicles are not expected to support significant populations of such features.
- Small mammals: persons that access sites by foot and vehicle, and persons that undertake activities permitted by the interim licences, are likely to come in close vicinity to small mammals, including SAC species such as bats. Access may occur frequently and throughout the year. The risk pathway of kill/ injure is when such mammals are vulnerable (the very young) or incapacitated (hibernating). Locations chosen for their seclusion to avoid detection by predators by their nature also avoid inadvertent and unwitting encountering by

persons who are engaged in activities associated with the project. By being secreted away in dense vegetation, bases of hedgerows, tree fissures and caves, even off-road/ off-track perambulation and vehicle use is highly unlikely to encounter such mammals as to result in their injury or demise.

*The possibility of a significant effect on the following groups through this risk pathway cannot be excluded and require appropriate assessment.*

- **Amphibians;** hibernacula for Great Crested Newt (SAC species) can be up to 500 metres away from breeding ponds. These are usually located within the designated site boundary, but some may occur outside it, forming part of a local meta-population that is functionally linked to the designated site. Similarly, the Natterjack Toad (Ramsar species) spend all or part of their life cycle on or just under the ground surface. Depending on the location of release pens, and access routes to them, vehicles may traverse across terrestrial habitat used by these species.
- **Reptiles:** native reptiles are not represented on SACs, but an assemblage of native reptile species is present as a feature of some Ramsar sites. Whilst peer-reviewed evidence about impacts on reptiles is weak (Madden and Sage 2020), there is anecdotal evidence suggesting that adults and juveniles of the six native reptile species could be vulnerable to predation by released pheasants in late summer and autumn (Beebee and Griffiths 2000). In addition, it has been suggested that reptiles basking in the open in late summer might be vulnerable to disturbance or attacks from recently released, foraging gamebirds (e.g. <https://www.arc-trust.org/news/game-changer> ).

## **Invertebrate features**

### **Disturb/ kill/ injure by operations associated with releasing (except access)**

Pheasants and red-legged partridges are known to take invertebrates as part of their diet particularly in late summer and autumn. This diet includes beetles, spiders, ants, caterpillars, slugs, snails, earthworms and flies among others (Clarke and Robertson 1993, Callegari 2006). Some of these invertebrate groups may be a designated feature of some sites in their own right (for example, the stag beetle *Lucanus cervus* and the ground beetle *Omophron limbatum*,) whilst others form a strongly characteristic or typical component of the designated habitat type (for example, assemblages of decaying-wood or grassland species) and/or act as a source of prey for a designated vertebrate feature.

A number of studies have noted that there can be localised changes in the ground invertebrate communities of habitats into which gamebirds have been released due



to the predation effect, with species of lower mobility being particularly vulnerable (see Madden and Sage 2020).

Foraging gamebirds tend to scratch at the ground and peck apart vegetation and fallen decaying material which can lead to surface disturbance and an increase in bare ground, directly affecting the microhabitats of saproxylic species such as stag and violet click beetle. Larvae of these species may also be at risk of predation in the autumn.

This suggests that the potential release of gamebirds into habitats that are designated for their ground-dwelling invertebrates (such as the SAC species stag beetle and violet click beetle, and the typical assemblages associated with SAC woodland habitats) might pose a potential risk to these features.

*The risk or possibility of a significant effect on these features through this risk pathway cannot therefore be excluded.*

#### **Disturb, kill, injure by human access and vehicle use**

The possibility of a significant adverse effect to all invertebrate features through the risk pathway of disturbance only can be excluded.

Relatively few invertebrate species are Annex II species and features of SACs in England (see Annex). However, some of these species dwell on or just under the ground. For example, Fisher’s estuarine moth is associated with coarse coastal grassland on its sites in north-east Essex, whilst for part of the life cycle of the Marsh Fritillary butterfly involves its communal larva that form webs on its herbaceous food-plant Devil’s-bit Scabious *Succisa pratensis*. A number of designated whorl snail species are associated with the tall emergent vegetation on wetland margins and spring-fed calcareous flush-fens. Since crushing damage to habitat and food-plants by vehicles en route to release sites is possible, albeit a relatively remote risk, on a precautionary basis the possibility of a significant adverse effect to this group through this risk pathway cannot therefore be excluded.

*The risk or possibility of a significant effect on these features through this risk pathway cannot therefore be excluded.*

#### **Habitat and flora features**

#### **Damage, deterioration or destruction by keeping birds in release pens and by associated supplementary feeding, vehicle use/human presence for management purposes**

Open-topped release pens for pheasants are typically placed in woodland habitats but not always. Within protected sites, woodland habitats can occur as distinct



extensive stands often being the dominant feature of the site or as component stands within more open designated habitat types, such as heathlands, grasslands and wetlands. Similarly, red-legged partridges tend to be released in more open habitats such as grassland and in some cases moorland.

There is unlikely to be any direct spatial overlap of the proposed releasing (and related activities) with, and therefore any risk to, certain designated habitat features and the sites designated solely for them – coastal and halophytic habitats, dunes, freshwaters, rocky habitats and caves and high montane habitat types. Releases and the placement of release pens are highly unlikely to take place within aquatic, montane and intertidal habitats. Nor is it likely that pheasants and red-legged partridges will freely feed on or roost in these habitats in any great number, if at all.

However, most SACs and Ramsar sites are designated for multiple features, some of which may overlap with releasing operations undertaken within them, on their margins or close to them. It is possible that the releasing of large numbers of birds adjacent to some of these sites could pose a risk, as birds disperse out from holding pens and feed or congregate in large numbers within these sites. The proposed GBGL will potentially allow releasing into and adjacent to these sites, subject to its terms and conditions.

The current body of evidence (e.g. summarised in Madden and Sage 2020; Mason *et al.* 2020) presents a consensus that released gamebirds can potentially have direct and indirect negative effects on the fauna and flora of the habitats into which they are released. The negative effects supported by the strongest evidence relate to the localised enrichment of soil (eutrophication) and depletion of vegetation immediately within and around release pens and feeding stations. There is strong evidence of physical disturbance effects from gamebirds on vegetation located within and around release pens, with a reduction in abundance and composition of desirable characteristic species (e.g. Sage *et al* 2005).

Once released, gamebirds associated with release pens are typically supplied with food and water and protected through predator control. This activity will require a degree of human access on foot and/or in vehicles which could directly affect the vegetation of habitat types through repeated trampling and crushing of ground vegetation. For example, the regular movement of people and vehicles involved in game management and game shooting could lead to the introduction of fast-growing and competitive non-woodland plants, such as ruderals and grasses, and heavy traffic could also cause extensive damage to the soil and lead to an increase in disturbance-tolerant species.

The supplementary feeding of hand-reared released gamebirds with cereal grain or concentrates, either loose or in hoppers, is common management practice with pheasants and partridges. This can potentially damage the habitats in which the birds are being fed. Undesirable and potentially invasive species that could

outcompete and replace native plant species can be introduced through this feed. The spillage of feed, along with the spreading of straw provided for shelter and scratching, can also result in localised enrichment of soil which affects the characteristic flora of the habitat (e.g. Ludolf *et al.*, 1989). Studies have shown that such species-poor enriched areas can be slow to recover from the effects of such enrichment.

The inappropriate location of release pens and feeding areas within a site that supports designated populations of plants associated with terrestrial habitat types would therefore pose a risk of direct damage to those populations. Based on their supporting habitats, some flora features are clearly unlikely to be at direct risk from releasing activity, such as shore dock *Rumex rupestris* (a plant of rocky, sandy and raised beaches, shore platforms and the lower slopes of cliffs in south-west England) and floating water plantain *Luronium natans* (a plant of slowly-flowing lowland rivers, pools, ditches and canals). It cannot necessarily be ruled out, however, that intensive releasing within or in close proximity to their supporting habitats will not have indirect effects on them, depending on pathways and local circumstances.

*The possibility of a significant effect on habitat and flora features through this risk pathway cannot therefore be excluded.*

## **C2.2 Risk of significant effects in-combination with the effects from other proposed plans and projects**

The need for further assessment of the risk of in-combination effects is considered here, in respect of the theoretical risks which have been screened out in section C2.1 above and which are not being carried forward to an appropriate assessment in section D below.

