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Reptile Mitigation Strategy

Site Name

Pilgrim's Rest, Rudgwick

Client

Mr David King-Fisher

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About the Author

This report has been prepared by Rebecca Carter-Whitehead, a Senior Consultant Ecologist at The Ecology Co-Op, with seven years' industry experience. She holds Dormouse and Great Crested Newt Level 1 survey licenses, and Bat Levels 3 and 4 survey licences. Rebecca has experience in a range of projects that require ecological input at various stages, from individual residential dwelling extensions to large-scale infrastructure projects with overriding public interest.

About the Reviewer

This report has been reviewed by Paul Whitby, who is a Principal ecologist with 19 years experience. He has experience in ecological impact assessment and the production of detailed mitigation for a range of developments. As a full member of the Chartered Institute for Ecology and Environmental Management (CIEEM), he is bound by their code of professional conduct.

Report Summary

Purpose	The Ecology Co-operation was commissioned by Mr David King-Fisher to provide a Reptile Mitigation Strategy with regards to a proposed development at Pilgrim's Rest, Rudgwick. This document outlines site-wide mitigation for reptiles present on site. It also includes management objectives, responsibilities and maintenance schedules including remedial responsibilities, should they be necessary. It will be submitted to Horsham District Council in order to discharge Condition 4 of the approved planning application DC/24/1715. The proposed development comprises the demolition of the current dwelling and a replacement residential property built in its place.
Context	A Preliminary Ecological Appraisal of the site was undertaken in May 2024 by AEWC. The following Phase 2 surveys indicated habitats suitable for reptiles. During these surveys, 21 slow worms and 1 grass snake were found across the eight visits to the site.
Protected species impact avoidance	Section 3 of this report outlines measures to prevent harm to protected species during the construction works. This includes the following: • Purpose and conservation objectives for the proposed works; • Review of site potential and constraints; • Detailed design(s) and/or working method(s) to achieve stated objectives; • Extent and location/area of proposed works on appropriate scale maps and plans; • Type and source of materials to be used where appropriate; • Timetable for implementation demonstrating that works are aligned with the proposed phasing of development; • Persons responsible for implementing the works; • Details of initial aftercare and long-term maintenance of the Receptor area; • Details for monitoring and remedial measures; and • Details for disposal of any wastes arising from works.
Toolbox talk	Site staff must be briefed, prior to the commencement of the works, on the ecological issues related to the project and the importance of contacting an ecologist in the event that any wildlife is identified within the construction zone.

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1 INTRODUCTION

1.1 Purpose of the Report

The Ecology Co-operation was commissioned by Mr David King-Fisher to produce a Reptile Mitigation Strategy for a proposed demolition and construction of a replacement dwelling at Pilgrim's Rest, Rudgwick. This document outlines site-wide mitigation for reptiles. It will be submitted to Horsham District Council to demonstrate compliance with condition 4 of the approved planning application DC/24/1715, which states:

*"4 **Pre-commencement Condition:** No development shall take place until a Reptile Mitigation Strategy addressing the mitigation measures for Slow Worm and Grass Snake has been submitted to and approved in writing by the local planning authority.*

The Reptile Mitigation Strategy shall include the following.
a)Purpose and conservation objectives for the proposed works.
b)Review of site potential and constraints.
c)Detailed design(s) and/or working method(s) to achieve stated objectives.
d)Extent and location/area of proposed works on appropriate scale maps and plans.
e)Type and source of materials to be used where appropriate, e.g. native species of local provenance.
f)Timetable for implementation demonstrating that works are aligned with the proposed phasing of development.
g)Persons responsible for implementing the works.
h)Details of initial aftercare and long-term maintenance of the Receptor area(s).
i)Details for monitoring and remedial measures.
j)Details for disposal of any wastes arising from works.

The Reptile Mitigation Strategy shall be implemented in accordance with the approved details and all features shall be retained in that manner thereafter.

Reason: To conserve protected species and allow the LPA to discharge its duties under the Conservation of Habitats and Species Regulations 2017 (as amended), the Wildlife & Countryside Act 1981 (as amended) and s17 Crime & Disorder Act 1998."

The prescribed mitigation measures described within this document will be issued to relevant works contractors to ensure that they are carried out in full. Implementation of this will be overseen by a suitable ecological consultancy, and the works contractor will be given contact details for an ecologist so that any issues can be resolved promptly.

1.2 Background

The site is located at Pilgrims Rest, Church Street, Cox Green, Rudgwick, West Sussex, RH12 3DE at central grid reference TQ093346. The location of the site is shown in Figure 1.

The site comprises a residential property set within a vegetated garden, with the south-eastern section of the garden including an number of trees.

The proposed project comprises demolition of the existing dwelling followed by the construction of a replacement dwelling together with alterations and associated hard and soft landscaping works (see Figure 2).



Figure 1. An aerial image showing the location of the application site. The approximate boundary of the site is outlined in red. Images produced courtesy of Google maps (map data ©2025 Google).

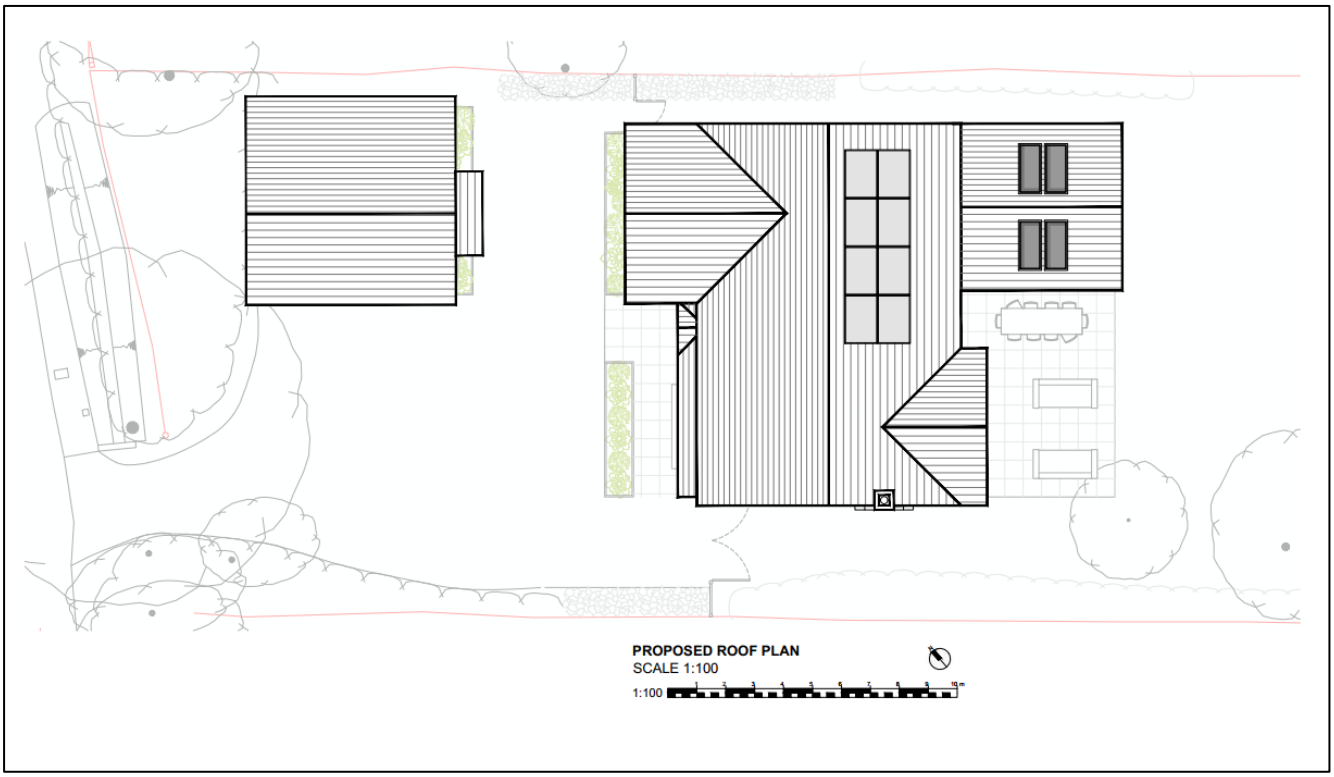


Figure 2. Proposed plans for the development at Pilgrim's Rest. Provided courtesy of PWJ Architects, drawing no. 2072 2110 Rev B, produced October 2024.

1.3 Summary of Previous Survey Work

A Preliminary Ecological Appraisal with UKHab[1], completed by AEWC in May 2024, identified the potential for reptiles within the garden, and bats present within the house.

Phase 2 surveys identified the presence of slow worm *Anguis fragilis* and grass snake *Natrix natrix*.

2 LEGAL PROTECTION

Legal protection applying to relevant bird, mammal and herpetofauna species is detailed in Appendix 1 of this report. This includes both national and European legislation that protects badgers, bats, dormice, reptiles, and breeding birds.

3 REPTILE MITIGATION IMPACT AVOIDANCE

3.1 Purpose and conservation objectives for the proposed works

The proposed works on site are to facilitate the demolition of the current residential dwelling, and the construction of a new property. However, the majority of the site will remain unaffected and under the same management, and so the site will remain suitable for reptiles. As such, the aim for this document is to ensure:

- The protection of reptiles from potential damage while the site is being developed, through the use of reptile exclusion fencing and the careful translocation of individuals out of the works area to the onsite receptor area; and
- There is no net loss of local reptile conservation status, by providing sufficient quality, quantity, and connectivity of habitat to accommodate the reptile population on site in the long term.