Other than the risks identified as being potentially significant above and which are further assessed below, it is considered that residual risks likely to arise from this project which have the potential to act in-combination with similar risks from other proposed plans or projects so as to give rise to a likely significant effect are unlikely.

## **C3. Overall Screening Decision for the Plan/Project**

On the basis of the details submitted, Natural England has made a shadow assessment of whether the project is likely to have significant effects on a SAC or Ramsar site (or may have significant effects), either alone or in combination with other plans and projects.

**In light of Part C of this assessment above, Natural England has concluded that 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 a SAC or Ramsar Site(s), an appropriate assessment of the project is required.**

On the basis of this initial assessment, the following specific terrestrial sites can be wholly screened out from further assessment because they are only designated for features considered above to be at no risk of a significant effect from the proposed GBGL:

Baston Fen SAC	Drainage channel supporting spined loach
Benacre Lagoons SAC	Coastal lagoon
Blackstone Point SAC	Shore dock
Hestercombe House SAC	Maternity roost for Lesser horseshoe bat in a building
Isles of Scilly Complex SAC	Marine features; shore dock.
Lundy SAC	Marine features
Nene Washes SAC	Drainage channel supporting spined loach
Ouse Washes SAC	Drainage channel supporting spined loach
Orfordness – Shingle Street SAC	Coastal lagoon, shingle, driftline vegetation
Paston Great Barn SAC	Maternity barbastelle roost in a building
Solent and Isle of Wight Lagoons SAC	Coastal lagoons
Wye Valley and Forest of Dean bat sites SAC	Maternity roosts in buildings and underground hibernacula for lesser and greater horseshoe bats

## **PART D: Appropriate Assessment and Conclusions on Site Integrity**

### **D1. Scope of Appropriate Assessment**

In light of the screening decision above in section C, 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 Features for which significant effects have not been ruled out in section C2 above and which are relevant to this appropriate assessment are:

- Ramsar Sites supporting designated habitat or flora features, and certain vertebrate features (reptiles, amphibians)
- SACs supporting designated habitat or flora features, and certain vertebrate features (otters)
- SACs supporting designated invertebrate features (e.g. stag beetle, violet click beetle, fisher’s estuarine moth, whorl snails, marsh fritillary)

The ‘likely significant effects’ on these features identified in Part C and being considered further by this appropriate assessment are specifically:

- The risk of physical damage and deterioration of habitat or flora features by (a) the keeping and feeding of gamebirds into pens located within them, (b) the dispersal of birds released nearby, and (c) the human presence and access associated with managing released gamebirds
- The risk of disturbance to otters from either firearm report, human presence or vehicle use
- The risk of killing or injuring invertebrates, reptiles and amphibians by either predation by gamebirds, or by vehicle use associated with releasing gamebirds

### **D2. Context**

#### **D2.1 General statement on the current status, influences, management and condition of the European Sites and those Qualifying features as potentially relevant to the plan or project**

The releasing of these non-native gamebirds is considered to be a widespread activity and one that has increased in scale and intensity in recent decades. One in 12 of all woodlands in England are predicted to now contain a pheasant release pen

(Sage *et al.* 2005), and woodlands across the UK are estimated to contain at least 10,000 hectares of release pens (PACEC 2014). The types of activities within the scope of this project are the same as those that have been undertaken for many years. However, the nature of those activities has in fact changed considerably at local and national scales. Overall trends in gamebird releases (e.g. shown in Figure 2 of Madden & Sage, 2020) point towards a greater intensification of gamebird releases.

It is not known exactly where these releases currently take place. There is no comprehensive national database documenting how many birds are released yearly, although it is currently a legal requirement for all poultry holdings releasing more than 50 birds (including game birds) to register on the Government’s [Animal and Plant Health Poultry Register](#). It is widely considered that currently registered data represents an underestimate of the scale of releasing across the country.

Similarly, the total number of releases on and around these sites is currently not accurately known, although it is estimated that approximately 120 registrations made on the APHA Register may coincide with some part of a European Site (Defra, *pers.comm*). The releases currently taking place on SACs and Ramsar sites will be driven by the aspirations, objectives and interests of the land’s owners and occupiers of sporting rights.

Notwithstanding this, Natural England consider that the effects of gamebird releasing as a whole are currently having a limited effect on the designated features of the European Sites network in England. The EU funded Improvement Programme for England’s Natura 2000 Sites (IPENS)<sup>10</sup>, which concluded in 2015, sought to assess the current and predicted pressures and threats on each European site. This programme did not identify the management of non-native gamebirds as a significant or widespread pressure or threat on England’s European protected sites as a whole. Pheasant rearing was identified as a risk or issue that is threatening, or could potentially, threaten the condition of the site’s features of 7 European sites. This represents approximately 2% of all terrestrial European Sites, and a further 2 additional European Sites are currently known to be experiencing adverse effects from activity associated with gamebird releasing.

However, many Protected Sites are not in an optimal condition and are already being subject to a number of other threats and pressures that are currently affecting, or could affect, their designated features independently of releases. At the time of writing, approximately 65% of all SACs (by area) in England have been assessed as being in an unfavourable or adverse condition based on the status of its designated features, with a large number recovering (58%) and the remainder either stable (5%) or still declining (2%) (Natural England’s [Designated Sites View](#), accessed January 2021).

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<sup>10</sup> [Improvement programme for England’s Natura 2000 sites \(IPENS\) - GOV.UK \(www.gov.uk\)](#)

The prevailing environmental condition of each site and its ecological capacity to absorb any effects from projects and activities, including gamebird releasing, will therefore be an important contextual factor for any assessment. The threats and pressures on many woodland SACs (which arguably are most attractive to pheasant releasing in particular) include habitat damage or deterioration as a result of atmospheric nitrogen deposition, poor tree health (ash dieback disease) and/or high levels of wild deer browsing. These ongoing issues must be taken into account when determining any new proposals that might exacerbate their unfavourable condition and might further hamper the achievement of their conservation objectives in the longer-term.

For some sites the sensitivity and current condition of their features may mean that even low levels of gamebird releasing could result in significant harm and/or hamper their future restoration. In principle, where a European site is considered to be in an unfavourable conservation condition (or where specified environmental thresholds are being exceeded), any further impacts from new plans and projects need careful justification by way of an appropriate assessment in order to reach a conclusion of no adverse effect on site integrity.

It is recognised that management to improve habitat for released gamebirds can also generally benefit native biodiversity. For example, a number of studies summarised in Madden & Sage (2020) found that some woodland bird species and sun-loving invertebrates can benefit from the more open woodland structure and denser shrub layer that can be created by tree coppicing and woodland thinning motivated by gamebird management. There is, however, no evidence that releasing and associated game management provides a general benefit to all European sites. The degree to which such management might benefit the designated features that form part of this assessment will be dependent on the nature of the individual release and the specific conservation objectives of the site in question. For features that rely on shaded or undisturbed woodland conditions this type of habitat management may undermine those objectives if not carried out sensitively. Such habitat management within sites is not being directly authorised by way of the GBGL and proposals would be subject to separate assessment and authorisation.

Given the strict legal protection afforded to European Sites in the UK, the purpose of this shadow HRA is to inform the competent authority’s decision as to whether it is possible to ascertain that there would be no adverse effects on any site’s integrity from the proposed GBGL, taking into account restrictions or modifications to the proposal as necessary to reduce or avoid any adverse effects that may be foreseen. As a general principle, supported in case law<sup>11</sup>, the creation, restoration or enhancement of an adversely affected habitat cannot mitigate for any significant adverse effects on that habitat in the first instance. Any damaging effects cannot at this stage be balanced against the possibility of any compensatory benefits from

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<sup>11</sup> CJEU case - C-164/17 *Grace and Sweetman* (2018)



management associated with pheasant releases to inform the conclusion on site integrity.

## **D2.2 Conservation Objectives**

An appropriate assessment of the implications of the plan or project for a European site must be made in view of that site’s conservation objectives (regulation 63(1) of the Habitats Regulations 2017).