Post-construction, the south-eastern half of the site will be enhanced for reptiles, including:

- The construction of a purpose-built herptile hibernaculum. This will ensure the carrying capacity for the habitat remains high, despite some land-take required for the construction of the new house and garage; and
- Thinning of the dense scrub at the south-eastern end of the site to create more suitable basking areas for reptiles.

3.2 Review of site potential and constraints

The site contains vegetated garden with multiple trees, though retaining open areas for reptiles to bask, and natural refugia in the form of multiple log piles across the site for shelter. The south-eastern end of the garden contains dense scrub. The site has excellent habitat present for reptiles, which resulted in a total of 21 slow worms

[1] AEWC Ltd (2024). Reptile Survey Report: Pilgrim's Rest, Church Street, Rudgwick, West Sussex, RH12 3DE

and 1 grass snake being identified across the eight survey visits throughout 2024.

The dense end of the site is overgrown and contains less opportunity for reptiles, which is reflected in the results being more concentrated in the north-western half of the site. While the habitats on site remain suitable for reptiles, the better half of the site will become an active works area during the development, and as such mitigation for reptiles must be implemented.

3.3 Detailed design(s) and/or working method(s) to achieve stated objectives

1. Method Statement and Toolbox Talk

Prior to commencement of any work on site, this Method Statement will be issued to the Ecological Clerk of Works (ECoW) attending the site. All habitat clearance work will at all times be overseen by an ECoW.

Prior to commencement of habitat clearance works, the ECoW will provide a 'Toolbox Talk' to confirm the process that the habitat clearance will follow, and they will ensure that it is understood that work must ONLY proceed under their guidance. This document will be made available to all works contractors to ensure the method is understood.

2. Habitat Manipulation - Hand Search and Two-Phase Strim

1. Any suitable habitat to be impacted by the works will first be thoroughly hand searched by the ECoW, in order to look for any reptiles. The ECoW will use markers as necessary to define what areas of habitat have been searched and what areas must remain untouched. Areas must not be cleared until it has been agreed with the ECoW.
2. Once the ecologist is confident that no reptiles are present within the vegetation surrounding the house, it will subsequently be strimmed through a two-phase process to reduce the suitability for reptiles. The two-phase strim involves cutting any vegetation present to 15cm above ground level to reduce cover; allowing for increased visibility of the ground without harming any reptiles. The vegetation will be searched again by the ecologist and raked to remove cuttings before a second strim of the area, where the vegetation is taken as low as possible to render it unsuitable for reptiles. Both passes will start from the centre of the areas to be impacted outwards into any retained vegetation so that there is a natural migration of wildlife from the areas being cut, towards safe refuges. Additionally, any areas of manmade or artificial refugia (to be identified by the ecologist on site) are to be cleared by hand to ensure no trapping or crushing of animals.
3. Once habitat manipulation has been carried out the vegetation must be kept below 5cm to prevent suitable reptile habitat re-establishing while the works are underway.
4. Reptile exclusion fencing will then be installed immediately to ensure reptiles do not re-enter the works area.
5. If any reptiles are found during these supervised works, all activity will cease immediately, and the reptile moved safety to a bucket filled with grass. They will then be moved to the agreed receptor site.

3. Site Housekeeping

Construction materials should be stored within the construction zone or on hard standing and must not be placed outside the works area demarked by reptile exclusion fencing, where they may provide suitable habitat for reptiles.

The tracking of vehicles must stay within the construction zone and hard landscaping areas, avoiding habitats which are being retained.

Should any excavations be present on the site at any time, these must be covered to prevent reptiles from falling in.

3.4 Extent and location/area of proposed works on appropriate scale maps and plans

The plan below in Figure 1 shows the proposed works area shaded in blue, and the reptile receptor area shaded in green. These will be separated by reptile exclusion fencing.

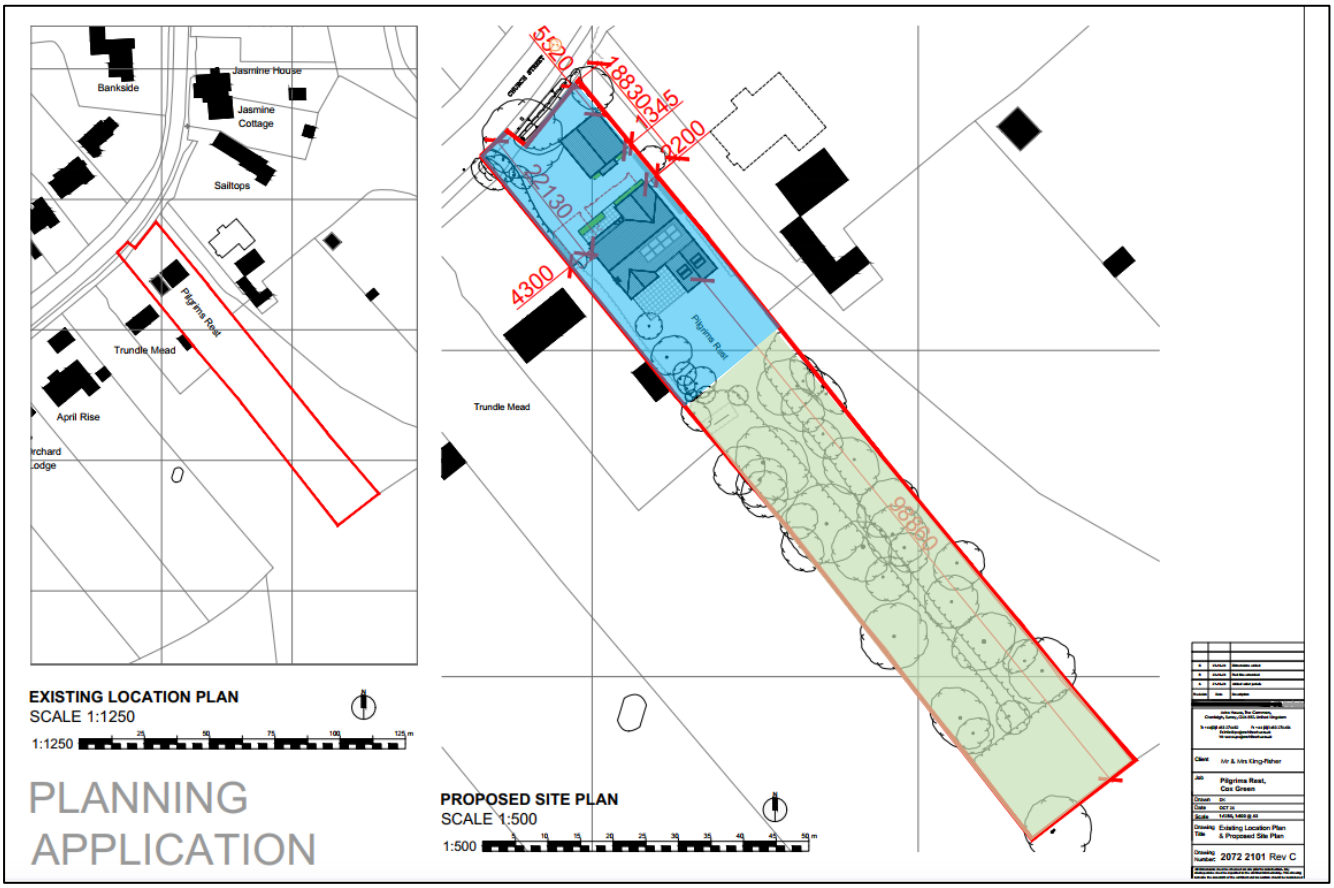


Figure 1. Illustration on how to build a reptile hibernaculum. Image taken from the 'Reptile Habitat Management Guidelines'

3.5 Type and source of materials to be used where appropriate

The site contains native species suitable for a reptile receptor site. No extra planting is to enhance the site is required in this instance.

3.6 Timetable for implementation demonstrating that works are aligned with the proposed phasing of development

The work must be undertaken between the months of March to October (daytime temperatures must be consistently above 10ºC), when reptiles are active and able to move safety.

Table 1 below provides the timetable to for management of the site. All construction dates are indicative, and should any delays occur the following activities in the timetable will also be amended to ensure the activities occur at a suitable time (e.g. reptile exclusion fencing will not be removed until all construction is complete).

Table 1. Annual work schedule for the management period.

Action	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Year 1												
Habitat manipulation and fence installation	X											
Checking of fences by the Biodiversity Champion	X	X	X	X	X	X	X					X
Site check by the ECoW	X											
Installation of the reptile hibernaculum within the receptor area							X					
House demolition following reptile translocation	X	X	X	X	X	X	X	X	X	X	X	X
Year 2												
Checking of fences by the Biodiversity Champion	X	X	X	X	X	X	X					X
Site check by the ECoW (if required)	X											
Construction of new house	X	X	X	X	X	X	X	X	X	X	X	X
Year 3												
Removal of reptile fencing after construction is completed	X	X	X	X	X	X	X	X	X	X	X	X

Action	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Site walkover by suitably qualified ecologist						X						
Year 4												
Monitoring surveys of the receptor area		X	X	X	X	X						

3.7 Persons responsible for implementing the works

The Ecology Co-Op has been instructed to oversee these works, which will be completed by a suitably qualified ecologist.

A Biodiversity Champion among the main work team will be nominated, who must ensure the reptile exclusion fencing is checked at least once a week. Should any repairs or maintenance of the fence be required, the Biodiversity Champion will be responsible for ensuring this is done as soon as possible to ensure the works area remains free of reptiles.

All contractors should have a copy of this report, including the proposed locations map, when implementing works relating to the biodiversity enhancement measures. A site inspection should also be undertaken by a suitably qualified ecologist post-construction, to ensure compliance with this report and that all enhancement measures are correctly implemented.