The relevant Conservation Objectives published by Natural England are listed earlier in B2. Each Conservation Objective includes Supplementary Advice which outlines those attributes which, in Natural England’s opinion, represent the core ecological characteristics of the designated species and habitats within a site. The listed attributes are considered to collectively describe the site’s ecological integrity and which, if safeguarded, will enable achievement of the Conservation Objectives. Further consideration of these likely effects on these attributes by an appropriate assessment can therefore inform the conclusion on whether no adverse effect on site integrity can be ascertained or not.

The general attributes outlined for all SACs follow a common framework and will be applicable on the SACs in scope of this shadow assessment. These will also be generally applicable to Ramsar sites. The attributes most relevant to this shadow appropriate assessment are:

<b>Likely Significant Effect being assessed</b>	<b>Conservation Objective attributes that could be directly or indirectly affected</b>
Physical damage or deterioration of designated habitat or flora features by the keeping and feeding of gamebirds into pens located within them, the dispersal of birds released nearby, and the associated human and vehicle presence	Habitat extent Vegetation community composition Species population abundance Typical species (key structural, influential or distinctive species) Soils, substrate and nutrient status
The disturbance of designated vertebrate features (otter) from either firearm report, predator control, human presence or vehicle use	Species population abundance Disturbance
The killing or injury of designated invertebrate features and designated reptiles and amphibian features by either predation by gamebirds, or by vehicle use associated with releasing gamebirds	Species population abundance Disturbance



### **D3. Assessment of potential adverse effects, considering any incorporated mitigation measures**

This section considers the risks identified at the screening stage and set out in section D1, mindful of the assumption of low effect in D2, above. It further examines whether adverse effects can be ruled out, having regard to the manner in which the plan or project described in section A2 would be carried out if a permission was granted.

This section considers the context above and the general conditions that may be attached to Licences, irrespective of the presence of European Sites. It also considers the need for additional conditions which may need to be attached to the proposed GBGL with a view to further excluding or reducing the possibility of adverse effects on European sites.

#### **D3.1 Physical damage and deterioration of habitat or flora features by the releasing and feeding of gamebirds into pens located within them, the dispersal of birds released nearby, and the associated human and vehicle presence**

As stated earlier, the best available body of evidence into the potential ecological impacts of gamebird releasing (e.g. Madden and Sage 2020 and Mason *et al.* 2020) confirms that released gamebirds can have a number of direct and indirect localised effects on the habitats into which they are released.

Multiple studies reviewed in Madden and Sage (2020), and also by Mason *et al.* (2020), highlight that there is strong evidence of soil eutrophication occurring within and within the area immediately around release pens and feeding sites, and strong evidence of localised effects on vascular ground flora as a result. For example, Sage *et al.* (2005) noted more bare ground, reduced low vegetation cover, lower species diversity, lower percentage cover of shade-tolerant plants, and more annual species especially where pen stocking density increased above 1000 pheasants per hectare of pen. A lower cover of herbaceous plants and ferns and lower fern diversity inside release pens compared to that outside was also reported. Alsop and Goldberg (2018) documented the almost complete absence of characteristic woodland species (e.g. bracken *Pteridium aquilinum*, bramble *Rubus fruticosus*, bluebell *Hyacinthoides non-scripta* and red campion *Silene dioica*), along with a reduction in the natural regeneration of tree and shrub species, within and adjacent to pheasant release and/or feed sites.

Changes in soil chemistry through ground disturbance and concentrations of bird droppings in areas where pheasants congregate can also drive adverse changes in ground vegetation and modifications to habitat structure. This may occur within the release pens themselves, around them, or where birds released elsewhere flock to

that habitat and roost/congregate in significant numbers. For example, Sage *et al.* (2005) recorded elevated levels in soil potassium and phosphate in a small sample of pens compared to outside pens, while Capstick *et al.* (2019) found phosphate and potassium levels remained higher in most disused pens but soil chemistry recovered slightly in older pens. High levels of soil phosphate in woodland subject to intensive releasing were also recorded by Alsop and Goldberg (2018). Here, soil phosphate levels recorded in areas where pheasants have been fed and attracted to were between 2, 3, 4 and even 5 on the soil phosphate index. These are much higher than they should be (index <1) and were found to be comparable to neighbouring intensive agricultural fields.

There was also weak to moderate evidence of localised atmospheric nitrogen increases in and around release pens and feed sites, and weaker evidence of localised negative effects on bryophyte and lichen flora that can form integral components of a habitat type. Epiphytic plants such as bryophytes (mosses and liverworts) and lichens are often characteristic components of a designated habitats’ vegetation communities. These are known to be sensitive to damage through enrichment of the soil or atmosphere and remain common only in woodlands that are in relatively clean-air regions of the country (Mitchell *et al.* 2004). Sage (2018a, 2018b in Madden & Sage, 2020 found reduced moss, lichen and liverwort diversity on tree trunks in woods with a release pen in an area of England notable for woodlands with good lower order plant floras. Increased nitrogen in the air was thought to be responsible for these changes, partly because effects were detected outside pen areas, but reduced microclimate suitability through habitat management may be a factor. Bosanquet (2018) also identified relative degradation of the moss/lichen flora in part of another designated woodland enclosed by a pheasant release pen.

The wider context for potential localised effects of emissions to air through gamebird releasing is the existing poor air quality on many SACs in England. Natural England previously advised Defra that the vast majority of semi-natural habitat types found within SACs are dependent on a naturally low nutrient status and so are potentially sensitive to the direct effects of nitrogen enrichment (Natural England, 2020). Natural England initially considered 263 European Sites (SACs/SPAs) to be potentially vulnerable to nitrogen enrichment, either in whole or in part, based on an indicative analysis of the sensitivity of those broad habitat types within the SSSIs that underpin European Sites. Whilst this analysis was not specific to nutrient enrichment from gamebird releases, it provides an indication of ecologically unfavourable condition as a result of excessive levels of nitrogen, and therefore the sites that are the most sensitive to such impacts.

Given the recognised sensitivity of semi-natural habitat types to nutrient enrichment, it is worth noting that many Protected Sites are already experiencing levels of atmospheric nitrogen deposition that exceed recognised thresholds (‘critical loads and levels’) below which harmful effects on sensitive UK habitats will not occur to a

significant level (Air Pollution Information System at [www.apis.ac.uk](http://www.apis.ac.uk)). This includes those sites designated for their ancient semi-natural woodland types, sites which may be particularly attractive to gamebird releasing. It is estimated that the critical loads for nitrogen are already being exceeded on more than 90% of all UK woodland (Dargosits, 2006) which can result in changes to the natural chemistry of its substrate, accelerating or damaging plant growth, altering vegetation structure and composition and causing the loss of sensitive typical species associated with it. For ammonia concentrations in air, the current critical level for sites where communities of lichens and bryophytes are a pollution-sensitive and integral component of the habitat (such as some types of ancient woodland), has been set at  $1.0\mu\text{g NH}_3/\text{m}^3$  (micrograms of ammonia per cubic metre of air) as an annual mean. It is estimated that 52% of SPAs, 61% of SACs and 70% of SSSIs in the UK currently exceed this level (Lydia Knight, NE, *pers comm*).

Although there is strong evidence that gamebird releasing can have negative effects on the habitats into which birds are released (particularly eutrophication, physical disturbance of flora), there is consensus that these effects are likely to be density dependent (Madden and Sage, 2020; Mason et al. 2020). Madden and Sage found it was a consistent result across studies they reviewed that smaller releases of gamebirds had reduced negative effects. Significant adverse effects from pheasant releasing were associated with releases above 1000 birds/ hectare of pen, with some of the studies reviewed in Madden and Sage (2020) noting the impacts of releases in the range of 2,000 - 4,000 birds per hectare.

Natural England concluded that for smaller releases of pheasants ( $\leq 1000$  birds/hectare of pen), eutrophication and ground disturbance effects would be largely confined to the areas within release pens and feeding stations themselves and within the surrounding area at a relatively limited distance (up to 15 metres), with little or no discernible effect beyond that. It should be noted that this interpretation is limited because the majority of the studies in question took place within 300 metres of pens (Natural England, 2020).

This is also generally consistent with the recommendations given about stocking densities in past and current sustainable releasing guidelines (GCWT, 2007; GCT, 2003). These include a recommendation that no more than 1,000 pheasants should be released into each hectare of release pen and for sensitive habitats, such as ancient semi-natural woodland, the density of pheasants released into them should be no more than 700 birds per hectare of release pen.