3.8 Details of initial aftercare and long-term maintenance of the Receptor area

The south-east end of the site is to be retained as grassland and should be enhanced for reptiles and amphibians. A herptile hibernaculum will be created; these structures can be built using logs, piled on top of each other within a stripped area of turf approximately 50cm deep with earth. Soil material, grass cuttings, brash and leaf litter or other suitable natural material should be laid over the top to provide insulation and retain moisture, as shown in Figure 2. These features would also provide benefits for other species including solitary bees, wasps and saproxylic insects. The hibernaculum will be maintenance-free once installed.

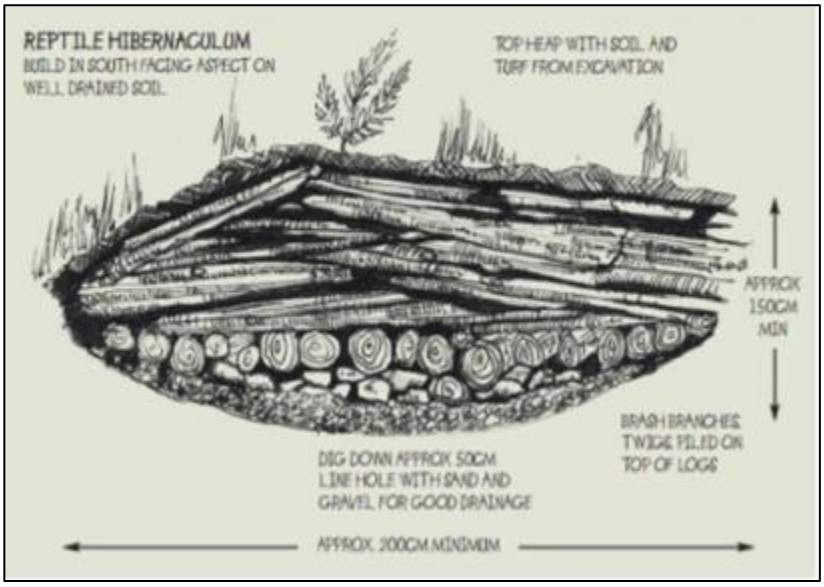


Figure 2. Illustration on how to build a reptile hibernaculum. Image taken from the 'Reptile Habitat Management Guidelines' by Herefordshire Amphibian and Reptile Team and the Herefordshire Nature Trust.

The vegetated garden should be mown regularly, to ensure the grass does not become too overgrown and therefore reduce suitable basking areas for reptiles. A twice-yearly cut, once in March and another in September will ensure this habitat remains in favourable condition and care must be taken to ensure a cutting height no lower than 80mm where possible and a slow-moving mower that gives reptiles the time and opportunity to move out of the way.

The scrub towards the south-eastern end of the site should be thinned by approximately 30%, to further open the site up and create more basking areas for reptiles. Any trees or brash removed for this can be retained on site, and hibernacula already present can be added to with these natural and local materials. Thinning activities can be carried out in September to October before colder weather encourages reptiles to hibernate. The scrub should also be maintained, with a yearly check to reduce scrub encroachment.

3.9 Details for monitoring and remedial measures

After the construction of the house has begun, a check of the site will be completed by a suitably qualified ecologist. This is to ensure the reptile exclusion fencing is still in situ, and site rules are being followed (e.g. construction activities remaining confined to the construction zone).

One year post completion of the new house, a walkover of the site will be completed by a suitably qualified ecologist. This will be to inspect the site for the proposed management of the garden as detailed above in Section 3.8.

Two years post completion of the new house, a suite of reptile monitoring visits will be conducted on the site, to monitor the population and to see if similar numbers are still present. This will be followed by a closing out report containing the findings, which will be submitted to the Local Planning Authority.

If numbers of reptiles on site are not similar to or greater than the surveys carried out in 2024, then management

of the site will be readdressed. Suggested improvements could include (but are not restricted to):

- Further thinning of the scrub;
- Creation of an earth bund; and
- Creation of more hibernacula.

3.10 Details for disposal of any wastes arising from works

All cut vegetation must be removed from site by the end of the day. This can either be chipped or stacked outside of the works area in a location identified in advance by the ECoW or removed from site completely.

Cut vegetation can be placed within the receptor site on top of existing log piles, as this will further enhance the hibernacula present.

4 CONCLUSION

The measures set out in this document will ensure that the development at Pilgrim's Rest will not result in net loss of local reptile conservation status, by providing sufficient quality, quantity, and connectivity of habitat to accommodate the reptile population on site in the long term.

Should you need any further advice on the information provided above, please do not hesitate to contact The Ecology Co-op.

APPENDIX 1 - Wildlife Legislation and National Planning Policy

Introduction

The following text is intended for general guidance only and does not constitute comprehensive professional legal advice. It provides a summary of the current legal protection afforded to wildlife in general and certain species. It includes current national planning policy relevant to nature conservation.

The 'Birds Directive', 'Habitats Directive' and 'Natura 2000 Sites'

The Council Directive 79/409/EEC on the Conservation of Wild Birds ("the Birds Directive") sets a framework for the protection of wild birds. Under the Directive, several provisions are made including the designation and protection of 'Special Protection Areas' (SPAs) – areas which support important bird populations, and the legal protection of rare or vulnerable species.

The Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (the "Habitats Directive") directs member states of the EU to take measures to maintain the favourable conservation status of important habitats and species. This requires the designation of a series of sites which contain important populations of species listed on Annex II of the Directive (for example Bechstein's bat *Myotis bechsteinii*, Barbastelle bat *Barbastella barbastellus* and white-clawed crayfish *Austropotamobius pallipes*. Together with 'Special Areas of Conservation' (SACs), SPAs form a network across Europe of protected areas known as the 'Natura 2000 sites'.

Annex IV lists species in need of more strict protection, these are known as "European Protected Species (EPS)". All bat species, common dormice *Muscardinus avellana*, otter *Lutra lutra* and great crested newts *Triturus cristatus* are examples of EPS that are regularly encountered during development projects.

The 'Habitats Regulations'

The Conservation of Habitats and Species Regulations 2017, as amended (the "Habitats Regulations") is the principle means of transposing the Habitats Directive and the Birds Directive, and updates the Conservation (Natural Habitats, &c.) Regulations 1994 ("the 1994 regulations") in England and Wales.

'Natura 2000' sites, now known as National Site Network sites under the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, receive the highest level of protection under the Regulations which requires that any activity within the zone of influence of these sites would be subject to a Habitats Regulations Assessment (HRA) by the competent authority (e.g. planning authority), leading to an Appropriate Assessment (AA) in cases where 'likely significant effects' to the conservation oibjectives are identified.

For European Protected Species, Regulation 41 makes it a criminal offence to:

- deliberately capture, injure or kill any such animal;
- deliberately disturb wild animals of such species;
- deliberately take or destroy their eggs (where relevant);
- damage or destroy a *breeding or resting place* of such an animal;
- possess, control, sell or exchange any live or dead animal or plant, of such species;
- deliberately pick, collect, cut, uproot or destroy a wild plant of such species.

The Habitats Directive and Habitats Regulations provide for the derogation from these prohibitions for specific

reasons provided certain conditions are met. An EPS licensing regime allows operations that would otherwise be unlawful acts to be carried out lawfully. Natural England is the licensing Authority and, in order to grant a license, ensures that three statutory conditions (sometimes referred to as the 'three derogation tests') are met:

- a licence can be granted for the purposes of "preserving public health or safety or for other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment" (Regulation 53 (2) (e);
- a licence can be granted if "there are no satisfactory alternatives" to the proposed action;
- a licence shall not be granted unless the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.

Wildlife and Countryside Act (1981) as amended

This remains one of the most important pieces of wildlife legislation in the UK. There are various schedules to the Act protecting birds (Schedule 1), other animals including insects (Schedule 5), plants (Schedule 8), and control of invasive non-native species (Schedule 9).

Under the Wildlife and Countryside Act (WCA) 1981, all wild birds (with the exception of those listed on Schedule 2), their eggs and nests are protected by law and it is an offence to:

- take, damage or destroy the nest of any wild bird while it is in use or being built
- take or destroy the egg of any wild bird
- disturb any bird listed on Schedule 1, while it is nest building, or at a nest with eggs or young, or disturb the dependant young of any such bird.

Schedule 5 lists all non-avian animals receiving protection to a varied degree. At its strongest, the Act makes it an offence to intentionally kill, injure or take any wild animal listed on Schedule 5, and prohibits interference with places used for shelter or protection, or intentionally disturb animals while occupying such places. Examples of species with *full protection* include all EPS, common reptile species, water vole *Arvicola amphibius*, white-clawed crayfish *Austropotamobius pallipes* and Roman snail *Helix pomatia*. Other species are protected from sale, barter or exchange only, such as white letter hairstreak *Satyrium w-album*.

The Act makes it an offence to intentionally pick, uproot or destroy any plant or seed, and sell or possess any plant listed on Schedule 8. It is also an offence to intentionally uproot any wild plant not listed on Schedule 8 unless authorised [by the land owner]. Species on Schedules 5 and 8 are reviewed every 5 years when species can be added or removed.

Measures for the prevention of spreading non-native species which may be detrimental to native wildlife is included in the Act, which prohibits the release of animals or planting of plants into the wild of species listed on Schedule 9 (for example Japanese knotweed *Fallopia japonica*, Himalayan balsam *Impatiens glandifera*, New Zealand Pygmyweed *Crassula helmsii*).