Natural England would regard the vast majority of the habitats for which SACs and Ramsar sites have been designated to comprise inherently sensitive habitats. Natural England would therefore support the application of this lower maximum density benchmark of 700 pheasants per hectare of pen as a more appropriate starting point for assessing the releasing of birds into Protected Sites, compared to the 1000 pheasants/hectare of pen as initially proposed by the GBGL. This lower

standard could take into account the wider environmental context of Protected Sites and the additional threats and pressures that many are already subject to, and noting that this would, if stipulated by the proposed GBGL, place a general cap on the numbers of birds released that can help to reduce risk of significant effects.

It is noted however that this guideline has not been fully tested as a general standard that, if universally applied in isolation to any European site where releasing is proposed, would provide sufficient certainty that the occurrence of adverse effects would be avoided in every case, and could enable a conclusion of no adverse effect on site integrity to be reached. Natural England’s interpretation is that a maximum density of 700 pheasants per hectare of pen might not be compatible with every site where releases are proposed or are occurring. This may still result in an appreciable effect on the area confined within that pen and immediately around it, albeit this may be a more benign or lesser effect that may be judged to be insignificant in view of a site’s conservation objectives.

The significance and acceptability or otherwise of such an effect will therefore be influenced by a further set of site and location-specific factors, such as the exact location of the release site, the specific nature of the releasing proposal, the prevailing condition and characteristics of the site, and the sensitivity of the features present within and around the release area. For example, where sites are already known to be adversely affected by gamebird releasing, or under a known threat or pressure from the activity, even a low density of releasing may not be compatible with their objectives and an individual prior assessment would first be needed to check.

Section D2.1 highlights that currently there are only localised impacts from gamebird releasing on individual sites. Natural England’s series of published Site Improvement Plans (SIPs) for European Sites highlights a number of sites where gamebird releasing is known to be impacting or threatening the condition of at least one of its designated features;

1. Peak District Dales SAC (in part);
2. Minsmere – Walberswick Heaths and Marshes SAC
3. Morecambe Bay Pavements SAC (in part)
4. West Midland Mosses SAC (in part)
5. Downton Gorge SAC
6. Tintagel Marsland Clovelly Coast SAC (in part)
7. West Dorset Alderwoods SAC
8. Kennet Valley Alderwoods SAC
9. North York Moors SAC and SPA (in part)

It may be reasonable to generally assume that the lower the density of birds that are released into sensitive habitats on or close to protected sites, the less risk there is of them causing significant adverse effects. A further lowering of the maximum density

of birds released, for example to 500 or to 350 pheasants per hectare of pen, might be expected to further reduce the risk of significant effects occurring and represent a general standard that is more compatible with the protection afforded to European Sites. However, there is currently no available evidence relating to the effects of substantially smaller shoots and there was no threshold stocking density reported by Madden & Sage at which effects *began* to occur and below which no effect would be felt (Natural England, 2020). It should be generally noted that the HRA process is concerned with identifying the risk of likely *significant* effects (either alone or in combination with those from other plans and projects) and ascertaining there would be no adverse effects on site integrity, rather than seeking to prevent all effects from occurring.

The available evidence indicates that when keeping of birds stops, vegetation within release pens may only recover slowly from ground disturbance and eutrophication effects. This can be over a 10-15-year time period where bird density has been <1000/hectare of pen, but recovery where birds have been present at a greater density is significantly longer and may in fact never be fully achieved (Capstick *et al.* 2019)). The evidence also shows further vegetation effects in the more immediate proximity around pens for ‘large’ shoots (i.e. those with a bird density substantially greater than 1000 birds/hectare). The potential for lasting adverse effects arising from intensive or high-density releasing even for a limited period is considered significant.

Whilst standards for low density releasing of pheasants is generally recommended and informed by evidence, it is less clear for red-legged partridge. These birds can be released in smaller pens at high densities and given the greater number of birds, their greater biomass (and thus greater faecal deposition) their impacts on habitats within a pen are likely to be greater and more concentrated than the impact of pheasants at typical densities for both species. They can also form large groups or coveys in the post-breeding season.

In practice, red legged partridge pens are more likely to be located on cropped land rather than sensitive habitats, so the risk of adverse effects is less likely to occur. However, releases have been known to take place within open semi-natural habitat types such as grassland and heathland, which will be present within some European Sites. The general industry recommendation is to limit releases to within game cover placed in arable or improved grassland and to generally avoid sensitive semi-natural habitats (GCWT, 2007). Natural England supports this recommendation and advises that this is generally applicable to all such releasing proposals within the boundaries of Protected Sites.

Another factor that affects the likelihood of significant adverse effects from releasing on or near to a site is distance. The body of evidence suggests that negative effects tend to be localised and the studies examined by Madden and Sage (2020) indicated minimal or no effects beyond 500m (on a precautionary basis) from the point of



release, given the typical dispersal distance of birds from their release pen is less than 500m. Studies show a general correlation between decreasing effect with distance from point of release and the density dependent relationship of gamebirds. There is moderate but consistent evidence from a series of tracking studies to indicate that the majority of birds do not generally disperse further than 500m from their point of release (Madden & Sage, 2020, p77-79). These studies looked at dispersal distances and show that the mean dispersal distance is less than 500m which can be extrapolated to interpret bird densities are higher closer to release pens and feeding stations. Additionally, in practical terms, efforts will be made to minimise the dispersal of released birds away from their release area.

The scope of the proposed GBGL includes an area defined as 500 metres around each site boundary, where gamebird releasing would be authorised but subject to the terms and conditions of a Licence. This zone will typically comprise undesignated land around a site and will typically include a number of different land use types which abut those sites depending on the individual locality, such as land under arable cultivation with or without field margins, permanent pasture, woodland (including ancient semi-natural woodland, mixed broadleaved woodland, and conifer-dominated plantation woodland), scrub or other semi-natural habitat types. Being outside of the site, these types will not in themselves be protected habitats in their own right. These areas may or may not be directly sensitive to the likely effects of gamebird releasing.

In addition to the proposal to permit the releasing of pheasant and red-legged partridge (to some extent) within site boundaries, the close proximity to the protected sites themselves generates some additional risk of effects on them without additional mitigation. In particular, and depending on local circumstances, birds released within the buffer area adjacent to a site would still be able to disperse in large flocks towards that site or be deliberately draw into them through the provision of feed, and to congregate on sensitive habitats within that site.

The impacts of physical damage, disturbance and nutrient enrichment could still arise within the site boundary, even though the release site is some distance away. Given the risk of high densities of gamebirds creating bare ground within and around the confines of pens, the location of pens on slopes or areas prone to erosion may run the risk of run-off of nutrient-rich water or sediment into the adjacent site. Placing pens on level ground and having a wide zone between pens and watercourses, coupled with lower pen densities, will help to minimise these risks. These principles are similarly advocated in sustainable gamebird releasing guidelines and more generally as part of farming rules for water when managing livestock (<https://www.gov.uk/guidance/rules-for-farmers-and-land-managers-to-prevent-water-pollution>), which include distance criteria of 10 metres and 50 metres to minimise pollution impacts on sensitive wetland features.

Natural England advises that bringing this non-designated buffer area into the scope of the activity to be prohibited without a licence as a means of managing the potential impacts of releasing on adjacent designated areas is a useful tool, but its effectiveness will still depend on the nature and scale of the releasing activity being conducted within it.

Negative effects can be linked to the presence of birds and the evidence shows that large numbers and/or high densities of game birds can cause significant damage to sensitive habitats. This includes birds that disperse away from release pens, but this declines with increasing distance from a pen. This measure of a 500metre buffer area potentially allows for the regulation of releasing within this limited area (as is proposed) in ways that could reduce the risk of adverse effects occurring on the adjacent sites, but this requires greater specification and certainty. To be confident that birds released in the buffer do not disperse on to protected sites in sufficient numbers and / or densities to have negative effects, further mitigation to limit this is recommended.