The Wildlife and Countryside Act 1981 (as amended) also prohibits certain inhumane methods of traps and devices for the capture or killing of wild animals and certain additional methods such as fixed trap, poisoning with gas or smoke, or spot-lighting with vehicles for killing species listed on Schedule 6 of the Act (this includes all bat species, badger, otter, polecat, dormice, hedgehog and red squirrel).

Natural Environment and Rural Communities (NERC) Act (2006)
The NERC Act (2006) created the statutory nature conservation body Natural England, and places a statutory

duty on all public bodies, including planning authorities, under Section 40, to take, or promote the taking by others, steps to further the conservation of habitats and species of principal importance for the conservation of biodiversity in England (commonly referred to as the 'Biodiversity Duty'). This duty extends to all public bodies the biodiversity duty of Section 74 of the Countryside and Rights of Way (CROW) Act 2000, which placed a duty only on Government and Ministers. Section 41 of the NERC Act lists the habitats and species of principle importance. This includes a wide range of species from mosses, vascular plants, invertebrates through to mammals and birds. It originates from the priority species listed under the UK Biodiversity Action Plan (UK BAP) with some omissions and additions.

Environment Act (2021)

The Environment Act sets a target of halting the decline in species through the inclusion of a legally binding 2030 species abundance target. Aiming to restore natural habitats and enhance biodiversity, the Act requires new developments to improve or create habitats for nature (through mechanisms such as mandatory Biodiversity Net Gain), and tackle deforestation. Going forwards, UK businesses will need to look closely at their supply chains as amongst other measures they will be prohibited from using commodities associated with wide-scale deforestation. Woodland protection measures are also strengthened through the Act.

The Act enables the reform of the Habitats Regulations and further improves protection for nature through the establishment of Local Nature Recovery Strategies that support national Nature Recovery Networks. In addition, the Act provides for the production of Protected Site Strategies and Species Conservation Strategies, aimed at supporting the design and delivery of strategic approaches to deliver better outcomes for nature.

Protection of Badgers Act (1992)

The Badger Meles meles is afforded specific legal protection in Britain under the Protection of Badgers Act (1992), and Schedule 6 of the Wildlife and Countryside Act 1981 (as amended) (see above).

Under this legislation, it is a criminal offence to:

- intentionally kill, injure, take, possess, or cruelly ill-treat, a Badger, or to attempt to do so;
- interfere with a sett, by damaging or destroying it;
- to obstruct access to, or any entrance of, a badger sett; or
- to disturb a badger when it is occupying a sett.

A licence may be obtained from Natural England to permit certain prohibited actions for a number of defined reasons including interference of a sett for the purpose of development, provided that a certain number of conditions are met. Note that licenses are not normally granted for works affecting badgers between the end of November and the start of July.

National Planning Policy Framework

The National Planning Policy Framework (NPPF 2023)[2] sets out the Government's view on how planners Must balance nature conservation with development and helps ensure that Government meets its biodiversity commitments with regard to the operation of the planning system,

Paragraph 179b, which states that council policies should "*promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and*

[2] HM Government (2023). National Planning Policy Framework. Department for Communities and Local Government. Available online at: https://assets.publishing.service.gov.uk/media/64f991c99ee0f2000fb7c001/NPPF_Sept_23.pdf.

identify and pursue opportunities for securing measurable net gains for biodiversity."

The Office of the Deputy Prime Minister (ODPM) Circular 06/2005, 2005)[3]. In accordance with the NPPF, it is important that developments should contribute to and enhance the natural and local environment by:

- minimising impacts on existing biodiversity and habitats;
- providing net gains in biodiversity and habitats, wherever possible;
- establishing coherent ecological networks that are more resilient to current and future pressures.

UK Post-2010 Biodiversity Framework

The UK Biodiversity Action Plan (UK BAP), first published in 1994, was the UK's response to the commitments of the Rio Convention on Biological Diversity (1992) until 2010, when the UK BAP was replaced by the UK Post-2010 Biodiversity Framework. This framework covers the period 2011 to 2020 and forms the UK government's response to the new strategic plan of the United Nations Convention on Biodiversity (CBD) published in 2010. This promotes a focus on individual countries delivering target for protection for biodiversity through their own strategies.

The most recent biodiversity strategy for England, 'Biodiversity 2020: A strategy for England's wildlife and ecosystem services' was published by Defra (2011), and a progress update was provided in July 2013 (Defra 2013).

'Biodiversity 2020' builds on the Natural Environment White Paper for England – 'The Natural Choice', published on 7 June 2011, and sets out the strategic direction for biodiversity policy for the next decade.

Biodiversity 2020 deliberately avoids setting specific targets and actions for local areas and species because the Government believes that local people and organisations are best placed to decide how to implement the strategy in the most appropriate way for their local area or situation.