In summary, it is considered that the limited duration of the proposed GBGL will mitigate the risk of adverse effects materialising as a result of it. However, there remains a credible risk that, without more specific mitigation incorporated into the proposed GBGL, significant adverse effects on sites with designated habitat or flora features might be caused by activities permitted by the proposed GBGL:

- The presence of large numbers and/or localised high densities of birds on a protected site risks causing damage to sensitive habitats (this applies whether birds are released onto the site or they disperse on to it from neighbouring areas).
- Releasing birds at any density can potentially damage sensitive habitats within the pen and its immediate vicinity (i.e. up to 15m radius). (NB the area potentially affected around an average-sized pen can potentially be nearly the same area as the pen).

Due to the generality of the project and the inherent uncertainty about the precise nature, scale and intensity of releasing on or near to individual sites that would be authorised under the GBGL (even for its limited 1 year duration as mitigation), it is not possible to rule out adverse effects on the integrity of the remaining SACs or Ramsar sites without mitigating measures and the consideration of a multi-stage approach to permitting releases. The option of incorporating mitigating measures to the proposed GBGL to rule out such effects is considered below.

### **D3.1.1 Assessment of potentially adverse effects, considering additional mitigation measures and the application of conditions and restrictions subject to which authorisation might be granted**



In principle, the findings of the evidence reviews, and relevant best practice guidelines on game management, could form the basis of mitigating measures (applied as conditions/restrictions) that could allow releasing in ways that avoid or significantly reduce the likelihood of significant adverse effects occurring on European sites. For example, measures could:

- exclude or limit the sites in scope of the GBGL
- exclude or limit the location and number of release pens
- exclude or limit the location and number of feeding stations
- set an upper limit on the number of birds that can be released within those pens.

As the body of evidence suggests, the risk of significant adverse effects is strongly influenced by the density of gamebirds released into an area (i.e. the number of individual birds per unit area). This density dependence could be reflected as a mitigating measure and implemented as a licence condition; the evidence strongly indicates that the most negative effects are associated with releases in excess of 1000 pheasants per hectare of release pen. This aligns with existing industry good practice (GCWT, 2007), which adds that a lower maximum density of less than 700 pheasants per hectare of pen is recommended where there are sensitive habitats.

Even if limits on release densities were applied to both species, as discussed above, without knowing the precise nature, scale, duration and intensity of releasing on individual sites that would be proposed (for example the exact location of release pens, feeding points, vehicular access routes etc), and without being able to consider the prevailing ecological condition of that site, it is not possible to conclude that the general authorisation that would be given by the proposed GBGL will not have adverse effects on the integrity of the remaining SACs or Ramsar sites beyond reasonable scientific doubt.

A case-by-case assessment of individual release proposals within a site remains a necessary measure to provide a more definitive conclusion as to whether an adverse effect from releasing projects could be ruled out.

Within the undesignated area of land within 500 metres of a site proposed to buffer sites from impacts, and where there are no designated semi-natural habitat types, low density releasing of red legged partridge may also minimise the risk of significant adverse effects on the designated habitats of adjoining sites. There is currently no comparable density benchmark recommended by GCWT. Natural England suggests that a density of less than 3 birds per square metre of pen may be an appropriate threshold to adopt to indicate a suitably low and sustainable density that could in theory allow releasing close to sites whilst avoiding the potential dispersal effects from high density of birds. This indicative figure takes into account the available

information on standard release pen sizes, typical stocking densities, body weight and biomass of individual birds.

#### **D3.1.1.1 Potential mitigating measures within SACs and Ramsars under the proposed GBGL**

In light of the proposed GBGL under assessment, and the fact that the development of this project is being undertaken iteratively and therefore may be subject to further revision, a number of options are set below that could, in Natural England’s view, potentially enable a conclusion of no adverse effect from the proposed GBGL to be reached by the competent authority.

##### ***Option A***

That the proposed GBGL does not permit the following activity to take place within the boundaries of any Special Areas of Conservation and Ramsar sites\*:

- The releasing of any pheasants or red-legged partridges
- The construction or placing on a temporary or permanent basis of pens or other structures intended for the purposes of rearing or releasing pheasants or partridges
- The supplementary feeding of released pheasants or red-legged partridges, including placing of feeding or watering stations

(\*excluding those sites eliminated or screened out in section B and C earlier)

##### Analysis of option A

This option would exclude the vast majority of SACs and Ramsar sites from the proposed GBGL and allow proposal to be subject to an individual licence on application should releasing of pheasants or partridges be proposed by the land’s owner or occupier. This could remove the uncertainty about the risk of adverse effects on individual sites because then, on receipt of such as application, the competent authority would then be able to carry out a more definitive and precise site-specific assessment compliant with the Habitats Regulations based on a more specific proposal linked to the specific features and circumstances of a site. The assessment can also take into account the best available evidence, including the evidence presented in the recent evidence review (Madden & Sage 2020).

This will also allow the prevailing condition of a site and any ongoing threats and pressures affecting its condition at that time to be properly considered, in a way that this assessment of a proposed general licence cannot. Where it could not be ascertained that no adverse effect on site integrity would occur, an individual application could be either refused or conditioned to protect that site.

### ***Option B***

That the release of common pheasant and red-legged partridge is permitted within the boundaries of any Special Areas of Conservation and Ramsar sites\* (\*excluding sites screened out in section B and C of this shadow HRA) but only subject to compliance with a number of terms, conditions and/or recommendations:

- all existing and new releases of pheasants must either not exceed 700 birds/hectare of pen or must comply with the release density stipulated in a SSSI consent, whichever is the lower.
- all existing and new releases of red-legged partridge must either not exceed 3 birds/ square metre of pen or must comply with a release density stipulated in a SSSI consent, whichever is the lower
- anyone relying on the General Licence would need to have (or to obtain) a consent to permit releasing (and any related activities) and would need to comply with the conditions of that consent.
- all other gamebird management operations associated with releasing (e.g. erection and maintenance of releasing structures, supplementary feeding, vehicle use) are not permitted under the GBGL and require separate SSSI consent where these are listed as operations requiring Natural England consent
- releasing is not permitted on the following SACs/SPAs (or the relevant component sites) which are known to be adversely affected or at risk of being adversely affected, by gamebird releasing (i.e. those currently subject to enforcement action or where gamebird releasing has been reported as either a current threat or pressure by a published Site Improvement Plan):

Peak District Dales SAC; Minsmere – Walberswick Heaths and Marshes SAC; Morecambe Bay Pavements SAC; West Midland Mosses SAC; Downton Gorge SAC; Tintagel Marsland Clovelly Coast SAC; West Dorset Alderwoods SAC; Kennet Valley Alderwoods SAC; North York Moors SAC and SPA

### **Analysis of Option B**

This option would permit in principle the releasing of gamebirds within these sites under the proposed GBGL, but only up to a specified density, thus limiting the number and density of birds that could in theory be released or continue to be released within a site in order to minimise the risk of significant adverse effects. This can help to ensure that where releasing already takes place on sites, the density of birds released is minimised and aligns with existing sustainable releasing guidelines.

The measure to exclude those sites which, according to the best available information, are currently being adversely affected or are known to be at risk and where continued or further releases, even at a much lower density, might exacerbate this risk, will ensure that the proposed GBGL itself will not give rise to an adverse effect. Any such proposals may be further assessed on application for an Individual Licence.

The requirement to also have or obtain a SSSI consent (or an individual licence as an alternative) in order to release birds under the GBGL (either at the previously consented level or the GBGL limit, whichever is the lower) would remove some of the uncertainty highlighted previously about the general compatibility of applying these specified densities to individual sites.

For new proposals, receipt of such an application would enable the competent authority to be able to carry out a more definitive and precise site-specific assessment compliant with the Habitats Regulations based on a more precisely defined proposal linked to the specific features and circumstances of a site. This will allow the prevailing condition of a site and any ongoing threats and pressures affecting its condition at that time to be fully and properly considered, in a way that the assessment cannot. Where it could not be ascertained that no adverse effect on site integrity would occur, an application could be refused or conditioned further to protect that site. For new proposals, the assessment can also take into account the best available evidence, including the evidence presented in the recent evidence review (Madden & Sage 2020).

Should an existing SSSI consent currently allow releasing on European Sites in excess of a maximum permitted density stipulated by the GBGL, this measure would cap the numbers of birds released (reflecting the latest best available evidence) and provide a protective measure that removes the risk of any deterioration, should this unknowingly be occurring.

Should an existing SSSI consent allow for releasing on European Sites at or below the level set by the proposed GBGL, these remain compatible with the conservation objectives of a site and align with the latest best available information.

#### **D3.1.1.2 Potential mitigation measures within 500 metres of SACs and Ramsars under the proposed GBGL**

Within the proposed 500 metre buffer zone around each site, there is likely to be much less risk of direct damage to adjacent sites but still some risk of adverse effects from either the potential dispersal and congregation of high numbers of birds released close to the site, or indirectly as a result of the management of pens and birds.

Natural England advises that it is preferable that releasing does not occur within this zone either, and that other activities (such as supplementary feeding) are also generally discouraged. This would completely avoid any risk of adverse effects occurring.

Alternatively, given that the current body of evidence suggests the risk of adverse effects is heavily influenced by release location, density and by distance, the application of additional mitigating measures applicable to the buffer zone, could minimise the potential impacts, as previously discussed, from the presence of high densities of gamebirds adjacent to European sites into which they can disperse. This risk may be mitigated by, for example;

- Limiting the density of game birds released in the buffer area surrounding a site
- Limiting the density of release pens in the buffer area surrounding a site
- Limiting the distance between release pens and the designated boundary of the sites,
- Managing released gamebirds in a way that can avoid drawing them towards and into a site

In Natural England’s view, the following measures, if attached as conditions to the proposed GBGL, would significantly reduce the potential risks of adverse effects on a site’s integrity, irrespective of the features of an adjacent site;

- the density of pheasants released in a pen within the buffer of any site must not exceed 1000 birds per hectare of pen area. Releases must not exceed 700 pheasants per hectare of release pen if the release pen within the buffer is:
  - located within ancient semi-natural woodland or another semi-natural habitat type, or
  - located within the buffer zone of a European Site excluded from the GBGL (see list above)
- the density of red legged partridges released into a pen within the buffer of any site must not exceed 3 birds per square metre of pen. No releases must take place on any semi-natural habitat type (such as unimproved grassland, heathland, moorland) within this zone.
- single and trickle releases of birds must not exceed these limits during the entirety of one season’s cycle, and birds must not be released to replenish or replace any that have already been released and shot or otherwise killed in that season, except within the limits as stated.

- release pens or feeders located within the buffer area must not be placed within 250m of a designated site’s boundary.
- any pens and feeding stations located within the buffer area must be placed on level ground and must not be placed within 50 metres of a watercourse flowing towards a designated river or wetland site
- there must be no gamebird cover sown within the buffer zone that would draw gamebirds towards an adjacent site

### Analysis

The combination of a reduced density of released birds and keeping release pens away from a designated site boundary can further mitigate the risk of high numbers of birds dispersing towards and congregating within adjacent sites. This takes account of the evidence relating to the mitigating effects of release density and the likely dispersal distances of the birds themselves.

Further reduction in risk could be achieved by limiting the density of pheasant releases to the lower 700 birds/hectare of pen throughout the buffer area. However, we propose capping the density of pheasants to the lower 700 birds/ha benchmark in the buffer zones around the excluded European Sites to acknowledge the known issues currently affecting these sites.

Whilst there is no specific evidence that points to 250 m, this precautionary distance seeks to provide a sufficiently wide separation between pens/ feeders and the neighbouring protected site so that a much smaller and much less significant number of the released birds are likely to reach the protected site, given that birds can randomly disperse up to about 500 m from a pen and in practice the majority will not disperse widely as they are encouraged to stay close to the immediate vicinity of the release area itself. Restricting release pens and feeders to beyond 250 m of European Sites will also reduce the risk of a combined adverse effect from gamebirds released within that inner buffer zone with those that may be released within the site itself. This is proposed as a clearer and more practical alternative to the proposed condition stating that ‘the total area of pens must not exceed one-third of the area of woodland or be located on semi-natural or unimproved grassland sites within the buffer zone’.

Placing gamebird cover in areas that would not encourage birds to roost or feed within an adjacent protected site, especially for red-legged partridges, would provide additional mitigation.

For designated wetland sites, the proposed measure of limiting release pens away from watercourses that flow into these sites mitigates the risk of any nutrient-rich water or sediment finding a path into those sites and detrimentally affecting its



water’s quality. Such a measure, set at a precautionary distance of 50 metres, is generally consistent with those measures contained in the Reduction and Prevention of Agricultural Diffuse Pollution (England) Regulations 2018 (‘farming rules for water’) to reduce the risk of diffuse agricultural pollution arising from the management of livestock.

Based on best available scientific information and subject to these measures above, it is advised that adverse effects on site integrity could be ruled out.

### **D3.2 The disturbance of otters from either firearm report, predator control, human presence or vehicle use**

#### Otter

As regards the effects of noise on vertebrate features and terrestrial mammals (such as otters), there are generally few studies available and so there is limited evidence for any direct impacts or lack of impact of anthropogenic noise either way (University of Bristol, 2012).

Coastal and riverine habitats that may support designated populations of otter are, however, generally unlikely to be locations where there will be significant interaction between such animals and the proposed releasing activity.

Release pens set within the 500m buffer zone will in practice be limited in number and distribution. Management activity around the pens is also likely to be occasional and intermittent during a day and week, being limited to the need of licence holders to carry out their activity. Although known to be sensitive to human disturbance, otters are highly mobile, tend to be widely dispersed with their SACs as they occupy large home ranges (20-30kms) and freshwater animals tend to be largely nocturnal.

Trapping mink, also a non-native species, is both lawful and necessary, but as they are similar in size and character to Otters, there is a potential risk of trapping the latter inadvertently. In practice, the risk of harmful effects on otters from predator control through trapping is relatively low where pens are placed away from watercourses, and where the use of snares to trap foxes near water courses and spring, or kill, traps for mink in areas where otters are known to be present is avoided. Traps must also by law be checked daily. When trapping in areas known to contain otters, it is highly advisable to use an Otter guard (which is recommended good practice).

A number of the proposed mitigation measures outlined above to avoid high densities of gamebirds being present adjacent to sites will also further reduce any significant risk, albeit this is considered to be low in any case.



The incidental disturbance from human presence and vehicle movements associated with the management of released gamebirds is considered unlikely to have significant adverse effects.

### **D3.3 The killing or injury of invertebrates (e.g. stag beetle, violet click beetle, marsh fritillary), reptiles and amphibians by either predation by gamebirds, or by vehicle use associated with releasing gamebirds**

Several studies have recorded impacts from released gamebirds on some invertebrate groups. For example, high densities of pheasants were found to reduce larval food plants of fritillary butterflies such as violet *Viola* species (e.g. Clarke and Robertson 1993), whilst Pressland (2009) found that the larval biomass of woodland caterpillars decreased as pheasant release densities increased up to 300 pheasants per hectare. The abundance of beetles, spiders, harvestmen and centipedes within release pens with high stocking densities also declined (Neumann *et al.* 2015). Pheasants forage by raking through leaf litter and under deadwood and scratching at the soil surface, and the larvae of large-bodied carabid beetles may be more vulnerable through such soil disturbance.

This is therefore considered to be a credible risk on those sites designated for these particular invertebrate species. The actual risk to designated invertebrate species through predation from gamebirds could also be mitigated by the measures outlined above. By either excluding the land within these sites from the scope of the GBGL or by setting more sustainable limits subject to a further authorisation, this will allow site-specific assessments of individual proposals that might come forward to ensure that any releasing is undertaken at levels that are compatible with conservation objectives and minimise the risk of significant predation of designated invertebrates in question. The limitations proposed above within the buffer zone will similarly reduce the risk of large number of birds feeding and foraging within sites designated for these particular features.

A general requirement to constrain vehicle movements to existing roads and tracks on all sites would also avert to a significant degree the risk of direct killing and injury to invertebrate species, such as the marsh fritillary and native reptiles that will use areas of bare ground for egg-laying, nesting, hunting and basking. It is unlikely that heavily and regularly disturbed roads, paths and tracks would be favoured supporting habitat for these features, and the likely increment in pedestrian and vehicle traffic that could be attributable to gamebird releasing is not likely to be at a scale that could plausibly be considered a threat of adverse effect.