Birds of Conservation Concern (BoCC)

In 1996, the UK's leading non-governmental bird conservation organisations listed the conservation status of all bird species in the UK against a series of criteria relating to their population size, trends and relative importance to global conservation. The lists, known as the 'Red', 'Amber' and 'Green' lists (in order of decreasing concern) are used to inform key conservation policy and decisions. The lists are reviewed every five years and are a useful reference for determining the current importance of a particular site for birds. The most recent review was undertaken in 2021 (Stanbury et al, 2021), which provides an up to date assessment of the conservation status of birds in the UK.

References

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APPENDIX 2 – Reducing Impacts of Artificial Light

Bright external lighting can have a detrimental impact upon foraging and commuting bat flight paths, but more importantly can also cause bats to remain in their roosts for longer. Artificial lighting can also cause significant impacts to other nocturnal species, most notably moths and other nocturnal insects. It can also result in disruption of the circadian rhythms of birds, reducing their fitness.

Guidelines issued by the Bat Conservation Trust[4] should be referred to when designing the lighting scheme. Note that lighting designs in very sensitive areas should be created with consultation from an ecologist and using up-to-date bat activity data where possible. The guidance contains techniques that can be used on all sites, whether a small domestic project or larger mixed-use, commercial or infrastructure development. This includes the following measures:

Avoid lighting key habitats and features altogether

There is no legal duty requiring any place to be lit. British Standards and other policy documents allow for deviation from their own guidance where there are significant ecological/environmental reasons for doing so. It is acknowledged that in certain situations lighting is critical in maintaining safety, such as some industrial sites with 24-hour operation; however, in the public realm, while lighting can increase the perception of safety and security, measurable benefits can be subjective. Consequently, lighting design should be flexible and be able to fully consider the presence of protected species.

Apply mitigation methods to reduce lighting to agreed limits in other sensitive locations – lighting design considerations

Where bat habitats and features are considered to be of lower importance or sensitivity to illumination, the need to provide lighting may outweigh the needs of bats. Consequently, a balance between a reduced lighting level appropriate to the ecological importance of each feature and species, and the lighting objectives for that area will need to be achieved. The following are techniques which have been successfully used on projects and are often used in combination for best results:

- dark buffers, illuminance limits and zonation;
- sensitive site configuration, whereby the location, orientation and height of newly built structures and hard standing can have a considerable impact on light spill;
- consideration of the design of the light and fittings, whereby the spread of light is minimised ensuring that only the task area is lit. Flat cut-off lanterns or accessories should be used to shield or direct light to where it is required. Consideration should be given to the height of lighting columns. It should be noted that a lower mounting height is not always better. A lower mounting height can create more light-spill or require more columns. Column height should be carefully considered to balance task and mitigation measures. Consider no lighting solutions where possible such as white lining, good signage, and LED cats eyes. For example, light only high-risk stretches of roads, such as crossings and junctions, allowing headlights to provide any necessary illumination at other times;
- screening, whereby light spill can be successfully screened through soft landscaping and the installation of walls, fences and bunding;

[4] Bat Conservation Trust and Institute for Lighting Professionals (2018) Guidance note 8. Bats and Artificial Lighting. https://www.theilp.org.uk/documents/guidance-note-8-bats-and-artificial-lighting/

- glazing treatments, whereby glazing should be restricted or redesigned wherever the ecologist and lighting professional determine there is a likely significant effect upon key bat habitat and features;
- creation of alternative valuable bat habitat on site, whereby additional or alternative bat flightpaths, commuting habitat or foraging habitat could result in appropriate compensation for any such habitat being lost to the development;
- dimming and part-night lighting. Depending on the pattern of bat activity across the key features identified on site it may be appropriate for an element of on-site lighting to be controlled either diurnally, seasonally or according to human activity. A control management system can be used to dim (typically to 25% or less) or turn off groups of lights when not in use.

Demonstrate compliance with illuminance limits and buffers

- *Design and pre-planning phase*; it may be necessary to demonstrate that the proposed lighting will comply with any agreed light-limitation or screening measures set as a result of your ecologist's recommendations and evaluation. This is especially likely to be requested if planning permission is required.
- *Baseline and post-completion light monitoring surveys*; baseline, pre-development lighting surveys may be useful where existing on or off-site lighting is suspected to be acting on key habitats and features and so may prevent the agreed or modelled illuminance limits being achieved.
- *Post-construction/operational phase compliance-checking;* as a condition of planning, post-completion lighting surveys by a suitably qualified person should be undertaken and a report produced for the local planning authority to confirm compliance. Any form of non-compliance must be clearly reported, and remedial measures outlined. Ongoing monitoring may be necessary, especially for systems with automated lighting/dimming or physical screening solutions.

Lighting Fixture Specifications

The Bat Conservation Trust recommends the following specifications for lighting on developments to prevent disturbance:

- Lighting spectra: peak wavelength >550nm
- Colour temperature: <2700K (warm)
- Reduction in light intensity
- Minimal UV emitted
- Upward light ratio of 0% and good optical control

Further reading:

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