The risk to reptiles/ terrestrial amphibians which may be designated features of these sites is considered to be generally low. In the spring and summer months, amphibians will be closely associated with breeding ponds, dispersing later in the year onto terrestrial habitat and refuges on or just under the ground-surface. These areas might extend across a site boundary into the buffer zone. Whilst it is therefore

possible that they could be crushed by people or vehicles acting within the scope of the GBGL, these mobile populations are likely to be widely dispersed across an area which makes it very unlikely that this activity would affect a significant proportion of them.

Recognising this, and as a precautionary measure, the following general stipulation is proposed;

- movement of all motorised vehicles used to transport gamebirds, materials and persons for the construction, maintenance and use of gamebird enclosures/ pens must be restricted to existing roads and tracks.

As stated above, the peer-reviewed evidence relating to the predation of amphibians and reptiles by gamebirds is weak, although there are credible anecdotal reports that this can occur. It has been recognised that there are no conclusive or large-scale studies demonstrating a clear impact of pheasants on the populations of reptiles and amphibians, and this has been noted as one evidence gap by recent evidence reviews (e.g. Mason et al, 2020). In the interim, the measures outlined above to control the density of birds released within and around sites will also help to reduce the risk of predation occurring at a level that could significantly affect designated populations of these animals.

Any significant adverse effect through killing and injury of these species by way of the proposed GBGL could therefore be ruled out.

#### **D4. Assessment of potentially adverse effects considering the project ‘in combination’ with other proposed plans and projects**

The need for further assessment of the risk of in-combination effects is considered here. These include any appreciable effects (from a plan or project) that are not themselves considered to be adverse alone which are further assessed to determine whether they could have a combined effect significant enough to result in an adverse effect on site integrity.

Natural England has taken into account the theoretical risk that the proposed licensed activity under the project could exert in-combination effects on European Sites. Taking into account the effect of the proposed mitigation measures listed above to avoid the risk of adverse effects on the integrity of sites, and the proposed duration of the GBGL, Natural England considers that there would be no appreciable residual effects likely to arise from these projects on individual sites which could have the potential to act in-combination with those from other proposed plans or projects so as to cause material effects on the European Sites in scope of this assessment.



**'Shadow' assessment of a plan or project under  
regulation 63 of the Conservation of Habitats and Species  
Regulations 2017 as amended  
(‘Habitats Regulations Assessment (HRA)’)**

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Specific consideration of the risks from in-combination effects would also take place during any assessment of individual Licence or SSSI consent applications for releasing where these were required.

Natural England advises that subject to the additional mitigation measures, it can therefore be excluded, on the basis of objective information, that the project can have an adverse effect on site integrity, in-combination with other proposed plans or projects.

## **D6. Conclusions on Site Integrity**

Because the project is not wholly directly connected with or necessary to the management of SACs or the non-bird features of Ramsar sites and is likely to have a significant effect on these, Natural England has carried out a ‘shadow’ appropriate assessment equivalent to that required by regulation 63 of the Habitats Regulations 2017.

**Natural England’s advice is that this shadow assessment can ascertain that this project (the proposed GBGL) will not have an adverse effect on the integrity of SACs and Ramsar site(s), either alone or in combination with other plans and projects, taking into account its limited duration and subject to the incorporation of the measures outlined above in section D3 as general restrictions and/or conditions to be attached to the project.**

**This conclusion must be read in conjunction with Part 1 of this shadow HRA.**

## **Further Advice**

In addition, to reinforce current best practice and ensure compliance with existing statutory requirements, Natural England would support Defra’s proposal to include the following as either a condition or recommendation (as considered appropriate to the scope of the final GBGL);

- Users must comply with the mandatory requirements to register released game birds on the APHA Poultry Register
- Users must comply with the ‘Code of Practice for the Welfare of Gamebirds Reared for Sporting Purposes’ in so far as it is relevant, and other provisions in the Animal Welfare Act 2006.
- Users must comply with the Environmental Protection (Restriction on Use of Lead Shot) (England) Regulations 1999 insofar as this applies to SACs, Ramsar sites and SPAs

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## Annex 1

### List of Qualifying Features for which SACs have been designated in England

#### ‘Habitat features’ group

##### Marine, coastal and halophytic habitats

- 1110 Sandbanks which are slightly covered by sea water all the time
- 1130 Estuaries
- 1140 Mudflats and sandflats not covered by seawater at low tide
- 1150 \* Coastal lagoons
- 1160 Large shallow inlets and bays
- 1170 Reefs
- 1180 Submarine structures made by leaking gases
- 1210 Annual vegetation of drift lines
- 1220 Perennial vegetation of stony banks
- 1230 Vegetated sea cliffs of the Atlantic and Baltic coasts
- 1310 *Salicornia* and other annuals colonising mud and sand
- 1320 *Spartina* swards (*Spartinion maritimae*)
- 1330 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)
- 1340 \* Inland salt meadows
- 1420 Mediterranean and thermo-Atlantic halophilous scrubs (*Sarcocornetea fruticosi*)

##### Coastal sand dunes and continental dunes

- 2110 Embryonic shifting dunes
- 2120 Shifting dunes along the shoreline with *Ammophila arenaria* (‘white dunes’)
- 2130 \* Fixed dunes with herbaceous vegetation (‘grey dunes’)
- 2140 \* Decalcified fixed dunes with *Empetrum nigrum*
- 2150 \* Atlantic decalcified fixed dunes (*Calluno-Ulicetea*)
- 2160 Dunes with *Hippophae rhamnoides*
- 2170 Dunes with *Salix repens* ssp. *argentea* (*Salicion arenariae*)
- 2190 Humid dune slacks
- 2330 Inland dunes with open *Corynephorus* and *Agrostis* grasslands

##### Freshwater habitats

- 3110 Oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflorae*)
- 3130 Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or of the *Isoëto-Nanojuncetea*
- 3140 Hard oligo-mesotrophic waters with benthic vegetation of *Chara* spp.
- 3150 Natural eutrophic lakes with *Magnopotamion* or *Hydrocharition*-type vegetation

- 3160 Natural dystrophic lakes and ponds
- 3170 \* Mediterranean temporary ponds
- 3260 Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitriche-Batrachion* vegetation

7

**Temperate heath and scrub**

- 4010 Northern Atlantic wet heaths with *Erica tetralix*
- 4020 \* Temperate Atlantic wet heaths with *Erica ciliaris* and *Erica tetralix*
- 4030 European dry heaths
- 4040 \* Dry Atlantic coastal heaths with *Erica vagans*
- 4060 Alpine and Boreal heaths
- 4080 Sub-Arctic *Salix* spp. scrub

6

**Sclerophyllous scrub (matorral)**

- 5110 Stable xerothermophilous formations with *Buxus sempervirens* on rock slopes (*Berberidion* p.p.)
- 5130 *Juniperus communis* formations on heaths or calcareous grasslands

**Natural and semi-natural grassland formations**

- 6130 Calaminarian grasslands of the *Violetalia calaminariae*
- 6150 Siliceous alpine and boreal grasslands
- 6210 Semi-natural dry grasslands and scrubland facies: on calcareous substrates (*Festuco-Brometalia*)
- 6211 \* Semi-natural dry grasslands and scrubland facies: on calcareous substrates (*Festuco-Brometalia*) (important orchid sites)
- 6230 \* Species-rich *Nardus* grassland, on siliceous substrates in mountain areas (and submountain areas in continental Europe)
- 6410 *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*)
- 6430 Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels
- 6510 Lowland hay meadows (*Alopecurus pratensis*, *Sanguisorba officinalis*)
- 6520 Mountain hay meadows

**Raised bogs and mires and fens**

- 7110 \* Active raised bogs
- 7120 Degraded raised bogs still capable of natural regeneration
- 7130 \* Blanket bogs
- 7140 Transition mires and quaking bogs
- 7150 Depressions on peat substrates of the *Rhynchosporion*
- 7210 \* Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae*
- 7220 \* Petrifying springs with tufa formation (*Cratoneurion*)

- 7230 Alkaline fens  
7240 \* Alpine pioneer formations of the *Caricion bicoloris-atrofuscae*

### **Rocky habitats and caves**

- 8110 Siliceous scree of the montane to snow levels (*Androsacetalia alpinae* and *Galeopsietalia ladanii*)  
8120 Calcareous and calcshist screes of the montane to alpine levels (*Thlaspietea rotundifolii*)  
8210 Calcareous rocky slopes with chasmophytic vegetation  
8220 Siliceous rocky slopes with chasmophytic vegetation  
8240 \* Limestone pavements  
8310 Caves not open to the public  
8330 Submerged or partially submerged sea caves

### **Forests**

- 9120 Atlantic acidophilous beech forests with *Ilex* and sometimes also *Taxus* in the shrublayer (*Quercion robori-petraeae* or *Ilici-Fagenion*)  
9130 *Asperulo-Fagetum* beech forests  
9160 Sub-Atlantic and medio-European oak or oak-hornbeam forests of the *Carpinion betuli*  
9180 \* *Tilio-Acerion* forests of slopes, screes and ravines  
9190 Old acidophilous oak woods with *Quercus robur* on sandy plains  
91A0 Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles  
91D0 \* Bog woodland  
91E0 \* Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incatanae*, *Salicion albae*)  
91J0 \* *Taxus baccata* woods of the British Isles

### **‘Invertebrate features’ group**

- 1013 Geyer`s whorl snail *Vertigo geyeri*  
1014 Narrow-mouthed whorl snail *Vertigo angustior*  
1015 Round-mouthed whorl snail *Vertigo genesii*  
1016 Desmoulin`s whorl snail *Vertigo moulinsiana*  
1029 Freshwater pearl mussel *Margaritifera margaritifera*  
4056 Ramshorn snail *Anisus vorticulus*  
1044 Southern damselfly *Coenagrion mercuriale*  
1065 Marsh fritillary butterfly *Euphydryas* (*Eurodryas*, *Hypodryas*) *aurinia*  
1079 Violet click beetle *Limoniscus violaceus*  
1083 Stag beetle *Lucanus cervus*  
1092 White-clawed (or Atlantic stream) crayfish *Austropotamobius pallipes*  
4035 Fisher's estuarine moth *Gortyna borelii lunata*

**‘Vertebrate features’**

<a href="#">1095</a>	Sea lamprey <i>Petromyzon marinus</i>
<a href="#">1096</a>	Brook lamprey <i>Lampetra planeri</i>
<a href="#">1099</a>	River lamprey <i>Lampetra fluviatilis</i>
<a href="#">1102</a>	Allis shad <i>Alosa alosa</i>
<a href="#">1103</a>	Twaite shad <i>Alosa fallax</i>
<a href="#">1106</a>	Atlantic salmon <i>Salmo salar</i>
<a href="#">1149</a>	Spined loach <i>Cobitis taenia</i>
<a href="#">1163</a>	Bullhead <i>Cottus gobio</i>
<a href="#">1166</a>	Great crested newt <i>Triturus cristatus</i>
<a href="#">1303</a>	Lesser horseshoe bat <i>Rhinolophus hipposideros</i>
<a href="#">1304</a>	Greater horseshoe bat <i>Rhinolophus ferrumequinum</i>
<a href="#">1308</a>	Barbastelle <i>Barbastella barbastellus</i>
<a href="#">1323</a>	Bechstein`s bat <i>Myotis bechsteinii</i>
<a href="#">1351</a>	Harbour porpoise <i>Phocoena phocoena</i>
<a href="#">1355</a>	Otter <i>Lutra lutra</i>
<a href="#">1364</a>	Grey seal <i>Halichoerus grypus</i>
<a href="#">1365</a>	Common seal <i>Phoca vitulina</i>

**‘Flora’ group**

<a href="#">1390</a>	Western rustwort <i>Marsipella profunda*</i>
<a href="#">1393</a>	Slender green feather-moss <i>Drepanocladus (Hamatocaulis) vernicosus</i>
<a href="#">1395</a>	Petalwort <i>Petalophyllum ralfsii</i>
<a href="#">1421</a>	Killarney fern <i>Trichomanes speciosum</i>
<a href="#">1441</a>	Shore dock <i>Rumex rupestris</i>
<a href="#">1528</a>	Marsh saxifrage <i>Saxifraga hirculus</i>
<a href="#">1614</a>	Creeping marshwort <i>Apium repens</i>
<a href="#">1654</a>	Early gentian <i>Gentianella anglica</i>
<a href="#">1831</a>	Floating water-plantain <i>Luronium natans</i>
<a href="#">1833</a>	Slender naiad <i>Najas flexilis</i>
<a href="#">1902</a>	Lady`s-slipper orchid <i>Cypripedium calceolus</i>
<a href="#">1903</a>	Fen orchid <i>Liparis loeselii</i>

[\*a priority SAC feature as identified in Annexes I and II of the EU Habitats Directive]

**(b) List of ‘vertebrate, invertebrate and habitat/flora features’ for which Ramsar sites have been specifically designated in England (not including bird features)**

Amphibian	Great crested newt
Amphibian	Natterjack toad
Assemblage - fish	Run of migratory fish
Assemblage - other	Wetland invertebrate assemblage
Assemblage - other	Assemblage of species associated with intertidal habitats
Assemblage - other	Native reptile assemblage
Assemblage - other	Wetland animal assemblage
Assemblage - plant	Wetland plant assemblage
Assemblage - plant	Wetland bryophyte assemblage
Assemblage - plant	Assemblage of Sphagnum mosses
Fish	Bass
Fish	River lamprey
Fish	Sea lamprey
Habitat	Mixed floodplain habitats
Habitat	Saltmarsh
Habitat	Floodplain alder woodland
Habitat	Floodplain fen
Habitat	Shingle
Habitat	Coastal lagoon
Habitat	Estuary
Habitat	Spring-fed calcareous basin mire
Habitat	Northern Atlantic wet heaths
Habitat	Southern Atlantic wet heaths
Habitat	Valley mires (and associated spring fed mires, bog pools, soakaways and transitions to swamp and saltmarsh)
Habitat	Fens and fen meadows (including Alkaline Fens, <i>Molinia</i> meadows, Calcareous Fens)
Habitat	Annual vegetation of sand, shingle and pebble shores
Habitat	Natural shingle wetlands
Habitat	Mesotrophic lake
Habitat	Coastal dunes
Habitat	Lowland raised mire
Habitat	Active blanket bog
Habitat	Reed-bed
Habitat	Alluvial flood meadow

**‘Shadow’ assessment of a plan or project under  
regulation 63 of the Conservation of Habitats and Species  
Regulations 2017 as amended  
(‘Habitats Regulations Assessment (HRA)’)**

Habitat	Staging area for migratory waders
Habitat	Marl lake with fen and mire
Habitat	Open water transition fen ('mere'), lowland raised bog ('moss') and associated habitats
Habitat	Mosaic of marine, freshwater, marshland and associated habitats
Habitat	Marshland coastal habitats
Habitat	Washland
Habitat	Saltmarsh (including transitions to peatland mires)
Habitat	Freshwater and brackish wetlands including reed-beds, marshes and wet grasslands, fen meadows, ditches, calcareous fens with <i>Cladium mariscus</i> )
Habitat	Lowland base-rich valley mire
Habitat	Open water transition fen ('mere')
Habitat	Mixed lowland valley mire
Habitat	Estuary with immense tidal range
Habitat	Sheltered channel between island/mainland
Habitat	Staging area for passage waders
Habitat	Valley mires and wet heaths
Habitat	Fen
Mammal	Water vole
Mammal	Grey seal
Mammal	Common seal
Other	Unusual estuarine communities
Plant	Cambridge milk parsley
Plant	Greater water-parsnip
Plant	Warne's thread-moss
Plant	Slender naiad
Plant	Whorled water-milfoil
Species - invertebrate	Medicinal leech
Species - invertebrate	Ground beetle
Species - invertebrate	Marsh-mallow moth
Species - invertebrate	De Folin's lagoon snail
Species - invertebrate	Spider <i>Eboria caliginosa</i>
Species - invertebrate	Water boatman <i>Micronecta minutissima</i>
Species - invertebrate	Fen raft spider
Species - invertebrate	Narrow-mouthed whorl snail